

Better Homes and Gardens®

WOOD®

THE #1 MAGAZINE FOR HOME WOODWORKERS

DECEMBER 1990 • ISSUE NO. 39
Display until December 18

SANDING SHORTCUTS
Take the hassle out
of wood preparation

SHAPERS
What to know
before you buy

VENTILATION
Ways to combat
harmful vapors

TERRIFIC GIFTS
Building-block castle
Business-card box
Cassette rack
Jewelry case
Cutting board
Santa carving



**LOADS-OF-FUN
CHILD'S SLEIGH**

Page 48



U.S. \$3.95



IMPORTS, INC.

VISA



Why Grizzly?

We import and sell direct! Buy your equipment directly from the *Leader of Woodworking Machinery Importers*. We won't give you a run-around and if we have what you want, you can be guaranteed that you will receive excellent quality at the lowest price.

Check us out:

- Honest, across-the-board dealings.
- Tested, quality motors and switches on all machinery.
- Constant monitoring of quality, both overseas and locally.
- Huge stock of merchandise at our two large warehouses.
- Same day shipping on 95% of the orders.
- Large quantities imported directly from the factories and sold directly to the end users.
- Large inventory of parts at both locations.
- Highly skilled service technicians plus an in-house motor rewinding shop shows our dedication to after-service.
- And last, but not least, courteous operators who always treat you with the respect you deserve, making shopping at Grizzly a pleasure!

If you have bought from us before, you will recognize the above points, but if you haven't tried us, then we're all losing out. Our past customers make our best references.

Call now for our free catalog!

West of the Mississippi:

1-800-541-5537

(orders & catalog requests)

206-647-0801

(Inquiries or customer service)

East of the Mississippi:

1-800-523-4777

(orders & catalog requests)

717-326-3806

(Inquiries or customer service)



12" PLANER
MODEL G1017
ONLY \$375⁰⁰

F.O.B. Bellingham, WA or Williamsport, PA



6" x 47" HEAVY DUTY JOINTER
MODEL G1182
REG. \$375⁰⁰
SALE PRICE \$345⁰⁰

F.O.B. Bellingham, WA or Williamsport, PA



8" x 65" SUPER HEAVY DUTY JOINTER
MODEL G1018
ONLY \$695⁰⁰

F.O.B. Bellingham, WA or Williamsport, PA



16" BAND SAW
MODEL G1538
ONLY \$525⁰⁰

F.O.B. Bellingham, WA or Williamsport, PA



15" PLANER
MODEL G1021
ONLY \$735⁰⁰

F.O.B. Bellingham, WA or Williamsport, PA



20" PLANER
MODEL G1033
ONLY \$1,295⁰⁰

F.O.B. Bellingham, WA or Williamsport, PA



6" x 48" COMBINATION SANDER
MODEL G1014
ONLY \$195⁰⁰

F.O.B. Bellingham, WA or Williamsport, PA



1 1/2 H.P. SHAPER
MODEL G1035
ONLY \$495⁰⁰

F.O.B. Bellingham, WA or Williamsport, PA



3 H.P. SHAPER
MODEL G1026
ONLY \$850⁰⁰

F.O.B. Bellingham, WA or Williamsport, PA



2 H.P. DUST COLLECTOR
MODEL G1029
ONLY \$295⁰⁰

F.O.B. Bellingham, WA or Williamsport, PA



SUPER HEAVY DUTY TABLE SAW
MODEL G1023
ONLY \$895⁰⁰

F.O.B. Bellingham, WA or Williamsport, PA



10" HEAVY DUTY TABLE SAW
MODEL G1022
REG. \$365⁰⁰
SALE PRICE \$355⁰⁰

F.O.B. Bellingham, WA or Williamsport, PA

Test Our Bits & Cutters

At no obligation with our no-risk 30 day trial

Order the tool you want to try out. If it is not exactly to your satisfaction, send it back and we will replace it or immediately refund your money. You pay only a small non-refundable shipping charge on items returned.



AmMax

FREE * Complete catalog sent upon your request
* Plastic caliper for any order (\$4.00 value)

Toll Free
1-800-782-6629

PRECISION TOOLS FOR SKILLFUL WOODWORKERS.
INDUSTRIAL QUALITY CARBIDE TIPPED ROUTER BITS
AND SHAPER CUTTERS.

CUTTER	ORDER #	CUT DIA	CUT L	SNK D.	PRICE
	ST206	1/4	3/4	1/4	5.50
	ST210	3/8	1	1/4	5.50
	ST213	1/2	1	1/4	5.50
	ST413E	1/2	2	1/2	14.00
	ST216	5/8	1	1/4	5.90
	ST219	3/4	1	1/4	8.50
Straight	ST425	1	1 3/16	1/2	8.80
	FT210	3/8	1	1/4	6.50
	FT213	1/2	1	1/4	6.50
	FT413	1/2	1 3/16	1/2	6.50
	DV210	3/8	3/8	1/4	4.60
	DV213	1/2	1/2	1/4	4.60
	DV413	1/2	1/2	1/2	4.60
	DV419	3/4	7/8	1/2	6.50
Dovetail	DV425	1	7/8	1/2	7.50
	CB206	1/4	1/4	1/4	8.00
	CB210	3/8	5/16	1/4	9.00
	CB213	1/2	3/8	1/4	11.00
	CB219	3/4	1/2	1/4	14.00
Core Box	CB425	1	5/8	1/2	16.00
	CH213	1 3/16	1/2	1/4	12.00
	CH216	1 3/8	5/8	1/4	13.00
	CH422	1 7/8	7/8	1/2	18.00
45° Chamfer					
	RB232	1 1/4	1/2	1/4	12.00
	RB432	1 1/4	1/2	1/2	12.00
RADIUS					
	CR203	1/8	3/8	1/4	10.00
	CR205	3/16	7/16	1/4	10.00
	CR206	1/4	1/2	1/4	11.50
	CR210	3/8	5/8	1/4	14.00
	CR213	1/2	3/4	1/4	16.00
	CR419	3/4	1	1/2	20.00
Rounding Over	CR425	1	1 1/4	1/2	32.00
	RO204	5/32	15/32	1/4	15.00
	RO206	1/4	3/4	1/4	16.00
	RO406	1/4	3/4	1/2	16.00
	CV203	1/8	3/8	1/4	11.00
	CV206	1/4	1/2	1/4	11.00
	CV210	3/8	9/16	1/4	12.00
	CV213	1/2	5/8	1/4	13.00
Cove	CV419	3/4	3/4	1/2	25.00
	CS206	1/4	5/8	1/4	19.00
	CS406	1/4	5/8	1/2	19.00
Classical					

LOCK MITRE
ML470 \$34
1/2" shank

STILE & RAIL
Reversible
RS248
1/4" shank \$37
RS448
1/2" shank \$37

OGEE FILET
OF466
1/2" shank
O.D. 2 1/2" \$24

KEY HOLE
KH210
1/4" shank
\$6.50

DRAW PULL
DP435
1/2" shank \$29

SLOT CUTTERS
SL204
1/4" shank \$16
SL404
1/2" shank \$16
6 others
in our free catalog

FINGER JOINTER
FJ463
1/2" shank \$53

TONGUE & GROOVE
TG230
1/4" shank \$29
TG444
1/2" shank \$29

MULTI-MOULDING
MM454
1/2" shank \$39

SAVE \$10.00

- 5PC WOODWORKING KIT**
- AUTO CENTER PUNCH
 - SCRIBER W/MAGNETIC PICK UP
 - STEEL RAFTER & CARPENTER SQUARE
 - PLASTIC STEEL CALIPERS
 - 6" 3 WAY HAND SAW

\$14.99

HORIZONTAL PANEL RAISING
5" O.D. 3/4" Bore
3mm Carbide

PANEL RAISER
\$49
EACH

C931 C984 C985 C986 C987

We stock more than 50 types of 3-wing shaper cutters

Top of the line **Made in U.S.A.**
Nicholson
10" 60T \$39.99
10" 36T \$18.10
10" 40T \$26.89
Retail values up to \$60

NEW PRODUCTS
2-piece Stile & Rail -- \$69 a set

CR01 OG02
BE03 PL04

Carbide Tipped

15 PC Router Bits Set
\$109.99
WOOD CASE INCLUDED / \$12.00 Value

SAVE 30%

All 2 Flute Carbide Tipped.

1/4" Shank Only

Most popular bits are selected in this set
Ideal Gift for woodmakers

SHAPER CUTTERS — Your Choice **\$29.00 each**

1/4" & 1/2" OR. RD. FEMALE SASH OGEE & BEAD
C905 C975 C993

1/8" & 3/8" OR. RD. & 1/4" BEAD MALE SASH OGEE
C952 C976 C906

SHAPER CUTTERS / CABINET SETS
3/4" BORE BUSHED TO 1/2"

SAVE \$10.00

FOR TWO SIDES. Decorative design work thickness 1 1/8" — 1 3/4" **\$150**

FOR ONE SIDE Decorative design work thickness 1 1/8" — 3/4" **\$140**

C921 CABINET MOULDING SET **\$160**

C922 COVE & BEAD SET **\$140**

C940 CONCAVE STILE & RAIL SET **\$140**

C994 OGEE STILE & RAIL SET **\$140**

C945 CONVEX STILE & RAIL SET **\$140**

SAME DAY SHIPPING Count on us!

Shipping is FREE for orders over \$60 and is only \$2 for smaller orders.

Call us toll free

1-800-782-6629 or 1-(619) 535-8940 in CA

HOURS: MON thru FRI 7 AM to 6 PM

NEW: SAT 8 AM — 2 PM

Send your check to: 12655 Danielson Court, Suite 310
P.O. Box 520, Poway, CA 92064
Member of the Better Business Bureau

ADDING TO THE TRADITION

DELTA INTRODUCES LESS BLADE FOR YOUR MONEY.



Less blade, less kerf, less waste, less drag on your lower horsepower saws. Less of everything, except quality.

The new Delta thin kerf, industrial carbide-tipped saw blade.

These new blades are 28% thinner than conventional blades with harder bodies and finer carbide than any blade in their class. So stockfeeding is smoother and easier. Less strain on both you and your machine.

Put a Delta thin kerf blade on your saw and if it doesn't perform as well as any you've tried, we'll replace it or refund your money. No questions asked.

Blades come in 8", 10" and 12" diameters. In our popular ATB tooth configuration. Everything you'd expect from Delta.

To learn more about what you can do with less, call toll free for the name of your Delta Distributor: Delta International Machinery Corp., 800/438-2486.

**Building
On Tradition**
DELTA
A Pentair Company



Better Homes and Gardens®

WOOD®

THE #1 MAGAZINE FOR HOME WOODWORKERS

December 1990 • Vol. 7, No. 7 • Issue No. 39

Editorial/Art Staff

Editor **LARRY CLAYTON**
Managing Editor **CARL VOSS**
Art Director **C. L. GATZKE**
Design Editor **JAMES R. DOWNING**
Features Editor **PETER J. STEPHANO**
How-To Editor **MARLEN KEMMET**
Products/Techniques Editor **BILL KRIER**
Project Builder **JAMES E. BOELLING**
Senior Graphic Designer **PERRY A. MCFARLIN**
Administrative Assistant **DARLENE REYNOLDS**
Business Office Clerk **MARGARET CLOSER**
Secretary **ROSEMARIE BURCH**

Technical Consultants: Product Testing **GEORGE GRANSETH**;
Products That Perform **STEVE OSWALT**; Wood Technology
PAUL L. McCLURE; Collectible Tools **PHILIP WHITBY**

Publisher **WILLIAM R. REED**

Advertising Representatives **PAUL DaCRUZ, MARK S.**

JOSEPHSON, CHRIS W. SCHAFT

Promotion/Research Director **EILEEN SULLIVAN**

Marketing Services Manager **NANCY DALY**

Marketing Services Assistant **CORINNE OLESON**

Publisher's Assistant **LORIANN DeCIOPPO**

Sales Secretary **ALICIA SANTANA**

Circulation Director **CLEM SEVDE**; Circulation Manager **ALAN BRUSH**; Newsstand Circulation Director **MICHAEL SENIOR**

Production Director **ROBERT C. FURSTENAU**

Editorial Research Director **C. RAY DEATON**

Public Relations **TIA DIGBY**

Magazine Group Officers

Group President **JAMES A. AUTRY**

Senior Vice President, Publishing Director **ADOLPH AUERBACHER**

Group Vice Presidents: Publishing Directors **MYRNA BLYTH, BURTON H. BOERSMA, CHRISTOPHER M. LEHMAN**;

Controller **MAX RUNCIMAN**; Editorial Director **DORIS EBY**;

Operations **DEAN PIETERS**

Corporate Officers

Chairman of Executive Committee **E. T. MEREDITH III**

Chairman of the Board **ROBERT A. BURNETT**

President and Chief Executive Officer **JACK D. REHM**

Group Presidents: Book **JERAMY LANGAN**; Broadcasting **PHILIP A. JONES**; Magazine **JAMES A. AUTRY**; Real Estate **ALLEN SABBAG**

WE CARE!

EDITORIAL MAILING ADDRESS: WOOD Magazine, P.O. Box 11454, Des Moines, IA 50336-1454.

SUBSCRIPTION SERVICE (including change of address):

WOOD Customer Service, P.O. Box 10667,

Des Moines, IA 50336-0667.

Please enclose your address label from a recent issue. If you wish to phone, call toll-free 800-678-2666.

ADVERTISING: WOOD Magazine Advertising, 750 Third Ave., New York, NY 10017. Phone 212/557-6600, extension 6095.

Better Homes and Gardens® WOOD® — the magazine for home woodworkers (ISSN-0743-894X) is published eight times a year in January, February, April, June, August, September, October, and December by Meredith Corporation, 1716 Locust St., Des Moines, IA 50336. Second-class postage paid at Des Moines, Iowa. Better Homes and Gardens trademark registered in Canada and Australia. Marca Registrada en Mexico. **ONE-YEAR SUBSCRIPTION PRICES:** United States and its possessions, \$19.97; Canada, \$29; other countries, \$38. **POSTMASTER:** Send address changes to WOOD, 1716 Locust St., Des Moines, IA 50336.

©COPYRIGHT MEREDITH CORPORATION 1990. ALL RIGHTS RESERVED. PRINTED IN U.S.A.

WA

New!

Variable Speed Super V-15" Scroll Saw

• Dial any speed from 400 to 1800 cuts/min!

• Saws with similar features sell for over \$700

• Special introductory price...

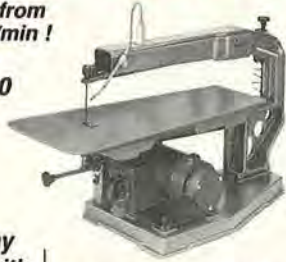
only **\$189.95**

(item #SVS, UPS \$10)

Cut intricate patterns in many different types of materials with this versatile machine. Purchase includes many FREE extras.

This new model features a powerful, high quality electronically controlled universal motor that gives full power and torque at all speeds. Similar in design to our Super-15" model, the cutting action has been re-engineered to give smoother cutting and performance equal to saws many times the price.

Dial any speed from 400 - 1800 cuts/min to set the speed specifically for the job at hand. Use slower speeds for cutting plastics, metals and hardwoods.



FREE ACCESSORIES:

- Dust blower • 1 dz blades • EZ-Set permanent top-arm blade holder • 4 Standard blade holders • EZ Jig for attaching standard blade holders • Neptune 1-1/2" lettering guides w/6 patterns

Specifications:

- Motor: Universal motor w/electronic speed control. 110V, 1.3Amp, sealed ball bearings
- Speeds: 400 - 1800 cuts/min
- Throat : 15" deep • Stroke - 3/4"
- Tilt : 0 - 45° left • Cut Depth: 2"
- Blades: accepts pin and plainend
- Construction - cast iron

Super 125 Planer

On Sale \$359.95



This machine will pay for itself time and again by planing your own wood. Finishes wood like machines many times its price.

- Portable at 65 lbs • Power feed
- 12 1/2" wide High Speed Steel Knives Shipped assembled and ready to run.

SPECIFICATIONS:

- Motor: 16Amp, 115V, 8000RPM, 2HP • 26.2 fpm auto feed rate • 16,000 Cuts/min • Thickness of stock: 3/16" - 6" • 1/8" Max depth of cut • 2 HSS knives
- Item #PLA \$359.95 (UPS \$15)

Planer Accessories



Free plans for roller stand with purchase of rollers

Extra Set of 2 Knives

High Speed steel, 12-1/2" long.
Item #PKN \$25.00/set (•)

Dust Chute

For vacuum takeoff of wood chips.
#PDS ..(reg \$24), On Sale....\$15 (UPS \$3)

Planer Stand (Heavy duty)

Drilled for Super 125 Planer. 27-1/4" High.
#PST ... (Reg \$44), On Sale...\$39/ea (UPS \$6)

Roller Stand

HTC brand support stand w/heavy duty ball bearing roller. Height adjusts from 25" - 44".
#PRS ... (reg \$40), On Sale ...\$35 (UPS \$4)

Ball Bearing Rollers

(Minimum purchase 2 rollers). Build a roller stand, infeed/outfeed table etc. with these 13" X 2" Heavy Duty rollers. Includes FREE plans for roller stand shown above.
Item #BBR \$6.50/ea (\$3 UPS /order)

Scroll Saw Products

Super 15" Scroll Saw

Our most popular model. Same specs as Super V-15 model with single speed 1650 cpm motor, dust blower optional. Same free accessories as listed above.

#SAW ... Only \$119.95 (UPS \$10)

Dust Blower (option for Super 15" saw)

#BKT \$15.00/kit (•)

Variable Speed Motor Upgrade

Convert your saw to variable speed! This quality motor will fit our Super 15" model and other saws of similar design. Also fits Sears™ 16", and "C" arm "Superscroll" styles - 18", 22", and 26" sizes. Limited 90 day warranty on non-Penn State saws.
#SVM Only \$99.00 (UPS \$4)

Magnifier Lamp

Great for magnifying scroll work or closeup work of any kind.



• 175% mag
• 39" flex arm
• UL approved
• 60 Watts Incand.

#SML (reg 29.95) On Sale ... \$22.95 (UPS \$3)

Scroll Saw Stand (On Sale)

34" High - the perfect height.
#STD .. (reg \$39), On Sale \$26 (UPS \$4)

Foot Switch

For hands free operation. Installs in line w/power cord. Easy hook-up. 7 amp, 6 ft
#FSW \$20.00 (•)



Two Way Sanders

FREE DISCS & BELTS with Purchase Save up to \$21

- Dust Collection on both models
- Stand included with 6 x 9 Model

6" x 9" Sander

Model #S69 ... Only \$219.95 (UPS \$30)

Has versatile 9" disc & 6" x 48" belt. Heavy duty design includes stand. FREE With Purchase : 3 belts, 4 discs (various grits) worth \$21. Motor: 3/4 HP, 1720 RPM, 110/220V. Wt: 100 #

4" x 8" Sander

Model #S48 ... Only \$114.95 (UPS \$8)

A unique design with an 8" disc & 4" x 36" belt. Portable at only 38 #, includes quick release lever for belt changes. FREE With Purchase - 3 belts, 4 discs (various grits) worth \$14. Motor: 1/3 HP, 1720 RPM, 120V. Wt: 38 #

Features of Both Models:

- Dust collection outlets included.
- Tables: tilt to 45°, includes mitre gauge, moves to vertical belt position.
- Easy belt tracking adjustment.
- Belt table tilts/locks to horiz & vert positions
- Sealed ball bearings



Dust Collectors

FREE HOSE & FITTINGS with PURCHASE Save up to \$40.00!!

Model #DC1

Model #DC-1 - Only \$199.95 (UPS \$20)

610 CFM flow makes this collector perfect for hookups to almost any single machine.

FREE With Purchase (\$15 Value) 8' of hose • 1 ea. 4" to 3" & 4" to 2" adaptor

Model #DC-2 - Only \$299.95 (UPS \$30)

900 CFM flow allows for use on 2 or more machines & gives improved service for long runs of hose or ducting. Suitable for larger planers, drum & belt sanders
FREE With Purchase (\$40 Value) 30' of hose • (1) 4" to 3" & (2) 4" to 2" adaptors

Specifications:	DC-1	DC-2
Motor	1 HP, 110/220V	1-1/2 HP, 110/220V
Outlets	1 @ 4"	2 @ 4" or 1 @ 6"
Flow	610 CFM	900 CFM
Bags	2 @ 20 Gal.	2 @ 30 Gal.
Weight	75 pounds	120 pounds

Wood Lathe XL-40

Reg \$299.95, On Sale \$249.95

Includes FREE 8 piece Wood Chisel Set ... \$34 Value

Our new XL-40 Wood Lathe surpasses every lathe in its price range with quality & features you would expect from machines many times its price. FEATURES

Heavy Duty cast iron construction provides smooth turning action • 40" Centers • 16" Swing for turning larger bowls • Smooth toolrest movement on 1" solid steel rails • "Live" center on tailstock • Motor mounted for easy positioning and belt changes • Sturdy 52" steel base mounts on table top or optional stand.

PURCHASE INCLUDES:

- Lathe with Motor & Base • Toolrest
- 6" Faceplate • 8 pc wood turning chisel set

SPECIFICATIONS:

- MOTOR: 1720 RPM, 1/2HP, 8AMP, 110V
 - 3 Speeds: 660, 1500, 2850 RPM
 - Headstock thread - 3/4" x 10 tpi
 - Overall length: 60" - Weight : 100lbs
- Item # L40 On Sale \$249.95 (UPS \$20)

Lathe Stand

Heavy duty. Wt. 25Lbs
Size: 28"H X 56"L X 21" W
Item #LST \$44/ea (UPS \$6)

Penn State's Commitment

We unconditionally guarantee your satisfaction with our fine machines. All of our machines carry a Thirty day Money Back Guarantee and One year Warranty.

Quality Woodworking Machines At Affordable Prices from

PENN STATE INDUSTRIES - W

2850 Comly Road • Phila, Pa 19154

Order Toll Free 1-800-288-7297 (Ext 90) Information 1-215-676-7609 (ext 15)

Visa, Master, & Discover Card accepted Pa residents add 6% Sales Tax

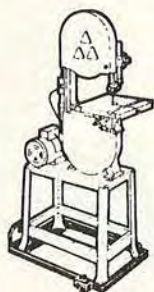
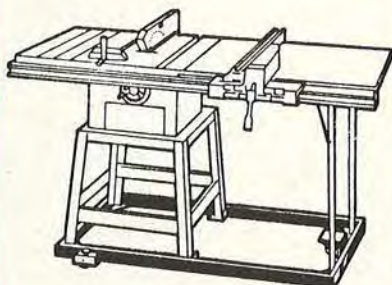
When ordering - Add UPS Shipping Charges as noted

(•) No freight charge for accessories ordered with a machine, add \$3 if ordered separately. UPS charges are for Continental U.S. only (Call for shipping charges to other locations)

Call or Write for our NEW 16 Page Color Catalog

Mobile Machine Bases

to put your entire shop
on wheels



EXPAND WORKING AREA MAKE CLEAN-UPS A SNAP

- Models available for every type, make & size of machine
- 3 - 2 1/2" ø Wheels for Stability
- Dual wheel locks for Positive Positioning
- Raises machine only 3/4"
- All Steel & Precision Welded
- Lifetime Warranty

All Products - Made in America &
Available at Better Tool Stores

Free Catalog



HTC Products, Inc.
120 E. Hudson • P.O. Box 839
Royal Oak, Michigan 48068-0839

(313) 399-6185 • (800) 624-2027

Better Homes and Gardens®

WOOD®

THE #1 MAGAZINE FOR HOME WOODWORKERS

This issue's cover wood grain: White Pine

Cover photo: John Hetherington

DECEMBER 1990

ISSUE NO. 39

WOOD PROFILE

Yellow birch: The shimmering queen of the north 33

Long ago, craftsmen discovered birch's strength. This golden-colored wood remains a standard for today's chairs, tables, and cabinets.



HOLIDAY HIGHLIGHTS

Return to the Round Table 36

Come take a closer look at our versatile block castle designed for your little prince or princess.

Taking care of business 40

Make a lasting impression with a wooden business-card holder.

Jewel of a case 42

Distinctive joinery and sensible trays highlight a reader's jewelry box.

A cut above the rest 46

Expect years of service from our patterned end-grain cutting board.

Snow-loving open sleigh 48

Bent runners frighten you? No problem here: A laminating jig simplifies forming runners for this classic sleigh designed in Minnesota.

The three rack-a-tiers 54

Help someone organize video, cassette, and compact-disc collections.

TOOL BUYMANSHIP Shapers 56



If you constantly test your router table with big projects, a shaper could make sense for your workshop. Find out how much muscle a shaper can deliver.

SHOP-TESTED TECHNIQUES

Sanding shortcuts 62

After you learn how to choose the best abrasive, re-view the strong points of 13 sanding devices. Then, check out our list of hints.



CRAFTSMAN CLOSE-UP

Good wood is worth restorin' 68

Sit in on a visit with Jim Watson and discover how he restores tired furniture. Be sure to save Jim's tips for a successful refinishing project.



THE ENVIRONMENT

Battling harmful vapors 72

Don't miss this important health article. It will help you identify the culprits in strippers and finishes that irritate eyes, noses, and throats.

Good sports 74

Features editor Pete Stephano tees up with a four-some of sports diversions steeped with a long-standing partnership with wood.



CARVING PATTERN

Carve a Santa 78

Ring in the holiday season with a new carving project of Santa carrying a Christmas goose.

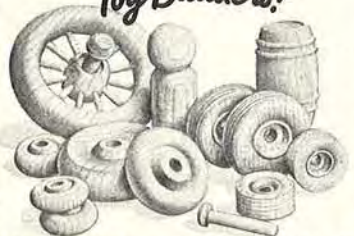


SHORT-SUBJECT FEATURES

Editor's Angle	7	Products That Perform	30
Talking Back	8	Shop Sense	88
Tips from Your Shop (And Ours)	20	Finishing Touches	104

Over **400** WOOD PARTS

Something for Everyone
Toy Builders!



2-3/4" Spoke Wheel	\$ 1.00 / EA	\$10.00 / 12
1" x 5/16" Wheel	\$ 4.00 / 100	\$35.00 / 1000
1" x 3/8" Wheel	\$ 5.00 / 100	\$45.00 / 1000
1-1/2" Wheel	\$ 4.00 / 30	\$10.00 / 100
2" Wheel	\$ 3.10 / 12	\$16.00 / 100
Axle Pegs for above	\$ 3.50 / 100	\$30.00 / 1000
2-3/8" Little Man	\$ 1.40 / 7	\$12.00 / 100
1" Truck Tire	\$ 1.60 / 8	\$10.00 / 100
1-1/2" Truck Tire	\$ 2.40 / 8	\$14.00 / 100
1-5/8" Pickel Barrel	\$ 3.00 / 12	\$18.00 / 100

Crafters!



1-5/8" Sawtooth Hanger	\$ 3.00 / 100	\$25.00 / 1000
2-3/4" Sawtooth Hanger	\$ 4.50 / 100	\$28.00 / 1000
5/8" Picture Hanger	\$ 2.00 / 100	\$15.00 / 1000
1-7/8" Picture Hanger	\$ 4.50 / 100	\$35.00 / 1000
3/8" Round Bead	\$ 3.25 / 100	\$22.50 / 1000
1/2" Round Bead	\$ 3.50 / 100	\$25.00 / 1000
1/2" x 5/8" Spool	\$ 5.00 / 100	\$20.00 / 500
5/8" x 3/4" Spool	\$ 6.50 / 100	\$27.50 / 500
2" Puffed Heart	\$.60 / EA	\$12.00 / 25
2-1/2" Puffed Heart	\$.75 / EA	\$15.00 / 25
2-1/2" Hen Egg	\$12.50 / 25	\$45.00 / 100
4-1/4" Goose Egg	\$ 3.00 / EA	\$30.00 / 12

Woodworkers!



	BIRCH	OAK
1-3/8" Candle Cup	\$16.00 / 100	\$28.00 / 100
1/4" x 36" Dowel	\$18.00 / 100	\$25.00 / 100
1-3/4" Shaker Peg	\$ 6.00 / 100	\$10.00 / 100
3/8" Button	\$ 1.50 / 100	\$ 2.00 / 100
1/2" Button	\$ 1.50 / 100	\$ 2.00 / 100
1-1/2" Spindle	\$ 8.00 / 100	\$12.00 / 100
2" Spindle	\$14.00 / 100	\$18.00 / 100
5-3/4" Spindle	\$.50 / EA	\$.65 / EA
3-1/2" Shaker Peg	\$14.00 / 100	\$24.00 / 100
1" Round Knob	\$ 4.50 / 25	\$ 6.00 / 25

To receive sale prices use Sale #B60

ALL NEW WOOD PARTS CATALOG \$1.00



FREE
With Order

We accept M/C, VISA, Check, or M.O. All orders add \$4.00 Handling. TX add 7% tax. Canada add 30%. Alaska, Hawaii add 15% for freight.



Woodworks

P.O. Box 14507 Ft. Worth, TX 76117
(817) 281-4447

A GOLDEN GIFT IDEA FOR EVERY WOOD WORKER

NEW BYROMGOLD. Whether you're giving or getting, BYROMGOLD makes the perfect gift. Because now every wood worker can enjoy the advanced technology of high performance Titanium Nitride Coated High Speed Steel router bits, once available only to the industry. BYROMGOLD outlasts regular High Speed Steel router bits 3 to 8 times. And costs 35% to 40% less than Carbide Tipped router bits. With BYROMGOLD any wood worker can achieve professional-looking, clean-cut, smooth-finish results.

The BYROMGOLD 6 Piece Pro Starter Kit is ideal for routing natural woods, plastics, aluminum, and non-ferrous metals. These carefully selected router bits give you the flexibility to start or complete your current project. For a greater variety of cuts choose the BYROMGOLD 10 Piece Pro Advanced Kit.

Both come with the BYROMGOLD PRO PLEDGE. If you're not completely satisfied with our product, we will replace, substitute or refund your money. Just call us Toll Free at 1-800-722-5447.

NEW BYROMGOLD Titanium Nitride Coated Router Bits. The exciting innovative gift that gives every wood worker the golden touch.

INDUSTRIAL QUALITY™

BYROM GOLD

THE SUPERIOR HIGH PERFORMANCE
TITANIUM NITRIDE COATED ROUTER BITS

WHAT IS BYROM GOLD?

BYROMGOLD™ is tomorrow's technology today in router bits. BYROMGOLD™ is the superior high performance Titanium Nitride Coated High Speed Steel router bit product line, that will outlast regular High Speed Steel Router bits 3 to 8 times. This industrial coating increases the router bit hardness for longer life. You will save more money with this industrial quality set and get a professional smooth finish.

BYROM offers its new BYROMGOLD™ PRO PLEDGE guarantee, for your assurance of the best in high quality craftsmanship in a truly superior product line. The BYROMGOLD™ Pro Pledge: complete guaranteed customer satisfaction. Please refer to your BYROMGOLD™ booklet.

6 PIECE PRO STARTER KIT

BYROM INTERNATIONAL is pleased to present these high quality industrial router bits. Once only used in industrial applications, these superior high performance router bits are the best available today. BYROMGOLD™ now helps you to achieve excellent clean cut designs like the professionals. This Six Piece Pro Starter Kit is perfect for the starter and intermediate wood-worker for routing natural woods, plastics, and aluminum.

We want your wood-working projects to be fun and enjoyable. If we can help please call our BYROMGOLD™ TOLL FREE number (1-800-722-5447).

“THE WORLD'S ROUTER BIT SOURCE”

BYROM INTERNATIONAL CORPORATION
121 Industrial Parkway, P.O. Box 100, Chardon, Ohio 44024

BYROM GOLD 6 PIECE PRO STARTER KIT Contains:
 *PART NO. 11-32201, Description: 1/2" Straight 2 Flutes *PART NO. 51-32201, Description: 1/2" Corebox *PART NO. 61-31501, Description: 3/8" Vee Groove *PART NO. 81-32201, Description: 1/2" Rounding over *PART NO. 101-31501, Description: 3/8" Robbing *PART NO. 321-31501, Description: 3/8" Keyhole *SET NO. 202-30007

CALL THE BYROMGOLD HOTLINE TOLL FREE FOR THE DEALER NEAREST YOU **1-800-722-5447**



THE WORLD'S ROUTER BIT SOURCE

BYROM

BYROM INTERNATIONAL CORPORATION

121 Industrial Parkway, Chardon, Ohio 44024
© 1990 BYROM INTERNATIONAL. ALL RIGHTS RESERVED.

THE EDITOR'S ANGLE

READY OR NOT, HERE THEY COME...

WATER-BASED FINISHES

Until fairly recently, solvent-based finishes were the only game in town for home woodworkers. But now, thanks largely to California standards that limit the content of volatile organic compounds (VOC), finish manufacturers everywhere are scrambling to reformulate their products. And guess what? Several companies now have water-based products on the market that perform quite well. That's why we plan to make use of these environment-friendly products whenever practical here in the *WOOD* magazine shop. And we hope that you will consider doing the same in yours.

Like most other woodworkers, we've always sensed the danger in using solvent-based finishes, but we weren't sure there were any viable alternatives. That's why we asked representatives from Basic Coatings and Amity Products, two innovators in the finishing field, to come to our shop and give us demonstrations. The re-

sults they showed us were impressive, but we wanted some expert outside advice, too.



Jim Boelling, our project builder, ran product tests, too.

Enter Wade Sundeen, a Des Moines-area finishing professional and self-styled "finishing fanatic." Wade, who has long been concerned about the effects of solvents on his health and that of other finishing professionals, agreed to put several different company's products to the test. After spraying and hand-applying both lacquer and polyurethane, he came back impressed—especially by

the quick drying times of some of the polyurethanes, and the lack of smelly vapors.



We'll be giving you a full report on our testing results in the April 1991 issue.



HAVE YOU ENTERED THE 1991 CONTEST YET?

If not, there's still time to do a good turn—and possibly win a nice prize. See page 78 of the October issue for how to enter our 1991 Build-A-Toy competition. By the way, if you happen to be in New York City between now and

New Year's Day, be sure to stop by the Museum of American Folk Art and see the 1989 and 1990 winning toys on display there. I think you'll be impressed. ♣

Larry Clayton

MEISEL HARDWARE SPECIALTIES

WOODWORKERS HARDWARE

- | | |
|--|--|
| Country Yardsticks
<ul style="list-style-type: none"> #8574 Yardstick \$1.29/EA | Shaker Pegs
<ul style="list-style-type: none"> #7226 3-1/2" \$2.00/10 \$15.00/100 #7280 2-1/2" \$1.90/10 \$13.90/100 #7227 1-3/4" \$1.10/10 \$7.60/100 |
| Scroll Saw Plywood
<ul style="list-style-type: none"> 3mm (1/8") x 2' x 2' #8450 \$4.50/EA 2-9 Sheets \$3.50/EA | Birch Spindles
<ul style="list-style-type: none"> #S6 5-3/4" \$.75/EA #S85 9" \$.99/EA |
| Cookie Jar w/Metal Lid
<ul style="list-style-type: none"> #8633 Plastic Jar 8" \$3.99/EA #8635 Metal Lid \$1.59/EA | Galley Spindles
<ul style="list-style-type: none"> #S1 Birch 1-1/8" \$1.65/10 \$10.00/100 #S4 Birch 1-1/2" \$1.70/10 \$15.60/100 #S10AK 1-1/8" \$1.50/10 \$12.00/100 #S40AK 1-1/2" \$2.40/10 \$22.00/100 |
| 1/4" Basswood Boards
<ul style="list-style-type: none"> #7293 3-1/2" x 16 linear feet \$13.95/EA | Lamp Socket
<ul style="list-style-type: none"> #940 Push Thru \$1.89/EA #941 Turn Knob \$2.59/EA |
| Basswood Glue-Ups
<ul style="list-style-type: none"> #8589 1/2" x 14" x 36" \$10.95/EA #8592 1-1/8" x 14" x 36" \$15.50/EA | Animal Eyes
<ul style="list-style-type: none"> #8681 1-1/8" \$3.50/20 #8682 1-1/2" \$4.00/20 |
| Birch Candle Cup
<ul style="list-style-type: none"> #CC1 1-1/2" \$2.90/10 \$19.00/100 | Chair Back Spindle 21"
<ul style="list-style-type: none"> #8147 Spindle \$2.35/EA |
| Lazy Susans
<ul style="list-style-type: none"> #LC3 3" \$.95/EA #LC4 4" \$1.30/EA #LC6 6" \$2.29/EA | Metal Pails 2-1/4"
<ul style="list-style-type: none"> #8710 Red \$1.09/EA #8711 Galvanized \$1.09/EA |
| Clipboard Clips
<ul style="list-style-type: none"> #L5 3" \$.79/EA #ST6 6" \$.95/EA | Synthetic Sheep Wool 60" Wide
<ul style="list-style-type: none"> #8904 Sheep Wool \$9.95/YD 12 yards or more \$7.95/YD |
| Saw Tooth Hangers
<ul style="list-style-type: none"> #S59 1-5/8" \$4.17/100 | Wood Hearts
<ul style="list-style-type: none"> #7379 1" x 3/16" \$.59/10 #7380 1" x 3/8" \$.79/10 #7381 1-3/8" x 1/2" \$.99/10 #7461 3" x 3/8" \$3.75/10 |
| Black Hammer
<ul style="list-style-type: none"> Hinge w/Screws #1730 \$1.76/2 \$7.80/10 | Brass Bottle Opener
<ul style="list-style-type: none"> #7641 \$3.89/EA |
| Brass Plated Hinges
<ul style="list-style-type: none"> #910 1" \$1.65/10 #928 1-1/2" \$2.59/10 | Grocery List Pad of 500
<ul style="list-style-type: none"> #14P Buff Color \$7.99/EA #7430 Peach Color \$7.99/EA |
| Screws for above
<ul style="list-style-type: none"> #F125 #5 Fl. Hd. \$2.75/100 | 1" Grid Paper
<ul style="list-style-type: none"> #8206 22" x 34" \$.89/Sheet |
| Sanding Belt Cleaner 8"
<ul style="list-style-type: none"> #1710 \$5.95/EA | |
| Plastic Spoke Wheel 4"
<ul style="list-style-type: none"> #1741 \$1.19/EA | |
| Metal Wheels
<ul style="list-style-type: none"> #1779 1-1/2" \$7.20/10 #1780 2" \$9.40/10 | |

Send \$1.00 for catalog or \$5.00 for catalog plus Best Selling Plan Package (\$14.72 value) or order directly from this ad by phone or mail.

ADD SHIPPING & HANDLING:
 Mail check or money order and include \$4.95 shipping & handling. MN res. add 6% tax. Alaska and Hawaii send \$10.95 p&h. Canada send \$16.95 (U.S.) p&h. We accept VISA or MC on orders over \$15.00.

MINIMUM ORDER OF \$15.00
ORDER TOLL FREE Charge Orders Only

1-800-441-9870

MEISEL HARDWARE SPECIALTIES
 P.O. BOX 70 W-11 MOUND, MN 55364

LIFE IS WHAT YOU MAKE IT...



rbi MAKES IT BETTER!

There's nothing more satisfying than stepping back and looking at the project you've just completed. It's exactly the way you had dreamed it would be... the wood, the finish, the detail. Everything is right.

Some folks might say that it takes a master craftsman to complete a project like that, but you know it's just a matter of having the right tool. But more than a power tool, The Hawk is an investment in yourself and your family.

Because of the safety and precision built right into every Hawk, the entire family can be a part of your hobby. From creating simple projects like puzzles and country crafts to finely detailed marquetry inlays, The Hawk is the tool to build your workshop around.

Don't wait another day to find out how to make it better for you and your family with the Hawk Precision Scroll Saw.

There's a full range of styles and sizes... one to fit your family and workshop. Call today and we'll rush you a free Fact Kit with all the details about The Hawk.

1-800-535-8665.

rbi industries, inc.

1801 Vine Street • Harrisonville, MO 64701 • 1-800-535-8665

YES! Please rush me all the facts about Hawk Precision Scroll Saws and other Rbi woodworking tools for my shop!

NAME: _____


ADDRESS: _____

CITY: _____ STATE: _____ ZIP: _____

PHONE: _____ SW1290

TALKING BACK

We welcome comments, criticisms, suggestions, and even compliments. Send your correspondence to: Letters Editor, *WOOD* Magazine, P.O. Box 11454, Des Moines, IA 50336-1454.

 Print this article

Forest update

Thank you for an informative article titled "Fight in the Forest" in the August 1990 issue. It points out that both loggers and environmentalists are having a tough time seeing the forest through the trees.

Obviously, there are no easy answers, but if cut-backs, job retraining, and changes in Japanese log exports are inevitable, better they come now before the last stick of timber is gone.

Jobs are tremendously important, but anyone who can't see the genetic and esthetic value in saving old-growth timber has never walked through the forest without a chainsaw.

Bob Hammill, Davenport, Iowa

I am bothered by the amount of space devoted to editorial posturing in Issue 36, August 1990. I subscribe to *WOOD* magazine for advice, suggestions, and ideas in woodworking, not politics or ecology!

"Fight in the Forest" contained nothing I have not read elsewhere. But other publications do not provide what I need or desire in woodworking articles and information. So far as I am concerned, you have used five pages of my subscription to make a political or ecological statement.

—Edward Vitello, Georgetown, Mass.

If I choose to build an item from a fine or rare wood, I am willing to pay the extra price that conservation would imply. The beauty of a polished cherry cabinet must be weighed against the beauty of a blossoming tree. I'm sure that many readers of your magazine, like me, are not commercial producers of wood products, concerned only with a profit. Instead, they are hobbyists who respect the environment and try to live in harmony with it.

—Joseph T. Lowe, Dallas, Texas

Thanks to all three readers for their letters. We appreciate the input. Regarding ecological articles in WOOD magazine, our policy is to report on issues of concern to woodworkers and woodworking as well as their possible effects. We will continue to focus our articles on woodworking projects, tools, techniques, and related articles, but we can't bury our collective heads in the sawdust. By our count, we've devoted less than 3 percent of our editorial space in the last year to environmental pieces.

Continued on page 13

All New!

MORE NORM!

An all-new collection of projects from Norm Abram and the NEW YANKEE WORKSHOP.



Now build all the classic American furniture Norm designed for his PBS-TV show this past season!

Success is guaranteed with Norm Abram by your side every step of the way.

EMMAUS, PA. — His first book was a national best-seller! Now Norm's newest, CLASSICS FROM THE NEW YANKEE WORKSHOP, is yours from Rodale Press for \$5 off the bookstore price.

With Norm as your guide, you'll build all the great colonial furniture projects you saw him build on this past season's NEW YANKEE WORKSHOP. Each piece is an American classic selected by Norm from such places as Newport, Sturbridge, Gloucester and Shelburne. Norm's expert tips and techniques ensure your success every step of the way.

Unbeatable Savings and Trial Offer

Order direct from Rodale and you'll save \$5 off the bookstores' cover price. Then build any of 13 great projects with Norm FREE FOR 21 DAYS. If not delighted, return the book and you'll owe nothing. Send no money now; just mail the card below today!

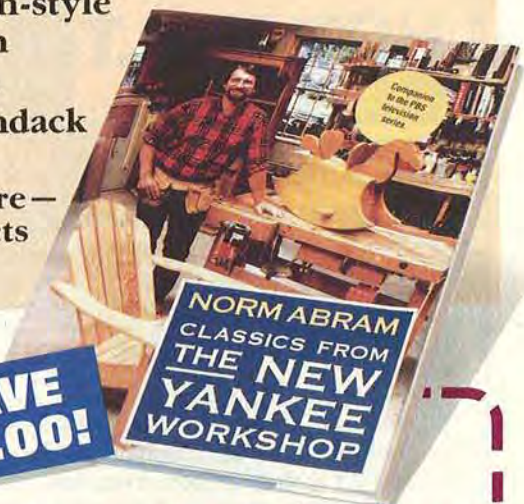
Free Bonus Gift

You'll also get a special free gift when you order—a handsome 22×34-inch wall chart of Norm's "Dream Workshop." This unique chart, which will look great hanging in your workshop, gives you lots of practical ideas for improving your workspace. It's yours to keep just for trying CLASSICS FROM THE NEW YANKEE WORKSHOP.

COMPLETE STEP-BY-STEP PLANS TO BUILD:

- Colonial kitchen dresser
- Traditional hearthside settle
- Graceful pencil-post bed
- Child's rocking horse
- English-style garden bench
- Adirondack chair

PLUS more—13 projects in all!



SAVE \$5.00!

FREE FOR 21 DAYS!

YES, please send me Norm Abram's newest book, CLASSICS FROM THE NEW YANKEE WORKSHOP, to use and enjoy for 21 days without risk or obligation. If I keep it, I'll pay for it in three monthly installments of \$8.32 each, plus postage and handling—a \$5 savings off the retail price. Or I may return the book and owe nothing. **FREE BONUS GIFT:** Handsome 22×34-inch "Dream Workshop" wall chart

42375

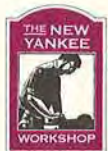
Name _____

Address _____

City _____

State _____ Zip _____

Clip and mail to: RODALE BOOKS, Emmaus, PA 18098



LIMITED-TIME OFFER—ORDER TODAY!
Send no money; just send card or clip coupon, fill in and mail.

Go Ahead, Make My Day, *Easier!*



HOT MELT GLUE GUNS

Make repairs a snap with the most comfortable and versatile Hot Melt Glue Gun going. The unique design keeps heat flow away from handle so it doesn't get too hot to handle as others do.

Bond almost anything permanently in 60 seconds without the need of mixing or clamping. You can replace bathroom tile, repair leather goods, toys, seal packages, fix furniture, glue picture frames, and it's the ideal tool for arts and craft projects.

ARROW FASTENER COMPANY, INC.

271 Mayhill Street, Saddle Brook, NJ 07662

In Canada: Jardel Distributors, Inc., 6505 Metropolitan Blvd. East, Montreal H1P 1X9 Quebec.

© Copyright 1988 Arrow Fastener Company, Inc.

BUILD YOUR OWN QUEEN ANN FURNITURE

JUST ASSEMBLE OUR KITS



SOLID CHERRY, OAK
MAHOGANY, WALNUT

FREE BROCHURE
No Minimum Required

DESIGN YOUR OWN!
with our wide variety of stock legs

- OR -



Adams Wood Products, Inc.

974 Forest Drive, DEPT. M10
Morristown, TN 37814 • Phone 615-587-2942



NEED
EXTRA
INCOME?

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.

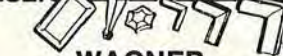
SEND \$1.00 FOR OUR FULL LINE BROCHURE AND PRICE LIST AND START PLANNING YOUR FULL OR PART-TIME BUSINESS.



MARLIN INDUSTRIES, INC.

Rt. 70, Box 191, Dept D012
Cashiers, NC 28717
(704) 743-5551

MAKE THESE!



WAGNER SAFE-T-PLANER

Fits Drill Press or Radial Arm Saw

ABSOLUTELY SAFE!

Impossible to Grab or Kick Back

PICTURE FRAMES, RAISED PANELS, ROSETTES,
PLANES, RABBETS, TENONS, MOULDINGS

KIT INCLUDES: 3 lifetime hi-speed steel cutters, grinding
wheel, arbor, wrench, 8 pg. photo instructions.

GUARANTEED! SUGGESTED RETAIL PRICE

DRILL PRESS KIT \$45.00

RADIAL SAW KIT \$50.00

\$3.00 S&H OK ADD TX.

(State Make, Model,
Shaft Dia)

Available From Dealers
Catalogs or Write to:

G & W Tool Inc.

P.O. Box 691464

Tulsa, OK 74169

(918)-486-2761



"DEALERS INQUIRIES WELCOME"

What a Great Set of Legs!

Traditional Turnings for
the home craftsman.

Unique selection
of bedposts, table
legs, (dining,
sofa, coffee,
end), hutch,
gourmet kitchen.
Available in
Ponderosa Pine.



Traditional
Turnings

Send \$2.00
for catalog.

P.O. Box 1056 • Conley, GA 30027

Wood-Mizer®

World's
Largest
Manufacturer
Of Portable
Sawmills



OWN YOUR OWN SAWMILL

Four Models To Choose From

BUY DIRECT

1(800)553-0219

In Indiana call: (317) 271-1542
FREE 44-page catalog or use
your MasterCard or VISA
to order our 50-minute
demonstration video—\$10.00
Wood-Mizer Products, Inc. • Dept. QG50
8180 W. 10th St., Indianapolis, IN 46214-2430

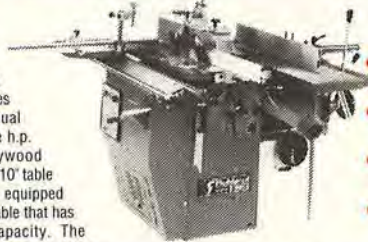


ROBLAND

The Intelligent One-Man Shop

The Robland X31 features

heavy duty cast iron work surfaces with 3 individual motors of three h.p. each. Full plywood capacity on the 10" table saw, which is equipped with a sliding table that has 50" cutting capacity. The shaper has a cast iron fence system with individually micro adjustable in and outfeed fences, the spindle sizes are 3/4" and 1 1/4". The jointer is 55" long and it features a three knife cutter head. To operate the 12" thickness planer you simply fold the jointer tables out of your way. This process only takes 5 seconds. The thickness planer will accept wood 9" thick. The chuck for the mortiser will self center any bit from 0" to 5/8", the X, Y, Z table is adjustable on all three axes and it will make extremely accurate quality joinery for you in seconds. No function change takes more than 30 seconds.



- Heavy Duty
- Cast Iron
- Powerful
- Accurate

CALL TODAY FOR INFORMATION ON A FREE 40 MINUTE VIDEO

LAGUNA TOOLS

2081 Laguna Canyon Road
Laguna Beach, California 92651

1-(800) 234-1976

Buy Direct From The Manufacturer And **SAVE!**

Buy 12 "EVER-LAST" Belts... Get 12 Belts FREE!



Need ROLLS, WIDE BELTS, DISCS,
SLEEVES, STROKE BELTS, etc.
Write for catalog.

Belts available in 36, 50, 60, 80, 100, 120, 150, 180, 220, 320 grit sizes. Please specify grit sizes when ordering, otherwise an assortment will be supplied.

- 1" x 30" ... \$15.50/Doz. + 12 FREE
- 1" x 42" ... \$15.70/Doz. + 12 FREE
- 2" x 48" ... \$21.50/Doz. + 12 FREE
- 2 1/2" x 16" ... \$17.50/Doz. + 12 FREE
- 3" x 18" ... \$17.75/Doz. + 12 FREE
- 3" x 21" ... \$18.75/Doz. + 12 FREE
- 3" x 24" ... \$18.00/Doz. + 12 FREE
- 4" x 21" ... \$23.50/Doz. + 12 FREE
- 4" x 21 3/4" ... \$23.75/Doz. + 12 FREE
- 4" x 24" ... \$24.00/Doz. + 12 FREE
- 4" x 36" ... \$28.95/Doz. + 12 FREE
- 6" x 48" ... \$35.95/1/2 Doz. + 6 FREE

Other size belts on request.
 Belt Cleaning Stick \$6.95 each

9" x 11" PAPER SHEETS

A/O or Garnet Cabinet Paper

	50 PACK	100 PACK
40-D	\$17.00	\$31.00
50-D	\$16.00	\$28.00
60-D	\$15.00	\$26.00
80-D	\$14.00	\$24.00
100-C	\$13.00	\$22.00
120-C	\$13.00	\$22.00
150-C	\$13.00	\$22.00
No Load Finishing Paper (White)		
120-C	\$14.00	\$24.00
150-C	\$14.00	\$24.00
180-A	\$11.00	\$19.00
220-A	\$11.00	\$19.00
280-A	\$11.00	\$19.00
320-A	\$11.00	\$19.00
400-A	\$11.00	\$19.00

For Fast Delivery Call Toll Free
1-800-428-2222 (U.S.A.)
1-800-222-2292 (PA only)

SHIPPING CHARGES: \$4.50 Continental U.S.

MONEY ORDER CHECK
 MASTER CARD VISA

**INDUSTRIAL
BRASIVES CO.**
643 N. 8th ST. • READING, PA 19612

SKIL
POWER TOOLS

2735-04
12 Volt 3/8" VSR Drill Kit
W/2 Batteries
\$125

77 7-1/4" worm drive saw 145
5550 NEW! 7-1/4" circular saw 99

PORTER-CABLE

7334
Random
Orbital Sander
\$118

7335 NEW! VS random sander 129
7336 NEW! 6" VS random sander 134
330 speed block finish sander 59
352 3x21 sander with bag 133
97310 laminate trimmer kit 185

9505 Commemorative
Finish Sander
W/Oak Case
\$137

9850 3/8" cdss 12v driver/dr. kit 134
555 plate jointer with case 165
9345 6" saw boss kit 124
690 1-1/2 hp router 128
691 1-1/2 HP D handle router 138
7538 NEW! 3-1/4 hp pl. router 238

Milwaukee

6507
VS Sawzall
W/Case
\$129

6527 NEW! VS super sawzall 169
5397-1 3/8" hammer drill kit 139
0395-1 3/8" VSR clds drill kit 149
0234-1 1/2" VSR 0-850 magnum 114
6368 7-1/4 saw w/ct blade 135
6014 1/2 sheet finishing sander 119

Tough Tools For Tough Jobs!

LEI

D1258R-24
24" Dovetail Jig
\$285

D1258R-12 12" dovetail jig 239
MMTA-24 24" mortise attach. 159
MMTA-12 12" mortise attach. 149
LJV instructional video 29

freud

JS100
Jointing System
With Case
\$159

FRT-2000 wooden router table 159
EB-100 edge banding system 229
94-100 5 pc router cabinet set 155
90-100 15 pc 1/4" router bit set 159
FB-100 16 pc Forstner bit set 154

Makita

6093DWX 3/8" VSR
W/Keyless Chuck
\$138

5007NBA 7-1/4" saw w/electric br 128
2708W 8-1/4" table saw w/c.l. bl. 259
2012 12" portable planer 489
LS1030 10" miter saw 229
LS1011 10" comp. miter saw 488
1900BW 3-1/4 planer with case 118

BOSCH

1581VS
Top Handle
Jig Saw
\$128

1582VS barrel grip Clic jig saw 128
1632VSK VS recip. saw kit 135
3050VSRK 3/8" VSR kit w/2 batt 128
1001VSR 3/8" 4.8 amp drill 68
1023VSR 1/2" 0-550 hd VSR drill 99
1404VSR 0-4000 drywall driver 68
1405VSR 0-2500 drywall driver 79
1198VSR 1/2" hammer drill 138

3283DVS
Dustless Random
Orbital Sander
\$98

1273DVS 4x24 VS belt sander 188
12900 1/2 sheet finishing sander 118
1611EVS 3-1/4 hp VS pl. router 233
1604 1-3/4 hp router 122
1609K 3 in one trimmer kit 168

POWERMATIC

166760 66 Saw
3 HP W/50" Bies.
\$1679

1791000 63 Artisan saw w/Vega 699
1791020 3/4" wood shaper 1 hp 479
1971010 15" scroll s. w/blower 159
1791040 14" floor drill press 369

RYOBI

AP10
10" Portable Planer
\$348

JP-155 6-1/8 jointer/planer 308
RA-200 8-1/4 radial arm saw 248
TS25IU 10" miter saw 178
RE600 3 hp VS plunge router 208
R500 2-1/4 hp plunge router 148
BE321 3x21 VS belt sander 128
JM100K NEW! plate jointer 229

Elo

3338
2-1/4 HP VS
Plunge Router
\$249

3304 1 hp VS plunge router 179
3380 jointer/spliner with case 249
3375 3-1/8" universal planer 159
4024 3x21 VS sander with frame 189
4029 4x24 sander with frame 309

HITACHI

C8FB
8-1/2" Compound
Miter Saw
\$449

C15FB 15" miter saw 385
C12FA 12" miter saw 329

DELTA

34-782
3 HP Unisaw
W/Unifence
\$1509*

34-781F 1.5 hp unisaw w/fence 1309*
34-763 3 hp Jet Lock unisaw 1329*
34-761 1.5 hp Jet Lock unisaw 1129*
34-445 10" cont saw w/30" uni 699*
34-670 10" motorized table saw 389
34-330 8-1/4 bench table saw 199
28-283 14" bandsaw w/stand 589*
33-055 8-1/4" sawbuck w/legs 569
37-280 6" motorized jointer 379

43-505
Router
Shaper
\$298

40-560 16" bench scroll saw 185
36-040 8-1/4" compound miter 158
34-080 10" miter saw 199
31-460 4x36 belt/6" disc sander 138
43-375 3 hp 2 speed shaper 1409*
22-66713" planer w/deluxe stand 1149
40-60118" VS scroll saw w/stand 599*
50-179 3/4 hp dust collector 338
32-100 plate jointer 288
34-985 1 phase stock feeder 469
43-355 NEW! 1.5 hp wd shaper 699

BLACK & DECKER

2663K
9.6 Univolt 3/8"
Cordless Drill Kit
\$109

5014 3/4" rotary hammer w/case 169
79-034 workmate 400 109
3047-09 7-1/4 super sawcut w/br. 168
1703 10" miter saw with bag 178

CALL FOR MIKE, TOM OR STEVE!
1-800-358-3096

Box 1716 • Grand Forks, ND • 58206
Send \$2.00 For 170 Page Catalog
FAX US YOUR ORDER!

TOOL CRIB
OF THE NORTH
DIVISION OF a c m e

WOOD Nov.-Dec. 1-701-772-8725

* Price Includes Rebate!

CONTROL THE SPEED OF YOUR ROUTER - ROUT AT THE SPEED THAT GIVES THE BEST RESULTS WITH THE WOOD AND BIT YOU ARE USING!



NOW ONLY \$39.⁹⁵ Order Item #200

FEATURES:

- Speed Adjustable from Full Speed to 0 RPM
- Full Horsepower and Torque at All Speeds
- Go Back and Forth from Any Pre-Set Speed to Full Speed at the Flip of a Switch
- Works with All Routers 3/4 HP or Less
- 120V 15 Amp
- Gives Your Router a Feature Only Available on Routers Costing Hundreds of Dollars!

- Less Tear Out
- Feed at Comfortable Rate
- Better, Safer Results with Large Diameter Bits
- Less Wear on Bits
- Less Noise and Softer Starts at Lower Speeds
- Stops Burning

EASY TO USE - Simply plug in Speed Control and plug your router into the Speed Control - turn dial for best results. (Speed Control has a clip that can be worn on your belt or hung on wall or left loose.)

• Reduces speed electronically without reducing torque; electronic feed-back maintains speed by increasing voltage to motor as load increases.

CARBIDE TIPPED ROUTER BITS PROFESSIONAL PRODUCTION QUALITY GUARANTEED WHEN ORDERING ANY THREE OR MORE DEDUCT \$1.00 EACH. ALL PRICES ARE POSTAGE PAID

ITEM NO.	BEST CUT BEST PRICE	DESCRIPTION	ANGLE/DEPTH/RADIUS CIRCLE DIAMETER	LARGE DIA.	CUTTING LENGTH	SHANK SIZE	PRICE
#601		1/8" Spiral Cutter		1/8"	1/2"	1/4"	\$ 9.00
#602		3/16" Spiral Cutter		3/16"	5/8"	1/4"	\$12.00
#603		1/4" Spiral Cutter		1/4"	3/4"	1/4"	\$12.00
#903		1/4" Spiral Cutter		1/4"	3/4"	1/2"	\$12.00
#904		3/8" Spiral Cutter		3/8"	1"	1/2"	\$24.00
#905		1/2" Spiral Cutter	*Proper Adaptor Will Be Supplied	1/2"	1 1/2"	1/2"	\$29.00
#350		1/8" Round Over	1/8" R	3/4"	3/8"	1/4"	\$11.00
#351		3/16" Round Over	3/16" R	7/8"	1/2"	1/4"	\$11.00
#230		1/4" Round Over	1/4" R	1"	1/2"	1/4"	\$12.00
#353		5/16" Round Over	5/16" R	1 1/8"	1/2"	1/4"	\$14.00
#209		3/8" Round Over	3/8" R	1 1/4"	5/8"	1/4"	\$15.00
#355		1/2" Round Over	1/2" R	1 1/2"	3/4"	1/4"	\$17.00
#656		3/4" Round Over	3/4" R	2"	7/8"	1/2"	\$21.00
#199		Multiform Moulding	Unlimited Patterns	2 1/4"	2"	1/2"	\$40.00
#340		1/8" Cove	1/8" R	5/8"	3/8"	1/4"	\$12.00
#205		1/4" Cove	1/4" R	1"	1/2"	1/4"	\$12.00
#206		3/8" Cove	3/8" R	1 1/4"	5/8"	1/4"	\$13.00
#207		1/2" Cove	1/2" R	1 1/2"	5/8"	1/4"	\$14.00
#208		3/4" Cove	3/4" R	1 7/8"	3/4"	1/2"	\$26.00
#460		1/4" Bull Nose	1/4" Dia. of Circle		3/8"	1/4"	\$14.00
#461		3/8" Bull Nose	3/8" Dia. of Circle		3/4"	1/4"	\$15.00
#462		1/2" Bull Nose	1/2" Dia. of Circle		7/8"	1/4"	\$16.00
#464		3/4" Bull Nose	3/4" Dia. of Circle		1 1/8"	1/4"	\$19.00
#506		1/2" Pattern	Flush Trim	1/2"	1"	1/4"	\$15.00
#507		5/8" Pattern	Flush Trim	5/8"	1"	1/4"	\$16.00
#508		3/4" Pattern	Flush Trim	3/4"	1"	1/4"	\$17.00
#366		1/8" Slot Cutter	3/8" Deep	1 1/4"	1/8"	1/4"	\$14.00
#368		1/4" Slot Cutter	3/8" Deep	1 1/4"	1/4"	1/4"	\$14.00
#204		3/8" Rabbering	3/8" Deep	1 1/4"	1/2"	1/4"	\$13.00

ITEM NO.	BEST CUT BEST PRICE	DESCRIPTION	ANGLE/DEPTH/RADIUS CIRCLE DIAMETER	LARGE DIA.	CUTTING LENGTH	SHANK SIZE	PRICE
#210		1/4" Core Box	round nose	1/4"	1/4"	1/4"	\$ 9.00
#211		3/8" Core Box	round nose	3/8"	3/8"	1/4"	\$10.00
#212		1/2" Core Box	round nose	1/2"	1 1/2"	1/4"	\$13.00
#418		3/4" Core Box	round nose	3/4"	5/8"	1/4"	\$15.00
#213		1" Core Box	round nose	1"	3/4"	1/2"	\$17.00
#214		1/4" Straight	plunge cutting	1/4"	3/4"	1/4"	\$ 6.50
#215		5/16" Straight	plunge cutting	5/16"	1"	1/4"	\$ 6.50
#216		3/8" Straight	plunge cutting	3/8"	1"	1/4"	\$ 6.50
#217		7/16" Straight	plunge cutting	7/16"	1"	1/4"	\$ 6.50
#474		1/2" Straight	plunge cutting	1/2"	1"	1/4"	\$ 7.00
#775		1/2" Straight	plunge cutting	1/2"	2"	1/4"	\$14.00
#218		5/8" Straight	plunge cutting	5/8"	1"	1/4"	\$ 7.00
#219		3/4" Straight	plunge cutting	3/4"	1"	1/4"	\$ 9.50
#220		1" Straight	plunge cutting	1"	1 1/2"	1/2"	\$11.00
#500		3/8" Flush	Trimming	3/8"	1/2"	1/4"	\$ 7.00
#502		1/2" Flush	Trimming	1/2"	1/2"	1/4"	\$ 7.50
#503		1/2" Flush	Trimming	1/2"	1"	1/4"	\$ 8.50
#221		1/2" Flush	Trimming	1/2"	1 3/16"	1/2"	\$ 8.00
#545		Tongue & Groove	Straight	1 5/8"	1"	1/4"	\$29.00
#845		Tongue & Groove	Straight	1 5/8"	1"	1/2"	\$29.00
#546		Tongue & Groove	Wedge	1 3/16"	1"	1/4"	\$29.00
#846		Tongue & Groove	Wedge	1 5/8"	1"	1/2"	\$29.00
#450		1/8" Beading	1/8" R	3/4"	3/8"	1/4"	\$11.00
#451		3/16" Beading	3/16" R	7/8"	1/2"	1/4"	\$11.00
#233		1/4" Beading	1/4" R	1"	1 1/2"	1/4"	\$13.00
#453		5/16" Beading	5/16" R	1 1/8"	1 1/2"	1/4"	\$14.00
#454		3/8" Beading	3/8" R	1 1/4"	5/8"	1/4"	\$15.50
#455		1/2" Beading	1/2" R	1 1/2"	3/4"	1/4"	\$17.00
#530		3/16" Edge Beading	3/16" Dia. of Circle		1/2"	1/4"	\$15.00
#531		5/16" Edge Beading	5/16" Dia. of Circle		1/2"	1/4"	\$15.50

New 24-page catalogue now available, featuring hundreds of bits.

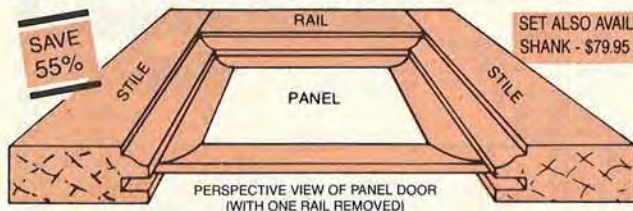
MAKE BEAUTIFUL RAISED PANEL DOORS . . . WITH YOUR 1/4" ROUTER!

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.

Regular value Over \$150.00
SALE PRICE \$69.⁹⁵ FOR COMPLETE SET

ORDER ITEM # 554 for 1/4" Shank Set (Includes all bits shown below)

RAIL & STILE SHAPER CUTTER
Item #150 - \$49.95

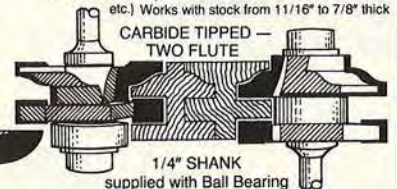
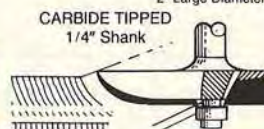


SET ALSO AVAILABLE IN 1/2" SHANK - \$79.95 - Item #852

RAISED PANEL BIT
SUPPLIED WITH BALL BEARING

REVERSIBLE COMBINATION RAIL and STILE BIT

(For making matching rails and stiles in raised panel doors, etc.) Works with stock from 1 1/16" to 7/8" thick



To order by Master Charge or Visa Call Toll Free, 7 Day - 24 Hour Order Service,
1-800-533-9298 or send check to: **MLCS Ltd., P.O. Box 4053DA, Rydal, PA 19046**

TALKING BACK

Continued from page 8

Wood in his veins and liking it

Well, if all things in life don't turn 'round and 'round, e.g. the "Finishing Touches" mention in the April 1990 issue about barking trees to reduce weight.

Seems like a few summers in the Northeast during my youth were spent with a spud in like manner—peeling the bark from trees to be sold to the paper mills. The mills in Maine liked wood without the bark and paid premium prices to get it. Anyway, it was a sticky way to make a buck, and the blackflies were awful.

I still have that spud, and from time to time sharpen it up and shave with it. Try that with today's tool steel!

Sign me as one with wood in my veins, who loves your magazine.

James A. Leach, Orono, Maine

Jim, thanks for sharing your memories. Peeling logs destined for paper mills remains a common



summertime job in many parts of the nation. In Wisconsin, for instance, kids get about 25 cents a log for peeling popple (aspen). And, yes, those pesky blackflies are still around, too. But, you're the only one we know who shaves with a spud!

Triplets in the shop? Yes!

A while back, a reader wrote about his daughter or granddaughter who hurt herself falling off a stool in his shop. His conclusion was that kids have no business in the shop. I totally disagree. Kids do belong in the shop, albeit with proper supervision. Yes, they will get hurt, but they also will get hurt playing on the playground or learning to ride a bicycle. What craftsman worth his sawdust has never had a subungual hematoma (thumb ouchie)?

Supervision is the key to minimizing shop injuries. I have a set of 12-year-old triplets as well as a 16-year-old daughter. You can frequently find any one of the four in the shop. They are allowed to use hand tools without over-the-shoulder supervision. Power tools require closer supervision and were not introduced in our children until they became middle-school students.

—Larry S. Buege, Marquette, Mich.

Continued on page 16

★ SANDPAPER ★

NO GIMMICKS — GREAT PRICES

BELTS: GRITS ASSORTED

UNLESS OTHERWISE SPECIFIED

1 x 30	\$.69 ea	3 x 24	\$.80 ea
1 x 42	.69 ea	3 x 27	.83 ea
1 x 44	.69 ea	4 x 21 1/4	.91 ea
2 1/2 x 16	.73 ea	4 x 24	.94 ea
3 x 18	.74 ea	4 x 36	1.14 ea
3 x 21	.77 ea	6 x 48	2.98 ea
3 x 23 3/4	.80 ea	2 1/4 x 80	2.47 ea

OTHER SIZES ON REQUEST

NO LOAD PAPER

	50 /pk	100 /pk
180-A thru 400-A	\$10 /pk	\$18 /pk

PRESSURE SENSITIVE

ADHESIVE DISCS!

6"	\$1.06 ea	★ OTHER ITEMS ★
8"	1.99 ea	★ WIDE BELTS
9"	2.46 ea	★ ROLLS
10"	3.05 ea	★ FLAP WHEELS
12"	4.45 ea	★ PUMP SLEEVES
15"	6.95 ea	

- ★ MINIMUM ORDER \$25.00
- ★ MASTERCARD, VISA OR CHECK
- ★ SATISFACTION GUARANTEED!!
- ★ CALL FOR NEW 1990 CATALOG

SHEETS: (9 x 11) PRICE

CABINET PAPER

	50 /pk	100 /pk
40-D	\$16 /pk	\$30 /pk
50-D	15 /pk	27 /pk
60-D	14 /pk	25 /pk
80-D	13 /pk	23 /pk
100 thru 150C	12 /pk	21 /pk

FINISHING PAPER

	50 /pk	100 /pk
80-A	\$ 9 /pk	\$16 /pk
100 thru 280A	8 /pk	14 /pk

WET / DRY PAPER

	50 /pk	100 /pk
220 thru 600A	\$13 /pk	\$23 /pk

★ JUMBO CLEANING STICK \$8.80 ★

ECON-ABRASIVES
P.O. BOX B865021
PLANO, TX 75086

IN TEXAS 214-377-9779
OUTSIDE TEXAS 1-800-367-4101

TEXAS RES. ADD 7% SALES TAX
CONTINENTAL U.S. SHIPPING CHARGES ADD \$4.25

New! Conveyor Drive DRUM SANDER

with Infinitely Variable Power Feed!



At last! A complete power-feed Drum Sander at an affordable price! Choose from 26" and 38" models. SAVES TIME... IMPROVES RESULTS. Use this high-tolerance machine for light dimensioning as well as the finest finish work. Now you can add new beauty to each woodworking project...save hours of tedious hand sanding! In a matter of seconds you can produce a satin-smooth finish impossible to duplicate with hand methods or hand-held power sanders...no more low spots, waves or cross-grain marks!

FREE FACTS! Send for complete facts on how you can try this low-cost tool in your own shop for one full month without risk. See how the sander can dimension and finish-sand cabinet pieces, resawn stock, paneling, toys, tabletops, knees, burls, crotches and much, much more! Made in U.S.A. Easy Terms.

Call Toll Free 1(800)821-6651, Ext. RW41

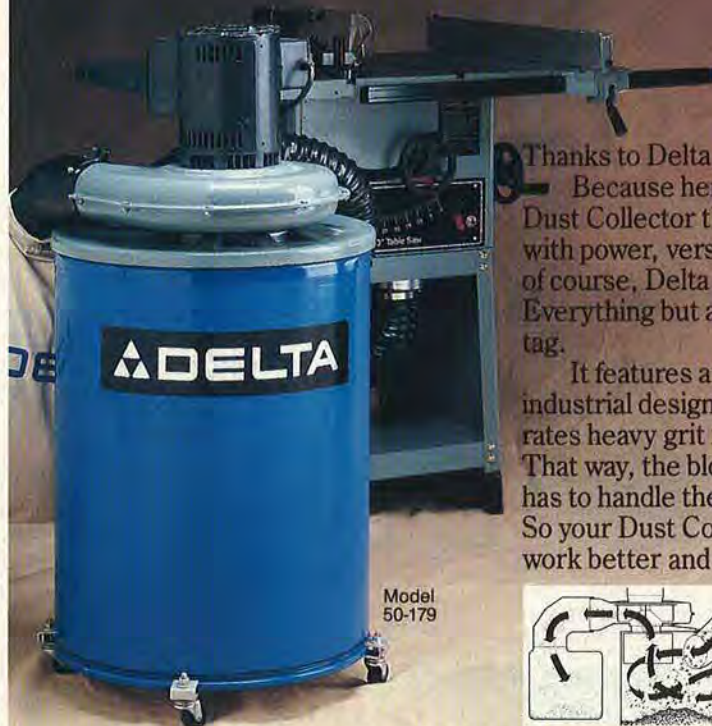
- ✓ **NEW INFINITELY VARIABLE CONVEYOR FEED** gives you total control...eliminates oversanding at first and last few inches of a board!
- ✓ **NEW FELT-BACKED ABRASIVE** mounts in just seconds to Velcro covered drum! The harder you sand, the tighter it stays! Eliminates stretching...allows fast removal and re-use!

FREE FACTS **YES!** Please rush my **FREE INFORMATION KIT** and details on your 30-Day Free Trial Guarantee.

Woodmaster Tools, Dept. RW41
2908 Oak, Kansas City, MO 64108

NAME _____
ADDRESS _____
CITY _____
STATE _____ ZIP _____

Don't get left in the dust.



Model 50-179

Thanks to Delta, you won't. Because here's a Dust Collector that comes with power, versatility and, of course, Delta quality. Everything but a big price tag.

It features a two-stage industrial design that separates heavy grit from dust. That way, the blower only has to handle the fine dust. So your Dust Collector will work better and last longer.



Plus the motor/blower generates an air flow four times more powerful than industrial vacuums. And the 35-gallon fire resistant drum can handle all the dust most any tool can dish out.

Now you can make a clean sweep with this compact, portable Dust Collector from Delta. Call toll-free for the name of your nearest Delta dealer. Delta International Machinery Corp., 800/438-2486.

Building
On Tradition
DELTA
A Pentair Company

RIPSTRATE SAVES FINGERS®

AND PREVENTS KICKBACKS

The most compact, easy to use and *adjustment free* hold down you can buy, and it gives arrow straight cuts with *no hands near the blade*. Steel and cast iron construction.

YOUR HANDS DESERVE THE BEST!

Used by thousands of hobbyists, professionals, schools, corporations, government and military installations.

One year guarantee. 30 day money back trial.

Only \$69 plus \$3.50 ship. Check, M.O., Visa or M/C. Free brochure.

WRITE OR CALL OUR TOLL FREE NUMBER: 1-800 421 0256

FISHER HILL PRODUCTS INC 4 FISHER HILL FITZWILLIAM NH 03447



MADE IN
USA

CREATE A FAMILY TREASURE WITH KUEMPEL CHIME

Red-i-Kut Kits

Each case is carefully handcrafted by grandfathers in 3/4" walnut cherry or oak. Precision West German movements, handcrafted pendulums, and individually handpainted moonwheels.

Write or Call for
Catalog \$2
1-800-328-6445
Kuempel Chime

Dept. 024
21195 Minnetonka Blvd.
Excelsior, MN 55331
Serving clockmakers for 65 years.



The Finest Quality
at the Right Price

NORTHEASTERN HARDWOODS

25 Morningside Avenue
Salamanca, NY 14779
Phone 716-945-1510
Fax 716-945-2170
(Over 20 Species)

MONTHLY SPECIAL

BLACK WALNUT — \$1.60 BF-S2S - HIT OR MISS - 1 COM, KILN DRIED RL/RW - LESS THAN 1/2 PRICE - NORMAL \$3.25 BF - SALE \$1.60 BF. Limited Quantity Sale - Order early to assure supply. Call for freight deliveries to your door.

BLACK WALNUT — ANY QUANTITY \$1.85 BF - 6/4, 8/4, 10/4, KILN DRIED 2" TO 10" WIDTH, 12" TO 30" LENGTH. Sold by the 20 BF bundles, mixed widths and lengths. A best buy for wood turners and wood carvers. One thickness per bundle, please. All bundles shipped UPS for quick delivery.

ALL HARDWOODS ARE NOT CREATED EQUAL! Don't compromise - compare our Pennsylvania Grade Hardwoods for quality, beauty, machinability, and workability.

BUILD IT YOURSELF

TOYS • PUZZLES • PLAQUES • PLANTERS
FURNITURE • LAWN ITEMS • BIRD HOUSES
ROCKING & RIDING HORSES • PLAY SETS



PATTERNS

SAME SIZE • NO ENLARGING
HUNDREDS OF FUN ITEMS CATALOG
1,000 CRAFT & HOW-TO BOOKS \$1.00

Design Group, Box 514-Z, Miller Place, N.Y. 11764

Full-Size Professional Plan

PENNSYLVANIA

DOWER CHEST



Add to your Early American collection by making this colorful painted chest with lift lid, two drawers and dovetail corners. Flower and animal motifs are color keyed. A great gift idea! Size: 18" x 40" x 24" high.
Plan #187 \$12.95
(Catalog free with order)

CATALOG 200 full-size professional furniture plans — \$3.00

FURNITURE DESIGNS, INC., Dept. BC-110
1827 Elmdale Ave., Glenview, IL 60025 (708) 657-7526

WOOD MAGAZINE DECEMBER 1990

THE SANDER WITH STRONG APPEAL

POWER

For Abrasive Planing

PRECISION

For Flawless Sanding

SPEED

For Production Woodworking



NEW!
5 HP Motor
24" Sanding Width
Variable Feed Rate
(0-20 feet/minute)

SUPER-MAX

Heavy Duty Drum Sander

The efficient design of the Super-Max combines the proven features of the Performax S/T Drum Sander and the Power Feed with a 5 HP motor and a heavy duty stand for the most affordable drum sander of its size.

The patented, self-cooling, sanding drum has built-in sandpaper fasteners for quick and easy sandpaper attachment without adhesives or tape.

The innovative Power Feed uses an abrasive conveyor belt for a hard, non-slip surface for precise sanding and a consistent feed rate. These exclusive features will uniformly sand veneers and boards as short as 2-1/4".

Performax Products offers a complete line of affordable and efficient drum sanders for use in cabinet shops, home workshops, custom furniture shops and in musical instrument making.

For a Free Brochure or the Dealer Nearest You Call or Write to:



1-800-334-4910

12211 Woodlake Dr., SC, Burnsville, MN 55337

TRIMTRAMP™

INSTANTLY CONVERTS YOUR PORTABLE CIRCULAR SAW INTO A PRECISION MITER AND CROSSCUT SAWTABLE



- Constrains your saw to cut backwards and downwards like a radial arm saw, for unsplintered cuts of cabinet-maker quality.
- Fixed left and right 45° fences provide perfect 90° picture-frame-quality miter joints every time. Right hand miter fence adjustable through 135°.
- Crosscuts boards up to 15" wide. No set-up change required between crosscuts and miter cuts, because crosscut fence instantly flips down out of the way, also clearing sawdust from the crosscut fence.
- Can be used on a bench, clamped in a B&D "WORKMATE", or on the floor.
- 24" x 32" x 5"; carries under one arm; do your cutting outside.
- Disengage your saw for use as a handtool, or re-engage it, in 5 seconds.

TRIMTRAMP with a good saw is an excellent sawtable for fine carpentry at an affordable cost. When a variety of different cuts has to be made in sequence, such as trimming around a door, it is the most labor-efficient sawing device available. **TRIMTRAMP** is the first precision power sawing device a craftsman should acquire. If you try **TRIMTRAMP** first you will never buy a radial-arm saw. If you already own a good table saw, you will appreciate **TRIMTRAMP** for its portability and efficiency.

TRIMTRAMP accepts the following saws and many others:
Ski #s 5150, 5350, 5656; B&D #s 5728, 5738, 5748, 3027, 3028, 3030; Makita 7-1/4" saw, Sears #s 600, 650, 850, 900

MONEY BACK GUARANTEE

If you are not satisfied, return your **TRIMTRAMP** within six weeks for a full immediate refund of the purchase price. **TRIMTRAMP LTD.**, P.O. Box 740, Buffalo, N.Y. 14213 Telephone 416-795-1115. No collect calls please.

Purchase price of \$99.95 enclosed, together with \$10.00 delivery charges.

Check Visa MasterCard Expiry Date: _____

Card Signature: _____ Card #: _____

Customer name (print): _____

Customer address: _____

State _____ Zip _____ Phone _____

*TRIMTRAMP is the registered trademark of TRIMTRAMP LTD., product protected under U.S. pat. 4,909,111

12-Pc. Set Only
\$69.99
plus shipping

GREAT GIFT IDEA!

12-Pc. Carbide-Tipped Router Bit Set

At An **Incredibly Low Price!**

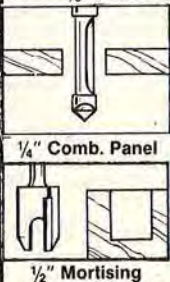
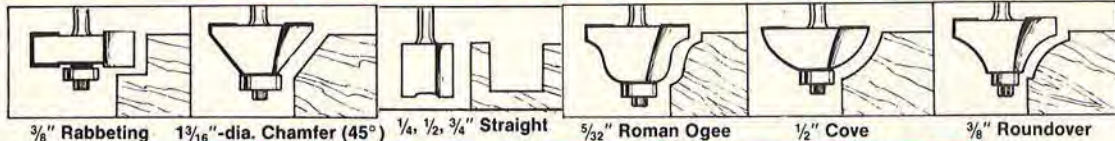
Here's why these are the best router bits for your jobs...

- **Thicker, more durable carbide surface** than others on the market handles the high heat better, to last far longer.
- **Manufactured with NEW ball bearings** (cheaper sets use refurbished bearings)

YOU CAN'T BEAT THIS PRICE, SO ORDER TODAY

12-Pc. Set Only
\$69.99
plus shipping

ORDER TOLL-FREE
1-800-237-5907
24 Hours A Day



Please send me:

_____ 12-Pc. Carbide Router Bit Set(s) #23747 at \$69.99 each
Shipping/Handling \$ 5.95
Sales Tax (OH & MI)
TOTAL

Method Of Payment:

Check Visa MasterCard AmEx Discover

Card # _____ Good Thru _____

Name _____

Address _____

City _____ State _____ Zip _____

FREE CATALOG with your order!

LEICHTUNG WORKSHOPS

Dept. 162
4944 Commerce Pkwy.
Cleveland, OH 44128

90-DAY MONEY-BACK GUARANTEE!

TALKING BACK

Continued from page 13

Help!

We have tentative plans to publish the cute toy at right from the 1989 Design-A-Toy contest, but we've misplaced the tag identifying the toy designer. Can anyone out there help us? Please come forward and call Marlen Kemmet, how-to editor, at 800-678-2666.



Watch out for imitators

Jim Boelling offered an excellent suggestion in your August 1990 "Products That Perform." The single-flute countersink with the "hole in the head" feature is a wise choice for smooth countersunk holes.



The Weldon Tool Co. of Cleveland, Ohio, patented this countersink configuration. Since the patent expired, there have been a number of imported look-alikes appear on the market. None of these, however, perform as well as the original Weldon countersink.

For the name of your nearest distributor, call the Weldon Tool Co., 216/721-5454.

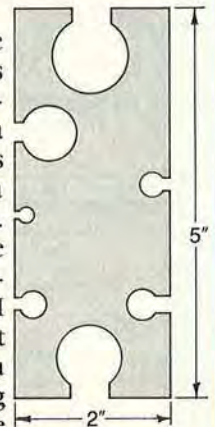
—Paul Muratet, Tulsa, Okla.

Most countersink bits have a tendency to chatter and wobble when countersinking a hole already drilled. For an easy remedy, countersink the mark first and then drill the hole. This way, the countersink has solid wood at its point and can't vibrate.

—Tom Horton, Agincourt, Ontario

In the groove with dowels

Your idea in the April 1990 issue [page 16] about grooving dowels was very interesting. In fact, so interesting that it gave me the idea for this little jig I made for all sizes of dowels. From scrap, I cut a block of wood $2 \times 2 \times 5$ " long. Then, I drilled holes $\frac{1}{8}$ " from the edge of the block to fit different-sized dowels. On the bandsaw, I cut a lengthwise opening about one-third the size of the hole. You can groove any dowel by inserting it in its proper-sized hole. I hope the sample drawing puts my point across.



—Clement Michaud, Chicago

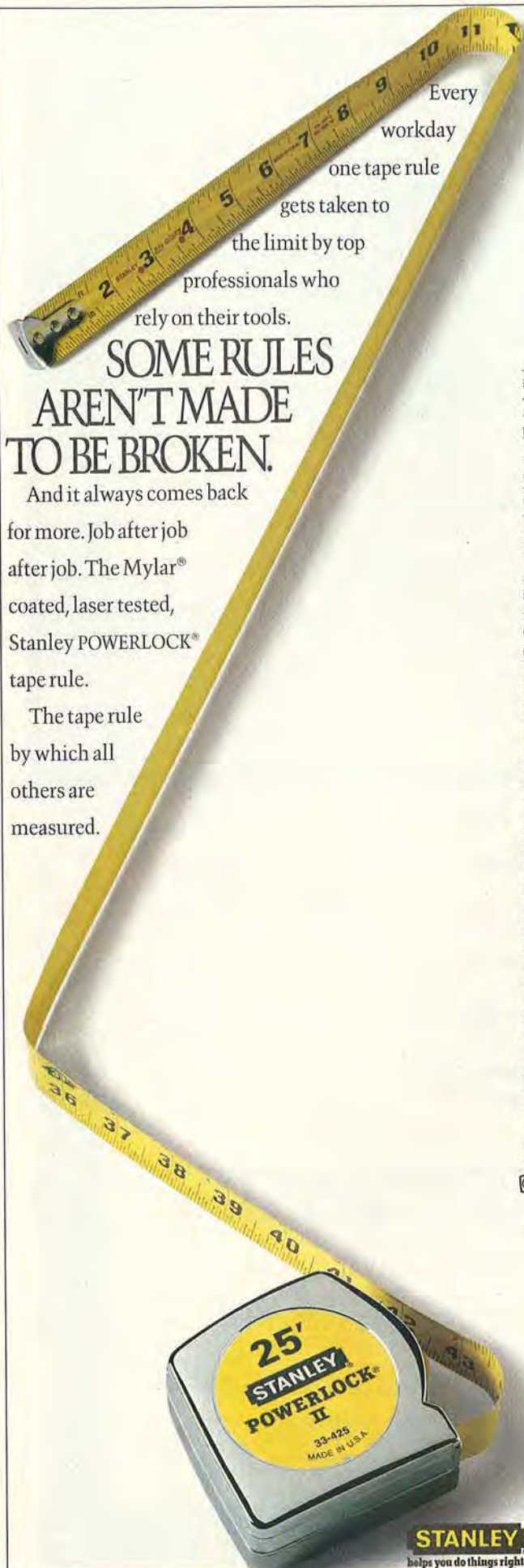
Your idea and your drawing are just fine, Clement. Thanks for the suggestion. ♣


Illustrations: Jim Stevenson

SOME RULES AREN'T MADE TO BE BROKEN.

And it always comes back for more. Job after job after job. The Mylar[®] coated, laser tested, Stanley POWERLOCK[®] tape rule.

The tape rule by which all others are measured.




 BADGE OF THE PROFESSIONAL[™] The design of the POWERLOCK[®] Tape Rule case is a registered trademark of The Stanley Works. © 1990 Stanley Tools, Division of The Stanley Works

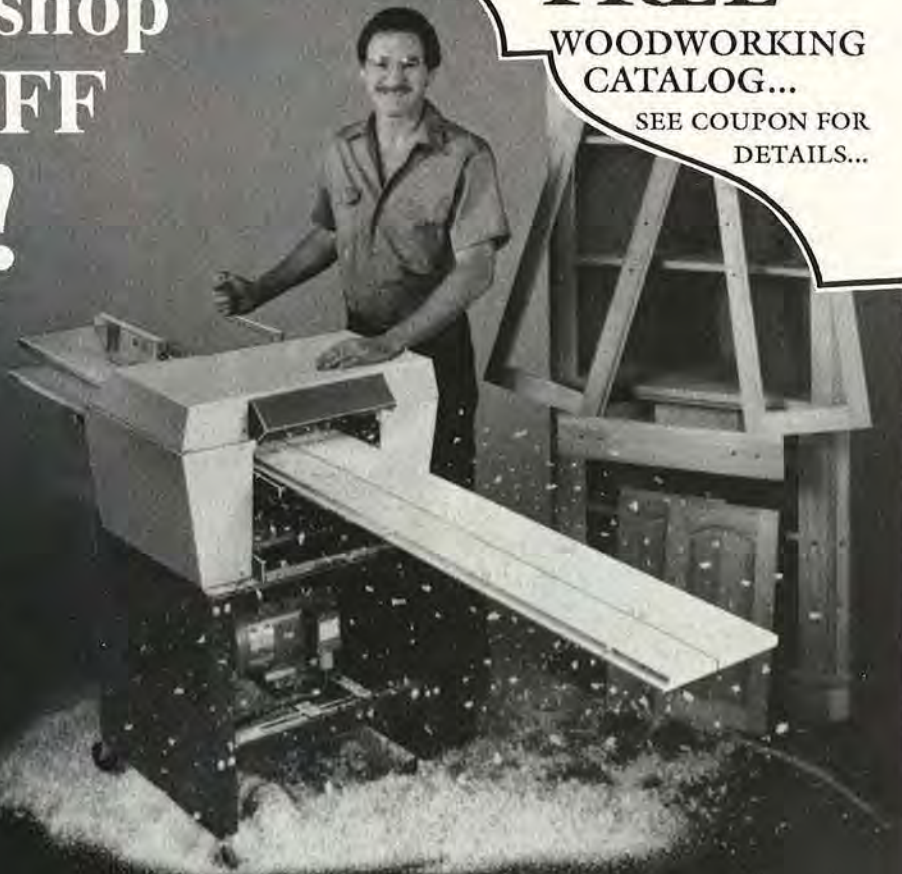
STANLEY
helps you do things right.

Your workshop can PAY OFF ...BIG!

SAVE ... convert low
cost rough lumber
for use in your
home projects

OR

**EARN EXTRA
INCOME** by supplying
custom Planed Lumber,
trim, and molding to
lumberyards ...
contractors ...
cabinetmakers ... home
hobbyists and others ...



FREE WOODWORKING CATALOG...

SEE COUPON FOR
DETAILS...

FOUR BIG ADVANTAGES ...



PLANE



MOLD



SAW



SAND

You can plane, mold, saw & sand All with Automatic Power Feed!

From the Day It Arrives ... the Planer will make and save you money. With shortages and inflation driving lumber prices sky-high, this versatile power feed tool quickly pays for itself by easily converting low cost rough lumber into high value finished stock. In just one pass turn out your own quarter round, door and window stop, casing, tongue-and-groove ... all popular patterns. Other operators are making cases for grandfather clocks, furniture, picture frames, bee hives, bed slats, surveying stakes ... all kinds of millwork.

Built For Pros ... Priced For Home Craftsmen ... it is engineered and built to industrial standards, but factory-direct selling keeps the price low. Handles tough oak and walnut as easily as pine, and so simple to operate even beginners with no experience can use it.

Start Your Own Business ... with just this one low cost power feed machine in a corner of your garage or basement, you're set up to supply lumberyards, cabinetmakers, carpenters, remodelers, contractors and hobbyists in your area with custom-planned lumber, trim, molding ... All of their millwork requirements. You can supply picture frame moldings to art shops, hardware and department stores, or sell direct to framing shops. All standard patterns are available from stock, or we'll custom grind a knife to your own special design or sample.



**FREE
BOOKLET!**

Get **FREE
BOOK** with
facts and
full details

... **RUSH COUPON TODAY!**

SAVE!! FACTORY PRICES DIRECT TO YOU!

PLUS Receive a FREE Woodworking Tool and Accessory Catalog

Just Mail Coupon ...
**30-DAY FREE
TRIAL OFFER!!!**
ACT NOW!
*Coupon
Brings
Full Details!*



FOLEY-BELSAW CO.
6301 EQUITABLE RD
KANSAS CITY, MO 64120
Established in 1926

- YES, please send me the FREE Booklet that gives me complete facts about your Planer-Molder-Sander-Saw and full details on how I can qualify for a 30-Day FREE Trial right in my own shop. I understand there is No Obligation and that No Salesman will call and that I will receive your quarterly Woodworking Catalog. Dept. 91593
- NO, I'm not interested in a Foley-Belsaw Planer-Molder-Sander-Saw, but please send me your free Woodworking Catalog. Dept. 44127

NAME _____

ADDRESS _____

CITY _____

STATE _____

ZIP _____

Participating Jet Dealers

ALABAMA

Birmingham Saw Works
910 No. 28th St.
Birmingham, AL 35203
(205) 252-9757
(800) 289-SAWS

Kentec Tool & Equipment
3133 Lorna Rd.
Birmingham, AL 35206
(205) 822-6451

Coastal Saw & Machinery
1688 So. Bellline Hwy.
Mobile, AL 36609
(205) 666-1180
(800) 333-SAWS

Kentec Tool & Equipment
3991 Government Boulevard
Mobile, AL 36693
(205) 666-6351

CALIFORNIA

California Woodworking Machinery, Inc.
1566 W. Lincoln Ave.
Anaheim, CA 92801
(714) 772-2501

Rayco Industrial Supply
208 So. Hwy. 59
Merced, CA 95340
(209) 723-3241

Rayco Industrial Supply
512 River Rd.
Modesto, CA 95351
(209) 529-8984

Santa Rosa Tool & Supply
1651 Piner Rd.
Santa Rosa, CA 95403
(800) 346-0387 National
(800) 464-8666 in CA

Rayco Industrial Supply
1110 So. Wilson Way
Stockton, CA 95205
(209) 467-0302

Rayco Industrial Supply
571 No. Tully Rd.
Turlock, CA 95380
(209) 632-2315

COLORADO

Mountain & Plains
2540-19th St.
Denver, CO 80211
(303) 480-9665

DELAWARE

The Tool Shed
12 McCullough Dr.
New Castle, DE 19720
(302) 322-1900

GEORGIA

Morgans, Inc.
4175 Norwich St.
Brunswick, GA 31521
(912) 267-9523

Kentec Tool & Equipment
535 Indian Trail Rd.
Lilburn, GA 30247
(404) 925-3674

Kentec Tool & Equipment
6641 Hillendale Rd.
Lithonia, GA 30058
(404) 482-1031

Kentec Tool & Equipment
1033 Franklin Rd.
Marietta, GA 30067
(404) 955-4249

Kentec Tool & Equipment
11235 Alpharetta Hwy.
Roswell, GA 30075
(404) 664-7238

Morgans, Inc.
110 Ann St.
Savannah, GA 31402
(912) 234-2271
(800) 342-1333

Morgans, Inc.
312 Northside Dr. West
Statesboro, GA 30458
(912) 764-4357

Whitehead Hardware Company
104 So. Lee St.
Valdosta, GA 31601
(912) 242-3910
(800) 777-3912

IDAHO

Coeur d'Alene Power Tool & Hardware
451 Cherry Lane at Hwy. 95
Coeur d'Alene, ID 83814
(208) 667-1158

ILLINOIS

Fox Valley Hardwoods
24 No. Batavia Ave. (Rt. 31)
Batavia, IL 60010
(708) 879-9535
(800) 244-3536

The Woodworker's Shop

702 So. Gridley
Bloomington, IL 61701
(309) 829-0099

The Woodworker's Shop

3405 No. Rt. 47
Morris, IL 60450
(815) 942-5865

The Woodworker's Shop

Div. of Pekin Hardwood Lumber, Inc.
Manito Rd.
Pekin, IL 61554
(309) 347-5111
(800) 475-WOOD (9663)

IOWA

C. W. Crossen Co.
706 E. River Dr.
Davenport, IA 52803
(319) 324-9365
(800) 722-9342

Puckett Tools & Fasteners

841-11th St.
Des Moines, IA 50309
(515) 244-4189
(800) 544-4189

Hazen Supply Corp.
Rural Rt. 1
Mt. Union, IA 52644
(319) 865-7641

KANSAS

Thornton Co.
1707 So. Hoover
Wichita, KS 67209
(316) 942-8474

MARYLAND

Skarie, Inc.
707 No. Howard St.
Baltimore, MD 21201
(301) 728-6000

The Source
12096 Conway Rd.
Beltsville, MD 20705
(301) 490-8280
(800) 470-3441

MICHIGAN

The Edge
5055 Canterbury
Brighton, MI 48116
(313) 227-5684
(800) 545-EDGE (3343)

The Tool Haus
G-3029 So. Dort Hwy.
Flint, MI 48507
(313) 743-9300

The Tool Haus
630 No. Silverleaf
Gladwin, MI 48624
(517) 426-4949
(800) 878-6657

Engelswood Power Tools
25402 Harper
St. Clair Shores, MI 48081
(313) 772-4488

MINNESOTA

Lyle's Woodworking Machinery & Supply, Inc.
1319 Frost Ave.
Maplewood, MN 55109
(612) 771-0167
(800) 762-0871

Seven Corners Ace Hardware, Inc.
216 West 7th St.
St. Paul, MN 55102
(612) 224-4859
(800) 328-0457

MISSOURI

The Wood & Shop, Inc.
14430 Hwy. 40 & 121 Woods Mill Ctr.
Chesterfield, MO 63117
(314) 275-7858

The Wood & Shop, Inc.
5605 No. Lindbergh
Hazelwood, MO 63042
(314) 731-2761

Pyramid Products, Inc.
7440 E. 12th St.
Kansas City, MO 64126
(816) 241-3600
(800) 747-3600

The Wood & Shop, Inc.
13202 Tesson Ferry Rd.
St. Louis, MO 63128
(314) 878-3637

NEBRASKA

Pyramid North
4544 So. 133rd
Omaha, NE 68144
(402) 334-9262
(800) 652-8872

NEW HAMPSHIRE

Brentwood Machine Sales
Rt. 125
Brentwood, NH 03042
(603) 679-8452
(800) 582-7229

NEW JERSEY

Hunterdon Mill & Machine Supply
291 Rt. 22 E.
Lebanon, NJ 08833
(201) 534-2221

Rudolph Bass
45 Halladay St.
Jersey City, NJ 07304
(201) 433-3800

NEW YORK

T. R. Smith, Inc.
5266 Seneca St.
Buffalo, NY 14224
(716) 674-4127

The Tool Warehouse
1170 Route 109
Corner of Albany Ave.
Lindenhurst, NY 11757
(516) 225-5815

The Tool Warehouse
2867 Long Beach Rd.
Oceanside, NY 11572
(516) 763-4100

Culver-Atlantic Corp.
70 Greenleaf St.
Rochester, NY 14609
(716) 288-1430

Jackson Saw & Knife Co.
517 State St.
Rochester, NY 14608
(716) 546-7485

McQuade + Bannigan
1300 Stark St.
Utica, NY 13503
(315) 724-7119

McQuade + Bannigan
124 Murrock Circle
Watertown, NY 13601
(315) 788-2612

NORTH DAKOTA

Acme Electric
1009 Basin Ave.
Bismarck, ND 58501
(701) 258-1267

Acme Electric
3401 Interstate Blvd.
 Fargo, ND 58103
(701) 235-8060

Acme Electric
1705-13th Ave. No.
Grand Forks, ND 58201
(701) 746-2800
(800) 358-3096

Acme Electric
525-20th Ave. S.E.
Minot, ND 58701
(701) 839-2263

OHIO

Kohlmyer Supply, Inc.
5000 Grove Ave. (Rt. #57 N)
Lorain, OH 44055
(216) 277-8288
(800) 358-9878

Quality Saw & Tool, Inc.
328 So. Main St.
Mansfield, OH 44903
(419) 526-4221

Quality Saw & Tool, Inc.
4538 Indianola Ave.
Columbus, OH 43214
(614) 262-0828

Harris Tool, Inc.
460-C Schrock Co.
Columbus, OH 43229
(614) 848-5535
FAX (614) 848-3852

Barry Electric
3610 Elida Rd.
Lima, OH 45802
(419) 331-1547

Tim Stone Power Tool
142 Union St.
Newark, OH 43055
(800) 345-4172 in OH
(614) 344-9404 Outside OH

T-Saw & Tool Co.
1777 Pennsylvania Ave.
Salem, OH 44460
(216) 332-4547

Electric Tool & Equipment
3156 Upton Ave.
Toledo, OH 43613
(419) 474-7537
FAX (419) 474-3987

OREGON

Allen Industrial Tool
1800 N.W. 167th, Space 115
Beaverton, OR 97006
(503) 629-5667

Tool Post
1533 Hwy. 99 N.
Cottage Grove, OR 97424
(503) 942-8665

Cal-Ore Carbide
2917 No. Pacific Hwy.
Medford, OR 97501
(503) 772-2293
(800) 542-9993

Barbo Machinery Co., Inc.
4617 S.E. Milwaukie Ave.
Portland, OR 97202
(503) 232-8158
(800) 422-8503 OR Wals

The Tool Peddler
11493 S.E. 82nd Ave.
Portland, OR 97266
(503) 653-7084
(800) 344-8469

Allen Industrial Tool
1415 Liberty St. N.E.
Salem, OR 97303
(503) 363-3106
(800) 274-5220

Tool Post
1408 Main St.
Springfield, OR 97477
(503) 741-0860

PENNSYLVANIA

Blue Ball Machine Co.
1116 Division Hwy.
Blue Ball, PA 17506
(717) 354-4478

Woodworkers World
3401 Hartzdale Dr.
Camp Hill, PA 17011
(717) 731-1008

Woodworkers World
136 Town Center Rd.
King of Prussia, PA 19406
(215) 265-3310

Woodworkers World
1509 Litz Pk.
Lancaster, PA 17601
(717) 299-5264

TENNESSEE

Walter A. Wood Supply Co.
4501 Rossville Blvd.
Chattanooga, TN 37407
(615) 867-1033
(800) 476-1415

Tennessee Machinery
4426 Middlebrook Pike
Knoxville, TN 37950
(615) 584-1908
(800) 999-8542

Kentec Tool & Equipment
2177 Nolensville Rd.
Nashville, TN 37211
(615) 255-8771

Tennessee Machinery
1133 Polk Ave.
Nashville, TN 37202
(615) 244-8150
(800) 999-8366

TEXAS

Texas Tool Traders
2215 East Division
Arlington, TX 76011
(817) 640-9846

Texas Tool Traders
10435 Burnet Rd. #110
Austin, TX 78758
(512) 339-4346

Texas Tool Traders
2414 So. Jupiter
Garland, TX 76041
(214) 278-0049

Texas Tool Traders
5900 No. Freeway
Houston, TX 77076
(713) 699-9909

Texas Tool Traders
440 Hwy. 6 South
Houston, TX 77079
(713) 496-0811

Texas Tool Traders
120 Gulf Frwy. (I-45 South)
League City, TX 77573
(713) 332-9201

Texas Tool Traders
2192 Jackson Keller
San Antonio, TX 78213
(512) 525-1418

Texas Tool Traders
Rt. 3, Box 351
Wiemar, TX 78962
(409) 263-5015

UTAH

Industrial Supply Co., Inc.
1635 So. 300 West
Salt Lake City, UT 84115
(801) 484-8644

VIRGINIA

Rocking R Hardware
1030 So. High St.
Harrisonburg, VA 22801
(800) 726-7625

The Source
9205 Venture Ct.
Manassas Park, VA 22111
(703) 330-9446

The Source
7305 Boudinot Dr.
Springfield, VA 22150
(703) 644-5460
(800) 452-9999

Corner Hardware
313 W. Main St.
Waynesboro, VA 22980
(703) 949-8229

WASHINGTON

Eastside Saw & Sales, Inc.
12880 Bel-Red Rd.
Bellvue, WA 98005
(206) 454-7627
(800) 962-0279

Spokane Power Tool
East 801 Trent Ave.
Spokane, WA 99202
(509) 489-4202
(800) 426-0013 in WA
(800) 521-1770 Out of WA

Tacoma Screw Products
2001 Center St.
Tacoma, WA 98409
(206) 572-3444
(800) 562-8192 in WA
(800) 426-8156 Out-of-State

Tacoma Screw Products
5241 Auto Center Way
Bremerton, WA 98312
(206) 479-0230

Tacoma Screw Products
20440-84th Ave. So.
Kent, WA 98032
(206) 395-9770

Tacoma Screw Products
11200-120th Ave. N.E.
Kirkland, WA 98033
(206) 822-2585

Tacoma Screw Products
3930 Leary Way N.W.
Seattle, WA 98107
(206) 632-7565

Tacoma Screw Products
807 So. Fidalgo St.
Seattle, WA 98108
(206) 767-3750

Tacoma Screw Products
2222 Port of Tacoma Rd.
Tacoma, WA 98421
(206) 383-4435

WISCONSIN
Lakeshore Machinery, Inc.
3620 No. 126th St.
Brookfield, WI 53005
(414) 781-7560

Woodcrafters Wood & Tool Store, Inc.
1607-7th
Green Bay, WI 54304
(414) 496-0208

Lyle's Woodworking Machinery & Supply, Inc.
1600A E. 4th St.
Marshfield, WI 54449
(715) 384-9998
(800) 472-5680

JET
EQUIPMENT & TOOLS
P.O. Box 1477
Tacoma, WA 98401
(206) 572-5000

J E T

A World Of Value.

Take A Close Look...



“at a real deal”

At these special prices you can complete your workshop. When you buy a JET machine from your local distributor you get a quality machine at a reasonable price, a full one-year warranty, parts availability and local technical assistance by your distributor!

The 10" table saw features a 27" x 40" table, 10" blade capacity, and a 1 1/2 HP motor. The 14" bandsaw has a full 1 HP motor with three speeds for wood or non-ferrous metal cutting, and a 45° tilting 14" square table. The shaper has an 18" long table and 1/2" spindle capacity. The 6" jointer has a long 28" fence and 42 1/2" table and a three-knife cutter. The powerful 15" planer has a 3 HP, 1 Ph motor which allows a maximum 1/8" full width cut. The portable dust collector may attach to a variety of machines and has a 2.12 C.F. capacity collector bag and a very quiet 55 D.B. noise level.

For full details, see your local JET Distributor today.

Prices are effective while supplies last.

	User Special		User Special
JTS-10 Table Saw	\$ 549.00	JJ-6 Jointer	\$ 449.00
JBS-14MW Bandsaw	\$ 459.00	JWP-15H Planer	\$1,269.00
JWS-18 Shaper	\$ 439.00	DC-610 Dust Collector	\$ 279.00

WOODWORKING



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 get at least \$25 from WOOD magazine (up to \$200 if we devote a page or more of space elsewhere in the magazine to your idea). You also may earn a woodworking tool for submitting the top shop tip for the issue.

We try not to use shop tips that have appeared in other magazines, so please send your tip to only one publication. We cannot return shop tips. Mail your tips (a small sketch helps), address, and daytime phone number to:

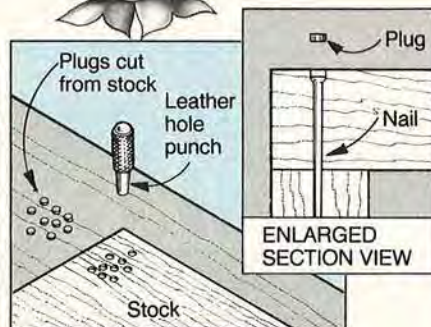
Top Shop Tip
WOOD Magazine
P.O. Box 11454
Des Moines, IA 50336-1454

Tiny plugs make nail holes nearly invisible

You can buy all kinds of fillers for disguising the holes that remain after countersinking finishing nails, but these often leave telltale results.

TIP: From a piece of scrap that matches your work stock, use leather hole punches to cut tiny plugs to match the size of the nail holes. Set the nails slightly below the surface, and dab a little glue into the indentation with a wood sliver or a paper clip. Then, press the plug into place, making sure the grain of the plug matches the workpiece. It takes a sharp eye to spot these plugs.

—Bill Blain, Edmonton, Alberta



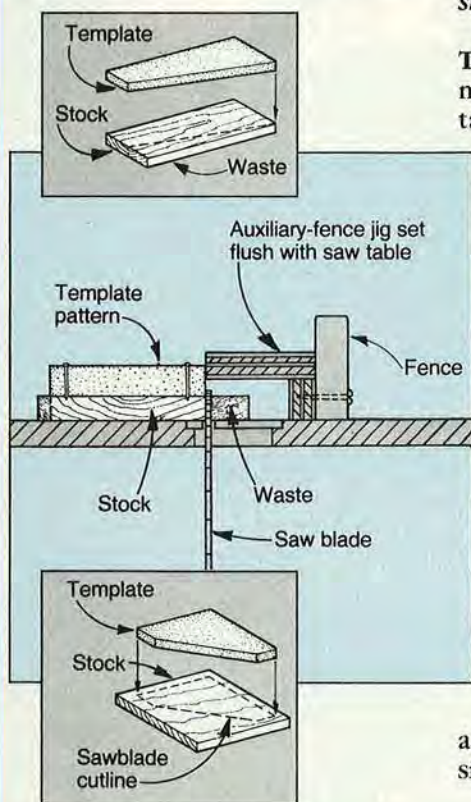
For his tip, Bill receives a Jet model JSG-1 sander.

Jig and templates duplicate irregular shapes

Sometimes, it seems almost impossible to safely and effectively cut several identical irregularly shaped pieces on a tablesaw.

TIP: A simple jig and custom-made templates help you cut tapers or nearly any irregular shape with straight sides. First, build an auxiliary-fence jig set flush with saw table as shown at left. The jig should be as long as the fence. Now, cut a template of the blank to be duplicated, taking extreme care to ensure correct dimensions and angles. Attach this to the workpiece with brads or double-faced tape, and rough-cut the wood material to within 1/2–1" of the final size. (A bandsaw works well for this task.) Then, with the jig attached to the fence, make the final cuts. For safety's sake, turn off the saw after each cut and clear the scraps to avoid possible kickbacks or binding.

—Mike Jagielo, Almond, Wis.

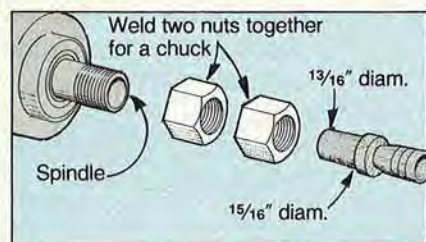


Economy chuck for turning small-diameter stock

If you only occasionally need a small lathe chuck, owning one can be an expensive luxury. Here's a way to make a small chuck for just a couple of bucks.

TIP: Welding two 1" nuts (8 TPI) together makes a great economy chuck for Delta or Rockwell lathes. (For other brands, check the thread size before purchasing the nuts.) First, turn the blank between centers, tapering one end of the stock from 1 1/16" to 1 3/16" as shown below. Then, screw the chuck halfway onto the lathe spindle, and screw the tapered end of the workpiece into the available threads of the combined nuts. Now, you can turn a thimble or other small projects.

—Frank Lynn, Kelso, Wash.



Continued on page 23

Like Having a Lumberyard Right In Your Shop!



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 & 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 or Sanding 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!

MAIL COUPON TODAY OR CALL TOLL FREE 1-800-538-4200 Ext. PW41

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



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.

PLANE FACTS & PROFITS

YES! Please rush me your FREE Information Kit which tells in words and pictures why this amazingly designed powerfeed shop is so much better than other single-purpose or combination tools. Also send me details on your 30-DAY FREE TRIAL GUARANTEE.

Woodmaster Tools, Dept. PW41, 2908 Oak, Kansas City, MO 64108

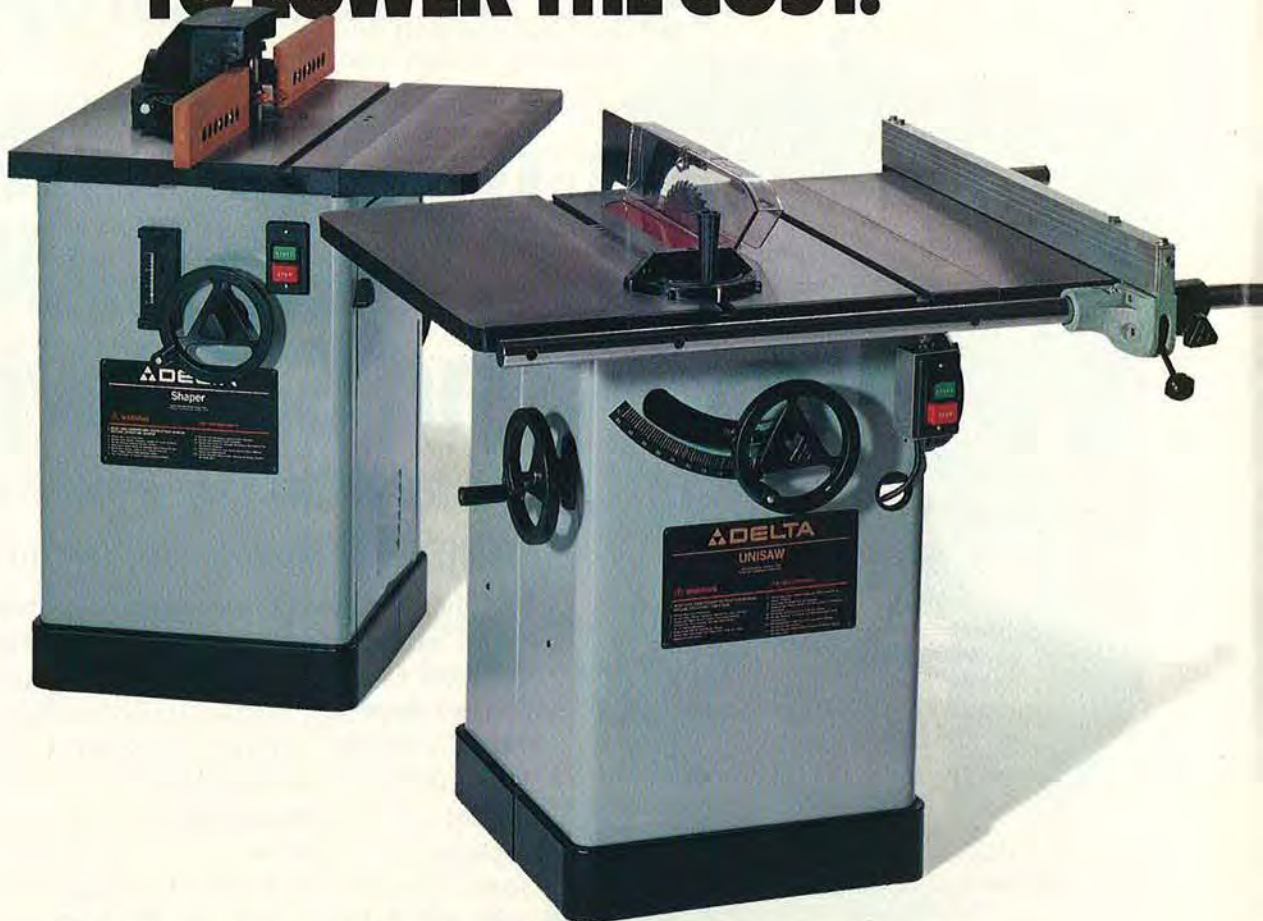
NAME _____

ADDRESS _____

CITY _____

STATE _____ ZIP _____

WE WON'T LOWER OUR STANDARDS TO LOWER THE COST.



BUT WE WILL STOOP TO A REBATE OR TWO.

Delta Quality. The standard of the industry. There's no compromising it. For *any* reason.

Take the Delta Unisaw® 10" tilting arbor saw for instance. It set the standard for general purpose table saws more than 50 years ago. Still the one you work your way up to.

And right now we're giving you a \$150 rebate on any Unisaw to help you get there a little quicker.

Same goes for our Heavy Duty Wood Shaper. A hundred and fifty bucks back from Delta.

Both the Unisaw and the Shaper sport massive cast iron tables. Both have the power and precision to work in the big leagues. And both get you a check in the mail from Delta.

Your Unisaw comes with a 1½, 3 or

5 HP motor. Choose a model with a Jet Lock Micro Set® rip fence, or one equipped with a Unifence® saw guide for the ultimate sawing machine.

Your shaper comes with a 3 or 5 HP motor, and operates at 2 spindle speeds. It's ready to handle whatever comes through your shop.

Visit your participating Delta distributor and cut your best deal. Then Delta will cut you a check for an extra hundred and fifty.

Call toll-free for the name of your participating Delta distributor:
Delta International Machinery Corp.,
800/438-2486.

Offer good only on purchases from participating distributors in the continental U.S., Alaska and Hawaii from August 1 thru February 28, 1991.

**Building
On Tradition**
DELTA
A Pentair Company



TIPS FROM YOUR SHOP (AND OURS)

Continued from page 20

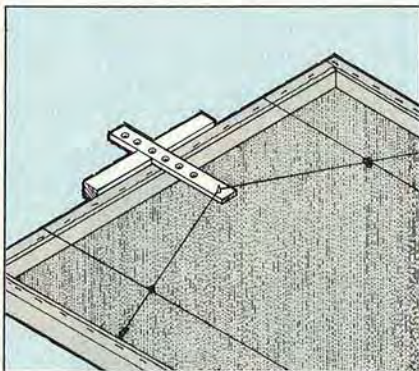
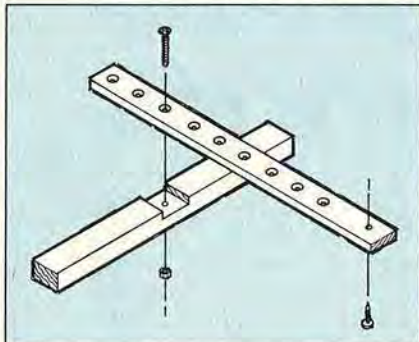
Picture-hanging jig eliminates guesswork

Hanging a picture can be a bit-and-miss affair when you hold the artwork up to a wall and then guess where to position the hanger.

TIP: Make the simple cross-shaped jig shown at *right* by drilling several $\frac{1}{4}$ " holes about 1" apart in a 1×12 " piece of $\frac{1}{4}$ " plywood. Then, cut a $\frac{1}{4}$ "-deep, 1"-wide mortise in the center of a 1×10 " scrap of $\frac{3}{4}$ " hardwood. Add a $\frac{3}{4}$ " self-tapping screw about $\frac{1}{2}$ " from one end of the $\frac{1}{4}$ "-thick piece.

Now, lay down the $\frac{3}{4}$ "-thick piece mortise-side-up, and place the $\frac{1}{4}$ "-thick piece into the mortise so the screw points up. Fasten together the two pieces with a $\frac{1}{4}$ " nut and $1\frac{1}{4}$ "-long $\frac{1}{4}$ " bolt. Place the bolt in any hole that suits the size of your picture as shown at *right*. With the picture wire draped over the exposed screw point, position the picture on your wall and give the jig a light tap when you find the right spot. The resulting mark from the screw point will tell you exactly where to place the hanger.

—From the WOOD magazine shop



Continued on page 25

© 1990 Dremel, Racine, WI



The perfect tool for small families.

Introducing the new MiniMite from Dremel® The smallest cordless power tool with a removable, rechargeable battery pack. It has two speeds and five Dremel bits, including a sander for the hard-to-reach areas of any house.

MINIMITE™
Cordless Rotary Tool from Dremel

WOODWORKER'S CATALOG

There are over 4,000 money saving reasons why woodworkers rely on Constantine.

4,000 woodwork items—to help you Build-Restore-Repair-Refinish! Over 200 different woods ... 150 veneers ... 500 plans ... cabinet hardware ... 96 How-To Books ... 118 carving tools and chisels ... 76 inlay designs ... and lots more for One-Stop, Right-Price Shopping without leaving home!
All in our 116 page, full color catalog—and all yours for only \$1.00!



YES, rush, my 1990

Constantine's Woodworker's Catalog. My \$1.00 is enclosed.

Send To:

CONSTANTINE Est. 1812
2054D Eastchester Road
Bronx, NY 10461

Name _____

Address _____

City _____

State _____

Zip _____

AMAZING OFFERS!

Forstner Bits • HSS Tapered Drill Sets • Carbide Brads
Quality Imported Tools That Work



16-pc. FORSTNER BIT SET

\$89⁹⁹
plus \$7.00 s/h

#10-1330

All bits 3 1/2" overall; Precision Ground; HRC50-52.
Sizes: 1/4" through 2 1/8" in Wood Case. 3/8" Shanks.
Sizes over 1 1/2" supplied with saw teeth to eliminate overheating.



7-pc FORSTNER BIT SET

\$29⁹⁹
plus \$4.00 s/h

#10-1325

All bits 3 1/2" overall; Precision Ground;
HRC50-52. Sizes: 1/4" through 1" in
Wood Case

22-pc
HSS TAPERED DRILL,
COUNTERSINK/BORE,
STOP COLLAR SET

\$29⁹⁹
plus \$4.00 s/h



#05-0007

For Screw Sizes #5, 6, 7, 8, 9, 10, 12.

Wood Case included.

JUMBO FORSTNER BITS

Complete Set of 8
SAVE OVER \$105.00



\$139⁹⁹
plus \$10.00 s/h

#10-1350



1/2" Shanks; 6" O/A

2 1/4"	10-1316	\$22.99
2 3/8"	10-1317	24.99
2 1/2"	10-1318	26.99
2 5/8"	10-1319	28.99
2 3/4"	10-1320	30.99
2 7/8"	10-1321	32.99
3"	10-1322	34.99
3 1/8"	10-1323	36.99

plus s/h: 1 Bit \$4.00; ea. add'l bit \$2.00



7-pc. CARBIDE TIPPED
BRAD POINT DRILL SET

\$34⁹⁹ #10-7777
plus \$4.00 s/h

Clean entry holes. No overheating.
Sizes: 1/8", 3/16", 1/4", 5/16", 3/8", 7/16", 1/2".

MINIMUM ORDER \$29.99
"NO HASSLE 30-DAY MONEY BACK GUARANTEE"
VISA/MC

TOLL-FREE 1-800-666-7227
(Incl. Canada)

DOLLAR TRADING CORP., Dept. WM-110
P.O. Box 68666 • Indianapolis, IN 46268
(IN and CT Buyers Please Add Sales Tax)

Dept. WM-110

SUPPLE SUEDE
LEATHER
WORKSHOP
APRON

\$19⁹⁹
plus \$4.00 s/h

#03-0003

21"x33". 4 pockets.
Brass rivets and grommets.



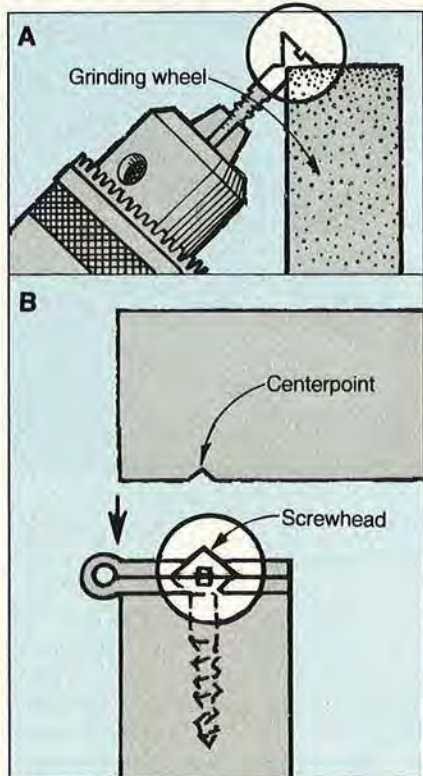
Continued from page 23

Get right to the point for hinge screw holes

Even after careful measuring, you can drill pilot holes for hinge screws that leave hinges and doors slightly out of kilter. Then, both the appearance of the project and the smooth swinging of the door suffer from misalignment.

TIP: From flathead wood screws, make concentric-pointed markers for positioning pilot holes on target. First, tighten a screw into the chuck of your portable electric drill. With a grinding wheel and the drill operating simultaneously, remove the head of the screw as shown in Drawing A below. Touch up the newly ground point on the screwhead with a file. After mounting the hinge(s) on the cabinet frame, insert two of these "center finders" into the other half of the hinge, place the door in its correct position as shown in Drawing B, and press it against the hinge to mark the points for drilling pilot holes.

—Gary Paine, Davison, Mich.



Continued on page 27



The perfect tool for a downsized Detroit.

Introducing the new MiniMite from Dremel®. A two-speeder that revs 5,000 and 10,000 RPM's. It's the smallest cordless power tool with a removable, rechargeable battery pack. And a model tool for shaping models.

MINIMITE™
Cordless Rotary Tool from Dremel

INTERNATIONAL TOOL CORPORATION
1939 TYLER STREET, HOLLYWOOD, FL 33020
QUANTITIES LIMITED
PRICES SUBJECT TO CHANGE WITHOUT NOTICE
FAX US YOUR ORDER
1-305-927-0291
VISIT OUR SHOWROOM

VISA & MASTERCARD ACCEPTED
COD ADD \$4.00
1-800-338-3384
(IN FLA 1-800-221-6767)
OPEN MON-FRI, 7AM TO 4PM EST

PORTER-CABLE 309
LAMINATE TRIMMER
Back by popular demand! **\$89.00**

7310	5.6 AMP LAMINATE TRIMMER	\$85
100	7/8 HP ROUTER	95
314	4 1/2" TRIM SAW	125
330	SPEED BLOCK FIN. SANDER	54
345	SAW BOSS 6" CIRCULAR SAW	99
351	3x21 BELT SANDER	125
361	3x24 BELT SANDER	167
363	4x24 BELT SANDER	179
504	3x24 XHD BELT SANDER	329
505	1/2 SHEET FIN. SANDER	108
555	BISCUIT JOINER	164
621	3/8" VSR DRILL	92
690	1 1/2 HP ROUTER	119
5116	OMNI JIG	263
6931	PLUNGE ROUTER BASE	76
7334	RANDOM ORBIT FIN. SANDER	120
7538	3 1/4 HP PLUNGE ROUTER	238
9118	PORTA-PLANE KIT	185
9637	VAR. SPEED TIGER SAW KIT	154
9647	TIGER CUB RECIP SAW	116
9850	12V CORDLESS DRILL KIT	136
97310	LAMINATE TRIMMER KIT	184
7519	3 1/4 HP FREQUENTIC ROUTER	224
5558	PLATE JOINER TILT FENCE	39

Milwaukee 6246
JIG SAW **\$115**

0228-1	3/8" VSR PISTOL DRILL	\$ 97
0234-1	1/2" MAGNUM HOLE SHOOTER	109
0382-1	7.2 V CORDLESS DRILL KIT	91
6012	1/3 SHEET FIN. SANDER	108
6014	1/2 SHEET FIN. SANDER	112
6016	1/4 SHEET FIN. SANDER	47
6140	4 1/2" ANGLE GRINDER	91
6256	TOP HANDLE JIG SAW	123
6365	7 1/4" CIRCULAR SAW	113
6511	2 SPEED SAWZALL W/CASE	124

DELTA
40-150
15" SCROLL SAW **\$129**

31-460	4" BELT 6" DISC SANDER	\$135
11-950	BENCH TOP DRILL PRESS	134
31-050	1" BELT SANDER	73

BOSCH ROUTER BITS ARE 40% OFF OF LIST PRICES!

BOSTITCH
N80S STICK NAILER
2" - 3 1/2" CAPACITY
\$394

T28.5	FINISH STAPLER 1 3/16" CAP	\$299
N50FN	FINISH NAILER 1" - 2" CAP	324
N60FN	FINISH NAILER 1 1/4" - 2 1/2"	335
T36-50	STAPLER 16 GAUGE 1/2" CRN	305
MII-612	T-NAILER 9/16"-2 1/4"	428

RYOBI T525IU
10" MITER SAW **\$169**

JP155	6-1/8" VS. JOINTER	\$309
W660	7-1/4" CIRCULAR SAW	89
RE600	3HP PLUNGE ROUTER	205
L1322ALS	3 1/4" PLANER KIT LONG SHOE	199
RA200	8" RADIAL ARM SAW	249

HITACHI
C8FB
8" COMPOUND MITER SAW **\$449.00**

C12FA	12" MITER SAW	\$338
TR8	1 1/2 HP PLUNGE ROUTER	117
F20A	3 1/4" PLANER	97
SB-75	3 x 21 BELT SANDER W/BAG	128
SBRT	3 x 24 BELT SANDER W/BAG	139
SV12SA	1/4 SHEET FIN. SANDER	48
DT010	7.2V 2 SPEED CORDLESS DRILL	79
DR010	SAME AS ABOVE BUT W/CLUTCH	85
DV10D	CORDLESS HAMMER DRILL	119
D10VC	3/8" VSR DRILL	69
C7SA	7 1/4" CIRCULAR SAW	68

Panasonic Cordless

EY571B	9.6V VS W/KEYLESS CHUCK	\$134
EY6205B	12V VS 15 MIN CHRG KEYLESS	210
EY6208B	12V 2 SPD. 1/2" CHUCK 15 MIN	199

freud J5100
BISCUIT JOINING MACHINE **\$158**

FT2000	3 1/4 HP PLUNGE ROUTER	\$169
LU72M010	10" X 40T ATB CARBIDE	36
LU82M010	10" X 60T TC CUT OFF CARB	45
LU84M008	8" X 40T ATB COMBO CARBIDE	38
LU84M011	10" X 50T ATB COMBO CARBIDE	41
LU85M010	10" X 80T ATB CUT OFF CARB	56
LU85M014	14" X 108T ATB CUT OFF CARB	97
LU72M010	10" X 24T ATB RIPPING CARB	37
LU73M010	10" X 60T ATB CUT OFF CARB	43
LU87M010	10" X 24T THIN KERF RIP	39
LU88M010	10" X 60T THIN KERF CROSSCUT	46
LU89M010	10" X 72T TC NON FERROUS	64
LU98M010	10" X 80T TC SUPERIOR	68
LU78M010	10" X 80T AT7" CROSSCUT	69
TK206	10" X 24T ATB	20
TK306	10" X 40T ATB	25
TK906	10" X 50T COMBO	27
PS203	7 1/4" X 24T ATB CARBIDE	19
PS303	7 1/4" X 40T ATB CUTOFF	23
DS308	8" X 18T DADO SET CARBIDE	107
WC104	4 PIECE CHISEL SET	39
WC106	6 PIECE CHISEL SET	52
WC110	10 PIECE CHISEL SET	79
DB107	6PC BRAD POINT SET	16
CS106	6PC CARVING SET	73
CS112	12 PC CARVING SET	129
FR21000	ROUTER TABLE	169
EB100	EDGE BANDING SYSTEM	229
FB-107	7 PC FORSTNER BIT SET	49

FREE FREIGHT & SAME DAY SHIPPING ON MOST ORDERS

Another "buy 1 tool get our 220 page tool free" offer.

Just a few of the unique woodworking tools of the 3,500 others available from our most versatile tool, the 1991 Garrett Wade Catalog.

The 220 page catalog is Free with any order from this ad. Or if you would just like the catalog, send us \$4.00 with your name and address.

A / 2 Band Saw Books by Mark Duginske

Learn what makes your bandsaw tick. Tune-up and maintenance; blade selection, tracking and tensioning; plus cutting methods for various woods and other materials. Hundreds of tips and shortcuts. Unlock your saw's potential.

- 02L09.03 Band Saw Basics \$ 9.95
- 16L04.02 Band Saw Handbook \$16.95

B / The Saw Setting Gauge That Can Be Read From Any Position

Most gauges have at least one or two main weaknesses. They either rest partially on the insert plate which is usually not the same height as the main table, or are so thin that it is difficult to ensure that teeth are being gauged at the top of the arc. This gauge is made from machined 3/4" thick Aluminum and is 9" long. With 1/4" graduations on one end and 1/8" on the other, it will indicate any height from 1/8" to 2". Most useful for table saws but also handy for routers. The markings are vertical on one face and horizontal on the other, so you can read them easily and accurately.

- 71K26.02 Saw Setting Gauge \$16.95

D / Our 202GF Gap Filling Glue Fills Gaps

It has a very high solids content so that small gaps in our joinery are actually filled - with strength. And the "squeeze-out" beads right up and chips off when dry. No soaking in to ruin finishes. Dries to a light tan. Water clean-up.

- 62J01.01 1 pt. 202GF \$ 6.95
- 62J01.03 1 qt. 202GF \$12.50

C / 1/16" Super Narrow Blades

You may have never seen a blade like this. A 24tpi raker style, it produces smooth cuts while making incredibly tight turns. We recommend using our Cool Blocks with these delicate blades, because they can be set closer to the blade without danger of overheating.

Cabinetmaker's Special Bandsaw Blades

A Garrett Wade exclusive. They look like "skip tooth" blades. But each tooth is actually formed as a hook, with every 5th tooth an unset raker. The result is a very smooth cutting blade that feeds easily. 1/4" blade is for general work, and 1/2" for resawing and heavy straight sawing.

- 93 1/2" Blades (Delta 14" and copies)
- 33K11.01 1/16" Scroll \$15.95
- 33K11.02 1/4" (4 tpi) Cabinet \$11.95
- 33K11.03 1/2" (3 tpi) Cabinet \$12.95



- 80" Blades (Sears 12")
- 33K12.01 1/16" Scroll \$14.95
- 33K12.02 1/4" Cabinet \$10.95
- 33K12.03 1/2" Cabinet \$11.95
- 72" Blades (Shopsmith)
- 33K13.01 1/16" Scroll \$13.40
- 33K13.02 1/4" Cabinet \$10.25
- 33K13.03 1/2" Cabinet \$10.95

E / The "Blind Nailer" Used To Be A Staple In Every Finish Carpenter's Tool Box

This unique tool allows you to set nails or brads invisibly. Slip the special chisel, with its finger nail shaped cutting edge, into the positioning jig and tighten the clamping screw. Place the flat sole on the wood and strike the end of the chisel with a firm tap with the palm of your hand. The Blind Nailer will lift a perfect small chip from the surface. Hammer your nail or brad in and then glue the chip back in place.

- 44K01.03 Blind Nailer \$15.95

F / Special Bandsaw "Cool Blocks" Prolong Blade Life & Increase Accuracy

Made of a special graphite impregnated Phenolic laminate, this set of 4 replaces your upper and lower side blade guides. Cool Blocks run cooler and are more slippery than conventional steel guides. Since they can be set actually touching the blade, they give you better control of the cut.

- Model
- 33K09.01 "A" Delta 14" \$11.95
- 33K09.02 "B" Sears 12" \$11.95
- 33K09.04 "D" Shopsmith \$12.95
- 33K09.05 "E" Old Sears (1/4" Rd.) \$11.95
- 33K09.06 "F" Jer 14" (fits Delta copies) \$11.95
- 33K09.09 "K" New Tilt-Head Sears \$16.95



Garrett Wade Co., Inc.

161 Avenue of the Americas
New York, NY 10013 Dept. 119
Call Toll Free 800-221-2942
(NY 212-807-1757 No Collect Calls Please)



Please send me these Garrett Wade tools and include a FREE 1991 Catalog with my order. (Prices good until September 14, 1991)

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Check or Money Order Card Number

Visa MasterCard

American Express

Expiration Date _____

STOCK #	QTY.	DESCRIPTION	PRICE	TOTAL
GW	1	1991 Catalog (free with order from this ad)	\$4 00	

New York Residents add applicable Sales Tax
Shipping & Handling: \$2.90 for order total up to \$10
\$4.10 for \$10.01 to \$20
\$4.95 for \$20.01 to \$50
\$6.25 for over \$50

Sub Total
Sales Tax
Shipping
Grand Total

TIPS FROM YOUR SHOP (AND OURS)

Continued from page 25

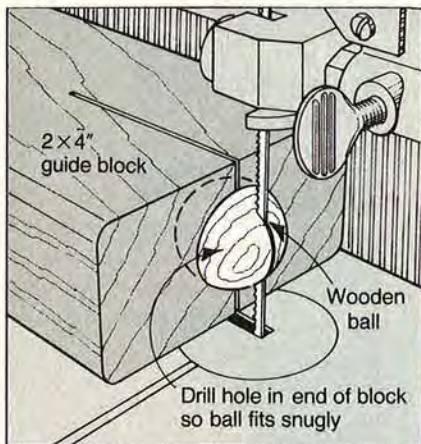
Saw a wooden sphere in half with accuracy

Occasionally, a plan calls for sawing a wooden ball in half. Such is the case for a rocking horse that uses two birch half-balls for eyes.

TIP: In one end of a length of 2x4, bore a hole 1/16" smaller than the diameter of the ball and to a depth that's three-fourths the diameter of the ball. Also, cut a kerf into the block as shown, centered on the hole for the ball. Force the ball into the hole and cut. (NOTE: The ball must fit snugly into the jig for a safe, accurate cut.)

Afterwards, shut off the saw, allow the blade to stop, and remove the two halves.

—Henry E. Coleman, Anaheim, Calif.



MORE TIPS FROM OUR WOODWORKING PROS

- If you like exposed joinery, then you'll find many uses for the V-block jig on page 43.
- Follow the box-lid method on page 44 to make lids or doors for other boxes with curved interiors.
- Even if you don't build the sleigh featured on the cover, check out our process for bending wood on page 49.
- For ten tips on furniture restoration, see the boxed information on pages 70 and 71.
- Find out how to add a centuries-old look to wood by using shoe polish. See page 78. 🍄

©1990 Dremel, Racine, WI



The perfect tool for a little gardening.

Introducing the new MiniMite from Dremel®. The smallest cordless power tool with a removable, rechargeable battery pack. It has 2 speeds for precision detailing. And takes the thorns out of intricate refinishing jobs.

MINIMITE™
Cordless Rotary Tool from Dremel



The Basics of Cabinetry

Spindle Shaper - 4-5/8" Max. Cutter
• Capable of Raised Panel Construction
• Standard Ring Fence for Curved Work
• Sanding and Tenoning Options

Table Saw - 2-3/8" Depth of Cut
• Precise Mitring System
• Optional Box Joint System
• Self-Aligning Rip Fence

Jointer - 5-7/8" Max. Width
• Smooth Face Planing
• Accurate Edge Jointing
• Fence Adjusts to 45°

Thickness Planer - 5-7/8" x 4"
• Power Feed - 29 Feet Per Minute
• Dimension Stock From 4" to 1/8"
• Maximum Cut 1/8" Per Pass

Slot Mortiser - 1/2" Max. Mortise
• Simple Set-up & Adjustment
• Cuts to the Center of 4" Stock
• Precision Horizontal Boring



Whether you're building toys for your grandchildren, creating custom furniture, running a framing shop or trimming homes, you just can't find a better answer for your machinery needs than the K-5.

Portable, accurate, dependable --- Perfect results from start to finish. Let us show you how you can put more fun in your hobby or more money in your pocket -- or both! -- with a K-5.

Call or Write For Free Information Kit Or... Order Our Video Demonstration

1-800-USA-KITY

Name _____
Address _____
City _____ State _____ ZIP _____

Please Send Free Information Kit, Including Details on Your 30-Day Free Trial Guarantee and 2-Year Warranty

\$14.95 Enclosed. Please Send Video Pack Including FREE Desk Plans and \$25.00 Gift Certificate

KITY FARRIS MACHINERY
WOODWORKING MACHINES
Farris Machinery Dpt. A690
320 N. 11th St.
Blue Springs, MO 64015

This is now.

Gone are the days of going round and round with old-fashioned screw-type clamps. Now, there's the QUICK-GRIP™ Bar Clamp.

With a QUICK-GRIP Bar Clamp, you can do anything you can do with a regular bar clamp, only faster. And you can do it with only one hand.

Pull the Quick-Release™ trigger with one finger and slide the bar into place. Tighten the clamp with a squeeze of the hand. That's all there is to it. Your other hand is free to hold your project in place.

The QUICK-GRIP Bar Clamp, from the makers of VISE-GRIP® Tools. It will revolutionize the way you work with clamps. See for yourself - wherever quality tools are sold.

*U.S. Patent 4,926,722. Other U.S. and Foreign Patents Issued and Pending.

**Slide,
Click.**

QUICK-GRIP™

A UNIT OF **AMERICAN TOOL**
COMPANIES, INC.



**MADE IN
USA**

© 1990 American Tool Companies, Inc.

QUICK-GRIP™
BAR CLAMP

From the makers of VISE-GRIP® Tools.

© 1989 American Tool





RYOBI POWER TOOLS. ENGINEERED FOR PROFESSIONALS, WOODWORKERS AND SERIOUS DO-IT-YOURSELFERS WITH AN UNCOMPROMISING DEDICATION TO QUALITY CRAFTSMANSHIP. OUR NEW BISCUIT JOINER, DUSTLESS SANDER AND TORQUE FORCE SERIES CORDLESS DRIVER/DRILLS

RYOBI W O R K

RYOBI AMERICA CORPORATION 1424 PEARMAN DAIRY RD.

PRODUCTS THAT PERFORM



This jig helps you make your own dowels from any stock

Like all lovers of cherry hardwood, I'd turn cartwheels if I could locate cherry dowels at my favorite hardwood store. Recently, I discovered a nifty device that helps me make 1/4" to 1" dowels from *any* hardwood stock. The aluminum-and-maple jig, patented by router guru Brad Witt, bolts to either a table-mounted or portable router. After adjusting a 2 1/4"-long core-box bit (nothing shorter will work!), the fun be-

gan. I really enjoyed pushing stock through the jig with my variable-speed 3/8" electric drill. Best of all, the dowels I turned were exactly the right diameter.

—Tested by Carl Voss

Dowel-making jig, available in five sizes for \$19.49 each ppd. from Woodhaven. Call 800-344-6657. Extra-long 2 1/4" core-box bits sell for \$24.99 (1/4" shank), and \$29.99 (1/2" shank).

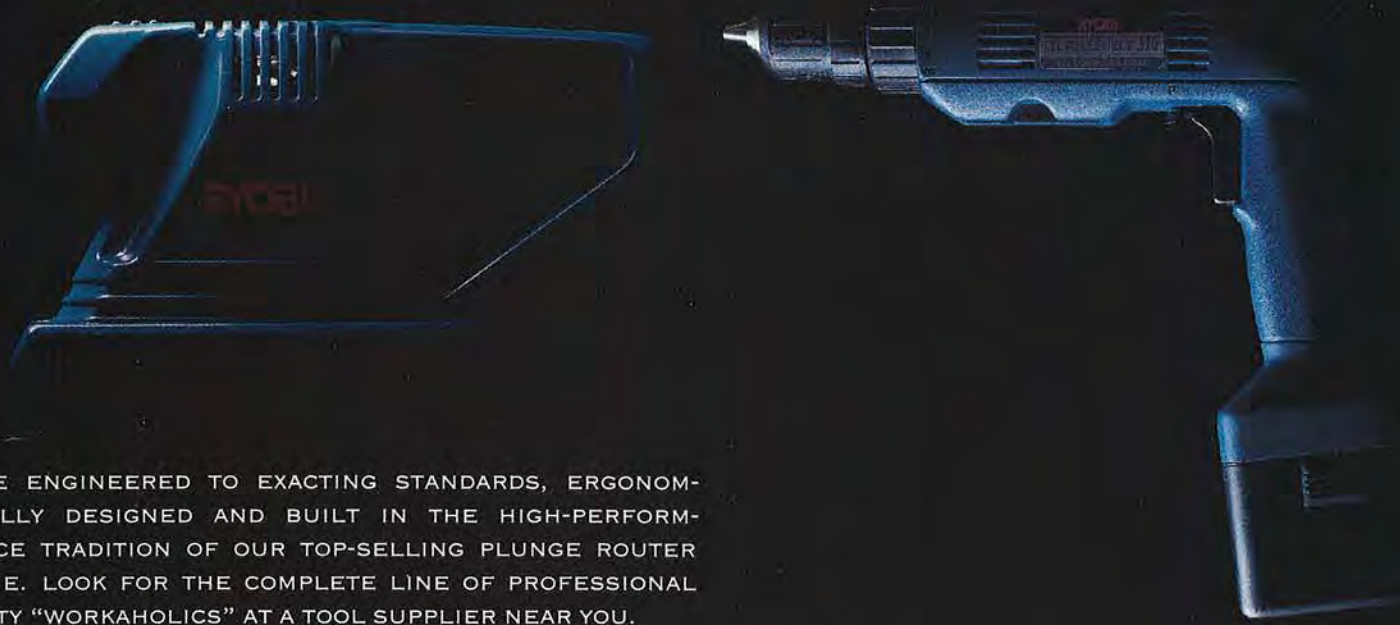
An affordable blade with features and performance

If money's no object, you can choose from many high-priced saw blades that offer premium performance. But, what if you don't have a lot of money to spend on a sawblade? Or, you can afford only one blade for all tasks? Fear not, blades in the new Freud "TK" series produce fast, clean rips or crosscuts at prices affordable to most woodworkers.

I tested the 10", 50-tooth combination model and was impressed with the results. The blade worked well while ripping with a tablesaw, but I was especially pleased with my results while using a radial-arm saw. The blade didn't climb toward me like so many other blades will. The reason: these wood gobblers have an anti-kickback design that limits blade bite to 1/32". It works!



TOOLS ENGINEERED TO LAST A LIFETIME.



ARE ENGINEERED TO EXACTING STANDARDS, ERGONOM-
ICALLY DESIGNED AND BUILT IN THE HIGH-PERFORM-
ANCE TRADITION OF OUR TOP-SELLING PLUNGE ROUTER
LINE. LOOK FOR THE COMPLETE LINE OF PROFESSIONAL
DUTY "WORKAHOLICS" AT A TOOL SUPPLIER NEAR YOU.

A H O L I C S™

ANDERSON, SC 29625 PHONE: 1-800-525-2579



Even though these blades produce a thin kerf, they have stiff bodies that don't wobble during cuts. Why? Unlike similarly priced products, Freud laser-cuts the blanks for these blades from 40-42 Rockwell-hardness steel. Most low-priced blades are stamped from softer steels that flex readily when cutting.

—Tested by Bill Krier

Freud "TK" series blades, \$32.90 to \$44.90 list for 10-inch models. Other diameters also available, with 24 to 50 teeth. Call Freud at 800-334-4107 or 919/434-3171 for your nearest dealer.

Attachment gets your cordless screwdriver into tight spots

Every now and then, I have to fasten or remove a screw that's located in a tight spot. AEG's offset right-angle screwdriver head fits the bill. The sturdy, all-metal attachment has a magnetic socket that securely holds all of my bits. Bit slippage can be a problem in right-angle situations, but the adjustable thumb flange gave me adequate force and control. The tool

works best with AEG's slim, tube-shaped power screwdrivers, but you can two-hand the offset head into position with most any cordless screwdriver.

—Tested by Steve Oswalt

AEG off-set right angle screwdriver head, \$24.25 list price. Call 800-243-0870 or 203/447-4600 for the AEG dealer nearest you.



TWO MORE ARTISAN MASTERPIECES

Only an artisan knows the true value of a masterpiece. Powermatic introduces two more masterpieces to its fine collection of Artisan woodworking machines. At prices that reflect economy, exceptional features, and value that will never fade, these masterpieces have extensive industrial specifications drawn from more than 70 years of top-of-the line industrial experience.

Even as this knowledge becomes common, the masterpieces never will. Call your Powermatic Artisan's Line distributor today. Add the Artisan Jointer and the Artisan Band Saw to your collection.

\$615

Band Saw Model 43

- Heavy industrial Powermatic saw guide design with side and rear bearings
- Massive, sleekly styled industrial strength welded steel frame
- Carefully balanced cast wheels for smooth operation, with replaceable tires for exceptionally quiet, vibration-free operation
- Under-the-guide cutting capacity in excess of 7"
- Exclusive T-slot cast iron table with double locking trunnion
- Conveniently located blade tension and tracking controls
- Self-contained dust shroud
- ¾ HP motor with removable key switch

\$479

Jointer Model 53 (shown with optional dust collection adaptor)

- Clean crisp castings and dovetail design
- Adjustable infeed and outfeed tables for precise setting and accurate cutting
- Patented "controlled chip" cutterhead design: minimizes hazards of kickback, reduces required feeding pressure, and makes clean end grain cuts.
- Chip and sawdust chute for dust control (adaptor optional)
- ¾ HP high torque motor with removable key switch
- Precision ground table surfaces
- Exclusive, rugged Eurostyle fence tilts 45 degrees in either direction with precision stops at +45, -45 and 0 degrees

The Artisan's Choice

POWERMATIC 

A Division of DeVlieg-Bullard, Inc., McMinnville, TN 37110
800/248-0144 615/473-5551 TELEX 554455 FAX 615/473-7819

Yellow BIRCH

The shimmering queen of the north

There's no sight in the woods that quite compares to a stand of yellow birch. The bronze-barked trees glisten against their neighbors. Light bounces off them, as if reflected from metal.

The beauty of yellow birch on the stump probably captivated colonial New England craftsmen, too. But, it was the tree's strong, golden wood that they treasured. From it, they expertly crafted Windsor-style chairs, tables, and other furniture to withstand decades of use and abuse. Centuries later—at the peak of this wood's popularity in the 1950s—homes across the nation featured sturdy, blonde cabinets of yellow birch.

Wood identification

Yellow birch (*Betula alleghaniensis*), also called silver birch and swamp birch, is one of 50 species of birch found around the world. Situated in a wide range across the northern U.S. and Canada, yellow birch grows best in rich, moist woodlands by rivers and streams.

Easily recognized by its metallic-looking bark with numerous papery curls and strips, the forest-grown yellow birch attains 60–70' heights and 3' diameters.

Before leaves appear in the spring, twigs bear brown buds and branch ends boast two or three catkins containing pollen. By summer, the buds develop into toothed and pointed leaves measuring about 3–4" long.



Natural range

Along the branches, small cones with seeds inside appear, only to drop off in the fall.

What little sapwood you find in yellow birch will be nearly white, while heartwood has an array of color. The wood varies from cream to golden tan to light walnut. Some wood may even have gray and red tinges.

Although birch has a distinct grain pattern—sometimes displaying waves or curls—the fine-textured wood doesn't always overpower the eye. And, at 43 pounds per cubic foot dry, it weighs almost the same as sugar maple, although it's not as hard.

Uses in woodworking

Along with maple, yellow birch has always been a standard for items that get lots of use—chairs, tables, desks, and cabinets. And, it often turns up as doors and moldings as well as floors.

Many of the turned products sold in homecenters are yellow birch. It's also used for dowels, dowel pins, screw-hole buttons and plugs, and shaker pegs.



Availability

Yellow birch lumber usually sells for less than \$2 per board foot, and, except on the West Coast, should be readily available. Stock from the northern part of its range is harder, has fewer defects, and stains better.

Although you normally won't find lumber with much sapwood, manufacturers of rotary cut yellow birch veneer make the distinction. It's offered as "natural," including heartwood and sapwood, and "select white," from sapwood. Plywood sells for about \$50 per sheet.

Continued

PERFORMANCE PROFILE

yellow birch

(*Betula alleghaniensis*)



Plain yellow birch



Curly yellow birch

Machining methods

Yellow birch machines a little easier than maple, a wood with similar characteristics. That's because yellow birch normally has a finer, more even grain than maple. However, it does have a moderate dulling effect on cutting edges that requires carbide tips. *When yellow birch does misbehave, here's what to do:*

- The wood planes smoothly 90 percent of the time. However, spinning cutters, as on a planer, sometimes catch wavy grain and tear out a pockmark. When this occurs, try reversing the board and taking a shallower cut.
- Yellow birch normally joints cleanly, but trying to decide grain direction to determine feed sometimes can be impossible. When in doubt as to feed direction, set table height for cuts of 1/16" to 1/8" and decide by trial and error.
- Nearly as dense as maple, yellow birch requires ripping with a rip-profile blade of 24 teeth or fewer to avoid clogging. A steady feed rate reduces burning.

- In crosscutting, steel fine-toothed plywood blades work well to avoid splintering. Today's thinly veneered birch plywood splinters easily, too. Score the line to be cut or place masking tape on the kerf line and saw right through it.

- Back drill bits out frequently to clear the hole and avoid burning, especially in end grain.

- Use router bits with ballbearing pilots to avoid burning, and, if possible, rout slowly. Cross-grain cuts require shallow passes.

- Beware of squeeze-out when gluing. Dry glue, when scraped off, can grab the wood and tear it away. To detect squeeze-out, wipe the wood with paint thinner. And, don't let clamps contact squeeze-out—black stains result.

- Wipe yellow birch with a damp cloth to raise grain prior to staining or clear-finishing. Sand, then stain. When grain has a differing color or pattern, expect uneven staining, or first prepare the surface with a product such as Min-wax Wood Conditioner.

Carving comments

- Yellow birch, although hard, does take fine detail and has its place in relief work. It requires special handling, however.

- Gouge bevels (15° to 20°) dull quickly. Keep a sharp edge with a 10° bevel on the *back side*.

- Wavy grain will be more difficult to carve because the wavy areas will be harder than the plain.

- Power carvers should not begin with coarse-cutting burrs—the wood splinters. Use medium-cut burrs, then follow with finer ones.

Turning tips

Yellow birch couldn't be easier to turn with sharp tools, aside from these exceptions:

- Scraping can produce splinters.
- Sanding the wood on the lathe across grain produces scratches. Instead, wipe with a damp cloth, then stop the lathe and sand with the grain using fine paper. 🐿

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° angle. To avoid tearing, feed wood with figured or twisted grain at a slight angle (about 15°), and take shallow cuts of about 1/32".
- For clean cuts, rip with a rip-

profile blade that has 24–32 teeth. For crosscutting, use a blade with about 40 teeth.

- Avoid drilling with twist drills. They tend to wander and cause breakout. Use a backing board under the workpiece.

- Drill pilot holes for screws.
- Rout with sharp, preferably carbide-tipped, bits and take shallow passes to avoid burning.

- Carving hardwoods generally means shallow gouge bevels—15° to 20°—and shallow cuts.

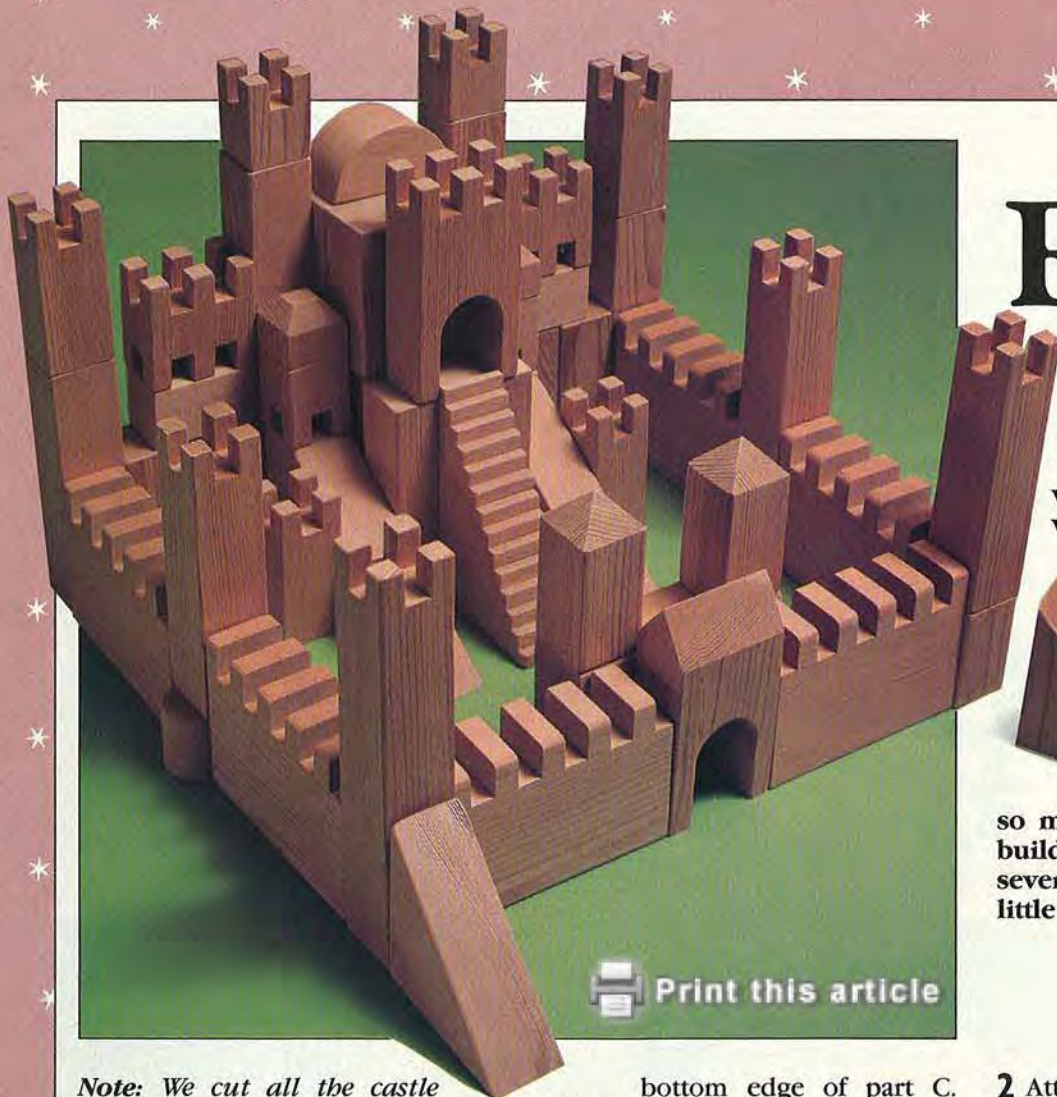
YELLOW BIRCH AT A GLANCE

Cost	\$\$\$
Weight	AAA
Hardness	TTT
Stability	▲▲▲
Durability	⌚⌚⌚
Strength	🦵🦵🦵
Toxicity	☠☠☠☠☠
Workability	🪚🚫
Look-alike	Cherry, maple

HOLIDAY HIGHLIGHTS

For gifts sure to be remembered long after the holiday season, check out our distinctive handcrafted projects.





Return

A BUILDING-

When Christmastime rolled around last year, I wasn't sure a made-in-the-woodshop castle would stand a chance against celebrity dolls and sleek plastic toys. But, my two young daughters, with their active imaginations, have since reassured me. They've spent so much time building and rebuilding castle after castle that several other Christmas gifts do little more than gather dust.

Marden Kemmet
How-to Editor

Note: We cut all the castle pieces from 2×4 and 2×6 clear-heart redwood. Pine or fir also would work.

Let's cut some parts to get this kingdom off the ground

1 Cut parts A, B, and C to the sizes listed in the Bill of Materials. Using the Parts View Drawing for reference, mark a 1½" radius with a compass, centered along the

bottom edge of part C. Bandsaw the radiused opening to shape, and save the cutout.

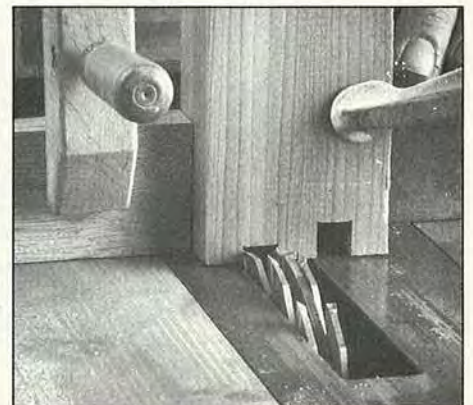
2 Cut a piece of 1½"-thick stock to 3½×3½". Mark a diagonal from one corner to another, and bandsaw the block into two triangles for parts D. Repeat the process with a 3½×5¼" block for parts E.

3 Cut part F to size. Lay out the radiused opening, bandsaw it to shape, and save the cutout. Mark the angled roof lines and bandsaw them to shape.

Less than a knight needed to dado the notches and grooves

1 Cut parts G, H, I, and J to the sizes listed in the Bill of Materials. Cut parts K and L to the thickness and width listed plus 3" in length. Parts K and L are cut extra long for safety when cutting the dados in the next step.

2 Attach a wooden fence to your miter gauge and a ½" dado blade to your tablesaw. Cut the ¾"-deep dados in parts G through L where shown on the Parts View Drawing and as shown in the photo below. (We used a stop block to position and support the pieces when making the cuts.)



Clamp the castle piece to an auxiliary fence fastened to your miter gauge when cutting the dados.



to the Round Table

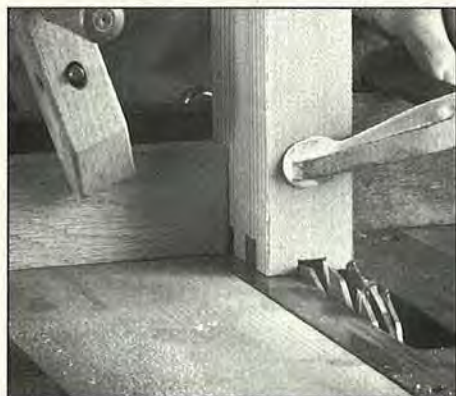
BLOCK CASTLE FOR YOUR LITTLE PRINCE OR PRINCESS



Angle-cut the ends of a 12" length of 1½" square stock to form the pointed ends on each part H. For safety, we started with an extra-long piece.

3 Cut ½" dados ¾" deep, centered in the ends of parts H through L, as shown *below*. Cross-cut parts K and L to the length listed in the Bill of Materials.

4 Using a compass, mark the radius and cut the opening in part H to shape. Save the cutout.



Determine the location, and clamp a stop block to your miter-gauge fence to position and support the castle pieces when machining the centered dado.

Cut a few more parts, and let the fun begin

1 Cut parts M, N, and O to size.

2 To form the pointed ends on parts P, start by cutting a piece 1½" square by 12" long. Then, tilt your tablesaw blade 45° from vertical. Using your miter gauge with a stop block clamped in place, cut the pointed ends on each end of the 12"-long piece as shown in the photo *above*. Crosscut two Ps to length from the 12"-long piece.

3 For parts Q, cut a piece of 1½"-square stock to 6" long. Bevel-cut both ends to the shape shown on the Parts View Drawing. Trim one part Q from each end of the 6"-long piece.

4 To make the staircases (R, S), crosscut a 2×4 to 12" long. Using a combination square, mark ¼×¼" steps on part R and ¼×⅜" steps on part S where shown on the Parts View Drawing. Bandsaw each to shape.

Bill of Materials

Part	Finished Size*			Material	Qty.
	T	W	L		
A	1½"	3½"	5"	redwood	4
B	1½"	3½"	3½"	redwood	4
C	1½"	3½"	5"	redwood	1
D*	1½"	3½"	3½"	redwood	2
E*	1½"	3½"	5¼"	redwood	2
F	1½"	2½"	5"	redwood	1
G	1½"	3½"	5"	redwood	6
H	1½"	2½"	5"	redwood	1
I	1½"	2½"	2½"	redwood	2
J	1½"	1½"	6"	redwood	4
K*	1½"	1½"	3½"	redwood	4
L*	1½"	1½"	2"	redwood	4
M	1½"	1½"	6"	redwood	4
N	1½"	1½"	3½"	redwood	6
O	1½"	1½"	2½"	redwood	4
P*	1½"	1½"	3½"	redwood	2
Q*	1½"	1½"	1¼"	redwood	2
R*	1½"	3½"	3½"	redwood	1
S*	1½"	3½"	5¼"	redwood	1

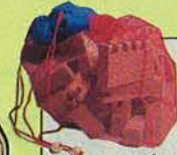
*Initially cut parts marked with an * oversized. Then, trim each to finished size according to the how-to instructions.

5 Sand all the pieces (we used a palm sander and sanded each piece with 100- and 150-grit paper, forming a slight round-over on all edges). Use a drum sander for the radiused openings. If desired, apply a finish (we left ours unstained and unfinished).

Produced by Marlen Kemmet
 Project Design: Donald "Sandy" McNab,
 McNab Puzzles/Designs, Sanger, Calif.
 Photographs: Hopkins Associates;
 John Hetherington
 Illustrations: Kim Downing; Bill Zaun

Continued

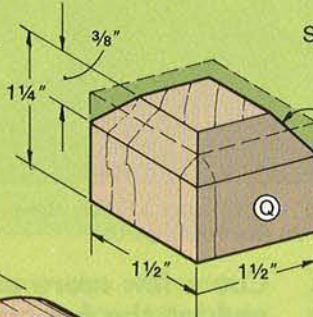
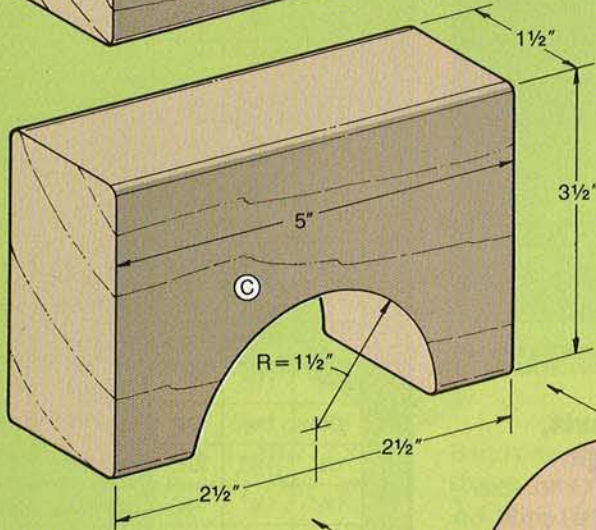
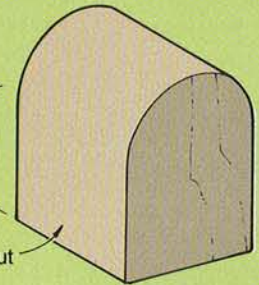
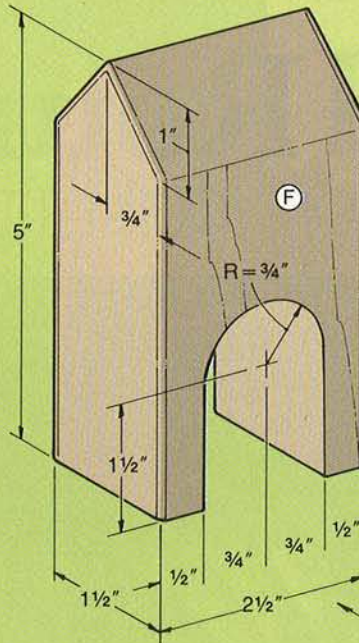
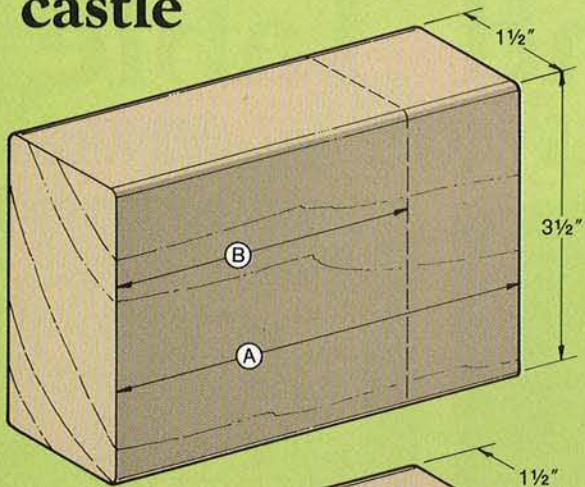
Building-block castle



Buying Guide

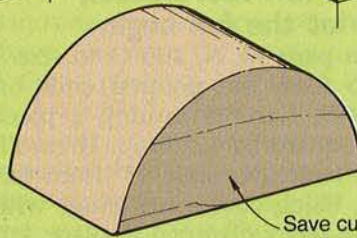
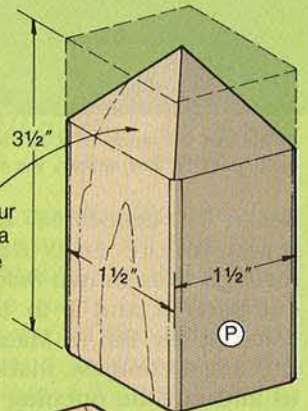
• Storage bags.

Primary-colored nylon net bags (set of three; sorry, they don't sell them separately), with drawstring tops. One 32×22" and two 22×16". Catalog no. 227541, \$17.48 ppd. Lillian Vernon, 510 S. Fulton Ave., Mount Vernon, NY 10550.

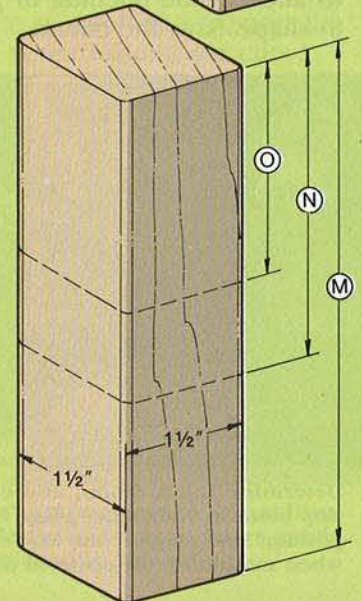
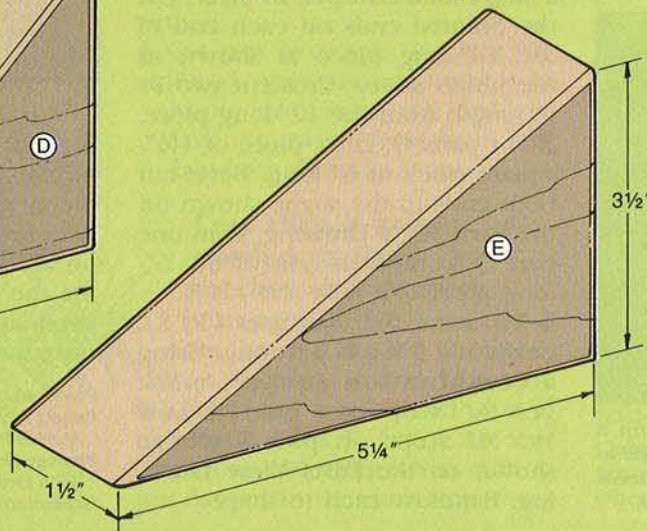
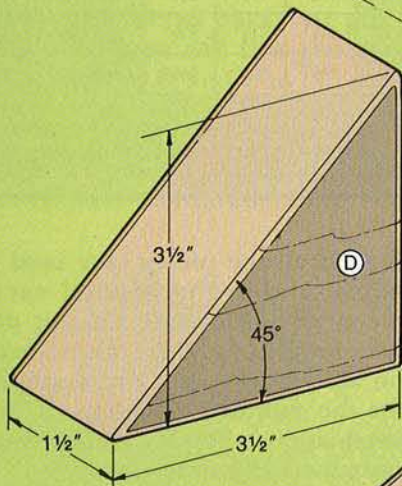


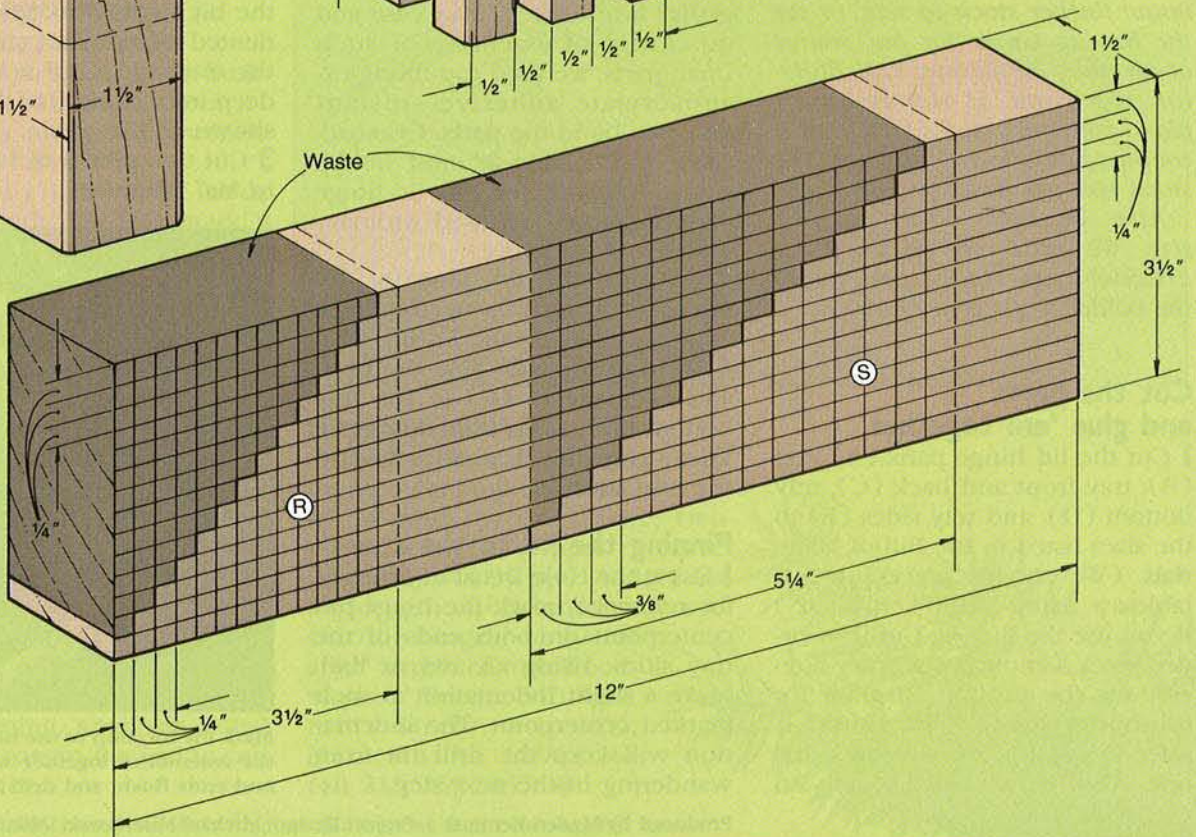
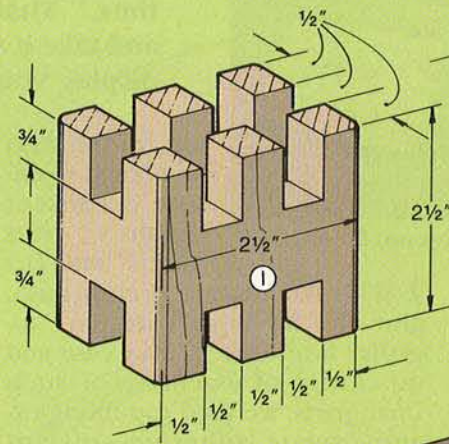
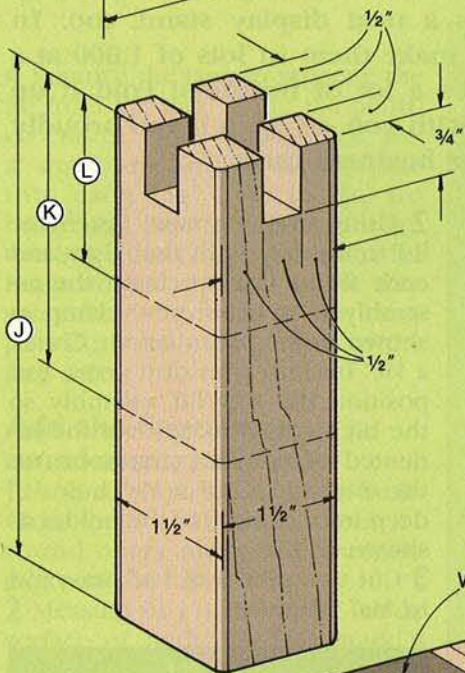
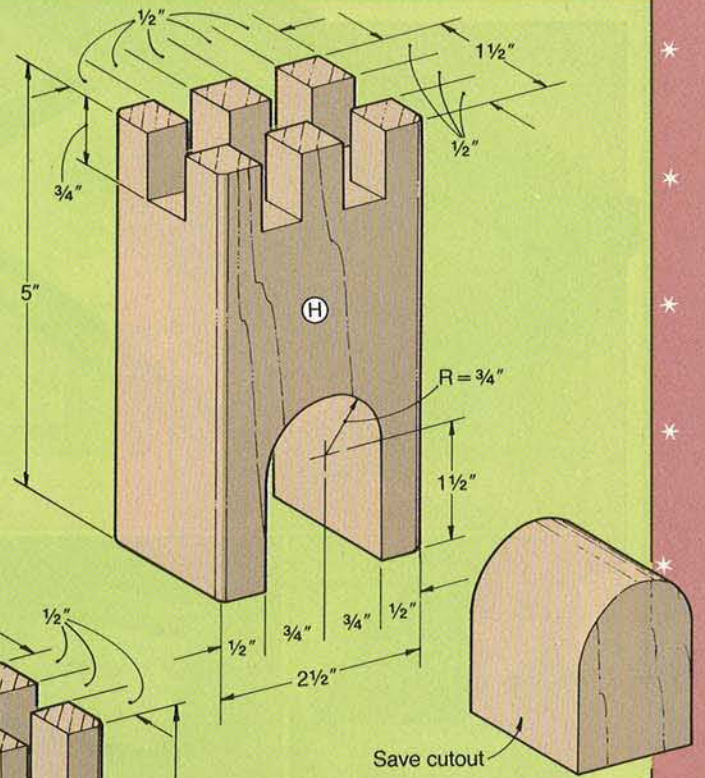
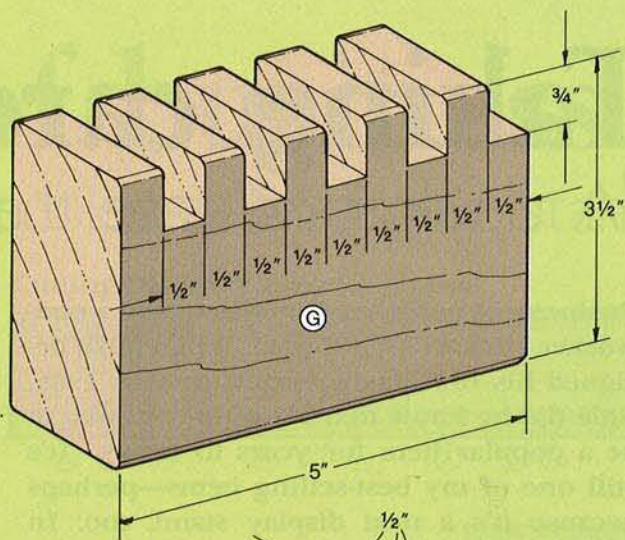
Save cutout

Cut all four sides at a 45° angle



Save cutout





Taking care

A clever card case that



Closed for carrying



Fully opened for display

Business is booming for Wisconsin woodworker Michael Mikutowski. When Mike designed his first business-card case in 1986, little did he know that it would continue to be a popular item for years to come. "It's still one of my best-selling items—perhaps because it's a neat display stand, too. In fact, I now make them in lots of 1,000 at a time." That's a lot of business! Fold it up and take it with you, or open it and proudly display your business cards.

our radial-arm saw fence to ensure consistent lengths of parts A, B, C, and D.)

Note: You'll need some 1/8" stock for this project. You can plane or resaw thicker stock to size, or see the Buying Guide for our source of morado, sometimes call Bolivian rosewood. If you resaw or plane your own stock, let it sit a couple of days to see if it cups. The stock you use must remain flat.

Also, business cards vary in size. We built our holder for a 2 1/8 x 3 1/2" card. Adjust the size of the holder to fit your cards.

Cut the parts and glue 'em together

1 Cut the lid hinge parts (A), top (B), tray front and back (C), tray bottom (D), and tray sides (E) to the sizes listed in the Bill of Materials. (We cut the pieces on our tablesaw using a thin-kerf blade.) If you use the Buying Guide to order stock (enough for four boxes), see the Cutting Diagram for minimum waste. (We found it safer to cut the the narrow parts first. Also, we clamped a stop on

2 With the edges and ends flush, glue the lid-hinge parts (A) together face to face. (For ease and quickness of assembly of such small parts, we used gap-filling cyanoacrylate adhesive—instant glue—to bond the parts. Cyanoacrylate is available at most hobby shops. To clamp the tiny lid-hinge parts together, we used ordinary wooden clothespins.)

3 To form the lid, glue the lid hinge (A) flush with the back edge and ends of the lid top (B).

4 To form the tray, glue the front and back pieces (C) to the tray bottom (D). Keep the ends flush. Then, glue the tray sides (E) to the tray assembly.

Pinning the lid to the tray

1 Using the Hole Detail at far right for reference, mark the hinge-pin centerpoint on both ends of the tray sides. Using an awl or nail, make a slight indentation at each marked centerpoint. The indentation will keep the drill bit from wandering in the next step.

2 Using masking tape, fasten the lid to the tray with the edges and ends flush. Lightly clamp the assembly in a handscrew clamp as shown in the photo below. Chuck a 1/16" bit into your drill press, and position the tray/lid assembly so the bit aligns directly over the indented hinge-pin centerpoint on the tray side. Drill a 1/16" hole 1/2" deep in both ends of the holder as shown in the photo.

3 Cut two pieces of 1/16" brass rod to 3/16" long.



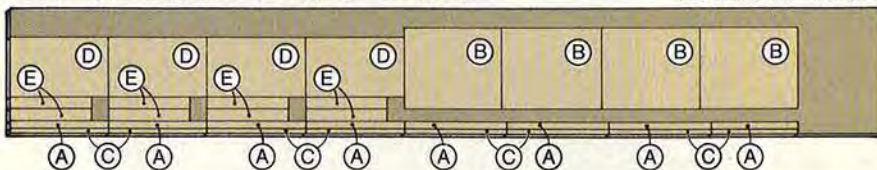
Mark the location of the hinge pins, tape the assemblies together with the edges and ends flush, and drill 1/16" holes.

of business

doubles as a display stand

Cutting Diagram (Enough for four cases)

$\frac{1}{8} \times 4\frac{1}{2} \times 32''$ Morado



Part	Finished Size			Mtrl.	Qty.
	T	W	L		
A lid hinge	$\frac{1}{4}''$	$\frac{5}{16}''$	$3\frac{5}{8}''$	LM	1
B lid top	$\frac{1}{8}''$	3"	$3\frac{5}{8}''$	M	1
C tray back & front	$\frac{1}{8}''$	$\frac{3}{16}''$	$3\frac{5}{8}''$	M	2
D tray bottom	$\frac{1}{8}''$	$2\frac{1}{2}''$	$3\frac{5}{8}''$	M	1
E tray sides	$\frac{1}{8}''$	$7\frac{1}{16}''$	3"	M	2

Material Key: LM-laminated morado, M-morado
Supplies: $\frac{1}{16}''$ brass rod, finish.

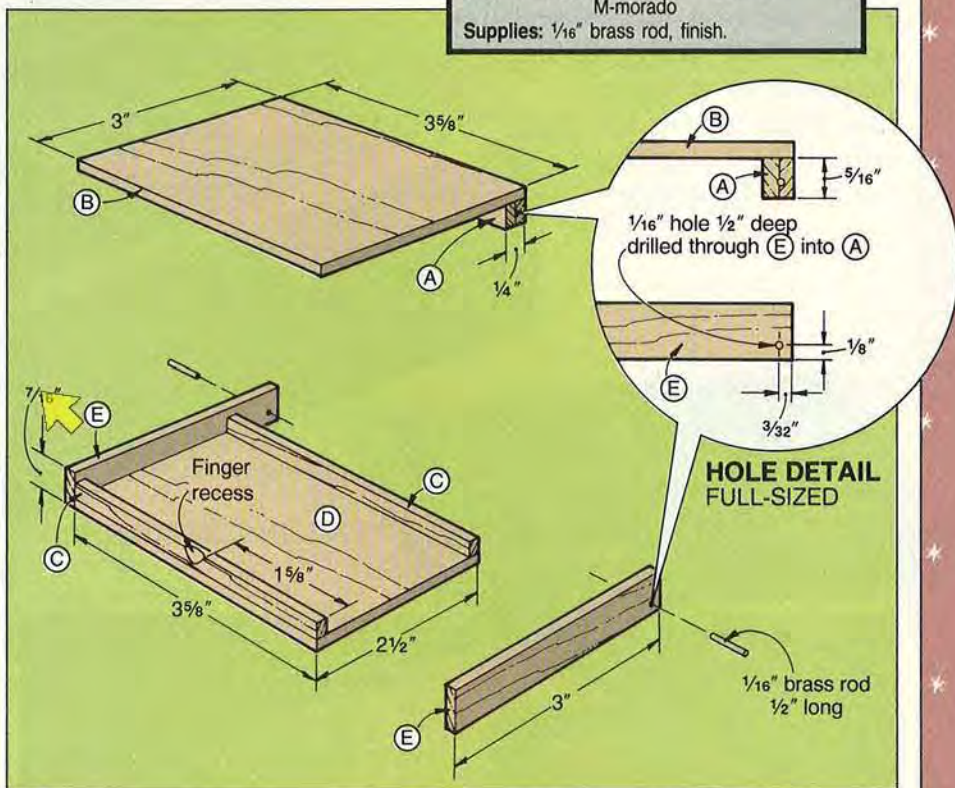
4 Remove the tape to separate the lid from the tray. Using the pointed end of a pin or toothpick, put a small amount of instant glue into each $\frac{1}{16}''$ hole in the lid hinge (A). Insert the pins through the tray sides (E) and into the lid hinge to pin the lid to the tray sides. Sand the ends of the brass pins flush with the surface of the tray sides.

Add the finger recess, round-overs, and finish

1 Sand all surfaces and ends flush. Close the lid, and sand or rout $\frac{1}{8}''$ round-overs along the outside edges of the case.

2 Measure in $1\frac{5}{8}''$ from the inside surface of both E's, and mark a pair of lines on the tray front (C) to locate the finger recess where shown on the drawing. Wrap 150-grit sandpaper around a $\frac{3}{8}''$ dowel, and sand between the lines to form the finger recess. (The size of the recess depends on personal preference. For those with small fingers, a shallow recess was sufficient. We recommend a deeper and wider recess for someone with larger fingers.)

3 Finish-sand the holder (inside and out) and apply the finish of your choice, rubbing lightly with steel wool between coats. To help prevent warping, apply an equal number of coats to the inside and outside surfaces.



Buying Guide


• **Exotic wood.** $\frac{1}{8} \times 4\frac{1}{2} \times 32''$ morado (enough for four boxes), \$7.95 ppd for one piece, two pieces for \$12.95 ppd, or three pieces for \$16.95 ppd. Add \$1 for a 6" length of $\frac{1}{16}''$ solid brass rod (for the hinges) or \$2 for a 12" length of rod. Woodworkers' Dream, 510 Sycamore Street, Box 329, Nazareth, PA 18064, or call 215/759-2837. 🌲

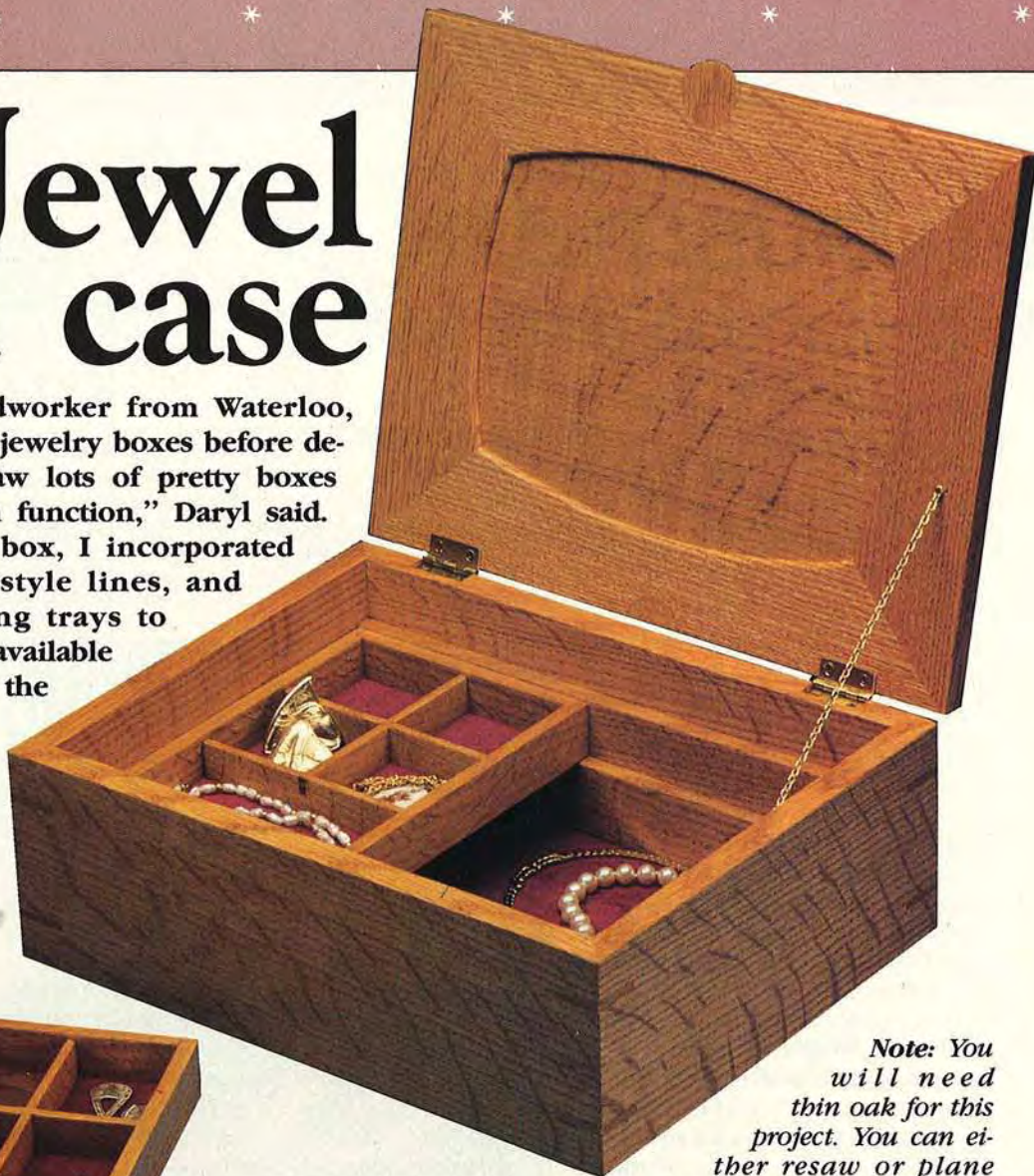
Photographs: Hopkins Associates; John Hetherington Illustrations: Kim Downing; Bill Zaun



Jewel of a case

Daryl Morgan, a woodworker from Waterloo, Iowa, studied plenty of jewelry boxes before designing this one. "I saw lots of pretty boxes with little emphasis on function," Daryl said. "When designing my box, I incorporated simple Scandinavian-style lines, and then added two sliding trays to make the best of the available space." Well, Daryl, all the ladies we've talked to like what you've accomplished. Thanks for the great design.

 [Print this article](#)



Note: You will need thin oak for this project. You can either resaw or plane thicker stock to size.

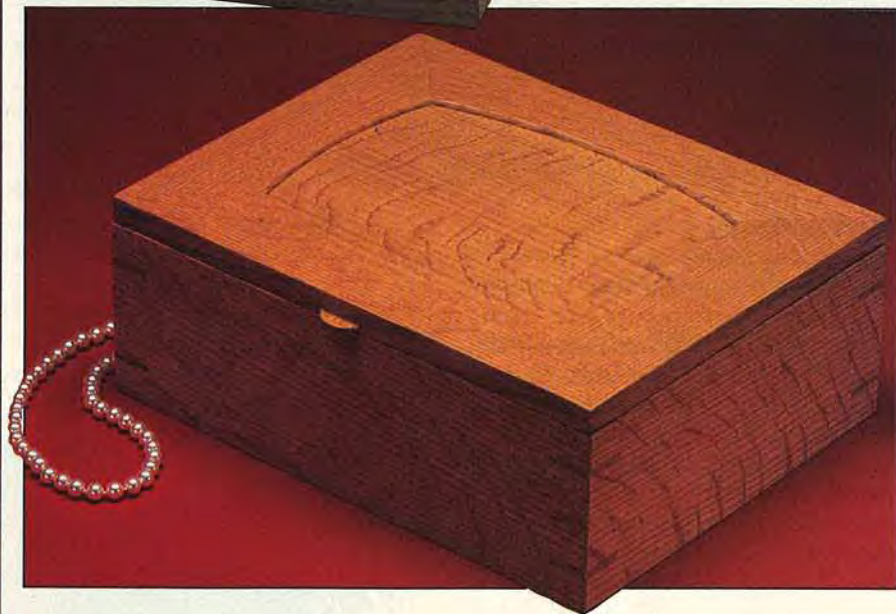


Eight splines make for a sturdy box

1 Cut a piece of $\frac{1}{2}$ "-thick oak to $3\frac{1}{2}$ " wide by 42" long for the front, back, and ends. Cut a $\frac{1}{4}$ " rabbet $\frac{1}{4}$ " deep along one edge.

2 Square your miter gauge to your saw blade, and then tilt the blade 45° from vertical. Cut scrap to verify the angle setting. Now, miter-cut the front and back (A) and ends (B) to the lengths listed in the Bill of Materials from the 42"-long piece.

3 Sand the inside face of each piece (A, B). Next, glue and clamp together the pieces, checking for square and making sure that the top and bottom edges remain flush.



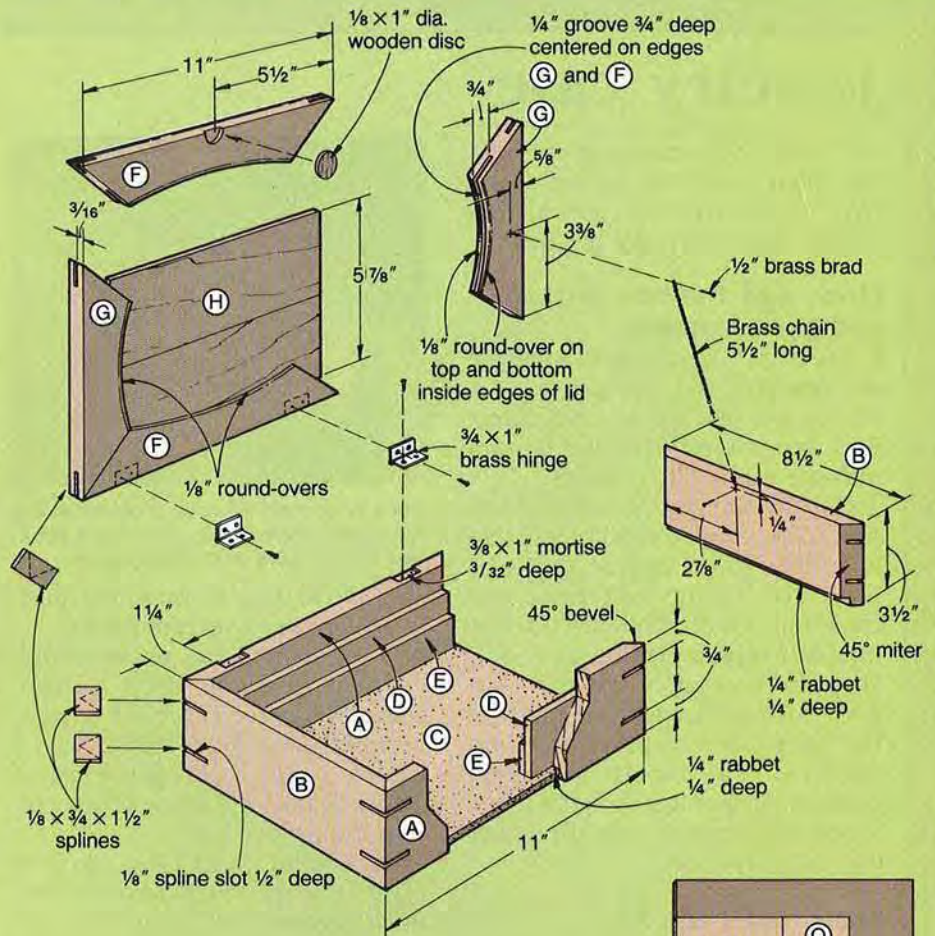
Bill of Materials

Parts	Finished Size*			Matl.	Qty.
	T	W	L		
BOX AND DRAWER SUPPORTS					
A* front & back	1/2"	3 1/2"	11"	O	2
B* ends	1/2"	3 1/2"	8 1/2"	O	2
C bottom	1/8"	8"	10 1/2"	H	1
D top dwr. support	1/4"	2 1/4"	10"	O	2
E btm dwr. support	1/4"	1 1/4"	10"	O	2
LID					
F* front & back	1/2"	2"	11"	O	2
G* ends	1/2"	2"	8 1/2"	O	2
H* panel	1/4"	5 15/16"	8 7/16"	EO	1
TRAYS					
I ends	1/4"	7/8"	4 1/4"	O	4
J front & back	1/4"	7/8"	7 7/16"	O	2
K bottom	1/8"	4 1/4"	7 3/16"	H	1
L divider	1/8"	5/8"	4"	O	5
M divider	1/8"	5/8"	6 15/16"	O	1
N front & back	1/4"	7/8"	6 15/16"	O	2
O bottom	1/8"	4 1/4"	6 11/16"	H	1
P divider	1/8"	5/8"	3 7/8"	O	1

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

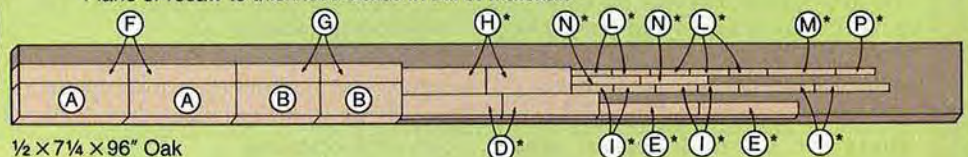
Material Key: O—oak, EO—edge-joined oak, H—hardboard

Supplies: 3/4 x 1" brass broad hinges (Stanley CD5302), 1/2" x 17" finish nails, velour fabric, spray-on adhesive or carpet tape, necklace chain, 2—3/8" brass brads, stain, finish.



Cutting Diagram

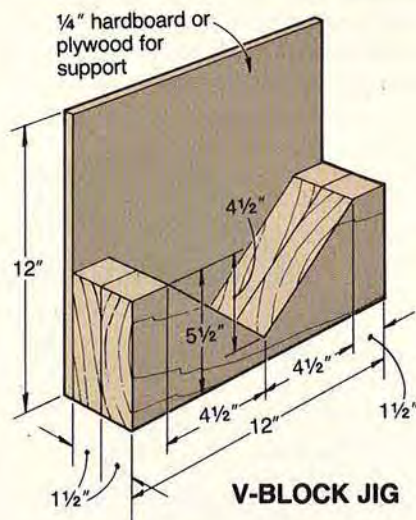
*Plane or resaw to thickness stated in Bill of Materials



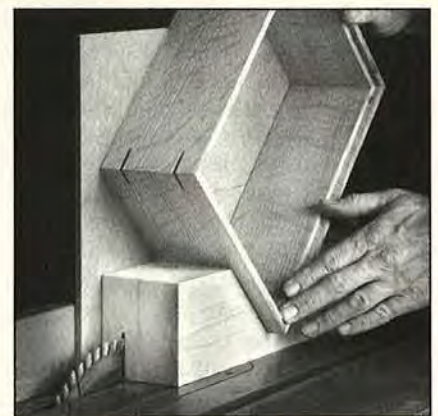
4 Using the drawing at *right* as a guide, build a V-block jig. Now, raise the tablesaw blade 1 1/2" above the surface of the saw table. Position the fence 1" from the inside edge of the saw blade and cut a pair of slots in each corner of the mitered box as shown in the photo at *far right*.

5 To form the splines, cut a piece of 1/8" stock (we resawed thicker stock) to 3/4" wide by 22" long. Then, crosscut twelve 1 1/2" long splines from the stock. Glue a spline into each slot in the box. After the glue dries, trim the splines (we used a dovetail saw)

Continued



V-BLOCK JIG



Using the V-block jig shown in the drawing at left for support, cut a pair of spline slots in each corner of the box.

Jewelry case

$\frac{1}{16}$ " from the surfaces of the box and then sand the splines flush. (You'll use the four remaining splines when forming the lid.)

Now, add the box bottom and tray supports

1 From $\frac{1}{8}$ " hardboard, measure the opening and cut the bottom (C) to size less $\frac{1}{16}$ " in each direction. Temporarily tape the bottom into the rabbeted opening.

2 Cut the tray supports (D, E) to size. (We resawed thicker stock to $\frac{1}{4}$ " thick.) Glue the top tray supports (D) to the box front and back, but not the bottom (C). The taped-in-place hardboard will keep the bottom of the tray support flush with the top edge of the $\frac{1}{4}$ " rabbet. Remove the bottom as soon as you clamp the supports in place. After the glue dries, repeat the process with the lower tray supports (E).

Next, build the lid

1 Cut a piece of $\frac{1}{2}$ " stock to 2×42 ". Miter-cut the lid front, back, and ends (F, G) to length.

2 Transfer the curve patterns to the top inside surface of each lid piece. Bandsaw the curves smooth. Sand the bandsawed edge to remove the saw marks.

3 Rout or sand $\frac{1}{8}$ " round-overs along the top and bottom inside curved edge of each lid piece.

4 Fit your tablesaw with a $\frac{1}{4}$ " dado blade. Now, position the fence so the dado blade will cut a $\frac{1}{4}$ " rabbet centered along the curved edge of each lid piece.

5 With double-faced (carpet) tape, adhere a piece of thin hardboard or plywood to your saw top and butted against the fence. Start the saw, and raise the dado blade $\frac{3}{4}$ " above the surface of the hardboard. The hardboard acts as a zero-clearance insert and keeps the bottom edge of the lid parts from falling into the slot around the blade as they would with a standard blade insert. The insert



Cut a $\frac{1}{4}$ " groove $\frac{3}{4}$ " deep centered along the inside-curved edge of each lid piece. Use a push stick to feed the stock.

also allows you to smoothly push the lid pieces over the blade.

6 As shown in the photo above, cut a $\frac{1}{4}$ " groove $\frac{3}{4}$ " deep centered along the inside (curved) edge of each lid piece (F, G). (We used a feather board to keep the pieces firmly against the fence when cutting the groove.)

7 For the lid panel (H), resaw or plane thicker stock for two $\frac{1}{4}$ "-thick pieces 3×9 ". Glue the two pieces edge to edge. Now, trim the panel to $5 \frac{1}{16} \times 8 \frac{7}{16}$ " long. The panel should fit slightly loose in the assembled lid, allowing it to expand without splitting the mitered lid joints.

8 Check the fit, and then glue and clamp the lid pieces, allowing the panel to float (no glue) in the grooved opening.

9 Using the spline jig, cut a $\frac{1}{8}$ " spline slot $\frac{1}{2}$ " deep centered in each corner of the lid. Using the splines cut earlier, glue them in place; trim and sand them flush.

Hinge the lid, and form the finger pull

1 Mark the location and form a pair of $\frac{3}{8} \times 1$ " mortises on the top edge of the box back (A). (We cut the mortise outlines with an X-acto knife and removed the waste with a sharp $\frac{1}{4}$ " chisel.)

2 With a Forstner bit, drill a 1" hole $\frac{1}{8}$ " deep on the bottom side of the lid where shown on the Hole Detail accompanying the Exploded-View Drawing.

3 Using a plug cutter or bandsaw, cut a 1"-diameter plug from $\frac{1}{8}$ " stock. Glue the plug into the recess noting the grain direction shown on the Exploded-View Drawing. Sand the bottom surface flush with the bottom of the lid.

Assemble the two trays

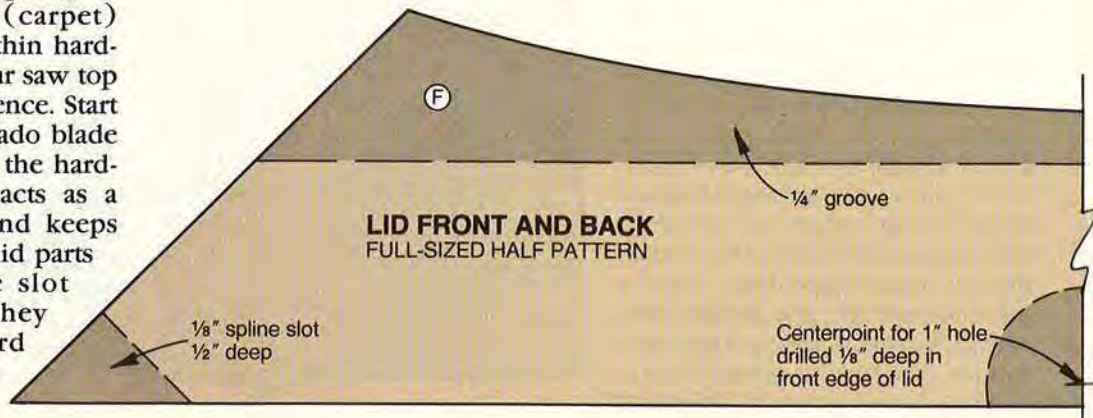
1 Cut the tray pieces (I thru P) to size. Mark the locations and cut $\frac{1}{8}$ " kerfs in parts L, M, and P where shown on the Tray Drawings. (We raised our tablesaw blade $\frac{5}{16}$ " above the saw table and used a miter gauge with an auxiliary fence to cut the kerfs.)

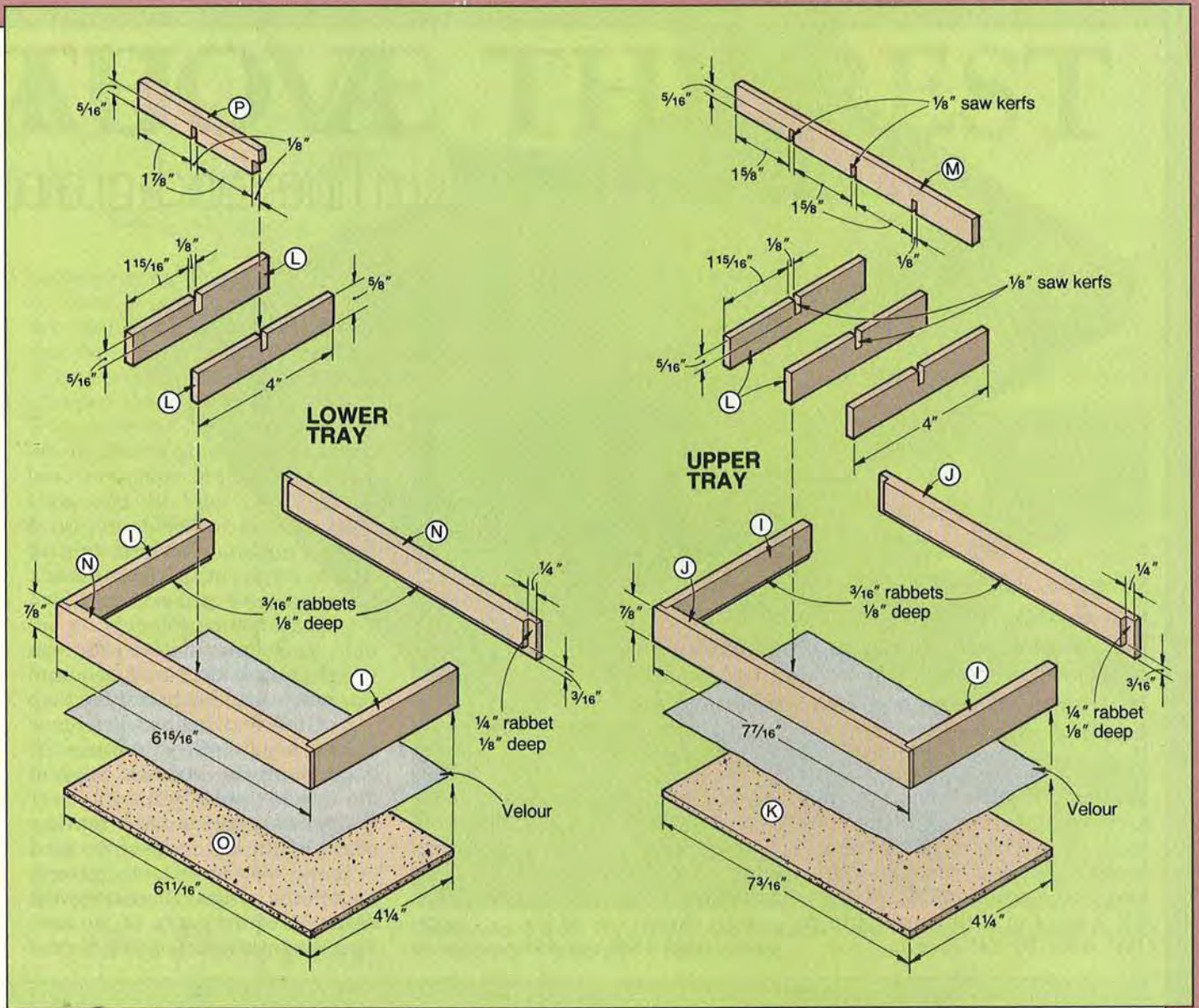
2 Cut $\frac{1}{4}$ " rabbets $\frac{1}{8}$ " deep along the ends of parts J and N. Form $\frac{3}{16}$ " rabbets $\frac{1}{8}$ " deep along the bottom edge of parts I, J, and N.

3 Cut the tray bottoms (K, O) to size from $\frac{1}{8}$ " hardboard.

4 Glue each divider assembly (L/M and L/P). Then, glue together each tray, checking for square.

5 Hand-sand the trays and divider assemblies smooth. Glue the dividers in place in each tray.





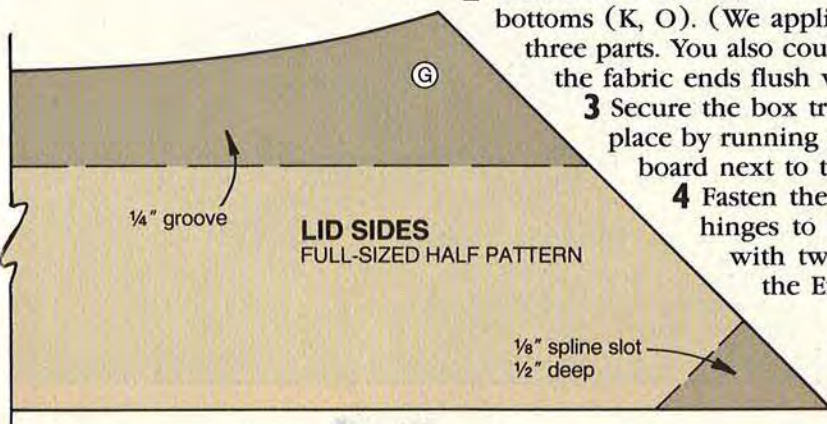
Apply the finish, and fit the fabric

1 Finish-sand the box, lid, and trays (we sanded with 150- and 220-grit sandpaper). Apply a stain if desired (we wiped on Pratt & Lambert light oak S27 stain). Add the finish. (We sprayed on several light coats of finish. We found this easier than trying to apply the finish with a brush.)

2 Adhere the velour fabric to the top surface of the box bottom (C) and tray bottoms (K, O). (We applied spray-on adhesive to the top surface of all three parts. You also could use carpet tape.) With an X-acto knife, trim the fabric ends flush with the bottom surface of the hardboard.

3 Secure the box tray bottoms in place. (We held the bottoms in place by running a fine bead of glue along the ends of the hardboard next to the bottom edges of the rabbets.)

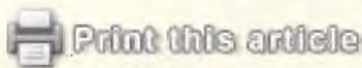
4 Fasten the brass hinges to the box, and then screw the hinges to the lid. Add a 5½" length of necklace chain with two brads to the lid and box where shown on the Exploded-View Drawing. 🌲



Produced by Marlen Kemmet
 Project Design: Daryl Morgan
 Photographs: John Hetherington
 Illustrations: Kim Downing; Bill Zaun

A CUT

The end-grain



Simple-to-cut grooves and rabbets add a crafty patterned effect to this laminated board. Similar in construction to a butcher's table, our cutting board will be around for years and years of cutting, dicing, and mincing.

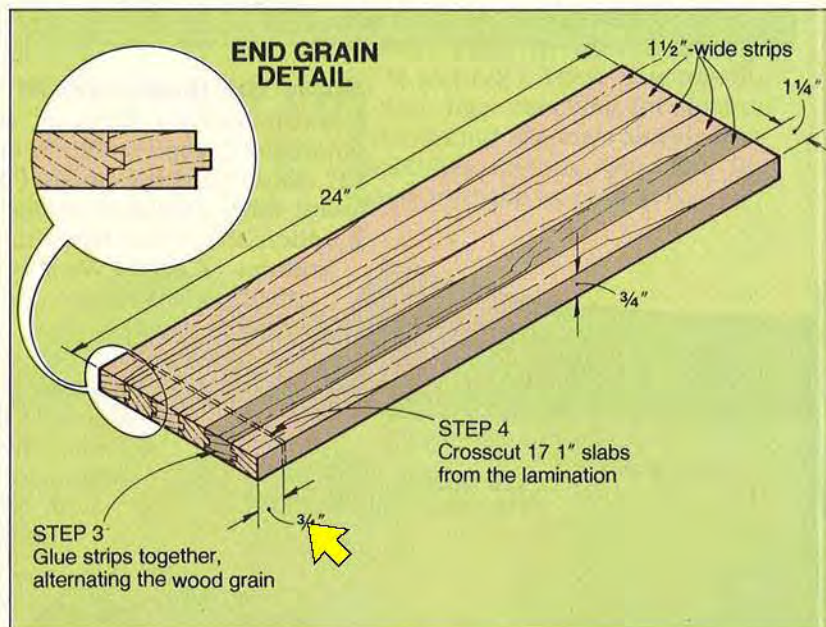
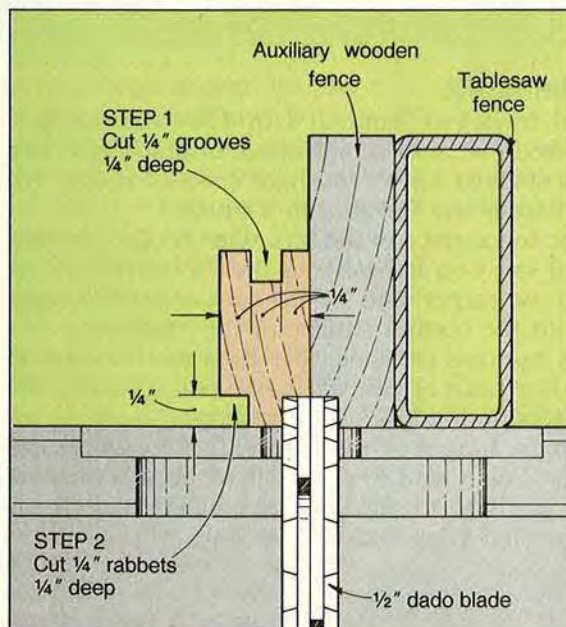
1 From $\frac{3}{4}$ "-thick stock, rip and crosscut four strips of oak and one strip of a darker-colored hardwood (we used padouk; walnut also would work) to $1\frac{1}{2}$ " wide by 24" long. Cut a fifth oak strip to $1\frac{1}{4}$ " wide by 24" long.

2 Attach an auxiliary fence and a $\frac{1}{4}$ " dado blade to your tablesaw. Follow Step 1 of the drawing below to cut $\frac{1}{4}$ " grooves $\frac{1}{4}$ " deep centered along one edge of all the strips except one of the $1\frac{1}{2}$ "-wide oak strips. (We cut the grooves in

this step and rabbets in the next in scrap stock to ensure gap-free mating joints.)

3 Put the $\frac{1}{4}$ "-wide oak strip aside. Now, switch to a $\frac{1}{2}$ " dado blade and use Step 2 of the drawing as a reference to cut a pair of $\frac{1}{4}$ " rabbets $\frac{1}{4}$ " deep along the opposite edge of the five $1\frac{1}{2}$ "-wide strips.

4 Spread glue on the mating edges of the six strips (we used yellow woodworker's glue). Clamp the strips, alternating the direction of the grain, in the configuration shown on Step 3 and



ABOVE THE REST

cutting board makes one striking gift

accompanying End Grain Detail. For ease in gluing and clamping the individual slabs later, check that the lamination is flat; reclamp if necessary. Leave the strips clamped overnight.

5 Remove the clamps and scrape off the excess glue. Carefully belt-sand or scrape both surfaces flat. (We used the edge of a framing square to check for flatness.)

6 Crosscut the lamination into 17 1"-long slabs where shown in Step 4 of the drawing. (As shown in the photo at *right*, we clamped a stop to our tablesaw fence, and then positioned the inside edge of the blade 1" from the outside surface of the stop.)

7 Position the pieces next to each other in the order they were cut. Then, flip every other piece to obtain the V-shaped grain configuration shown on Step 5 of the drawing and the project photo.

8 With the surfaces and ends flush, glue and clamp the slabs with the end grain facing up (we

used bar clamps). Again, let the lamination sit overnight before removing the clamps.

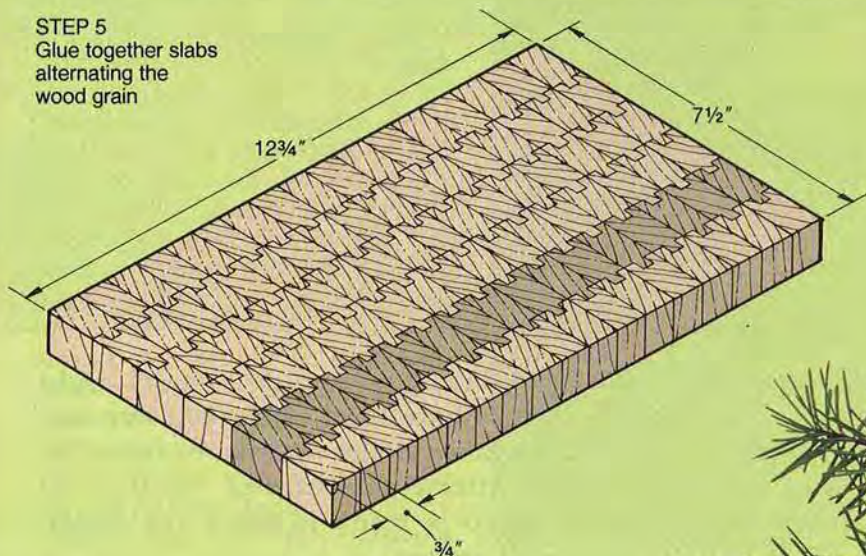
9 Sand the cutting board smooth and apply the finish. (We used

Behlen's Salad Bowl Finish; a vegetable oil or mineral oil also would work, but we found that several coats of Behlen's completely fills the open-grained oak.)



Clamp a scrap block to your rip fence for use as a stop to ensure equal-length pieces. The guard was removed for photo clarity.

STEP 5
Glue together slabs
alternating the
wood grain



Buying Guide

• **Behlen's Salad Bowl Finish.** Safe for wooden bowls, plates, and eating utensils. One pint, \$9 ppd. (\$12 U.S. funds for Canadian orders), catalog no. 85006. Armor Products, Box 445, East Northport, NY 11731. 🌲

Project Design: James R. Downing
Photographs: Hopkins Associates; Bob Calmer
Illustrations: Jamie Downing; Bill Zaun



Oh what fun
it is to ride our


Snow-loving



Minnesotans don't hibernate during winter; they march right outdoors and celebrate it. And in the Land of 10,000 Lakes and a lot of snow, we found this classic sleigh that stands up to the abuses of winter—and kids. After eight years of “testing” by his three children, Keith Raivo is ready to share his design with other *WOOD*® magazine readers.



open sleigh

 Print this article

First, laminate the runners

1 From $\frac{3}{4}$ " particleboard or plywood, construct a bending form like the one dimensioned on the Bending Form Drawing.

2 From straight-grained $1\frac{1}{16}$ "-thick oak, rip 12 strips (this includes two extra strips in case of breakage) $\frac{1}{8}$ " thick by 52" long for the runners (A). The pieces are cut long and trimmed to length later.

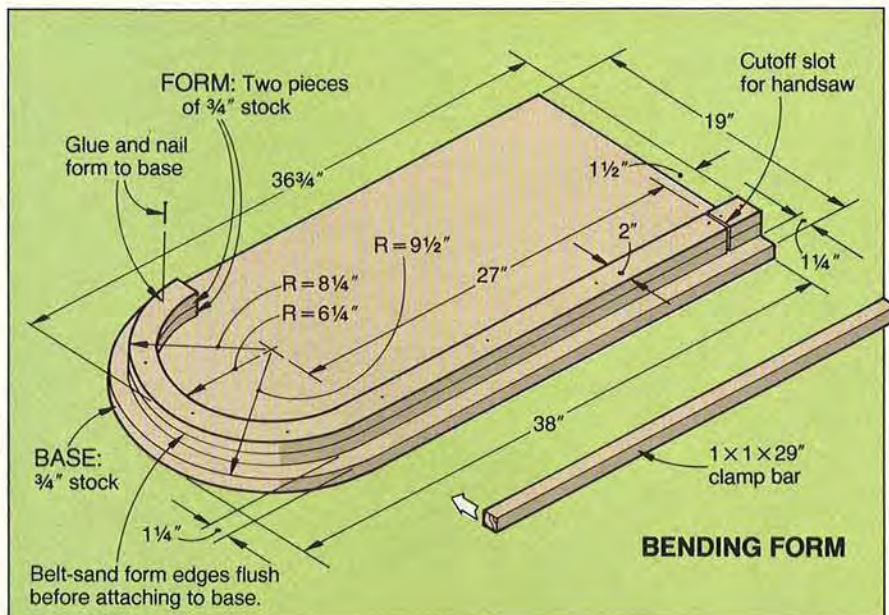
3 Cover the form with waxed paper to prevent the strips from sticking (see the photo at *right* for reference). Then, cut a 1×1 " scrap clamp bar 29" long.

4 Spread glue on the mating surfaces of five runner strips. For joints that will stand up to the extremes of Mother Nature, use either slow-set epoxy or resorcinol glue. Place the 52"-long strips against the form and flush with the straight end of the form. Then, position the clamp bar on the outside edge of the strips. Starting at the end with the cutoff slot, clamp the strips to the form, keeping the edges flush as shown in the photo at *right*. Let the lamination sit overnight.

5 Cut the tail end of the laminated runner to length with a backsaw, using the cut-off slot in the bending form. Remove the clamps and clamp bar. Repeat the process to make a second runner.

6 Scrape the squeeze-out from the edges of each runner and then sand the edges smooth. Cut the runner caps (B) to the size stated in the Bill of Materials. Glue and clamp one of them to each laminated runner, with the edges and tail ends flush. Later, cut or sand a slight curve on the top front edge of the runner cap where shown on the Runner Detail accompanying the Side Assembly Drawing. Rout $\frac{3}{16}$ " round-overs along the edges of each runner.

Continued

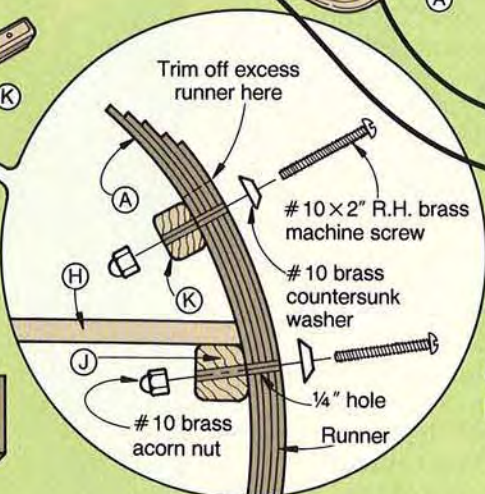
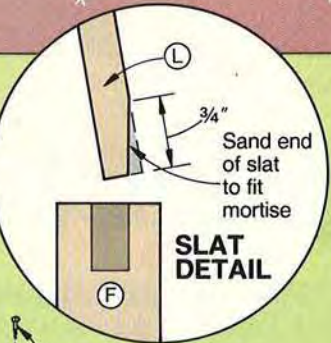
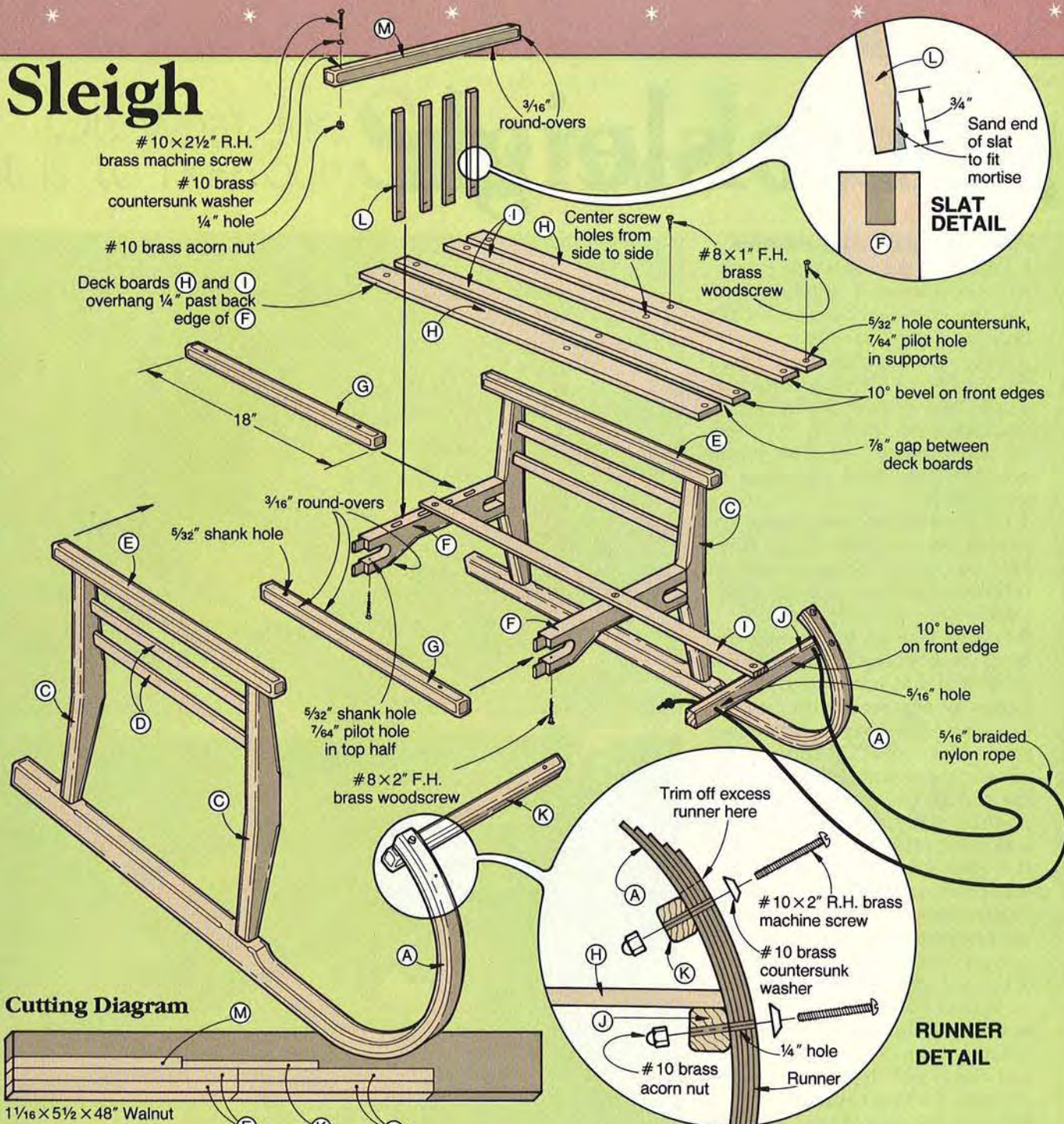


Starting at the straight end, clamp five $\frac{1}{8}$ "-thick oak strips to the bending form to laminate the runner.

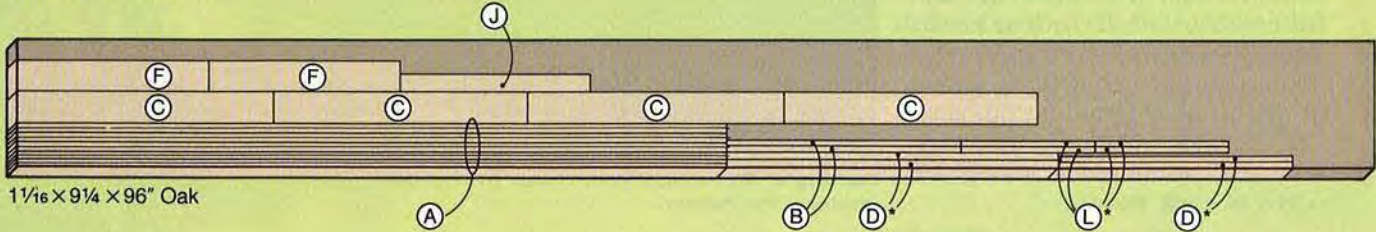
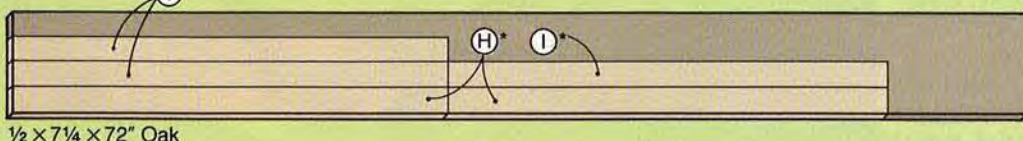
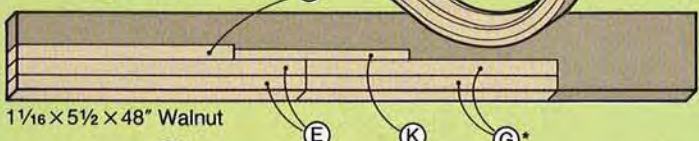
Sleigh

- # 10 × 2½" R.H. brass machine screw
- # 10 brass countersunk washer
- ¼" hole
- # 10 brass acorn nut

Deck boards (H) and (I) overhang ¼" past back edge of (F)



Cutting Diagram



*Plane or resaw stock to the size listed in the Bill of Materials.

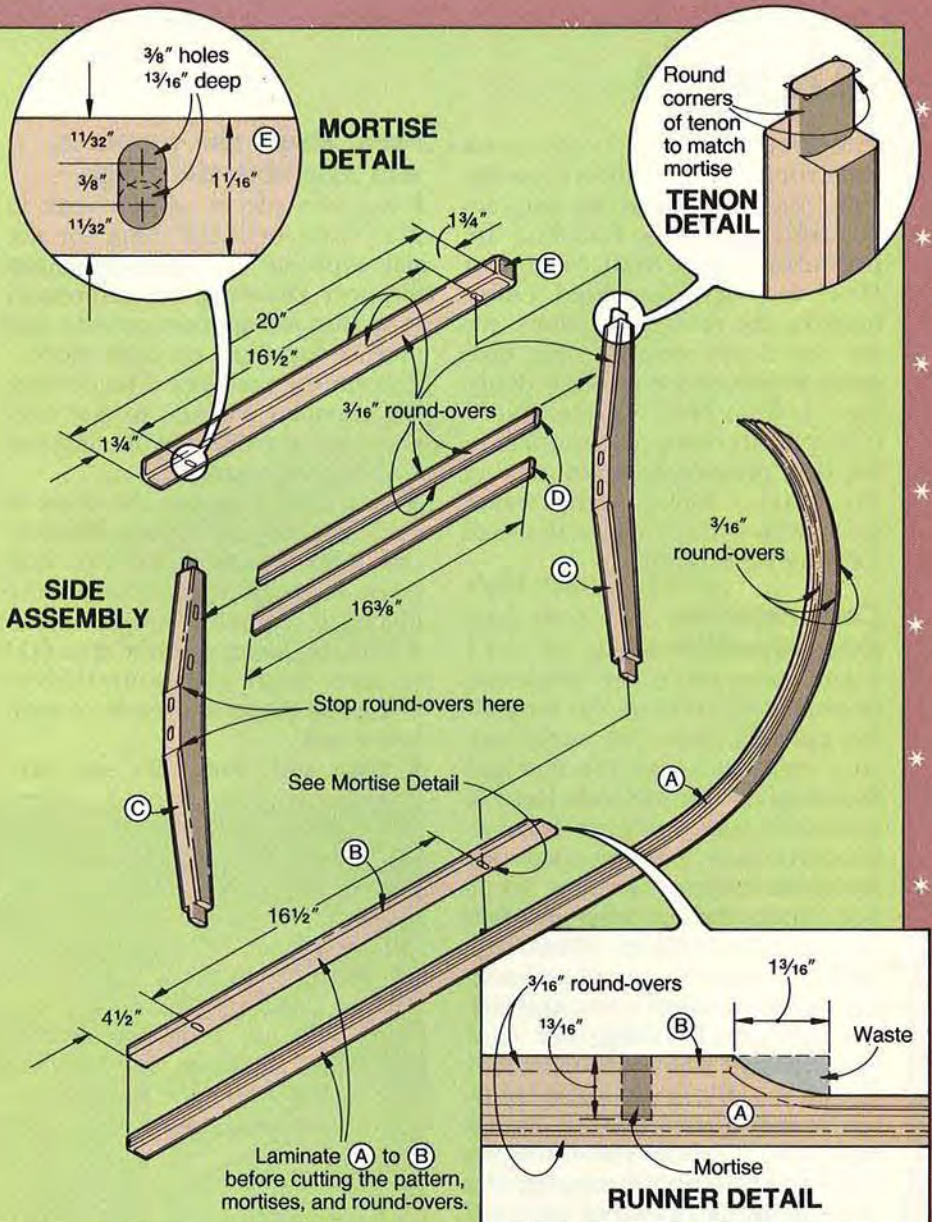
Bill of Materials

Parts	Finished Size*			Mati.	Qty.
	T	W	L		
A* runners	5/8"	1 1/16"	48"	LO	2
B runner caps	1/2"	1 1/16"	23 1/2"	O	2
C uprights	1 1/16"	2 1/8"	18"	O	4
D side slats	3/8"	3/4"	16 3/8"	O	4
E rails	1 1/16"	1 1/16"	20"	W	2
F slat supports	1 1/16"	2 1/2"	13 1/2"	O	2
G rails	1"	1"	18"	W	2
H deck boards	3/8"	2"	31 3/4"	O	2
I deck boards	3/8"	1 1/2"	31 3/4"	O	3
J support	1 1/16"	1 1/16"	13 1/2"	O	1
K support	3/4"	1 1/16"	12 1/2"	W	1
L backrest slats	3/8"	3/4"	9 1/4"	O	4
M backrest rail	1 1/16"	1 1/16"	15 1/2"	W	1

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

Material Key: LO-laminated oak, O-oak, W-walnut

Supplies: waxed paper, #8 x 1" flathead brass wood screws, #8 x 2" flathead brass wood screws, #10 x 2" roundhead brass machine screws, #10 x 2 1/2" roundhead brass machine screws, #10 brass countersunk washers, #10 brass acorn nuts, clear exterior finish, 5/16" braided nylon rope 6' long.

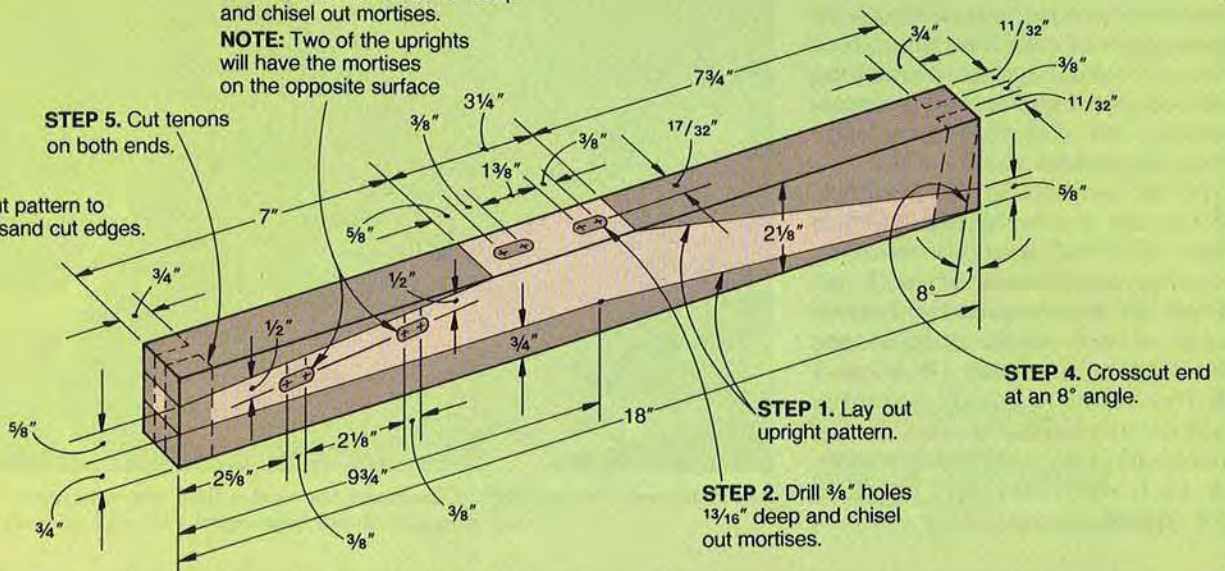


STEP 3. Drill 3/8" holes 1/2" deep and chisel out mortises.

NOTE: Two of the uprights will have the mortises on the opposite surface

STEP 5. Cut tenons on both ends.

STEP 6. Cut pattern to shape and sand cut edges.



STEP 1. Lay out upright pattern.

STEP 4. Crosscut end at an 8° angle.

STEP 2. Drill 3/8" holes 13/16" deep and chisel out mortises.

Sleigh

7 Mark the mortise locations on each runner where shown on the Side Assembly Drawing and accompanying Mortise Detail on the previous page. Drill $\frac{3}{8}$ " holes $\frac{13}{16}$ " deep where marked. (After marking the mortise locations, we set the depth stop on our drill press to ensure a consistent depth from hole to hole. We also found it helpful to clamp the runners to the drill press-table when drilling the holes.) Remove the waste stock with a sharp chisel to finish forming each mortise.

Construct the side assemblies next

1 Cut four pieces of $1\frac{1}{16}$ " oak stock to $2\frac{1}{8}$ " wide by 18" long for the uprights. Now, follow the six-step procedure on the Upright Drawing on the previous page to form the four uprights (C). As noted in Step 3 of the drawing, *make the uprights in pairs*. To do this, mark the $\frac{1}{2}$ "-deep mortises on opposite surfaces of two uprights—when the uprights are in the position shown on the Exploded-View Drawing, the mortises need to face each other.

2 With a file and sandpaper, round the square edges of the upright tenons where shown on the Tenon Detail accompanying the Side Assembly Drawing.

3 Cut the side slats (D) to size. Rout $\frac{3}{16}$ " round-overs along all four edges of each slat. Then, rout the same-sized round-overs along the edges of the uprights where shown on the Side Assembly Drawing. Check the fit of the slats into the mortises in the uprights.

4 Cut the walnut top rails (E) to size. Rout $\frac{3}{16}$ " round-overs along the edges and ends of each rail. Form the mortises on the bottom edge of each where dimensioned on the Side Assembly Drawing.

5 Dry-clamp the side-assembly pieces to check the fit. Trim if necessary. Glue and clamp together each side assembly, checking for square.

Now, shape the supports, and assemble the sleigh

1 Cut two pieces of $1\frac{1}{16}$ " oak to $2\frac{1}{2}$ " wide by $13\frac{1}{2}$ " long for the slat supports (F). Using the Slat Support Drawing for reference, mark the slat-support outline and mortise locations on each piece.

2 Form the mortises. (To do this, we clamped a fence to our drill press and then drilled overlapping holes where marked.)

3 Cut rabbets across the ends of each slat support to form the tenons. Then, bandsaw the two supports to shape. Drum-sand the pieces to remove the saw marks.

4 Cut the lower walnut rails (G) to size. Rout $\frac{3}{16}$ " round-overs along the edges and ends of each lower rail.

5 Glue and clamp the slat supports between the two side assemblies, checking for square. Slide the lower rails into the notches in the slat supports and clamp them in place. The front edge of each rail should sit $\frac{1}{4}$ " in front of the front face of the front support. To secure the walnut rails (you'll want to work from the bottom side), drill the holes and drive the screws in place (see the Exploded-View Drawing for reference).

It's time to add the deck boards

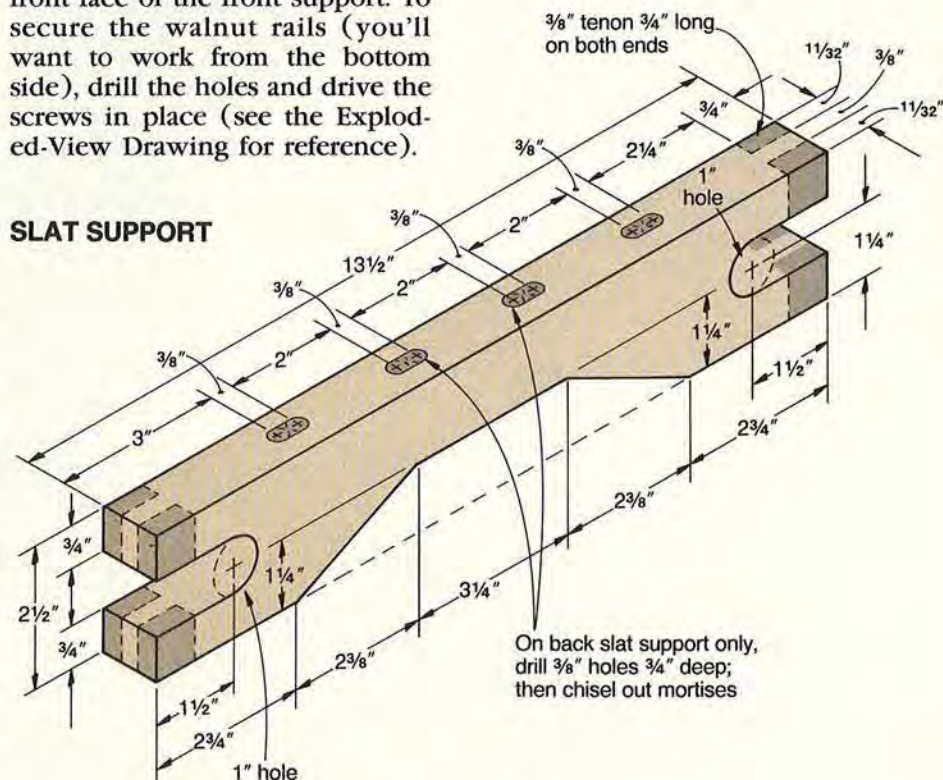
1 Cut the deck boards (H, I) to size, beveling the front ends at 10° . Cut the front deck-board support (J) to size, bevel-ripping the front edge at 10° where shown on the Exploded-View Drawing.

2 Rout or sand a $\frac{1}{8}$ " round-over along the edges (but not the ends) of each deck board. Switch bits, and rout $\frac{3}{16}$ " round-overs on the deck-board support (J).

3 Locate and mark the center of each deck-board support. Then, drill the holes and fasten the deck boards to the deck-board supports, starting with the center deck board and working outward. See the Exploded-View Drawing for reference. From outside edge to outside edge, the total width of the deck should equal 12".

4 Position the assembly on the sleigh. Then, mark the location and fasten the deck boards to the supports (F).

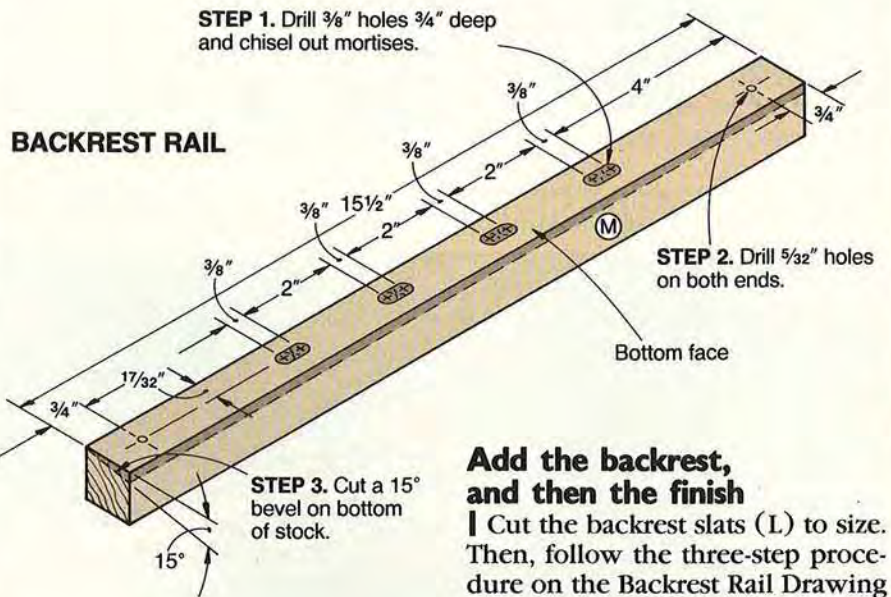
SLAT SUPPORT



5 Clamp a 2×4 to an outside deck board where shown in the photo *below*. (The 2×4 keeps the deck board straight.) Using the Runner Detail accompanying the Exploded-View Drawing for reference, drill the holes and screw the runner to the deck-board support (J). (To prevent the acorn nuts from working loose over time, we put a drop of epoxy in each nut before mating it with the machine screw.) Move the 2×4 to the other outside deck board and repeat the process.

6 Cut the top support (K) to size. Drill the holes and fasten it to the runners where shown on the Runner Detail.

7 With a fine-toothed saw, trim the top of each runner flush with the top of the runner support.



Add the backrest, and then the finish

1 Cut the backrest slats (L) to size. Then, follow the three-step procedure on the Backrest Rail Drawing to cut the backrest rail (M) and locate and form its mortises.

2 Sand the bottom front end of the slats to fit into the mortises in the rear support (F). See the Slat Detail accompanying the Exploded-View Drawing for reference.

3 Glue the backrest slats into the mortises in the rear support (F). Now, fit the backrest rail (M) onto the top of the slats. Drill the holes and fasten the backrest rail to the top ends of the top rails.

4 Drill a pair of 3/16" holes in the deck-board support (J) where shown on the Exploded-View Drawing to accept the pull rope.

5 Sand the sleigh. Apply the finish (we used three coats of clear exterior polyurethane, steel-wooling between coats). Add the braided nylon rope. Apply paraffin or ski wax to the bottom of the runners for added ease in sliding.

Buying Guide

• **Slow-set epoxy.** One 8-oz. bottle of resin and one 8-oz. bottle of hardener, catalog no. WM30, \$18 ppd. System Three Resins, P.O. Box 70436, Seattle, WA 98107. 🌲

Produced by Marlen Kemmet
Project Design: Keith Raivo Designs,
Brook Park, Minnesota
Photographs: John Hetherington;
Hopkins Associates
Illustrations: Kim Downing; Mike Henry

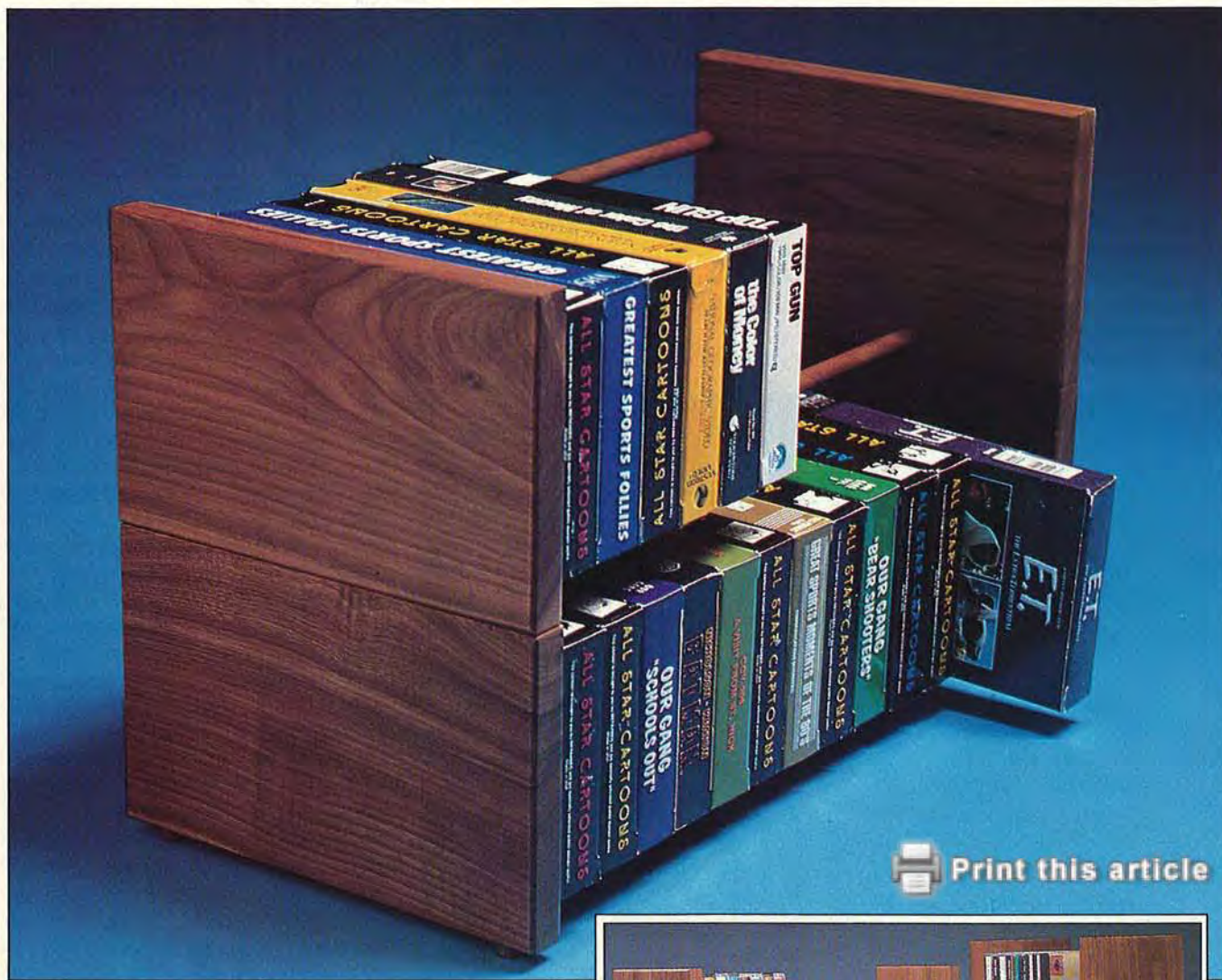


Mark the centerpoint and drill a hole for fastening the deck-board support to the laminated runner. The 2×4 helps keep the deck boards flat.



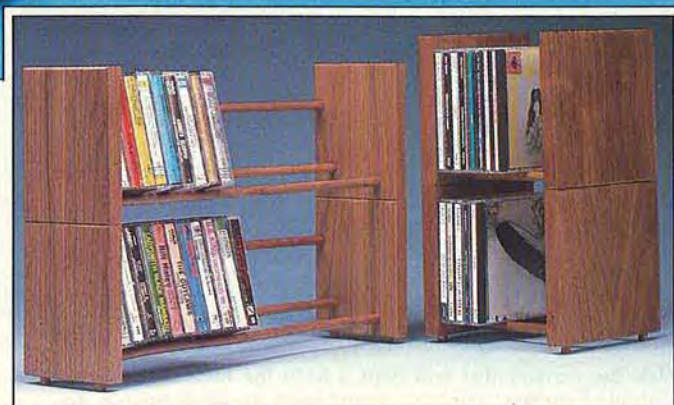
The Three Rack-a-tiers

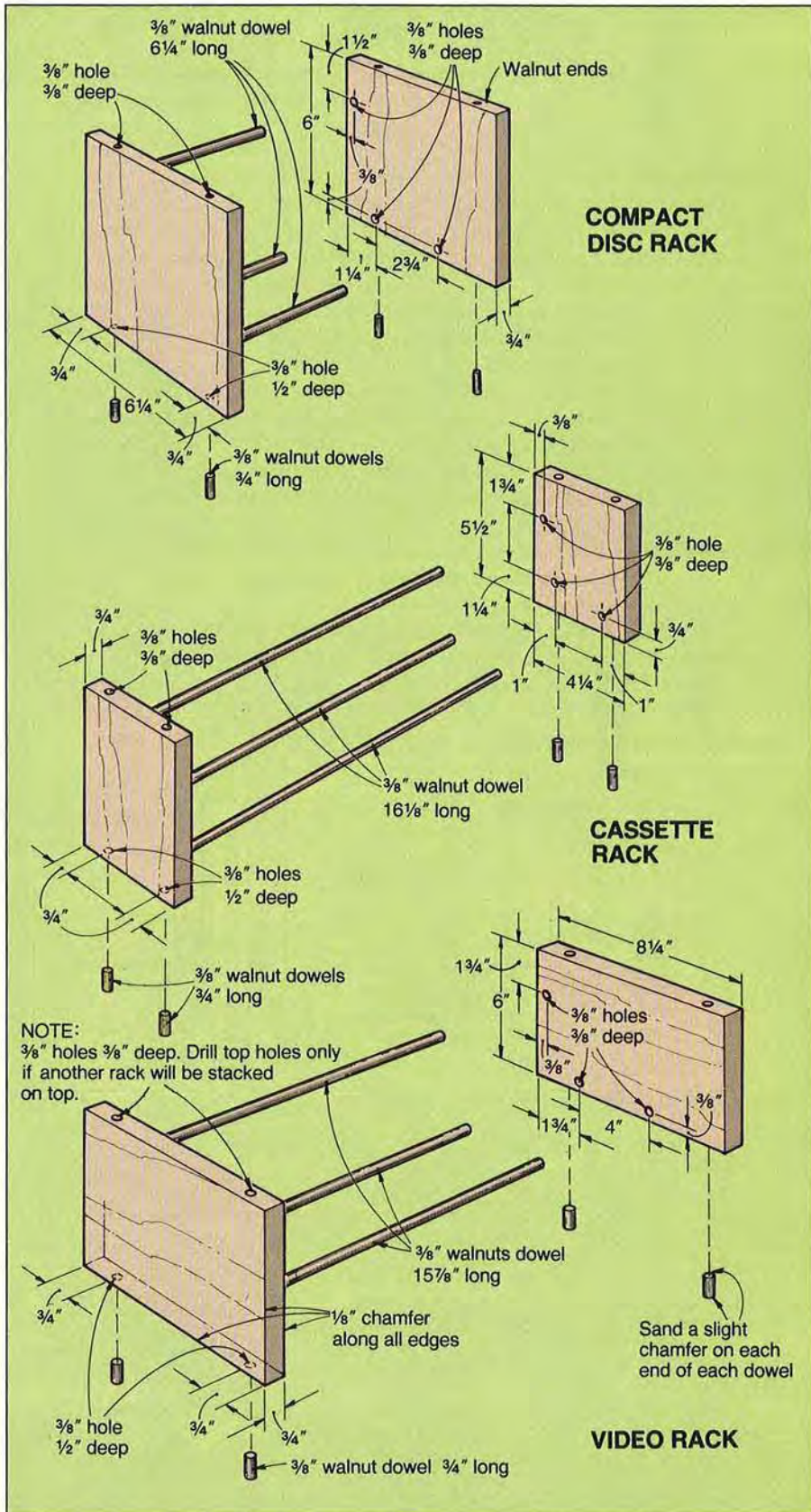
VIDEO, CASSETTE, AND COMPACT-DISC ORGANIZERS



 [Print this article](#)

It's time for those tapes and discs to come out from behind the couch and under the coffee table. Here's a trio of simple solutions to keep your collection organized and tastefully displayed. Stack one rack on top of the other to increase your storage space as your collection grows. Or, if you're just starting out, build a single organizer now and construct more as you need them.





Note: The following instructions are for the video rack shown below left. To build the cassette or compact-disc rack, refer to the drawings for each and to the note concerning the hole locations on the drawings.

1 From $\frac{3}{4}$ "-thick stock (we used walnut), cut the rack ends to 6" wide by 8 $\frac{1}{4}$ " long. When cutting the ends to size, note the grain direction shown in the photo on the opposite page.

2 Mark the hole centerpoints on the inside face of each endpiece. (We put the surface with the nicest grain pattern on the outside.) An easy way to ensure your holes align is to mark and drill the holes in one endpiece, and then use dowel centers to transfer the hole locations to the other endpiece.

3 If you plan to stack the units as shown on the opposite page, mark the hole locations on the top and bottom edges where dimensioned on the drawing. Don't drill holes in the top edge of the uppermost unit. Rout or sand a $\frac{1}{8}$ " chamfer along all edges.

4 Drill $\frac{3}{8}$ " holes $\frac{3}{8}$ " deep at each marked centerpoint on the inside faces and $\frac{1}{2}$ " deep in the bottom and top edges where marked.


5 Using a stop for consistent lengths, cut three pieces of $\frac{3}{8}$ " walnut dowel to length for each rack. Sand a chamfer on each end of each dowel. Glue the dowels between the endpieces. (To avoid wobble in the finished rack, we clamped the endpieces to a flat surface so the bottom edges were level with each other.)

6 Cut $\frac{3}{4}$ "-long pieces of $\frac{3}{8}$ " dowel for the connecting dowels and feet. (To make your own dowels, see page 30.) Sand a chamfer on both ends of each dowel. Glue the dowels into the bottom edge (they slide into the holes in the top edge of the mating endpiece). Apply a clear finish. ♣

Project Design: James R. Downing
 Photographs: Hopkins Associates
 Illustrations: Kim Downing; Bill Zaun

SHAPERS

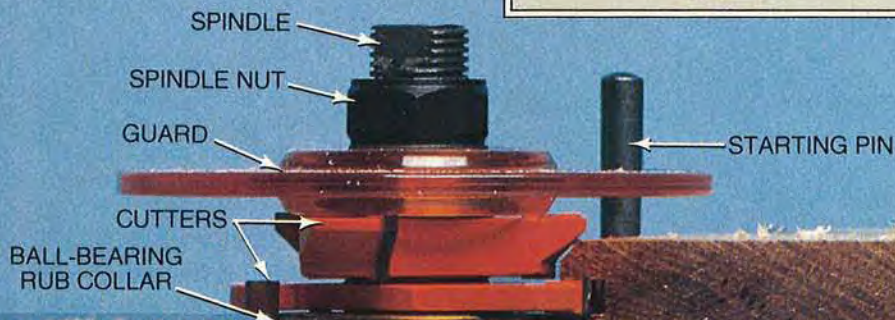
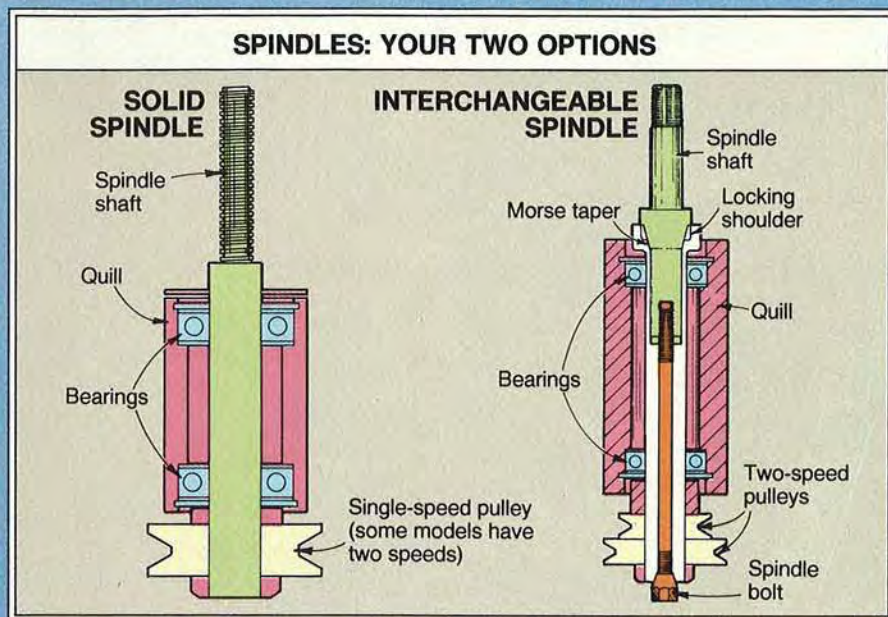
Like most cabinetmakers, *WOOD*® magazine's chief tool consultant, George Granseth, swears by his three shapers—he couldn't stay in business without them. So, when George suggested that many of you readers might step up from a router table to one of these heavy-duty tools, we said, "OK, prove it." Not one to back away from a challenge, our tool wizard set about testing seven popular models and keeping track of each machine's performance. Here's what we found out.

 [Print this article](#)

How a shaper works

In many ways, a shaper resembles a crossbreed between a tablesaw and a router table. Similar to the saw, a shaper has a flat, heavy-duty table with a miter-gauge slot milled into it as shown in the photo below. You can make heavy cuts with a shaper because it has a powerful induction motor just as a tablesaw does. Like a router setup, a rotating spindle sticks through a hole in the table and holds various cutters.

As shown in the drawings below, the spindle shaft rotates inside a quill that contains large, heavy-duty ball bearings near its top and bottom. Most machines accept interchangeable spindles of $\frac{1}{2}$ " and $\frac{3}{4}$ " diameters, and a few big models accept 1" or larger spindles. Many interchangeable quills also accommodate router-bit collets. The solid spindle mechanisms found on some light-duty, single-speed machines, usually have either $\frac{1}{2}$ " or $\frac{3}{4}$ " shafts.



Machines that put muscle to the molding

You can raise or lower the spindle by as much as three inches on some larger shapers in one of two ways. As shown in the drawing *below*, most machines have a **movable quill/motor assembly** that raises or lowers as you turn the **up/down adjustment handwheel**. Some shapers have a simpler, **movable-quill-only** mechanism. With these, the motor remains stationary and the drive belt follows the up-and-down movement of the quill as it rides along a large **drum pulley** attached to the motor.

Is a shaper for you?

If you're planning a major cabinetry project, a shaper could pay

for itself on that project alone. Why? Basically, a shaper picks up where a table-mounted router leaves off. Although routers work fine for edge details, template routing, and trimming, they don't have the necessary brawn for large-scale moldings, raised panels, long production runs, or any operation that removes hefty amounts of stock.

The muscle behind a shaper starts with its motor. Shapers have powerful, quiet, long-living induction motors that turn the spindle at between 7,000 and 10,000 rpm. In comparison, the high-pitched universal motors found in routers run at 20,000-plus rpm—way too fast for bits over 1½" in

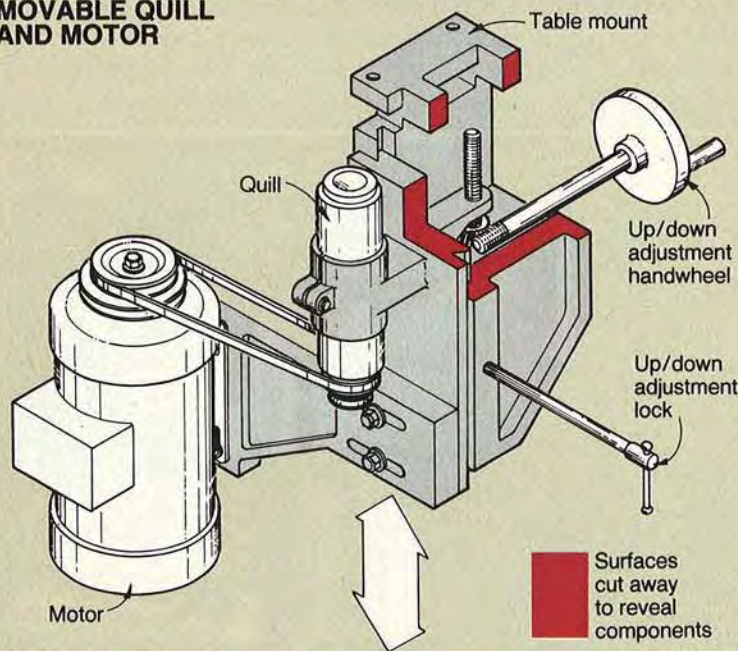
diameter. Although some variable-speed routers turn as slow as 8,000 rpm, they have no greater torque at slow speeds because manufacturers reduce their rpm electronically instead of mechanically through gears or pulleys.

And, a 3-hp router has a lot less torque than a 3-hp shaper even at high speeds because universal motors just can't deliver the power of a capacitor-start induction motor. With a shaper, the motor's muscle transfers to a sturdy spindle that's better able to handle heavy cuts because of its extra mass and thickness compared to a router-bit shank. George Granseth remembers seeing a ¾"-radius

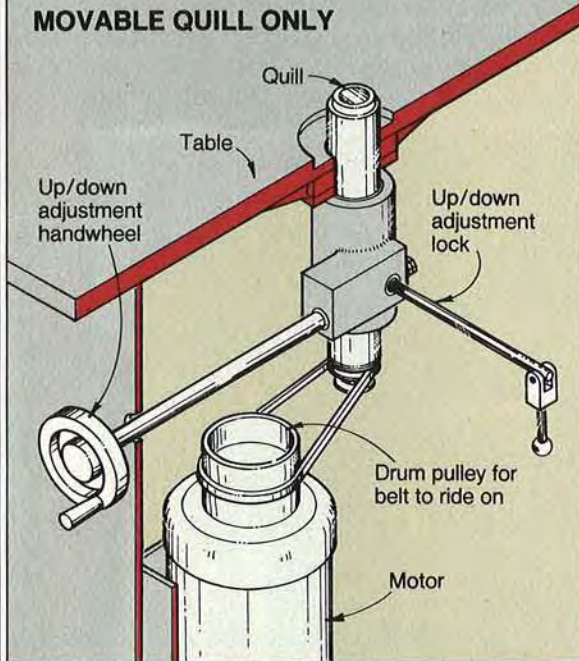
Continued

SPINDLE-HEIGHT ADJUSTMENT MECHANISMS: 2 WAYS TO GO

MOVABLE QUILL AND MOTOR



MOVABLE QUILL ONLY



SHAPERS

rounding-over bit with a 1/2" shank bend under the stress of a cut through oak. Loss: \$55. George has never seen that happen to a 3/4" shaper spindle.

Finally, even the biggest routers don't have bearings as large as those found in small-shaper quills. Those big bearings, turning at slower speeds, last much longer than router bearings.

How much shaper do you need?

Once you decide to put down your hard-earned cash (anywhere from \$450-\$1,700) for a shaper, you're faced with lots of choices in size and capacity.

Spindle size: Most machines accept more than one spindle size, but make sure you buy one with a 3/4" spindle. Manufacturers sell more cutters in this size than any other, and most home woodworkers can accomplish all of their work with 3/4" cutters. Although you can buy bushings that will make 3/4" cutters work on 1/2" spindles, you're better off with exact-fitting cutters and spindles. And remember, a 1/2" shaper spindle

has no more rigidity than a 1/2" router-bit shank.

Of the machines we tested, the Taiwanese-made Sunhill SP-101 had bearings, quills, spindles, and router collets that were more massive than any other machine, as shown *below left*. The Sunhill machines, along with the Kity and Jet units, had one more thing in their favor: smooth spindle shafts. As shown *below*, most spindles have threaded shafts, but we prefer solid contact between cutters and smooth shafts.

Horsepower: All of the machines in our test (from 1 to 3 hp) had enough oomph to make even raised-panel cuts in one pass through red oak. But, we used fresh, out-of-the box cutters. As your cutters dull, you'll appreciate the extra muscle of the 2- and 3-hp models for heavy cuts. Buy a 1- or 1 1/2-hp model if you don't mind making multiple-pass cuts now and then.

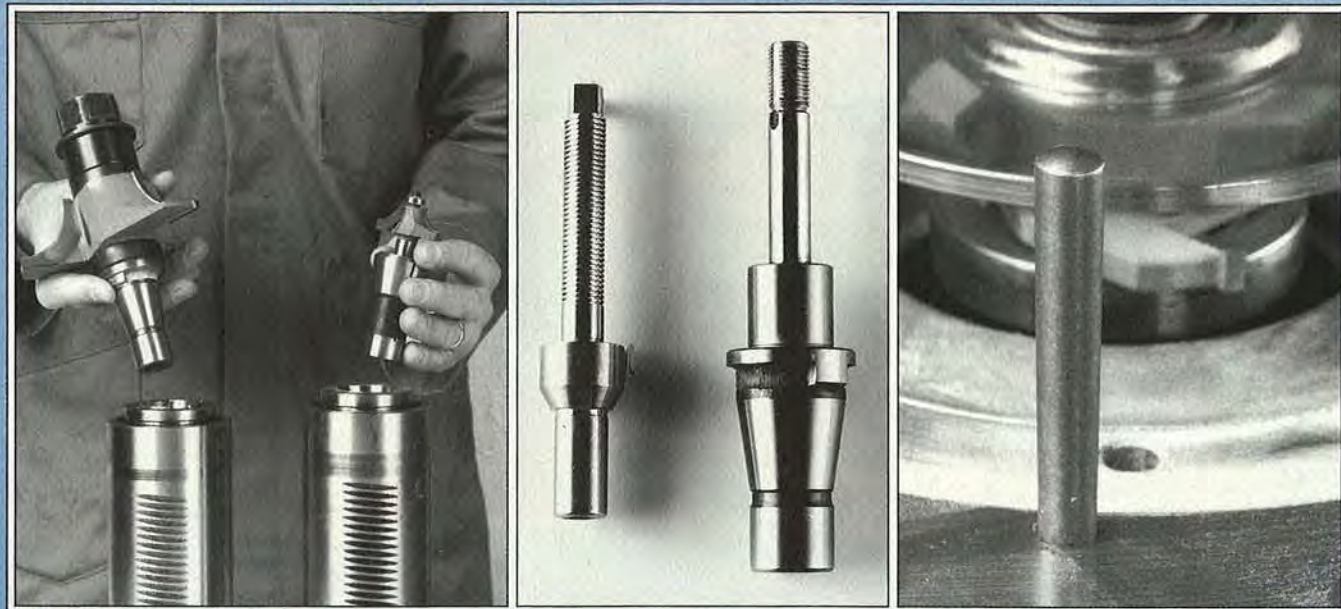
Also, remember that all of the 3-hp models, and some of the 2-hp models, require 220 volts. If you don't have this service, adding it will cost you a few dollars.

Table dimensions: Keeping the size of your workpieces in mind, buy a shaper with a table large enough to help you control your work. The chart on page 60 shows whether you can buy extensions for the standard table size.

While you're thinking about tables, also pay attention to the size and number of insert openings that come with the machine you're considering. Bigger openings accommodate larger-diameter cutters, and having several different sizes means you can choose an insert that provides for maximum table support just beyond the cutter tips.

And, remember that starting pins come in handy for curved workpieces. Only the Delta 43-375 has both table and insert starting-pin holes as shown *below*.

Quill travel: Although most shapers have about 3" of quill travel, some of the smaller machines, such as the Powermatic 23 and Sears 23941, have only 7/8" of travel. Such limited movement shouldn't bother you if you don't mind spacing the cutters up and down with bushings.



Sunhill's quills, spindles (1/4" model at left) and router collets (1/2" model shown) were the heaviest such components in our test.

We prefer solid spindle shafts such as the one at right from the Sunhill SP-101.

The Delta 43-375 has starter-pin holes in both the table and inserts—a handy accessory for curved workpieces.

Cutters: choices, choices

If you own a computer, you know that your investment in software can sometimes cost more than the basic machine. And as with computer programs, shaper cutters don't come cheap. So, it pays to make smart buys.

Carbide: Like saw blades, carbide-tipped shaper cutters stay sharp about 10 times longer than high-speed steel cutters, and have become the choice of most craftsmen. As shown in the photo at *top left* of two similar V-groove cutters, you can buy either multi-piece or solid cutters. The multi-piece sets offer greater versatility because you can switch around the individual cutters to achieve many different profiles. And, you can add bearings (called rub collars) between the cutters to expand their versatility.

We compared multi-piece sets made by the Freeborn Tool Company in Spokane, Washington, with solid, Taiwanese cutters from Grizzly Imports. Besides their greater versatility, the Freeborn



Freeborn's multi-piece V-groove cutter, *left*, and Grizzly's solid V-groover.

cutters had thicker tips, providing for greater cutter life.

Although most professionals we've spoken to prefer Freeborn cutters, the choice may depend on your pocketbook: Freeborn cutters cost two to three times as much as imports. For example, one mail-order catalog charges about \$100 for a Freeborn raised-panel cutter. Grizzly raised-panel cutters cost \$49.95. Other major manufacturers and importers include DML, Delta, and Freud.

High-speed steel: You can't easily find solid steel cutters in a wide variety of profiles nowadays, unless you want to pay for custom-made cutters. But, you can buy



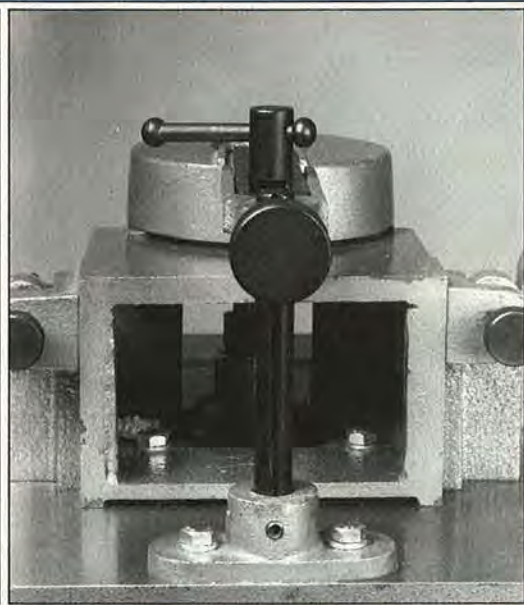
Kity's universal head has a $\frac{3}{4}$ " bore and holds one of up to 40 different knives.

cutter heads that hold interchangeable knives such as the set from Kity as shown at *top right*. The universal head costs \$160 and a starter set of six patterns costs \$140. These sets work fine, but have only small-profile knives.

Tangtung: Freeborn describes this material as being a cross between carbide and high-speed steel because it lasts as long as carbide and approaches the sharpness of high-speed steel. But, you shouldn't use Tangtung cutters in any material containing resins or glue lines. Why? The glue lines will wear grooves in the knives and the resins will prematurely dull the edges.



You can remove the fence on the Jet JWS-34-1 with a few turns of its convenient handles.



You'll need a wrench to loosen the fence and guard on the Grizzly G1035. Arrows point to mounting bolts.

More points to consider before making a purchase

Fences: We prefer simple fences that adjust quickly and accurately and that don't require wrenches. The Jet JWS-34-1 shown at *far left* and Kity 623 had tube-mounted fences that pass our "hassle-free" criteria. In no time at all, you can remove both of these fences by turning a set of handles.

Interestingly, the manufacturer of the Grizzly G1026 and G1035 shapers copied the design of the Powermatic 26 right down to some shortcomings in the fence. As shown at *near left*, the Grizzly machine requires a wrench for unbolting the fence and ring guard. Also, the ring guard's mounting rod blocks the rectangular dust chute, making dust collection a tricky task.

Continued

SHAPERS

Sliding tables: This accessory will add several hundred dollars to the cost of your shaper, but it makes for smooth and safe end-grain cuts. The reason: Once you clamp your workpiece to the carriage, it can't lift or bind. Jet, Kity, and Sunhill sell sliding-table models for less than \$2,000.

Speed changes: Of all the machines in our test, only the Kity 623 had three speeds, with a low-end speed of 5,500 rpm (1,500 rpm slower than other models we tested). We also found speed changes easier on this machine than any other. As shown *below right*, with the Kity you simply pull on a handle to loosen the belt and make a 10-second change.

Switches: Most shapers have two switches: ON/OFF and reversing. More expensive machines have magnetic ON/OFF switches that switch the machine OFF when a power interruption occurs.

Reversing switches change the rotation of the spindle from counter-clockwise (the normal direction for right-to-left feeding) to clockwise (for left-to-right feeding). You'll use reverse feeding whenever you need to invert a cutter on the spindle for a greater variety of cuts.

Only one machine in our test—the Kity 623—didn't have a reversing switch. This finding disap-

pointed us because we liked everything else about the Kity machine. Jeff Farris, of Farris Machinery, Kity's sole U.S. importer, explained that Kity leaves the reversing switch off the machine to comply with European safety regulations. "Kity could have added a reversing switch for the U.S. market," Farris said, "but we feel few home woodworkers ever have need for reverse cuts."

If you don't feel you have need for a reversing switch, the Kity 623 may be just the machine you're looking for.

The final analysis: How the test models shape up

Under \$500: Most home woodworkers will find that either the **Grizzly G1035** or **Powermatic 23** will meet their shaper needs. Both machines have standard 1/2" and 3/4" spindles and accept router collets (the Powermatic takes only a 1/4" collet—the G1035 accepts 1/4" and 1/2" collets). The Grizzly has more power (1 1/2 hp vs. 1 hp), and more spindle travel (3" vs. 7/8"); but the Powermatic has a simpler fence system, and a dealer network behind it.

Over \$500: In this price range, we especially like the **Delta 43-375** and **Sunhill SP-101**, but for different reasons. The Delta has well-made components and user-friendly features throughout. And,

if it matters to you, the 43-375 and the Sears 23941 are the only machines in our test made in the United States.

For the money (\$1,295) no shaper topped Sunhill's SP-101 in terms of heavy-duty quills and spindles. It doesn't have starter-pin holes, but you could easily bore those yourself. 🌲

Written by Bill Krier
 Technical consultant: George Granseth
 Illustrations: Kim Downing; Bill Zaun
 Photographs: John Hetherington; Bob Calmer

Manufacturer	Model No. 1	Speeds (RPM)	DRIVE SYSTEM
			Type 2
DELTA	43-375	7,000 10,000	MQM
GRIZZLY	G1035	7,000 10,000	MQM
	G1026	7,000 10,000	MQM
JET	JWS-34-1	8,000 10,000	MQM
	WSS-3-1	7,000 10,000	MQM
KITY	623	5,500	MQM
		7,300	
		10,000	
POWERMATIC	23*	9,000	MQ
	26	7,000 10,000	MQM
SEARS	23941** 23939***	9,000	MQ
SUNHILL	SP-101	7,500 10,000	MQ

N/A Not available

1. * Similar machines sold by most Taiwanese importers.

** Catalog number.

***Store number.

MANUFACTURERS LISTING:

Cascade
 800-235-0272

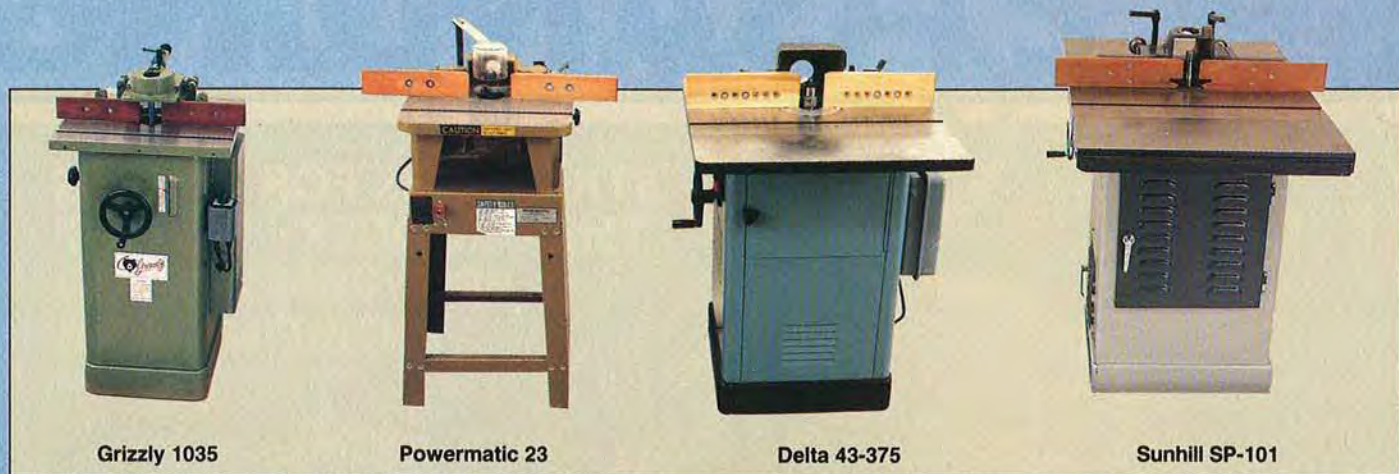
DML
 800-233-7297 or 502/587-5562



Kity's sliding table makes for safe cross-grain cuts. Jet and Sunhill also have sliding-table shapers under \$2,000.



You can quickly switch between three speeds by means of a convenient handle on the Kity 623.



Grizzly 1035

Powermatic 23

Delta 43-375

Sunhill SP-101

SIZING UP 10 POPULAR SHAPERS

Horsepower	Voltage	MOTOR			SPINDLES							TABLE ⁴							List price	Selling price
		Magnetic ON/OFF switch (Y, N)	Separate ON/OFF reversing switches	Capacity under nut (1" spindle) (inches)	Capacity under nut (1/4" spindle) (inches)	Standard sizes (inches)	Optional sizes (inches)	Router collets available?	Travel (inches)	Smooth (S) or threaded (T) shaft	Size without extensions (inches)	Size with one extension (inches)	Size with two extensions (inches)	Insert opening diameters (inches)	Starting-pin holes in inserts (Y, N)	Starting-pin holes in table (Y, N)	Country of origin	Weight (pounds)		
3	220	Y	Y	4	3 1/4	1/2, 3/4	1	Y	3	T	20x27	28x27 #	36x27	6 3/4, 3 1/2, 3, 1 1/2	Y	Y	US	375	\$2,195	\$1,600
1 1/2	110/220	N	N	N/A	2 3/4	1/2, 3/4	N/A	Y	3	T	20x18 #	20x28	N/A	5, 3 1/2, 1 1/4	Y	N	T	300	N/A	495
3	220	Y	Y	2 1/2	2 3/4	1/2, 3/4, 1	N/A	Y	3	T	N/A	28 7/8x28 #	N/A	5 1/2, 4, 2 3/4, 1 3/4	Y	N	T	420	N/A	850
2	110/220	Y	Y	1 3/4	1 3/4	3/4, 1	1/2	Y #	3	S	19 3/4x19 3/4 #	N/A	N/A	6 1/4, 3 3/4	N	N	T	297	1,316	950
3	220	Y	Y	3	3	1/2, 3/4, 1	N/A	Y #	3	S	29 1/4x25 1/2 #	N/A	N/A	6, 3	N	Y	T	400	1,884	1,400
2	220	Y	N	N/A	2 3/4	3/4	N/A	N	2 3/4	S	24x18 #	*	*	4 1/4, 5 1/4, 8 1/4	N	N	F	155	1,695	1,695*
1	110	N	Y	N/A	2 1/2	1/2, 3/4	N/A	Y*	7/8	T	18x15 3/4 #	N/A	N/A	3, 1 1/2	N	Y	T	142	537	450
3	220	Y	Y	4 7/8	3	1/2, 3/4	1	Y	3	T	N/A	28x29 1/2 #	36x29 1/2	3, 4 1/16, 7	Y	N	T	400	1,995	1,650
1/2	110	N	Y	N/A	N/A	1/2	N/A	N	7/8	T	27x19	N/A	N/A	1 1/2, 2 5/8	N	Y	US	141	N/A	380
2	220	Y	N	4	3 1/4	1	1/2, 3/4, 1 1/4	Y	3	S	27 1/2x20 1/2 #	N/A	27 1/2x40	6, 4 3/4, 4 1/4, 3, 2 1/4	N	N	T	396	1,600	1,295

2. (MQ) Movable quill only; (MQM) Movable quill and motor.

3. # symbol for machines with router collets as standard equipment. * 1/4"-collet only.

4. # symbol next to standard table size of listed model. * 40"-and 60"-long side extensions available.

5. (F) France; (T) Taiwan; (US) United States

6. Selling prices based on advertisements, catalogs, and dealer inquiries at time of article's writing.

*Free accessories available when machine purchased at demonstrations.

Delta
800-438-2486 or 412/963-2400

Freeborn
800/523-8988 or 509/535-3075

Freud
800-334-4107 or 919/434-3171

Grizzly Imports
East of Mississippi River: 717/326-3806
West of Mississippi River: 206/647-0801

Jet
800-426-8402 or 206/572-5000
Kity (Available from Farris Machinery)
800-872-5489 or 816/229-3055

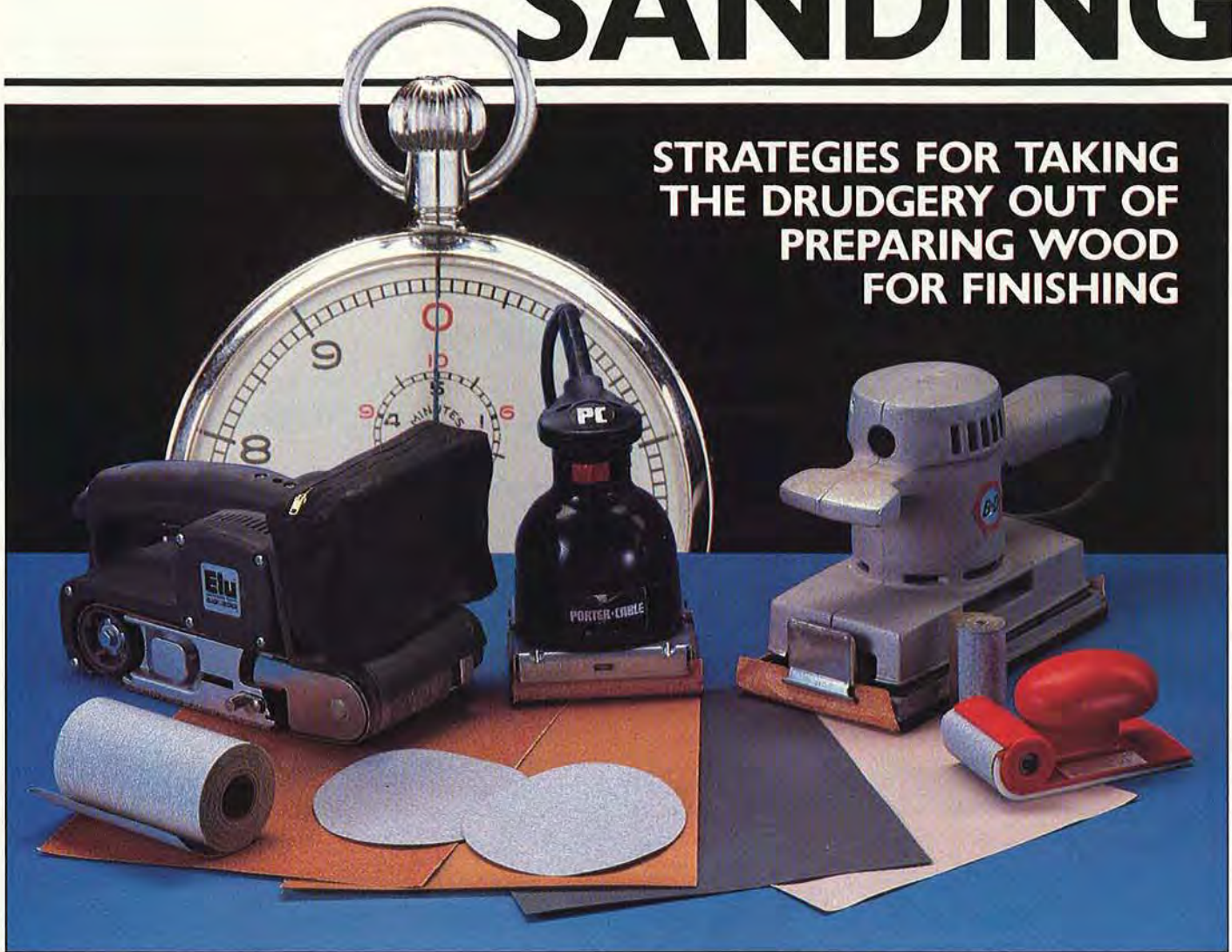
Powermatic
800-248-0144 or 615/473-5551

Sears
Contact your nearest store.

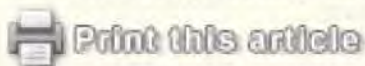
Sunhill
206/575-4131

SANDING

STRATEGIES FOR TAKING THE DRUDGERY OUT OF PREPARING WOOD FOR FINISHING



Ask any group of woodworkers what they like least about their craft, and we bet that most of them will vote for sanding. In fact, inventors and manufacturers from far and wide have devised one gadget after another to extract the pain out of this drudgery. For truly professional results, you need to get through the maze of abrasives and tools, know which ones to use for each job, and learn the tricks for putting these products to good use. And, that's where this short course comes in.



CHOOSING THE BEST ABRASIVE FOR THE JOB

If picking and choosing among today's abrasives rubs you the wrong way, just keep these buying points in mind:

- You can select from three types of abrasives: garnet, aluminum oxide, and silicon carbide. See the chart *opposite top* for the advantages of each.

Garnet papers have naturally occurring minerals bonded to their surface. Because these grains have to be sifted, they're not consistent in size, so they abrade a surface less uniformly than man-made abrasives such as the following two varieties.

Besides having consistently sized particles, *aluminum-oxide*

and *silicon-carbide* abrasives (both man-made) last longer because of their greater hardness. You can purchase the finer grades of these papers with a zinc-stearate coating which acts as a dry lubricant to reduce load-up of the surface with wood particles. Although this coating gives the abrasive a white coloring, don't assume that all white-colored abrasives have a zinc-stearate coating. For example, 3M colors its Stikit line of self-adhesive papers white for brand-identification purposes. To spot a zinc-stearate-coated product, look for words such as "no-load," "no-fill," or "nonclogging." Although this coating adds a few cents to the cost of abrasives, we've found that it's money well spent.

SHORTCUTS



ABRASIVE LANGUAGE: DEFINING THE CHOICES

ABRASIVE	SUGGESTED GRITS	ADVANTAGES	COMMENTS
Garnet	60, 80, 100, 150	<ul style="list-style-type: none"> Has less tendency to burn end grain because garnet particles break down easily. Low cost 	<ul style="list-style-type: none"> Garnet paper has a relatively short lifespan. Available in paper-backed sheets only. Grains of inconsistent size and color.
Aluminum Oxide	60, 80, 100, and 150 in belts. 60, 80, 100, 150, 220, and 320 in sheets	<ul style="list-style-type: none"> Cuts faster, lasts longer, and has a more uniform surface than garnet abrasives. 	<ul style="list-style-type: none"> About the same price as garnet papers. Grains of consistent size and color.
Aluminum Oxide with Zinc-Stearate Coating			<ul style="list-style-type: none"> Zinc-stearate coating reduces load-up in fine grits.
Silicon Carbide	220-1500 in sheets	<ul style="list-style-type: none"> Cuts faster and lasts longer than aluminum oxide. Zinc-stearate coating reduces load-up. Cuts faster, with less load-up, in glue-impregnated substances such as particleboard. 	<ul style="list-style-type: none"> Because of its higher cost, we prefer silicon-carbide abrasives for wet-sanding only. Use with water for wet-sanding finish coats. Grains of consistent size and color.

GETTING THE RIGHT GRIT

Grit	Heavy wood removal	Surface shaping	Surface flattening	Smoothing	Preparation for finish	Between finish coats
40						
60						
80						
100-120						
150-220						
320-600						

● **Go with a grit to match the job.** An abrasive that's too coarse will lead to excessive scratch marks in your project's surface, and you will have to work hard to remove them. On the other hand, a sandpaper that's too fine for the job will clog with wood particles. So, check the chart *above* for the correct succession of grits for your projects. In the *WOOD*® magazine shop, we typically true

a surface with a 60-grit aluminum-oxide abrasive when necessary, then smooth the project with 120-grit garnet sandpaper. To prepare softwood surfaces for a finish, we sand with 150-grit garnet paper. Because hardwoods can take a more polished surface prior to finishing, we sand these woods with a succession of 150-grit paper and a 220-grit zinc-stearate-coated aluminum-oxide abrasive.

● **Know when to use an open-coat paper.** Most sandpapers have a closed coat, meaning that 100 percent of their surface is covered with abrasive grains. However, in some coarse grits you will find open-coat papers with only 70 percent grain coverage on their surfaces. This extra space between grains helps prevent clogging of the abrasive surface with wood fibers, especially when you work with softwoods.

GETTING THE MOST FROM SANDING TOOLS

Even the proper abrasives aren't of much help until you combine them with the correct tool. To help you along, we prepared the chart on the next two pages. In the *WOOD* magazine shop, we make great use of the stationary belt/disc sander, portable belt sander, and our own hands for many sanding tasks. The following tips will help you better utilize these tools in your shop.

Continued

SANDING SHORTCUTS

STATIONARY BELT/DISC SANDER TIPS

• For perfectly flush half-lap joints, cut the half laps $\frac{1}{16}$ " longer than the finished size, then sand them flush with a disc or vertical-belt sander as shown *below*.

Note: For this procedure, and the next two tips, the belt- or disc-sander table must be set at 90° to the abrasive surface.




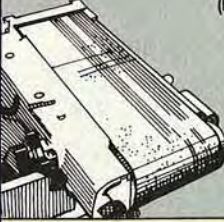

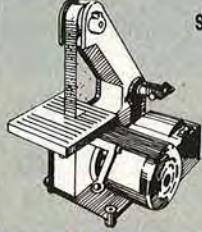

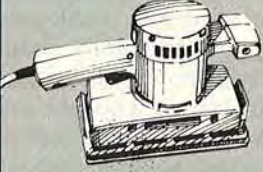
Slightly long half-laps joints come perfectly flush with the aid of a disc or vertical-belt sander.

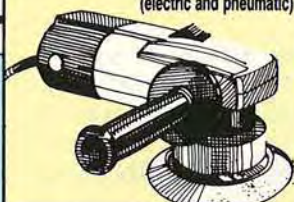




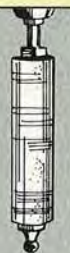

• Fine-tune miter joints on a vertical-belt or disc sander as shown *below*. Since few woodworkers can cut perfect miters every time, this method allows you to custom-match miters with complete control over stock removal. Because the disc moves faster near its rim than near its center, sand close to the center of the disc for slower, more controlled stock removal.



For slightly miscut miters, you can sand one of the pieces to fit the other exactly.

A BAKER'S DOZEN SANDING MACHINES: ONE FOR EVERY JOB

SANDER	PURPOSE	APPLICATIONS	SUGGESTED ABRASIVES
 <p>Stationary Belt (vertical) and Disc Sander</p>	Rapid removal of stock on edges.	Sanding back to a line. Touching up miters and compound angles. Chamfering or rounding dowel ends.	36- to 120-grit cloth-backed aluminum oxide.
 <p>Stationary Belt (horizontal)</p>	Rapid removal of stock on surfaces.	Flattening small areas of face grain. General smoothing and truing. Shaping. Use end of belt as free-hand drum sander.	36- to 120-grit cloth-backed aluminum oxide.
 <p>Stationary Edge Belt Sander</p>	Rapid removal of stock on edges.	Smoothing edge grain. Sanding back to a line. Concave sanding on the open roller.	36- to 120-grit cloth-backed aluminum oxide.
 <p>Stationary Strip Sander</p>	Sanding small parts.	Metal sharpening. Inside edges and tight areas.	36- to 120-grit cloth-backed aluminum oxide.
 <p>Portable Belt Sander</p>	Rapid removal of stock on large, flat surfaces.	Truing stock glued up for width. Lowering joints and edges to a uniform height. Mounted in accessory stands, these machines work as small stationary belt sanders.	60- to 120-grit cloth-backed aluminum oxide.
 <p>Finishing Sanders</p>	Smoothing surfaces and protective finishes.	Final sanding. ¼-sheet (palm) sanders useful on small areas. ½- and ½-sheet models best for larger areas.	120- to 320-grit paper-backed aluminum oxide, garnet, or silicon carbide.

SANDER	PURPOSE	APPLICATIONS	SUGGESTED ABRASIVES
 <p>Random-Orbit Sanders (electric and pneumatic)</p>	High-speed finish-sanding without swirl marks.	Flattening joints while leaving a smooth surface. Special pad available for contours.	80- to 320-grit paper and adhesive-backed aluminum oxide and silicon carbide.
 <p>Straightline Sanders (electric and pneumatic)</p>	Sands with the grain.	Flattening high-low areas. Lowering joints and edges to a uniform height.	80- to 320-grit cloth-backed aluminum oxide and silicon carbide.
 <p>Flexible Disc Sander</p>	Rapid stock removal on irregular surfaces.	Shaping, smoothing, and polishing small stock. Power-sanding bows when chucked in a portable drill with lathe running. Various sizes available from 1-6".	36- to 400-grit cloth-, paper-, and adhesive-backed aluminum oxide and silicon carbide.
 <p>Flap Wheels</p>	Conform to irregular surfaces.	Corrosion removal on tools and hardware. Sanding carvings and spindles.	60- to 180-grit cloth-backed aluminum oxide
 <p>Drum Sander</p>	Sanding concave and convex edges to smooth, flowing shapes.	Sanding back to a line on curved, bandsawed edges.	60- to 150-grit cardboard-backed aluminum oxide.
 <p>Pneumatic (Inflatable) Drum Sander</p>	Smoothing and shaping of irregular surfaces	Smoothing carvings and intarsia parts. Fill drum bladder to varying pressures to change conformity of drum.	80- to 180-grit cloth-backed aluminum oxide
 <p>Hand Sander</p>	Controllable truing and smoothing.	See page 67 for specialized sanding blocks to help you sand tight and irregular surfaces. Foam sanding blocks work well on rounded surfaces.	80- to 1,500-grit paper-, cloth- and adhesive-backed garnet, aluminum oxide, or silicon carbide.

● **Perfectly shaped corners** result from marking a radius and then carefully sanding back to that line with a belt or disc as shown *below*. For maximum control, follow the illustrations *below*.



Use a disc or vertical-belt sander to shape flowing convex curves.

SANDING SMOOTH CORNERS

Step 1: Sand corner off at 45° angle, staying slightly away from the marked radius.

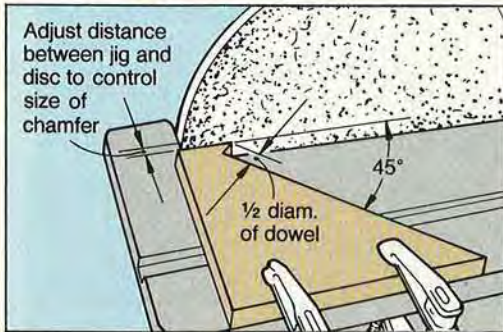
Step 2: Starting with one edge flat against the sander...

Step 3: ...rotate the stock, sanding to the line, until the adjacent edge is flat against the sander.

Continued

SANDING SHORTCUTS

- **Make great-looking dowel chamfers** with the jig *below* clamped to your sander's table. With your sander running, place the dowel on the machine's table and hold it as shown *below*. Give the dowel at least one full rotation to sand a complete chamfer.



With the chamfering jig in place, spin the dowel until the chamfer is complete.

- **You can smooth resawed stock**, even if you don't own a thickness planer. With double-faced tape, attach a 1½"-thick block that's nearly as wide and long as the resawed piece to the face opposite the resawed surface. Then, lower the workpiece onto a moving horizontal belt as shown *below*. Be careful to keep the workpiece parallel to the belt as the two surfaces make contact. Move the workpiece from side to side as you sand.



To smooth resawed stock, position it parallel to the sanding belt.

PORTABLE BELT SANDER POINTERS

- **For rapid stock removal with a portable belt sander**, hold the sander at approximately a 30° angle to the grain of the workpiece, and keep it cocked this way as you move the machine up and down the workpiece. This cross-grain sanding works fast, but leaves a rough surface.

- **To smooth surfaces**, work the belt sander as shown *below*. Hold the sander parallel with the grain, and keep the belt sander moving at all times. Work the sander in long paths that cover the full length of the workpiece. Minimize cross-grain movements.

- **For an evenly sanded surface**, don't bear down on the machine; let the weight of the sander do the work. And, be aware of how much of the belt is in contact with the workpiece. Otherwise, you may accidentally miss the ends of the surface, or round over the edges by tipping the sander.

- **Drape the power cord over your shoulder** to keep it out of the way of the belt sander.

- **To check your work for gouges and hollows**, hold a light at a low angle to the surface.

HAND-SANDING HINTS

- **Don't sell short the merits of hand sanding.** Power sanders save you plenty of time—no doubt about it—but a good, old-fashioned sanding block flattens a surface better than any machine. Also, a hand block gives you more control over those delicate situations such as gently rounding an edge. Around the *WOOD* magazine shop, we use a sanding block for the final smoothing of flat surfaces and between finish coats.

- **To save hand-sanding time**, you may want to invest a few dollars in a 3M Stikit sanding block such as the red one shown on page 62. We found these plastic blocks comfortable, and abrasive changes take just a few seconds. To replace the sandpaper, you simply tear off the old abrasive and pull some fresh material from the built-in roll.

- **Custom-made sanding blocks** will save you loads of time when sanding tricky areas. As shown



Try to minimize cross-grain movements when smoothing a surface with a belt sander. Sand the full length of the workpiece and keep the machine moving.

below you can shape a variety of custom-made blocks to conform to most any smoothing task. Then, attach an adhesive-backed abrasive. Or, affix nonadhesive abrasives with glue or adhesive spray—just remember that the paper will be difficult to remove.

A FEW MISTAKES TO AVOID AT ALL COSTS

Sometimes, what you *don't* do while sanding counts as much as what you *do* do. For help, keep these pointers in mind.

• **Don't let load-up bog you down.** Steve Martyr, a technical representative of 3M, estimates that most people toss away their sandpapers long before the abrasive particles wear out. The reason: premature load-up of the abrasive with sanding dust. If you experience load-up early in the life of your abrasives, Steve suggests you switch to either a coarser grit or an open-coat abrasive, or try a zinc-stearate-coated product.

Also, remember to collect sanding dust from the work surface to avoid load-up. Occasionally stop and vacuum both the work surface and the bottom of the sander.

• **Sanders can be as dangerous as any other cutting machine in your shop,** so keep all guards in place. If you've ever accidentally touched a moving sanding belt, you know how fast abrasives can remove skin. Guards also protect you if a belt tears.

• **Sanding dust contributes to lung disease,** so opt for machines with dust collection capabilities when you go shopping. In recent years, power-tool manufacturers have concentrated more and more on dust-collection in designing their tools. For instance, today you can buy finish sanders that draw dust through holes in the sandpaper and portable belt sanders with vacuum attachments.

If your sanders don't have dust-collection ports and accessories, rig up your own clean-air aids. As shown at *right*, you can attach a furnace filter to the air-drawing side of a window fan, then point the fan away from you as you work. This simple dust collector will move much of the airborne dust away from you, and capture some in the process. But, remember that even with dust-collection systems in place, it still pays to wear an approved respirator.



We strapped a furnace filter to a window fan with bungee cord for an inexpensive dust evacuator.

• **Don't accidentally mar your flat workpieces** by setting them on a bare workbench when sanding them with an orbital finish sander. Instead, place some kind of cushion, whether it's a piece of carpet pad, cardboard, or even a blanket, under the workpiece before finish-sanding it, as we did in the photo *above*. Otherwise, any debris on the surface of your workbench will transmit swirly marks and dents to the back side of your project. 🍄

Buying Guide

For free catalogs of abrasive supplies, contact these companies:

Econ-abrasives, P.O. Box B865021, Plano, TX 75086. Call 800-367-4101.

Industrial Abrasives, 642 N. 8th St., P.O. Box 14955, Reading, PA 19612. Call 800-428-2222.

The Sanding Catalogue, P.O. Box 5069, Hickory, NC 28603-5069. Call 800-228-0000.

Written by Bill Krier
with Jim Downing
Photographs: John Hetherington
Illustrations: Jim Downing;
Jim Stevenson; Mike Henry

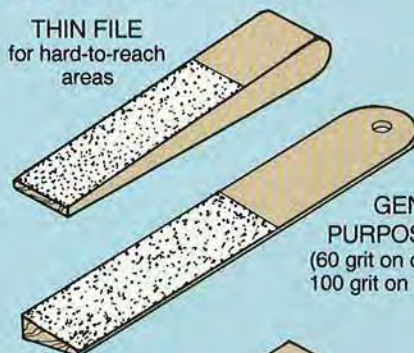
A COLLECTION OF SANDING HELPERS

FLUSH SANDER
for edging and
screw plugs

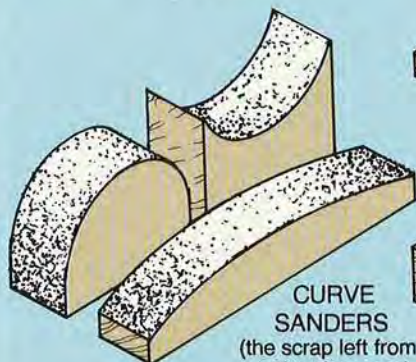


Cut recess so
abrasive surface sits
just below wood surfaces
to either side

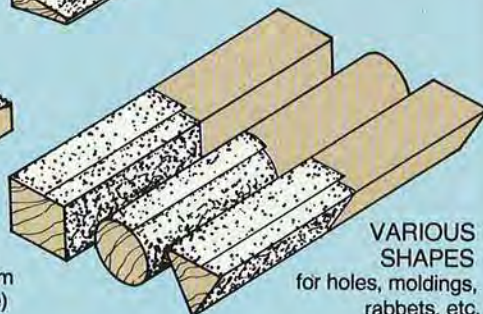
THIN FILE
for hard-to-reach
areas



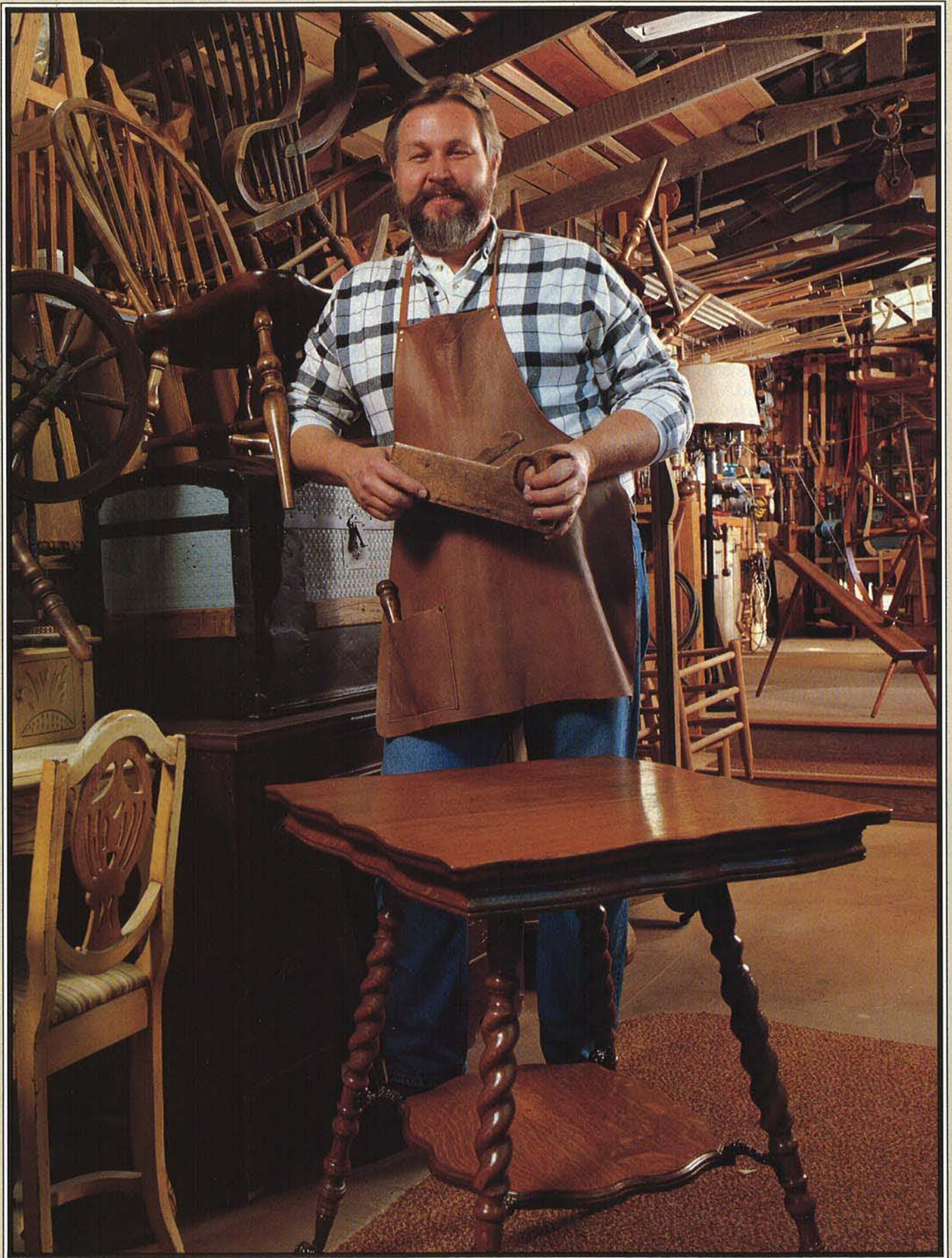
**GENERAL-
PURPOSE FILE**
(60 grit on one side,
100 grit on the other)



**CURVE
SANDERS**
(the scrap left from
cutting the curve)



**VARIOUS
SHAPES**
for holes, moldings,
rabbets, etc.



OZARK CRAFTSMAN JIM WATSON HAS A PHILOSOPHY ABOUT OLD FURNITURE

“GOOD WOOD IS WORTH RESTORIN’”

Like most young couples just starting out, Jim and Sue Jo Watson made do with what they could afford. “Back in the early 70s, you could pick up a lot of nice furniture here cheap,” says Jim. “It just happened to be in real bad shape.”

That didn’t hinder this talented and resourceful Arkansas native, though. Working wood had always held his interest. So, while he spent his days managing an auto supply store, he occupied his evenings renewing furniture.

The fruits of his labor were a houseful of valuable pieces . . . and a growing reputation as a furniture restorer. “I got so busy doing other people’s furniture, I decided to go at it full-time,” Jim says. “I’ve never been sorry.”

His business started small. On a four-acre hilltop site just outside Huntsville, Arkansas, he built a cozy house and a small shop. In the seven years since, both have grown, even to include a shop for Sue Jo, who paints and sells primitive decoys to shops and collectors across the country.

When we visited Jim, 41, and Sue Jo, 39, they showed us how and why their business matured. Now we know the reason customers from far and near cart their heirloom chairs, tired tables, and estate-auction finds to the Watsons’ Ozark enterprise: They want quality craftsmanship.

A man and his tools work at building a reputation

Even on the Ozark ridges, Jim Watson classifies as a mountain of a man. His 6’6” frame fills the shop doorway when

greeting customers who drop by.

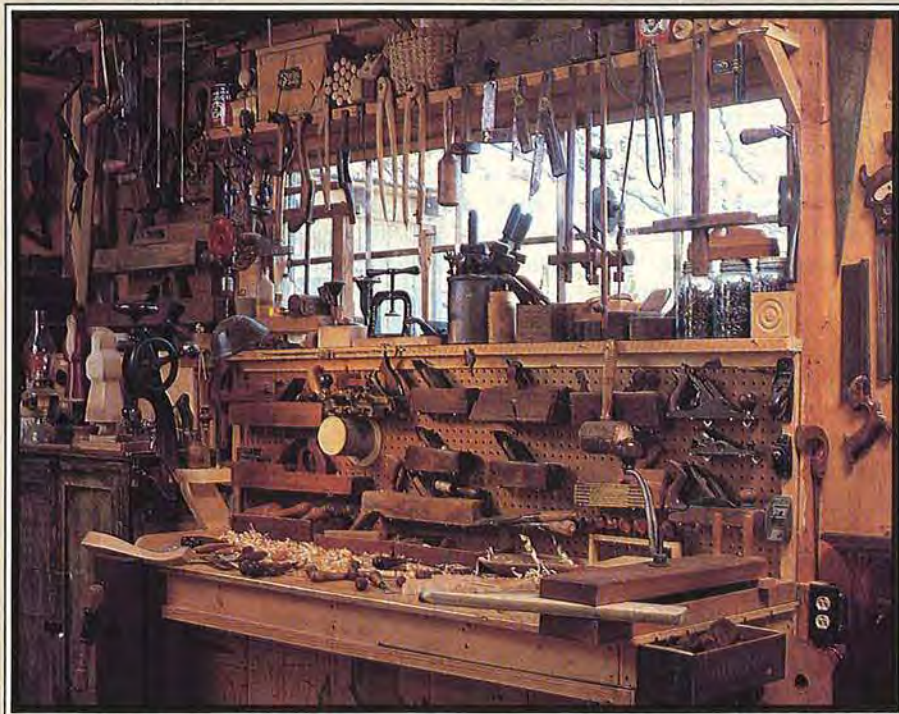
Large, muscular hands firmly grasp the furniture they bring to him. Jim handles each piece gently, though, as he would a baby. He draws the sad-looking piece to him, then guards it on the way

to its resting place in the stack of furniture of similar ilk awaiting his careful attention.

“I like to pull something back, to make a beautiful piece of furniture out of a thing that looked terrible,” Jim explains, almost apologizing for his caring. “Sorry, inexpensive furniture is a dime a dozen. But, if it’s good wood, it’s worth restorin’.”

In Jim’s workshop, even the crossbeams store tools. Not jigsaws, routers, or electric drills with dangling cords, though. It’s hand, not power, tools that he keeps within easy reach.

“I used to go around and buy old tools, then restore them for use,” Jim explains. “Now, there are a lot more good new tools out there than when I started twenty years ago. But, I’m still not dependent on anyone to furnish me with a good tool. I’ve always made everything when I needed it, and if I can’t find the right tool, I make it—a carving gouge, chisel, plane iron, or a special veneer cutter. It gives me a pretty good feeling to do that,” adds the unassuming craftsman.



Jim’s collection of refurbished hand tools aren’t for display only. With them, he recreates the workmanship that matches old furniture.

GOOD WOOD IS WORTH RESTORIN'

To make tools and other items he needed, Jim long ago mastered the basics of blacksmithing. A small smithy attached to his main work space attests to his continuing interest.

There's another reason, besides self-sufficiency, why Jim relies a lot on hand tools. "Much of this old furniture was made with hand tools, and that adds to its beauty. You don't get the hand look with power tools," he claims.

"Oh yeah, I do all my roughing out with a bandsaw," Jim continues. "Or, I'll power-plane a board down within 1/8" of what I need. Then, I'll take an old hand plane to it the rest of the way. That's so I can leave those tiny plane marks in it. The piece will match the original parts, where some ol' fella did the same thing. You just can't

get the same look with anything but a hand plane."

Then, in rugged contrast, comes the occasional piece of primitive furniture—rough stuff, made by pioneers when they needed it—that never saw a hand plane. "It's real interesting to restore a piece like that," he says, "but it's harder than making something new."

The furniture neatly stacked in the "receiving room" of Jim's shop hints that making wood look old may not only be harder, but also more time consuming. Jim looks over the armoires, desks, chairs, tables, and mirrors nestled together up to the eaves. "I'm behind," he says, shaking his head, "but I'm not behind because I'm slow. I'm willing to spend more time with it in my hands. I don't send out a piece unless I like it."

Getting down to the wood

Many people bring furniture to Jim for the same reason he began restoring nearly 20 years ago: They can't afford to buy new furniture of the same quality. Others, according to the craftsman, have acquired family heirlooms that need TLC, or purchased antiques at auction. "Some don't have any money in the item, others may have paid well, but they all understand that it will be worth more when I'm done," he says.

Although complete restoration represents the bulk of Jim's work, he gives quick face-lifts, too. "Occasionally, people drop off a piece for refinishing that actually doesn't need it," he says. "The joints are all solid, and maybe it's a little worn, but it doesn't need stripping—only a good cleaning."

JIM'S TOP 10 TIPS FOR TIRED FURNITURE



Furniture is part of everybody's life, and probably everybody has repaired some furniture," observes the brawny craftsman. "But, there's good and bad ways to repair."

Take nails, for a bad example. Jim hates them. "Nails don't belong in furniture," he says. "They're not even in my wood-working vocabulary. I use a screw if I need extra strength. Or a peg. Or a dowel. You can ruin a piece trying to get a nail out. With finishing nails, it's better to push them, then fill the holes."

Here are more of Jim's tips, focused on restoring and tempered with some of his philosophy:

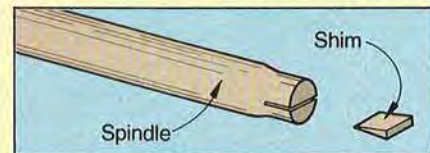
● *In old furniture, use old wood.* "If I have to make a replacement piece, such as a stretcher or spindle in a chair, I make it from old furniture someone discarded. If I have to use new wood, I put it where it can be stained easily to blend in."

● *Don't remove parts that were handmade and replace them with machine-made parts.* "To the collector, that piece would be ruined. On the other hand, don't overwork [with hand tools such as a plane] a piece of wood that you're trying to make match. It's easy to get carried away, but you don't want to make more marks on the wood than the original piece would have had."

● *Don't take all the character away from a piece of old furniture by making it look too new.* "Fix the big cracks, gouges, burns, and stains, but leave the small things, like nicks and dents, that the wood acquired over the years."

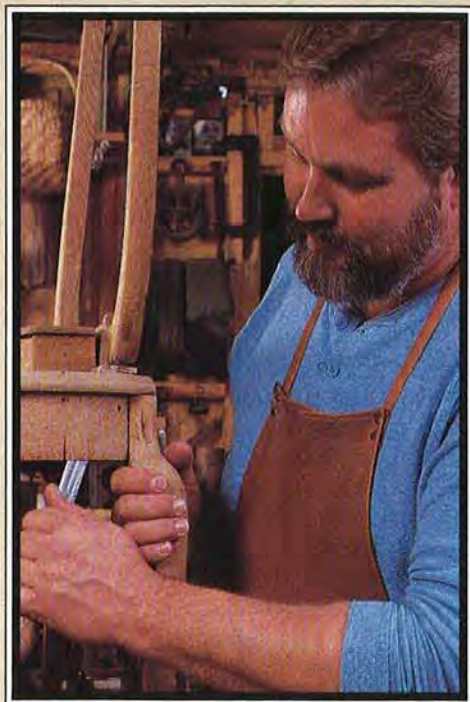
● *Roll a spindle to break it loose.* "Got a loose spindle between chair legs, but it won't come out? Roll it back and forth between your fingers. The turning creates friction heat that will soften all the old glue."

● *Shim a spindle to fill the hole.* "After years of wear, the hole in the chair leg that the spindle fits into sometimes gets enlarged. To tighten the spindle, saw a slot in the tenon end and fill it with a thin wedge." See drawing, below.



● *Scrape off all the old glue from joints.* "With a knife blade, clean out the old glue. But don't do anything that will remove more than the glue."

● *Lift old veneer with a table knife.* "It's the handiest tool. It slides right under the veneer [as shown in photo, opposite above]."



Jim carefully guides the blade of a bread knife under loose veneer to remove it.

The extent of the cleaning depends on the condition of the piece. "Often, I can just wash it down with water and Murphy's Oil Soap," Jim notes. "But, if it still looks dingy, say from built-up wax and polish, I go over it with fine steel wool dipped in mineral spirits. Even stronger is a mixture of three parts each of mineral spirits and boiled linseed oil to two parts each of vinegar and denatured alcohol. That really cuts, and softens up the original finish a bit so you can spread it around to recover blemishes."

Stripping furniture, of course, is a whole different ball game, and Jim has plenty of advice about the process. "First of all," he says, "I use a water-wash stripper. I don't dip-strip, either, except when furniture has many coats of paint on

it. Dip-stripping is real hard on furniture. And, it has to be made of solid wood or it won't stand up. But, if you must take something for dip-stripping, count on taking it all apart first, if you can. Because if any of the joints are loose, they'll come apart anyway."

For those who don't mind stripping furniture, Jim has a couple of tips: "When you give \$12 a gallon for stripper, you don't want most of it ending up on the ground. So, with a chair for instance, put a pan under each leg to collect the stripper. And remember, stripper evaporates quickly, but you have to keep the surface wet. Sprinkle a little sawdust on the stripper—make kind of a mush—to keep it working." ♣

Written by Peter J. Stephano
Photographs: Bob Hawks

Then, work the knife slowly, prying up the veneer an inch or so at a time, not breakin' any."

● *Feather out a veneer patch.* "I patch old veneer with old veneer that I've salvaged, because it will be the same thickness. But, for a nearly invisible patch, instead of cutting the old veneer out and fitting in a patch of exactly the same shape, cut the patch slightly oversized. Then, sand down or feather the veneer surrounding the cut-out. After you align the grain and glue down the patch, it will overlap the old veneer a bit [see drawing, *below*]. Clamp it tightly in place. After the glue dries, sand down the raised edges of the patch to make it flush."

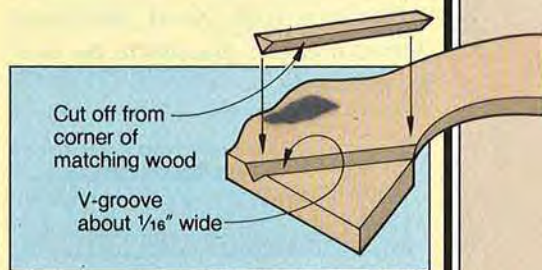
● *Mend a break with wood.* "Most breaks on old furniture aren't fresh. The piece breaks again and again in the same place, taking off a little more wood each time. If you glue it, then add filler, the

mend shows up. I mend it by shimming the crack with a piece of the same type of wood.

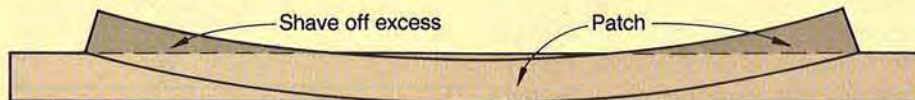
"With a veining tool, remove wood in a V-shaped groove right down the crack. Then, cut off a corner of a board of matching wood and glue it in the groove [see photo and drawing, *right*]. Clamp it in place, and sand it level when dry."

● *Don't sand too much.* "When you do have to use filler, don't oversand it. The filler gets slick and resists staining."

Jim could seemingly go on forever about working wood—and reworking old wood. That's because he never ceases to learn. "Between my metal work and my wood work, I pick up things all the time," he remarks. "And, because of that, I know what I'm doing won't ever get stale."

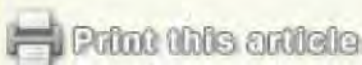


You can hardly detect the shimmed crack, illustrated in the drawing above, in the repaired table leg shown at top in the photo. For reliable, in-line clamping of irregularly shaped pieces like these, Jim lays out and cuts custom gluing jigs such as the ones of pine shown surrounding the lower leg.



BATTLING HARMFUL

By now, most woodworkers have at least heard about the new, less-toxic finishing products available—water-based finishes, odorless strippers, and other “safe” materials. But chances are that you have an ample supply of less friendly finishes and solvents in your shop. You know, the ones that inflame your eyes and irritate your throat and nose. So what should you do? Start by reading this article. You'll learn how to determine which products pose the most danger to your health and the strategies that make working around these products as safe as possible.



Warning: See Talking Back, June 1991, page 8, "Fire expert warns: Don't build that ventilator" for safety update! [Click here to view.](#)

Introduce yourself to MSDS

Angela Babin, director of the Center for Safety in the Arts (CSA) in New York City, has the following recommendation. "When selecting wood finishes and paint removers," she says, "ask your dealer to see a copy of the Material Safety Data Sheet (MSDS) for each of them. Lacquers, varnishes, thinners, and products like these all have different formulations. When you request the MSDSs, you can choose the safest one."

Retail outlets, including home centers and hardware stores, have the government-required MSDSs available, or they can obtain them in a day or two. However, retailers don't normally have MSDSs in quantities to hand out because the government requires only business users to have them.

And, it's a good idea to obtain MSDSs for products that you may already have at home, too. Just contact the dealer that carries those brands to see if they have the appropriate MSDS, then drop by and inspect it. Or, request one from the manufacturer, whose address usually appears on the label.

On an MSDS, such as the one shown *opposite*, you'll find a listing of the hazardous ingredients, as well as emergency information and phone numbers, spill or leak procedure instructions, and health-hazard data. In addition—and most important—each product's MSDS carries a toxicity indicator—the *threshold limit value* (TLV) of its primary chemical—and maximum exposure time. Remember, MSDSs from different manufacturers never look alike, but they always carry this info.

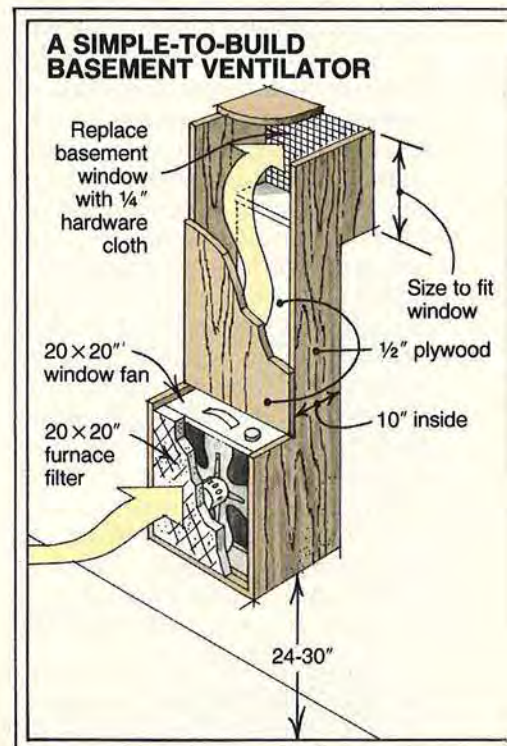
TLV numbers for specific chemicals indicate the levels of airborne contaminants, stated in parts per million (e.g. 350 ppm), that most people can be exposed to without adverse effects. They're set by the American Conference

of Governmental Industrial Hygienists (ACGIH) for a long list of common chemical ingredients. (On the MSDS shown *below right*, Borden has also listed a TLV published by OSHA for acetone.)

Here's how to interpret TLVs:
500-plus ppm: Slightly toxic
100–500 ppm: Moderately toxic
Fewer than 100 ppm: Highly toxic
Remember that—contrary to what you usually encounter—TLVs of the *lower* numbers are the most dangerous. The smaller the number, the greater the potency!

Work without a noseful: Bring in fresh air

According to Michael McCann, executive director of the CSA and coworker with Babin, air contaminated by chemical vapors can be disposed of in one of two ways. Commercial shops that generate high concentrations of toxic materials in their shop air require *local exhaust ventilation*, such as a



VAPORS

Strippers, solvents, and finishes giving you a noseful? Here's help!

separate spray booth with a hood, an air cleaner, and a fan, for spraying and dust removal. Most home woodworkers, however, can successfully maintain a clean-air situation in their work space with *dilution ventilation*.

Dilution ventilation simply means that you bring in a large volume of clean air to reduce the concentration of toxic material, then remove the air. The simplest form of dilution ventilation is a wide-open window at one end of the room and another open window or door opposite.

Even better dilution ventilation requires the use of a fan or fans to move a volume of air through the work area. "It's important," says McCann, "that clean air come past your face, get contaminated, then be exhausted. That's crucial." Place yourself as shown *below*, when working with toxic vapors.

You can also add effectiveness to your dilution ventilation system by building the setup illus-

trated in the detail drawing, *below left*. The working-level exhaust constantly draws in fresh air and mixes it with the toxic vapors to keep the concentration low. (Note: This do-it-yourself exhaust system is *not* designed to substitute for a spray booth.)

How do you know if you're getting adequate ventilation? Says McCann, "If you can smell vapors throughout the house, you're not exhausting enough air."

Protect yourself somehow

If you find it impossible to provide sufficient dilution ventilation in your traditional shop area when doing certain tasks—such as stripping or applying heavy-duty contact adhesive—then move the work to another location, preferably outdoors. "Another alternative," says the CSA's Babin, "is to 'sectionalize' a project that exceeds your ventilation capacity." For example, instead of brushing on sealer or varnish to

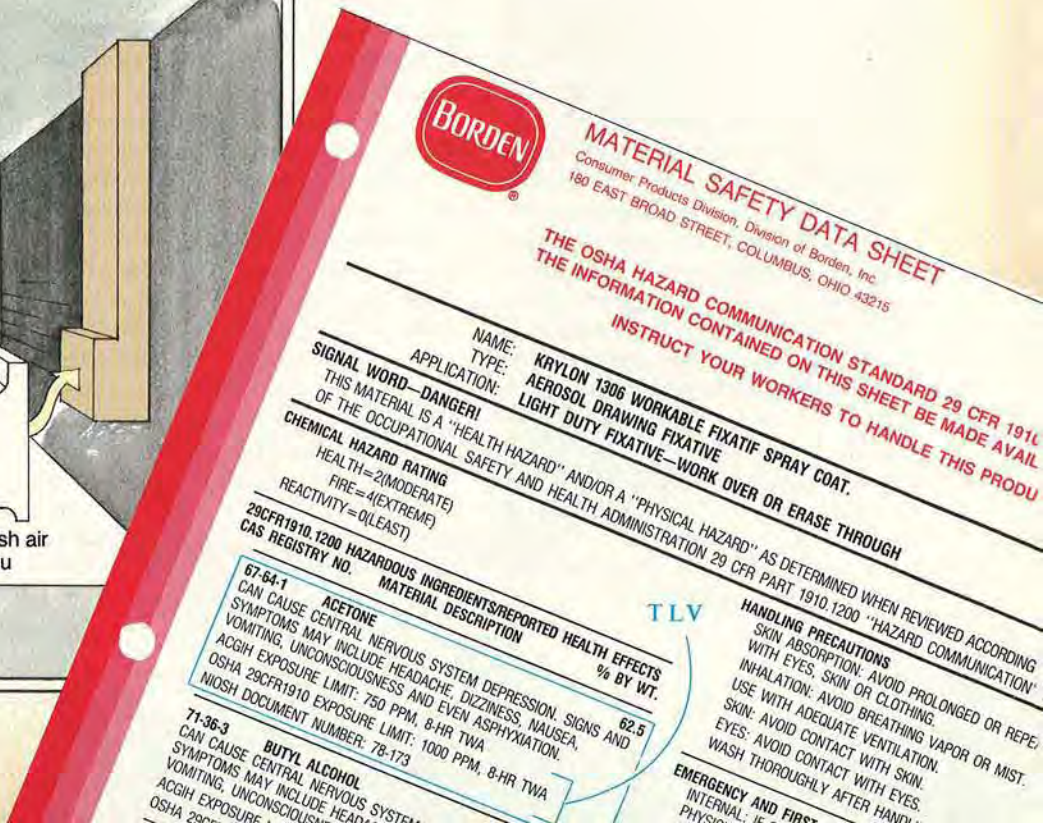
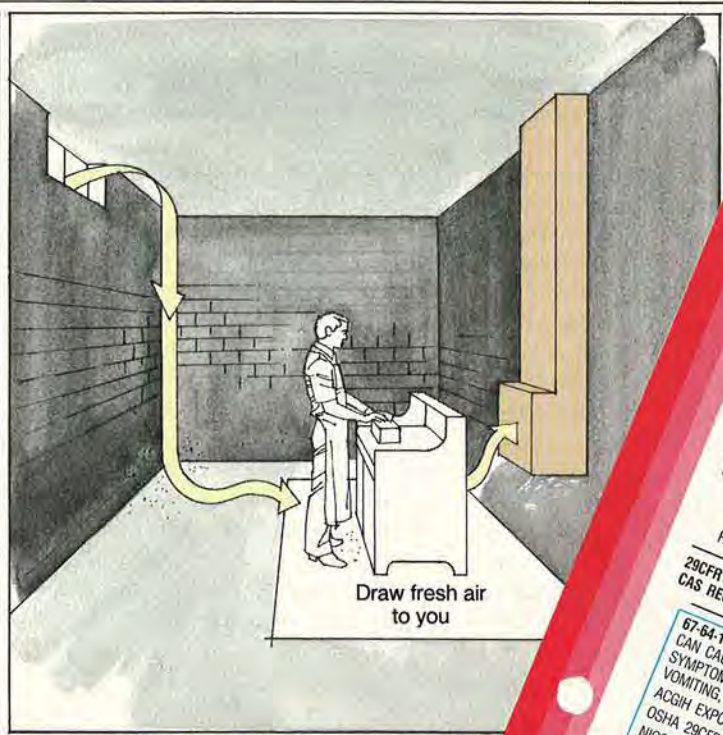
the entire surface of a large piece of furniture—for instance, a bureau—apply finish to the trim at one session, the front of one drawer at a later time, and so on until it's completed. That way, your exposure will be limited.

In all situations, you can protect yourself from inhaling harmful vapors by using a dust-and-mist type respirator labeled "NIOSH/MSHA Approved for Organic Vapors." Complete with a pair of canisters, it costs about \$35. (Read about how to buy approved masks in the January 1991 issue of *WOOD* magazine.)

WANT TO KNOW MORE?

VENTILATION, 118 pp., \$11.95 (U.S.) ppd. Includes designs for a local exhaust system and a spray booth, from: Center for Safety in the Arts, 5 Beekman Street, New York, NY 10038.

Written with George Bransberg
Drawings: Kim Downing

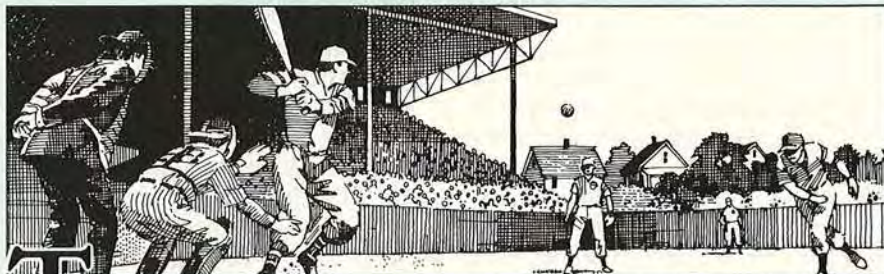




In a world that thrives on change, some customs prove hard to break, thank goodness. After all, can you imagine the next Babe Ruth pinging a home run over a major league fence with—ugh!—an aluminum bat? Although many sports have yielded to equipment manufactured of high-tech materials, it's assuring to know that wood is rooted in sports tradition, and in some cases, still plays a pro role.

In his job as head of the wood identification department at the Forest Service's Forest Products Laboratory in Madison, Wisconsin, Regis Miller knows wood—and its history. He believes, too, that it's tradition that's responsible for the wood still found in the world of sports.

"Baseball bats, for example," he begins. "Aluminum has taken over everywhere, except the pros. That's because the metal bats just don't break—they're cheaper for schools and colleges in the long run. Aluminum bats supposedly hit farther, too. Yet, wood and baseball go back a long way, and you still can't use anything but a wooden bat in the pros." There's even an interesting story behind that special relationship.



There really was a slugger in Louisville

When baseball's first organized team, the Knickerbocker Base Ball Club of New York, took the field against the New York Nine for a four-inning game in 1846, the national pastime was launched. The Knickerbockers lost, 23-1, despite their handcrafted bats.

Yes, in the early days of baseball, the players made their own bats or had them custom-made. Some were hewed from hickory, but, like today, most were of ash.

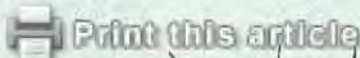
Bill Williams, an executive with the Hillerich and Bradsby Company of Louisville, Kentucky, maker of the famous Louisville Slugger, tells us that it wasn't until the late 1800s that baseball bats were made by machine. "As the story goes, J. A. Hillerich, the founder of this company, was watching the local American Association team, the Eclipse, play one day in 1884. When Pete Browning, a .341 hitter, got up to bat, he swung and broke his favorite. After the game, Hillerich, who had been making bats for his sandlot team on his father's lathe, offered

to make the star a new one. They worked together perfecting it that night," he continues. "The next day, Browning went three-for-three with his new bat. Soon, other team members, then players from visiting teams, wanted bats, too. That's how the Louisville Slugger was born."

According to Williams, a big leaguer uses an average of 72 bats per season. That's why Hillerich and Bradsby now regularly turns out bats for professional baseball to the tune of 185,000 per year out of a production of 1.4 million. With such a stake in big-time baseball, no wonder the company is so particular about where it gets its wood.

"The best bat ash grows in a belt along the New York-Pennsylvania state line," Williams continues. "From a 13' log, we get 25 to 30 bats. That adds up to about 40,000 trees annually."

Ash may well be wood's major leaguer, but there are plenty of other species still in the sports spotlight. Take golf, for instance.



GOOD SPORTS

WOOD'S WINNING TRADITION CONTINUES—IN A BIG-LEAGUE WAY—EVEN TODAY



Some duffers just prefer persimmon

Golf really didn't take hold in the United States until about the turn of the century, although the Scottish invented the game way back in the 1400s. And, just as in most other sports when they were first adopted by an enthusiastic public, the very earliest equipment was made of wood—mainly because it was plentiful and easy to work.

"Not only were heads made from wood, but club shafts were turned from stout and flexible hickory until somewhere in the twenties," notes Larry Frye, executive director of the Fine Hardwoods/American Walnut Association in Indianapolis. "I have some Walter Hagen clubs of wood that date between 1914 and 1929. But, most manufacturers switched to the stronger steel shafts between the world wars. Solid persimmon, though, has always been the choice for the heads of woods." Louisville Slugger's Williams is the first to agree.

"In 1916, our firm [Hillerich and Bradsby] began producing

golf clubs in addition to baseball bats," says Williams. "That was at a time when golf was just being promoted. In 1933 we created the 'PowerBilt' name. Now, we make the largest-selling persimmon golf club in America. We make metal woods also, but our persimmon woods are more famous. And, a lot of golfers still prefer persimmon—about 30 to 40 percent of all clubs sold have persimmon heads. But, golfers who like persimmon aren't always the older ones tied to tradition. In last year's Masters tournament, Jack Nicklaus and Ray Floyd were playing metal, while young Nick Faldo was using persimmon drivers.

"We now have our own persimmon mill in Litchfield, Kentucky, right in the middle of its

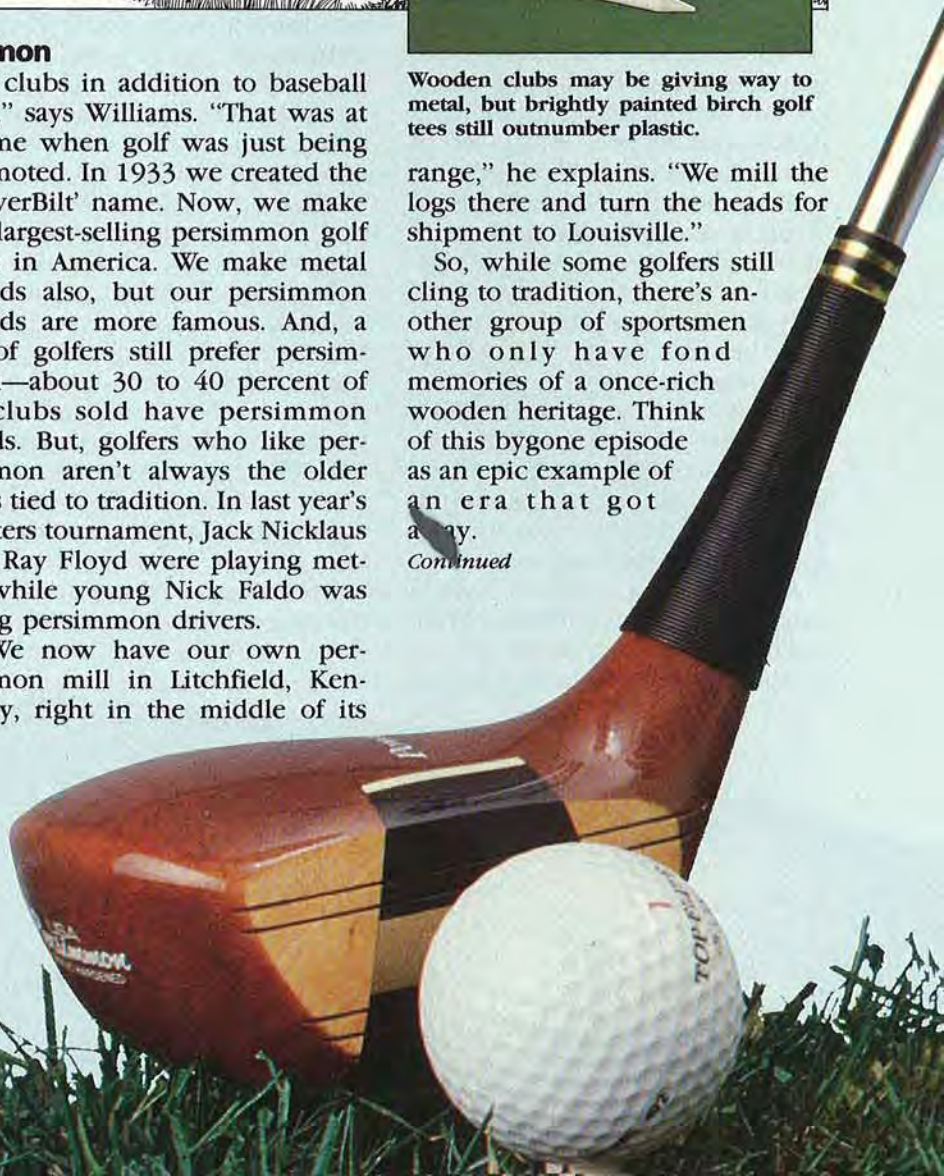


Wooden clubs may be giving way to metal, but brightly painted birch golf tees still outnumber plastic.

range," he explains. "We mill the logs there and turn the heads for shipment to Louisville."

So, while some golfers still cling to tradition, there's another group of sportsmen who only have fond memories of a once-rich wooden heritage. Think of this bygone episode as an epic example of an era that got away.

Continued





Wings once homed in on carvings

The successful wildfowl hunter sets out decoys to entice birds within shotgun range. These artificial ducks and geese—a genuinely American innovation—were first created by Indians, then perfected by early craftsmen.

“The earliest decoys were crude stickups, sawed from pine, painted, and supported by sticks,” says Butch Richenbach, twice world champion duck caller and frequenter of the Waterfowler’s Wing at the Agricultural Museum in his hometown of Stuttgart, Arkansas. “However, they could only be used in shallow water. And, because many duck species prefer deeper water, floating decoys came into general use along the Eastern Seaboard in the early 1800s. Then, hunters introduced them here, along the Mississippi River flyway, and eventually they spread across the country.”

At first roughly carved with a hatchet and drawknife from white cedar or pine, they were set out by the dozens—sometimes by the

hundreds. Hunters called them stolls, tollers, or blocks, and even though they were crude, they were durable, light, and they did the trick. The working decoy *below*, crudely carved from pine, was used to lure pintail ducks to hunters on Lake Winnebago, at Fond du Lac, Wisconsin, about 1910. According to William Koelpin, a nationally known wildlife carver, artificial decoys were first made in factories following the Civil War. “As the manufactured decoys’ degree of realism improved, craftsmen made their homemade variety more lifelike, too, until today decorative decoy carving has become an art form. Top carvers frequently sell a finely detailed piece for upwards of \$10,000, and world-class champions have received many times that from collectors for blue-ribbon winners.”

Few wooden decoys see duty in lakes, ponds, and marshes these days, though. Molded plastic

proves lighter and less expensive. Yet, many a serious wildfowler wouldn’t be caught in a blind without a hand-turned and tuned call. Calls like this one, *above*, made by Arkansas’ Butch Richenbach, still come in cedar, teak, Osage orange, walnut, or an exotic such as cocobolo. Priced at about \$50, they hark back to the days of hand craftsmanship as well as bring in the ducks.





Izaak Walton knew his wood

At the American Museum of Fly Fishing, in Manchester, Vermont, curator Alanna Fisher looks after history, and much of it includes wood. A woodworker herself, Fisher admires the handcrafted gear from the past. Citing fishing historian Martin J. Keane (*Early Rods & Rodmakers*, The Winchester Press, 1976), she comments that 15th- and 16th-century bowyers, who knew the characteristics of wood species, probably made the earliest rods. And, they were no doubt made for royalty and the gentry, who were always looking for new diversions.

When Izaak Walton wrote *The Compleat Angler* in 1653, he described rods, and told how they should be crafted. At that time, fishing rods resembled pool cues—stout and gently tapering from handle to tip—a shape perhaps more familiar to bowyers. “Hazel, willow, and ash rods date back to the 1500s,” she says, “but they were comparatively heavy. Gradually, as stronger but lighter-weight wood species were found, fishing rods, and fly rods in particular, began to be made thinner and lighter,” the curator explains. “For example, greenheart and lancewood (lemonwood) from South America were discovered and fashioned into lightweight, limber rods. And, due to woods’ toughness and good looks, they

remained popular in Europe and the United States well into the late 1800s. In the 1930s, when split bamboo [a grass] became the favored material because it was extremely light, strong, and flexible, you could still find greenheart rods in sporting-goods catalogs.”

According to the curator, the museum collection also includes some less obvious wood items. “We have examples of metal reels from the 1830s with rosewood and tulipwood handles. And, some salt-water reels made entirely of wood—walnut, mahogany, cherry, white oak. These were around into the 1940s,” she notes. “Of course, there’s the classic fishing creel woven of willow or split ash, and the beautifully made hand nets with a handle and frame of ash or hickory.”

Outside of a museum, about all you can find now of wood in fishing is the Rapala minnow lure from Finland. For more than 40 years, it’s been primarily made of balsa. But collectors still yearn for wooden plugs, like the muskie-sized Pokie Minnow shown *right*.

Species still sporting

“We really haven’t lost all that much of the market to plastic and other man-made materials,” claims Frye of the Fine Hardwoods/American Walnut Association. “In addition to baseball bats and golf-club heads, we have

hickory and ash hockey sticks, maple bowling lanes and pins—the pins are maple on the inside—maple basketball courts, wooden water and snow skis of ash or with ash cores, walnut gunstocks and pistol grips, as well as knife handles of both native and imported species.” Frye

also cites

croquet, with mallets and balls of maple, hickory, and beech, and even items as common as pool cues. He notes that the choice ones still feature combinations of walnut and maple, set off by ebony and holly.

“It’ll be a long time before sports parts company with wood, since wood has such a long historical association with all aspects,” says Frye. “And, it has been a real winning tradition.” ♣



Written by
Peter J. Stephano
Photographs:
Bob Calmer
Illustrations:
Jim Stevenson

CARVE A SANTA



Georgia carver
Ron Ransom says
"Happy Holidays"
with this
country Claus



Ron Ransom

When Ron Ransom first picked up a carving knife 11 years ago, he had no idea what it would lead to. "I carved plaques in relief, then shore- and songbirds, and even tried a duck decoy or two," recalls Ron. "Then, a couple of years back, I carved a Santa for my wife, Evelyn. While I was at it, I made a few more and took them to a craft show. Holy cow, they all sold!"

Since then, the Marietta, Georgia, carver has focused on what he calls "Old World Santas." And, now he has dozens of designs.

Getting Santa started

For Ron's Santa, you'll need a piece of basswood measuring $2 \times 4\frac{3}{4} \times 7\frac{1}{4}$ " and a carving knife. Transfer the outline from the pattern onto the wood and bandsaw the figure to shape. Then, begin rounding the edges.

Next, draw in the lines for the face, hands, goose, and other de-

tails on the front. (The nearly flat back has only the continuation of the coat's trim and grooves separating the arms from the body.)

Now, start making stop cuts about $\frac{1}{8}$ " deep along the lines you drew. Then, lay your blade against the wood and cut to the lines.

Avoiding a break

"My Santas don't always have roly-poly faces," Ron comments, "but the features are rounded. The challenge is avoiding a square face." For definition, cut a line at least $\frac{1}{16}$ " deep to separate the cheeks and nose from the beard.

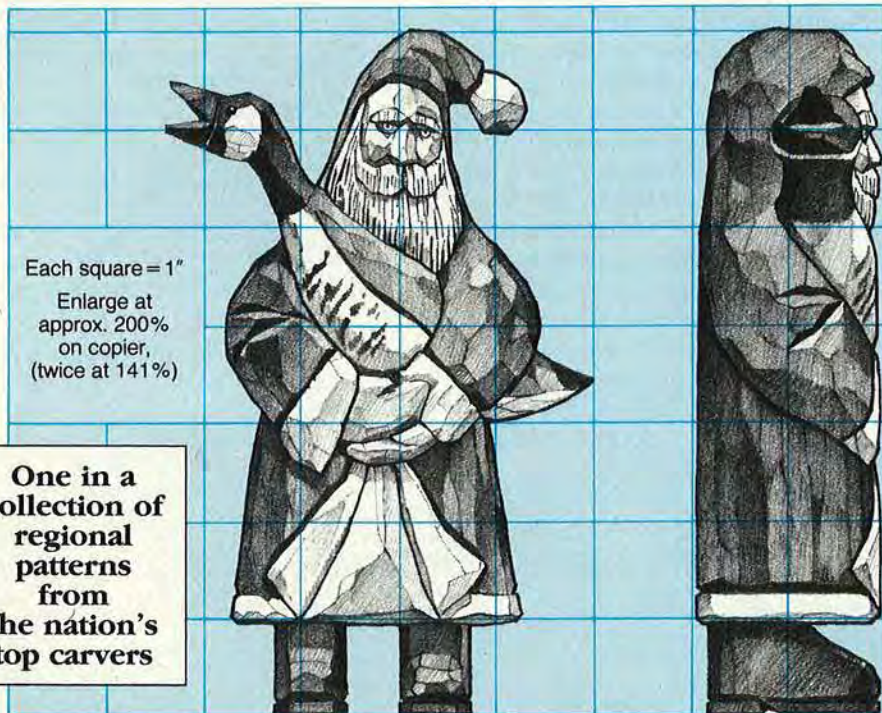
"For each eye, just leave a rounded area of wood the size of a pinhead," Ron advises, "then highlight them later with paint. For his beard, cut a series of grooves to varying depths."

Because the grain in your figure runs vertically, the carver cautions against accidentally breaking off the goose's head. "Don't try to carve its neck round and slender," Ron says. "Leave it a little wide."

Now, add the look of ages

Ron never sands the wood, but goes right to the painting. For this Santa, Ron applied acrylic paints in black, white, flesh, red, brown, and a metallic gold.

To give his Santas the antique look, Ron coats the painted figure with Griffin dark brown paste shoe polish ("Other brands give a purple tint"). He buffs the dry polish with a soft shoe brush, then lightens the fur and face by rubbing with neutral shoe polish. Enough brown will remain to give Santa a patina. ♣



One in a
collection of
regional
patterns
from
the nation's
top carvers

For a full-sized pattern, send \$1 (U.S.) and a self-addressed, stamped, business-sized envelope to:
COUNTRY CLAUSE
WOOD® Magazine
Box 11454
Des Moines, IA 50336-1454. (Foreign readers: Include an intl. reply coupon.)

Illustration: Jim Stevenson Photograph: Hopkins Associates



Trend-lines®

SALE!

FREE!
Drill Saw
With Every Order!



A
\$5.95
Value!

Miter Saw Work Center



This fine work center will bring ease and accuracy to your mitering work. Saw support and rollers are sturdy, adjustable. Folds up for easy carrying. **RN01**

\$99.95

Reliant 12" Planer



Powerful planer is totally portable, with a 2 H.P. motor that lets you handle workpieces up to 12" wide and 6" thick. Makes 16,000 cuts per minute. Stand not included! **NN912P**

\$339.95

NN912S Planer Stand \$39.95
NN913 Dust Chute 19.95
NN914 Spare Blade Set 24.95

15 Pc. Router Bit Set



1/4" shank tungsten carbide bits really can take the heat. Includes rabbeting, chamfering, laminate, roman ogee, cove roundover, dovetail, vee groove, combination panel, 3 straight, a mortising, flush trim and bevel trim bit. **DPARB151**

\$99.95

Reliant Dust Collector



Attach it to your woodworking machinery to keep your workspace free of dust and chips. Operates on a 1 H.P. motor. Vacuums more than 600 cubic feet per minute. **NN720**

\$199.95

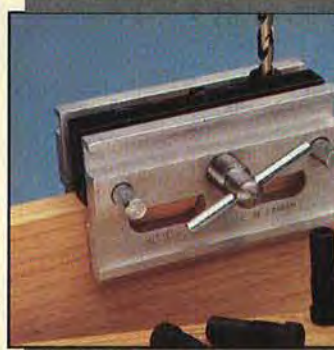
15 Pc. Forstner Bit Set



Create extremely clean, flat bottom holes in thin veneers or through end grain and knots. Sizes 1/4" to 2", 3 1/2" long with a 3/8" shank. Come in a sturdy wooden case. **YYFB15PRT**

\$119.95

Our Improved Doweling Jig



This jig centers automatically when you tighten it on your workpiece, even on round or irregular stock. Cast steel. Includes 6 bushings. **DDZDJ001**

\$29.95



Order Toll Free!

800-767-9999

DEPT. WD391



Or Send Your Order To:

Trend-lines®

Add just \$4.00 shipping & Handling regardless of how many items you order!

DEPT. WD391 375 Beacham St., Box 6447, Chelsea, MA 02150

Offer Expires 12/15/90

MONEY BACK GUARANTEE

Examine any item in your home or shop for 30 days. Return merchandise for a complete merchandise refund or exchange.

1-Year Limited Warranty On All Items!

Turn Clockmaking Ideas
Into Reality



FREE KLOCKIT Catalog Will Show You How

Now you can produce beautiful wood clocks from kits offered in our 64-page Fall Catalog. We offer quartz movements, exclusive kits and dials, mechanical and musical movements, wood pieces, woodburning and wood-working supplies, decorative and functional hardware, clock inserts and more.

Call toll-free: **1-800-KLOCKIT**
(that's 556-2548)

KLOCKIT™ Dept. WD1190
P.O. Box 542, Lake Geneva, WI 53147

CARVING IS FUN WITH WARREN TOOLS
RECREATE YOUR FAVORITE SUBJECT
IN WOOD — INTRODUCTORY OFFER



Turtle Carving in Photo
By Dean Lind NOT INCLUDED
in #4-H SPECIAL

#4-H SPECIAL
ONLY \$17.95 Ppd. USA
SPECIAL OFFER INCL.

Warren Knife
Handle/blade
Basswood Cut-Out of
Turtle (Not Shown)
4 Page
Woodcarving
Instruction
Booklet
(Not Shown)
CATALOG ONLY \$1.00
FREE WITH ORDER
FOREIGN ORDERS
ADD \$3.00 SHIPPING

Send Check or Money Order
TO: Warren Tool Co. Inc.
2209-1 Rt. 9G
Rhinebeck, NY 12572
TEL. (914) 876-7817
UPS, COD Also Avail.
N.Y. Res. Add Sales Tax

Quality

EXOTIC LUMBER

Figured Domestic
Turning Wood
Exceptional Quality
Personal Friendly Service

Whether you are a
Beginner or Professional,
We welcome your inquiries

Call or Write.

BereaHardWoods..

125 JACQUELINE DRIVE • BEREA, OHIO 44017
216-243-4452

DMT® Diamond
Whetstone™

The answer to
your sharpening needs
A few light strokes
will sharpen knives and
achieve perfect edges
on all tools.

- Durable
- Fast
- Versatile
- Clean

Available at quality
woodworking stores or
**DIAMOND MACHINING™
TECHNOLOGY, INC.**
85-WD Hayes Memorial Drive
Marlborough, MA 01752

ANTIQUE reproduction
furniture **HARDWARE**



HORTON BRASSES
Nooks Hill Rd. PO Box 120J
Cromwell, Ct 06416 203-635-4400
send \$3.00 for a catalog

ENERGY-SAVING
SUN-PORCH™
**CONVERTIBLE
SUNSPACE**
More value for less money!

**INSULATED
WINTER SUN SPACE CONVERTS
TO A SUMMER SCREEN ROOM!**

MOUNTS
READILY ON
DECKS, PATIOS,
OR LANDSCAPE
TIES



- Bronze aluminum
- Shatter-resistant 1" thick double-wall glazing
- Do-it-yourself assembly
- Ideal greenhouse, spa/hot tub room, entry way.

Send \$2 for Color Catalogues, Prices,
SENT FIRST CLASS MAIL.
Dealer Inquiries Welcome



VEGETABLE FACTORY, INC.
P.O. Box 2235, Dept. WOO
New York, NY 10163

**BUILD THIS HARP
FROM PLANS OR KIT**



**GREAT
HARP for
BEGINNERS**
39" tall
4 Octave Range

**ORDER
TODAY**
TOLL-FREE
(800) 432-KITS

VISA
MASTERCARD
DISCOVER
AM EXPRESS

- Full-size Harp Blueprint \$23 ppd.
 - Precut kit wall parts \$210 ppd.*
 - Finished Student Harp \$465 ppd.*
 - Catalog (free worder) \$1 ppd.
- (MN residents add 6% sales tax)
*Foreign shipping will cost extra

MUSICMAKER'S KITS, INC.
423 South Main Street, Dept. B7
Stillwater, MN 55082
(612) 439-9120



**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

Intro Video \$12.95 - Catalog \$2.00
MINUTEMAN, INC., Ste. 17
Box 8, Waterloo, WI 53594
1-800-733-1776



TROPICAL HARDWOOD EPOXY
glues any wood we ever heard of

EPOXY FAIRING GEL
fills holes - sands like wood

CLEAR PENETRATING EPOXY SEALER
consolidates softer woods
primes for paint or varnish

SMITH & CO.

Industrial and Marine
Synthetic Resins and Specialties

5100 Channel Avenue
Richmond, CA 94804
(415) 237-6842

NEW TOLL FREE LINE
800-234-0330

CHRISTMAS PROJECTS



DEER FAMILY

A Reindeer Family: Prancer, Dasher, Dancer, Comet & Cupid. Great Christmas sellers! Push their pom-pom tail and they play Xmas music.
 #03907 Plans 12.00
 #06907Z Plans and Parts Kit 28.50
Deer with Red Nose Lights
 Same as above, but with red flashing nose.
 #03907N Plans 12.00
 #06907Z Plans and Parts Kit 33.25



MUSICAL CLOTHESPIN REINDEER

Our 60" deer plays "Rudolph" when his big nose is pressed. Great boutique seller!
 #01554 Plans 4.00
 #04554Z Plans and Parts Kit 11.00



JOLLY SNOWMAN

Our snowman in "motion" has a red light nose that blinks in time to "Frosty" when you press his belly-button.
 #01540N Plans 3.50
 #04540NZ Plans & Parts Kit 8.00

MUSIC! MUSIC! MUSIC!

Over 200 music movements available! Mix styles for quantity discount. Most popular tunes available.

	1-9	10-25	25-99	100+
Touch N Play	1.89	1.69	1.59	1.30
Twinkle Tone	2.95	2.65	2.55	2.40
Bank Slot	1.95	1.75	1.65	1.35
18-Note Mech.	3.85	3.35	3.20	3.00

PARTS KITS include only necessary parts - no lumber. Additional kits without plans available at reduced rates.



THE MOUSE RAN UP THE CLOCK

Pull the mouse down from the clock to start "Grandfather Clock" 18-note music box playing. The mouse "runs" up the string as it plays. Clock movement optional.
 #01604 Plans 3.00
 #04604Z Plans & Parts Kit 10.50
 #04604CZ Plans, Parts & Clock Assym. 16.00



WELCOME TREE

A boutique best-seller! Not only does it say "welcome" but it plays a Christmas melody with lights blinking in rhythm. Adorned with miniature ornaments.
 #01570 Plans 4.00
 #04570Z Plans & Parts Kit 12.00
 Parts Kits Only
 #04570 8.75/Ea, 23.85/3, 71.00/10

POPULAR TURNINGS (per 100 pcs. or as specified)

#16001 3-1/2" Shaker	15.00
#16006 3-1/2" Oak Shaker	27.50
#16021 2-1/2" Shaker	13.75
#16041 1-3/4" Shaker	7.50
#18031 Lg. Cand. Cup	17.00
#18036 Lg. Oak C.Cup	32.00
#18091 Brass Inserts	9.00
#14012 1/4" Button	1.75, 7.50/500
#14013 3/8" Button	1.75, 7.50/500
#14014 1/2" Button	1.75, 8.00/500
#14213 3/8" F.H. Plug	1.90, 8.00/500
#14214 1/2" F.H. Plug	1.90, 8.00/500
#10648 1x3/8 Wheel 1/4 hole	5.50
#10710 1-1/4x7/16 Wheel 1/4 hole	7.50
#10812 1-1/2x1/2 Wheel 1/4 hole	10.50
#10814 1-3/4x9/16 Wheel 1/4 hole	15.00
#11016 2x5/8 Wheel 1/4 hole	19.00
#12001 7/32 Axle Peg	3.10

BULK PRICES
 Available for most popular turnings. Other sizes available.

Door Harp Supplies

#62501 Tuning Pins 17.00
 #13156 3/4" drilled ball 8.00
 #62512 Music Wire 3.95/50-Ft.
 #64351 Nylon Cord 1.49/50-Yd.
 #25561 9-1/2"x12" 1-8" Plywood
 1.25/Ea, 2-8: 0.95/Ea, 9+ : 0.85/Ea

Standard Door Harp Kit

Includes: 8 Tuning Pins, 4 Pre-Drilled Clapper Balls, 3' Music Wire, Nylon Cord, 2-pcs. 9-1/2"x12 Plywood and a Sawtooth Hanger.
 #04310 4.95/Ea, 13.50/3, 39.50/10

CRAFTER'S MART

P.O. BOX 2342-W • GREELEY, CO 80632

64-Page CATALOG: \$2 with credit towards first order, Free with any order. MIN. ORDER: \$20 - Check, MasterCard or VISA (include daytime phone, card no., exp. date & signature). CO Res. add 3% tax. No C.O.D.s. PROCESSING CHARGE: Continental U.S. \$4; AK, HI, APO & FPO \$10; Canada \$16; Foreign 20% plus \$10 (U.S. Funds). PHONE ORDERS: 8am-5pm Mon-Fri, AND 9-4 Sat - Mtn. Time. Info: (303) 351-0676

1 - 800 - 999-3445

The RBI Woodplaner converts your spare time into extra income!



NEW! Jointer attachment now available!

The RBI Woodplaner begins to earn (and save!) you money the moment you flip on the power switch. Convert low-cost rough lumber into valuable finished stock with four essential woodworking functions designed into one precision, dependable machine.

1. Plane your rough stock into dimensioned lumber just the size you want.
2. Create expensive-looking standard or custom moldings to your specifications. No more limitations!
3. The power-fed gang rip saw attachment makes it easy to edge cut and width dimension your stock.
4. The drum sanding attachment saves you hours of tedious hand sanding!

All this capacity in one compact machine in your shop! Make perfect picture frames, moldings, tongue and groove paneling, hardwood flooring, furniture projects and more—at a fraction of the cost. It's like having the capacity of a complete mill right in your home shop!

Start your own business in the garage or basement, or just enjoy the savings on every project you complete! Don't wait another day to find out all the facts about the RBI Woodplaner and how it can unlock your woodworking potential.

Fill out the coupon and mail today, or for faster service call us free at **1-800-535-8665**.

MADE IN USA



Yes! Please rush me all the facts telling about the versatile RBI 4-in-1 Woodplaner.

Name _____

Address _____

City _____ State _____ Zip _____

Phone _____

PW1290

rbi industries, inc.
 1801 Vine Street
 Harrisonville, MO 64701

STEVE WALL LUMBER CO.

Quality Hardwoods and Woodworking Machinery For
The Craftsmen and Educational Institutions

Ash	4/4	Select	1.90
Basswood	4/4	Select	1.30
Birch	4/4	Select	1.60
Butternut	4/4	Select	1.70
Cherry	4/4	Select	2.25
Hickory	4/4	Select	1.30
Mahogany (Genuine)	4/4	Select	2.60
Maple (Hard)	4/4	Select	1.55
Maple (Soft)	4/4	Select	1.25
Pecan	4/4	Select	1.30
Poplar	4/4	Select	1.20
White & Red Oak	4/4	Select	1.80
Walnut	4/4	Select	2.50
Cedar (Aromatic Red)	4/4	1C+Br	1.25
White Pine	4/4	F.G.	.85
Yellow Pine	4/4	Clear	1.20

Above prices are for 100' quantities of kiln-dried rough lumber sold by the Bd. Ft. FOB Mayodan, N.C. Call for quantity discounts. Other sizes and grades available.

**UPS
Special**

.....	\$ 64.00
.....	\$ 46.00
.....	\$ 52.00
.....	\$ 54.00
.....	\$ 65.00
.....	\$ 46.00
.....	\$ 72.00
.....	\$ 51.00
.....	\$ 45.00
.....	\$ 48.00
.....	\$ 44.00
.....	\$ 56.00
.....	\$ 70.00
.....	\$ 45.00
.....	\$ 36.00
.....	\$ 44.00

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

Call For
Best Price On
MiniMax

**STEVE H. WALL
LUMBER CO.**
BOX 287 • MAYODAN, N.C.
27027
919-427-0637
1-800-633-4062
FAX 919-427-7588

Send \$1.00 For Lumber
and Machinery Catalog

Van Dyke's

Presents a
Catalog

with supplies for
upholstery, antique
restoration, wood
working, caning,
brass hardware,
carvings and many
related trades!

36 Years in Creative Arts & Trades

Many Hard-To-Find Items!

SEND \$1.00 FOR CATALOG TO:
Van Dyke's Restorers
Dept. D55 • Woonsocket, SD 57385



WOOD PARTS QUALITY - PRICE - SERVICE

1 3/4" Mini Shaker Peg	6.00/100
3 1/2" Reg. Shaker Peg	15.00/100
Reg. Candle Cup	16.00/100
1" Wheel	4.00/100
1/4" Axel Pegs	3.50/100
1 5/8" Sawtooth Hanger	3.00/100
1 1/2" Birch Spindle	8.25/100
1 1/2" Oak Spindle	11.50/100

Orders under \$25.00 add \$2.50 shipping.
Over \$25.00 shipped FREE. Serving Continental U.S.A. Only.

American Woodcrafters Supply

PO Box G
Riceville, IA 50466
515-985-4032

24 Page Catalog
75c or
FREE with Order

The Japan Woodworker's Catalog is...

loaded with the best tools you can get your hands on. In our catalog you will find a huge selection of Japanese saws, waterstones, chisels, planes, carving tools, cutlery and books. Send \$1.50 for our catalog and supplements during the next two years.

THE JAPAN WOODWORKER
1731 Clement E6, Alameda, CA 94501
Phone 1-800-537-7820

FULL-COLOR YARD CHARACTERS

No painting needed • Most 2/3 Life-Size • Just glue to plywood and cut out



We have dozens of holiday outdoor scenes for Christmas, Easter, Halloween — Santa & Sleigh, Santa's Workshop, the Nativity and more!

20% off!
(until 11/30/90) Reg. Now



A. #1263 Reindeer 10.50 \$8.40
B. #1256 Bears 9.25 \$7.40
C. #1250 Santa 6.75 \$5.40

All prices include shipping charges
64-Page project plan catalog features hundreds of full-size woodworking plans #90 - \$2.00

CRAFT PATTERNS
Dept. WM, 3N345 N. 12th Street
St. Charles, IL 60174-5598
Call TOLL-FREE (800)747-1429

Build Power Tools You Can Be Proud Of... And SAVE!!!

Remember when "quality craftsmanship" meant something? With GIL-BILT tools it still does.

- Construct your own:
- 12-in BAND SAW
 - 18-in BAND SAW
 - 10-in. TILT/ARBOR SAW
 - LATHE/DRILL PRESS COMB.
 - 9-in TILT TABLE SAW
 - 6-in BELT SANDER
 - SPINDLE SHAPER
 - CIRCULAR SAW TABLE

GIL-BILT kits include step-by-step plans, full scale patterns and all necessary metal parts and components except wood and motor. Made in America with pride by Gilliom Manufacturing, Inc. since 1946.

Send \$7.50 per plan or \$25 for plans for all eight tools listed above or send \$2 for descriptive brochure only. Satisfaction Guaranteed.

GILLIOM MANUFACTURING, INC.,

Dept. WD110
P. O. Box 1018
St. Charles, MO 63302
Phone (314) 724-1812



Featured here: 18-in. Band Saw
Specs: Throat capacity 18 in.
Thickness capacity 12 in.
Table size 26 in. x 28 in.
Table tilt 0° to 45°
Blade furnished 124 in. x 1/4 in. x 6T
Table height 39 1/2 in.
Overall dimensions 33 1/2 in. wide
29 in. deep
71 1/2 in. high
Speed (w/1,725 rpm motor)
425 rpm 2000 blpm
Order No. 451-K only \$219.50 (less cost of plan, if previously purchased) plus shipping
Speed reduction kit available for cutting steel.

VISIT THE SHOW NEAR YOU!

- Free Workshops • Prizes •
- Hundreds of Products •
- Seminars by Mastercraftsmen •

★ *The*
Woodworking Shows ★
machinery
tools • supplies

See the Widest Variety of
Woodworking Products
All Under One Roof!!

HUNDREDS OF ITEMS! NEW PRODUCTS!
Machinery • Power & Hand Tools • Supplies

COMING IN 1990-1991

- Atlanta
- Baltimore
- Charlotte
- Chicago
- Cincinnati
- Columbus
- Dallas
- Delaware Valley
- Denver
- Detroit
- Indianapolis
- Kansas City
- Louisville
- Milwaukee
- No. California
- Oregon
- Pittsburgh
- Rochester
- Sacramento
- Seattle
- So. California
- St. Louis
- Tampa
- Twin Cities

1-800-826-8257 or 213-477-8521

Call NOW to be placed on mailing list for
FREE Brochure & Discount Coupons
Phone Hours 8-5 Pacific Time Weekdays

WOOD PECKERS

REVERSIBLE RAIL & STILE	
1/4" SHANK CARB. TIPPED SHIMS FOR PERFECT MATCH	CLASSICAL \$47.99 STRAIGHT \$49.95 OGEE \$59.95 TRADITION \$59.95

OGEE PANEL RAISER	
1/4" SHANK CARB. TIPPED 2" DIAMETER	\$39.95

COVE PANEL RAISER	
1/4" SHANK CARB. TIPPED 2" DIAMETER	\$38.95

25 DEG PANEL RAISER	
1/4" SHANK CARB. TIPPED 2" DIAMETER	\$39.95

800-752-0725



STOP PERFBORARD HOOK FALLOUT!

M-CLIPS™ are THE guaranteed perfect solution to this annoying problem! Fit both 1/8" and 1/4" perfborard. Send SASE for free sample or \$5.99 + \$1 p&h for pkg of 50 to: AETECH, P.O. Box 6298, Dept. W6, 10 Shadowstone Lane Lawrenceville, NJ 08648



NEW GROUND MARKETING™

P.O. Box 718 Lansdowne, PA 19050
(215)622-2445

MetaRout™

Introductory Offer
list \$499.00 \$399.00



Lockwood Power™ Oscillating Spindle Sander

Leaves no sanding lines!
A professional edge on
contour sanding.
Inside curves from 1/8"
radius to large curves.

Lockwood Power™
Worm and gear drive
5/8 hp motor
1 1/2" stroke
57 strokes per minute



MetaRout™ plus your
router can do Edge
Joining, Face Contouring,
Repetitive Mortising,
Raised Panel Doors,
Plate Joinery!

Write or call for free information!

\$799.00

100 BUCKS SAYS YOU CAN CUT IT WITH THE BEST OF THEM.

The Delta 18" Electronic Variable Speed Scroll
Saw. This is about as good as it gets. And right
now it looks even better, with a \$100 rebate check
from Delta.

You can work in areas as tight as 1/64" diameter, on
stock up to 2" thick. You can lock in any speed
from 40 to 2,000 CS/M. Comes complete with
stand. Even more complete with an extra
hundred bucks for your pocket.

Call toll free for the
name of your nearest
Delta dealer: Delta
International Machinery
Corp., 800/438-2486.

Offer good on 18" Scroll Saw /
Model 40-601 only from parti-
cipating dealers in the continental
U.S., Alaska and Hawaii from
Aug. 1 through Dec. 31, 1990.

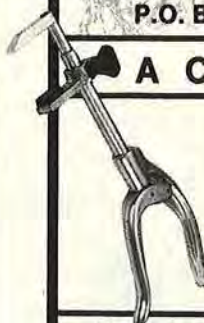


Building
On Tradition
DELTA
A Pentair Company

CASCADE TOOLS, INC.

P.O. Box 3110, Bellingham, WA 98227

A C C E S S O R I E S



BRAD DRIVER

Hold and set brads with this simple but
effective tool. Just squeeze and you're done!

PART NO. C3078
ONLY \$795

PUSH BRADS IN
THE EASY WAY!

BEARING LUBRICANT

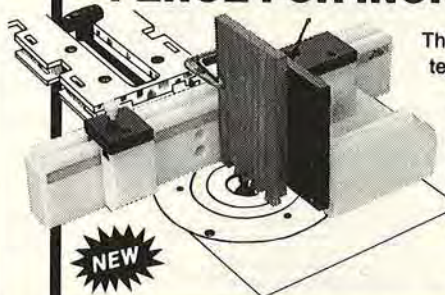
Made by Dri-Cote, this lubricant protects and
lubricates bearings and bearing mech-
anisms. Especially effective on
router bit bearings and rub collars.

- Effective to 550°F!
- Repels dirt and moisture.

PART NO. C3074 ONLY \$345 (1.7 oz. Dropper-tip Bottle)



FENCE FOR INCRA JIGS™



This unique fence sys-
tem attaches directly
to your jig and is
used in making all
kinds of joints. You'll
love it!

PART NO. C3009
ONLY \$5495



RIGHT ARM CLAMP

This clamp is a real gem. Its secret is its pivoting
arm which squares the work for perfect gluing,
joining and fastening.

- Opens up to 1 1/2".
- Clamp is approximately 6" long.

PART NO. C3029
ONLY \$1000 or 6 for ONLY \$5500



SUPER BRAD NAILER



This light weight pneumatic nailer
drives 18 gauge brads from 5/8"
to 1-9/16" into almost
any kind of wood. Excellent
choice!

PART NO. C3082
ONLY \$12995

BISCUITS FOR JOINING WITH ROUTER

Why buy a biscuit-cutting mach-
ine when a small router will do?
3 sizes in bags of 100...

PART NO. C3021 \$495
(Size "0" - use C1042 bit - \$12)

PART NO. C3022 \$495
(Size "10" - use C1098 bit - \$22)

PART NO. C3023 \$495
(Size "20" - use C1098 bit - \$22)



TO ORDER, CALL TOLL FREE
1-800-235-0272



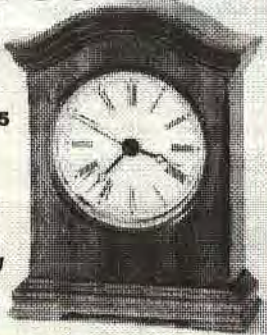
90C-111

SALE 50% Off!

Ends Dec. 31, 1990

SOLID WALNUT Clock Kit Only \$11.95
(Reg. \$23.90)

Includes—
•Pre-Cut Case
•Movement
•Dial & Glass
•FREE Catalog
Order Today!
(715) 823-5101
Add \$3.50 for Ship/Handling #171382 6"H x 4"W



The American Clockmaker
P. O. Box 326 Dept. WD94 Clintonville, WI 54929



FULL SIZE WOODCRAFT PATTERNS

SIMPLE TO MAKE ★ FUN ★ PROFITABLE

- 100 yard ornaments, animals birds, signs, more.
- 125 pattern "Fun Packet" assortment.
- 8 enjoyable "wind-action" whirligigs.
- "Country Critters"-100 patterns, unique projects.
- 200 pattern packet for scroll, band & jigsaws.
- "Child Pleasers" - 25 craft show best sellers.
- "Country Classics" best selling country projects.
- Construction Toys - dump truck, dozer, grader, more.

Send \$8.00 per blueprint packet or choose any 3 FOR ONLY \$16.00

ACCENTS Dept. MA110, Box 7387, Gonic, NH 03867.

WOODCRAFT CATALOG - \$2.00 (Free with order)



SANTA CLAUS IS COMING TO TOWN

An outdoor display makes your home a bright spot in the neighborhood. Mr. & Mrs. Santa are 5½' tall while the deer and sleigh are life size. You simply glue the pictures to plywood and saw them out... complete directions are included! Because the posters are printed in non-fade, waterproof colors to resist weather conditions, this set will bring smiles for many years to come.

Send check to: #C20 Santa Display \$42.50
U-Bild Dept. 1090 112-page catalog \$3.95
P.O. Box 2383 (Picturing 700 projects)
Van Nuys, CA 91409

Name _____

Address _____

City _____

State _____ Zip _____

Price Includes Postage & Handling

HARDWOODS

EXOTIC & DOMESTIC OVER 75 SPECIES

LUMBER • PLYWOOD • VENEERS
TURNING SQUARES & BLANKS

COLLECTORS SAMPLE KIT

36 EXOTIC & DOMESTIC WOODS
1/2" x 3" x 6" SANDED FINISH

\$29.00 + \$5.00 S&H

Ideal for collectors, cabinet and furniture makers, designers and architects.



FOR OUT-OF-TOWN ORDERS

1-800-423-2450

WOODWORKERS Supply

5402 S. 40th St. • Phoenix, AZ 85040
(602) 437-4415

Great Gift Ideal SALE was \$13.95 **\$9.95 + S&H**

THE ONIT

Simple to Build! Full Size Templates!

Easy to make multi-purpose furniture. Just flip it over and it turns into a Chair, Ironing Board, or Step Ladder. A Great Gift or Craft Show Item. Impress your friends, family or customers with the ONIT. Send \$9.95 plus \$1.50 (S&H) to:



MONEY BACK GUARANTEED

GOLD COUNTRY WOODWORKS, Dept. WN9
1615 Wimbledon Dr., Auburn, CA 95603

CRAFTSMAN EQUIP YOUR SHOP AT GREAT SAVINGS

Catalog of over 300 plans to build your own tools, \$1.00, refundable



A wide variety of plans from complete machines & attachments to handtools for home, school & commercial shops. Featured also are accessories for wood and metal cutting lathes, drills, saws, sanders etc., plus things to make of wood and metal.

WOOD-MET SERVICES

3314 WEST SHOFF CIR. DEPT. WOOD
PEORIA, ILLINOIS 61604

Sleeveless DRUM SANDER

Uses regular sandpaper — no pre-made sleeves to buy!



Twist of key tightens sandpaper to drum. Rubber backing insures long sandpaper wear.

1" x 3" long	\$14.95
2" x 3" long	\$16.95
2½" x 3" long	\$17.95
3" x 3" long	\$18.95
1" and 2½" above	\$29.95
Set of 4 above	\$59.95
¼" x 3" long	\$15.95
2½" x 4½" long	\$22.95
3" x 4½" long	\$23.95
2½" x 6" long	\$27.95
3" x 6" long	\$29.95
ADD \$2.50 per order for shipping.	

Lifetime Guarantee

USE ON:
Drill press, motor, lathe, combo-tools, radial saw, drills.

AVAILABLE WITH:
¾" bore with ½" 3/4", or 1¼" shaft
½"-20 RH thread (except ¾" x 3")
5/8" bore (except ¾" x 3" and 2" x 3")

MC, Visa, Check or Money order to:

SINGLEY SPECIALTY CO. INC.
P.O. BOX 5087B, GREENSBORO, NC 27403
CALL: (919) 852-8581

WOOD TOY

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

SEND \$1.00 FOR NEW CATALOG & RECEIVE COUPON FOR FREE WHEELS & AXLE PEGS.



toys and joys

Box 628W Lynden, Wash. 98264

The Woodworkers' Store

New! 1990-91 Catalog

- Over 250 New Items!
- Hard-to-Find Products!
- Many Exclusives!
- Selection Includes: Hardwoods, Wood Parts, Craftplans, Specialty Hardware, Finishing Supplies, Kitchen Accessories, Drawer Slides and much much more!
- 24 to 48 Hour Shipment!
- Satisfaction Guaranteed!



Send Now! \$1.00 (3rd class)
\$2.00 (1st class)

\$1.00 Refundable on first order!

Name _____

Address _____

City _____ State _____ Zip _____

The Woodworkers' Store
21801 Industrial Blvd. Dept. 1607
Rogers, MN 55374



SUPER-SMOOTH EXTRA-DURABLE CARBIDE-TIPPED CIRCULAR SAW BLADE BUY NOW SAVE \$57

Get a smooth-as-sanded surface with a rip or crosscut on rock hard and soft woods with our all-purpose 40T WOODWORKER BLADE. Cross cut oak and birch ply-veneers with **NO BOTTOM SPLINTERS.** Thousands in use today.

To order or for information phone Department W. Free
1-(800)-733-7111
Ask for Keith or Tony.
Amex-MC-Visa Accepted

FORREST MFG. CO., INC.
461 River Road, Clifton, NJ 07014

For comparisons with other blades, see page 45 BH&G "Wood" April 1990. "THIN-KERF SHOWDOWN"

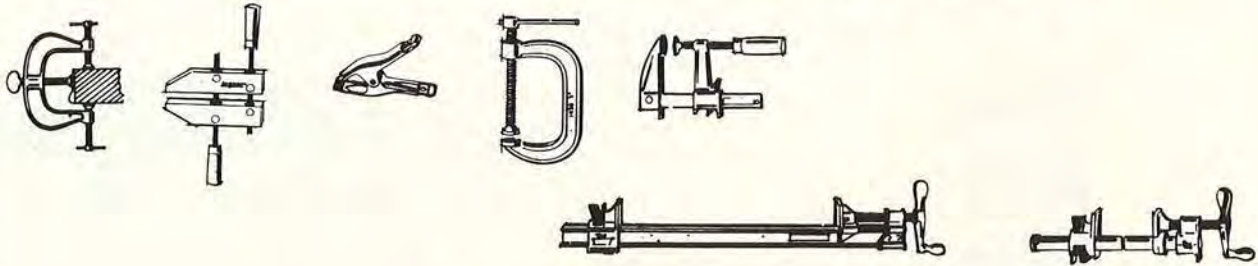
"Jorgensen"®

AND

"Pony"®

CLAMPS

Dependable extra hands for all types of clamping and work-holding jobs:
Woodworking Projects, Home Maintenance, and Furniture Repair.



Write for FREE LITERATURE.

For big 32-page "how-to-clamp-it" catalog, send \$1.00.

ASK YOUR DEALER

ADJUSTABLE CLAMP COMPANY

THE CLAMP FOLKS

410 N. Ashland Avenue • Chicago, IL 60622

TRANSPOWER

SINCE 1953

FOR EXPRESS NEW CATALOGUE CALL

1-800-654-7702

SUPER HEAVY DUTY WOODWORKING EQUIPMENT



250 H.D. Table Saw 1 1/2 HP \$350
200A H.D. Table Saw 3HP \$795
200A W BIESEMEYER Fence \$995

650 H.D. 6" Jointer 1 HP \$295
860 H.D. 8" Jointer 1 1/2 HP \$670
1200 H.D. 12" Jointer 3HP \$1695



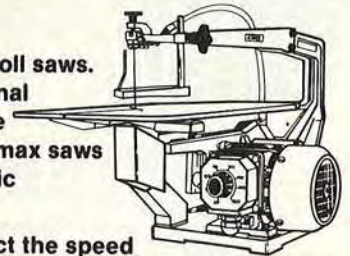
150 Shaper Router 1 1/2 HPS298 \$328
500 Shaper Router 3HP \$698
860 Tilt Spindle Shaper \$1150
150 Auto Planer 12" \$328
650 Auto Planer 15" \$648
200A Auto Planer 20" \$1195
Dust Collector 1HP \$169
Dust Collector 2HP \$285
Dust Collector 3HP \$365

We also carry complete line of top quality **BAND SAWS, AIR DRUM SANDER, DISC SANDER, BELT SANDERS, AUTO FEEDERS and DRILL PRESS.**

TCM Industries, Inc. 322 Paseo Sonrisa, Walnut, CA 91789
In California (714) 594-0780

SCROLL CONTROL

Since 1974 HEGNER has set the standard in scroll saws. Now, to give you exceptional control for best results, the acclaimed HEGNER Multimax saws are available with electronic variable speed.



As a novice, you can select the speed at which you are comfortable. With experience, you can produce extremely fine detail in wood, metal or plastic; just reduce the speed by turning a dial. HEGNER sets the standard again. Why take a chance on less when you can have the best?



Send for FREE information... or call 1-302-322-2226

Name _____

Address _____

City _____ State _____

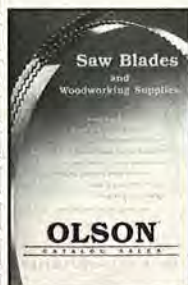
Telephone () _____ Zip _____



**ADVANCED
MACHINERY
IMPORTS LTD.**

P.O. Box 312, Dept. 433 New Castle, DE 19720

Band Saw Blades Scroll Saw Blades SAVE UP TO 50%



Band Saw Owners...

Hard edge, flex back for general purpose sawing; NEW furniture band for cutting wood faster & smoother; and special thin gauge blades for bench top and 3 wheel saws. Welded to length or in 100' coils.

Scroll Saw Owners...

A huge selection of plain or pin end scroll saw blades; fret, spiral and jewelers (metal piercing) saw blades.

Send for **FREE** Catalog

Name _____

Address _____

City _____

State _____ Zip _____

OLSON CATALOG SALES

Dept WM, Route 6, Bethel, CT 06801
(203) 792-8622 Fax: 203-790-9832



APPALACHIAN HARDWOODS

Beautiful grain and textures. Exceptionally workable. Our Appalachian hardwoods are locally grown, personally selected and kiln-dried... a guarantee of our measure of quality. ■ We handle 21 species of domestic hardwoods, softwoods and hard-to-find imports. ■ Send \$2.00 for our catalogue today (refunded with order). All purchases at delivered prices. **EDLCO**

P.O. Box 5373-A, Asheville, N.C. 28813
For fast service, call 1-704-255-8765



PLAN # 8
CLASSIC
'56 PICKUP
\$4.95

PLAN #17
CLASSIC
FARM
TRACTOR
\$4.95

STICKLER FOR DETAIL? At last, an exciting new line of REALISTIC Wood Block Models that you can build with your own scrap wood & dowels, and my easy to follow instructions
CLASSIC '56 PICKUP - Captured in wood this 13 1/2" long, 5 1/4" high "all wood" model plans details an opening tailgate, detailed grill, bumpers, seats, and trim package. Plan contains only 80 easy to make parts.
CLASSIC FARM TRACTOR - This rugged 9 1/2" long "Work Horse" is a scaled replica of a Classic Farm Tractor from an era gone by. Besides the detailed engine & drive train, this Wood Block Model also includes an optional tricycle type front end or the wide front end.

Send U.S. check or U.S. money order in the above amount to:
Gatto Plan Supply, Box 1568, R.D. #1, Hamburg, PA 19526

SQUARE DRIVE SCREWS

Simply the Best!

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

Send \$3 for Samples and Catalog

**McFEELY
HARDWOODS**

P.O. Box 3 • 712 12th St.
Lynchburg • Va • 24505
Toll Free 1-800-443-7937
or FAX (804) 847-7136

NEW

AMERICAN MADE, HEAVY DUTY! DRUM SANDER



Sand boards, frames, doors, veneer, knots, wild grain perfectly flat and smooth **every** time!

Reduce sanding time from hours to minutes!

Delivers sanding precision equal to large wide belt sanders at an affordable price!

This is the best drum sander in the world. It has quality features not found on other brands. Let us prove it to you.

PLEASE SEND ME A FREE BROCHURE

Telephone orders (417) 223-4031
Ross Industries Dept. FA-15
100 North Highway W, Box 637
Pineville, MO 64856

**ROSS
INDUSTRIES INC.**

SPECIAL OFFER

BRANDING IRON

For hard and soft wood



\$24.00

Plus \$2.00 for shipping and handling

Nebr. residents add correct sales tax

SATISFACTION GUARANTEED
or your money back

- Shipped in one week
- Solid brass head — raised letters
- 1st Line: HAND CRAFTED BY — as above
- 2nd Line: Your choice — 20 characters/spaces max.
- Complete with wood handle
- As above but with 3rd line — \$37.00 + \$2.00

ORDER TOLL FREE **1-800-826-7606**

For free brochure, write or call (402) 464-0511

NOVA TOOL CO.

Order by mail from:
12500 Finigan Rd., Dept. BH
P.O. Box 29341, Lincoln, NE 68529



Wood Carvers Supply, Inc.

P.O. Box 8928 G • Norfolk, VA 23503
(804) 583-8928 • Our 35th Year



Complete 64 page color catalog including over 2,000 carving tools, books & supplies such as carousel animal kits, gun checkering tools, ship model kits plus much more. We offer great service, quality products and a 30-day money back guarantee. Send \$2.00 for a 2-year subscription.

WOODWORKER'S DREAM EXOTIC & DOMESTIC HARDWOODS

SAWN VENEER AND RARE LUMBER
1/8", 1/4", 1/2", 3/4", 1", or 2" & Custom Sizes

**OVER 30 SPECIES AVAILABLE
SANDED, ROUGH OR RESAWN**

NO MINIMUM ORDER • QUANTITY DISCOUNTS APPLY

• COMPLETE SAWMILL SERVICES AVAILABLE •

CALL US TOLL FREE (800) 247-6931

PENNSYLVANIA RESIDENTS CALL (215) 759-2064

A DIVISION OF THE MARTIN GUITAR COMPANY, NAZARETH, PA 18064

RIP SAW

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.

Write or call for free brochure.

**Better Built
CORPORATION**

(508) 657-5636

845 Woburn Street, Dept. W, Wilmington, MA 01887



Forstner Bit **SPECTACULAR**

Quality, imported Forstner Bits make glass smooth, flat bottom, clean holes, even through veneer, knots, and end grain, in any direction. Indispensable for furniture making. Will bore any arc of a circle, make pocket and blind holes and even make overlapping holes for mortising.



ONLY \$28.99
7-Pc. Set #77571
 1/4" to 1" In Wooden Case

- Precision ground, quality bits
- Machined from high-carbon steel
- Hardened to HRC 50-52
- Reusable moulded covers protect rims

22-Pc. Taper Drill Set
Sturdy Wooden Case #12232 \$27.50
 • 7 Tapered bits • 7 Adjustable stop collars
 • 7 Countersinks/ • Single-twist design
 Counterbores • Sizes #5, 6, 7, 8, 9, 10, & 12



Complete 16-Pc. Set
\$88.99



ONLY \$33.99
3" Forstner Bit
1/2" Shank
 #77591



#77581

Call Toll Free:
800-345-2396

Order Mon. through Sat. 8:30 to 5:00
 Ask for Tool Order Dept.

Or Mail to:

940 West Maple St., Hartville, Ohio 44632
 \$2.00 Ship/Handling Charge on All Orders



25-Pc. Brad Point Drill Set
 Fits any 3/8" or larger chuck. Includes FREE metal index.

#77611 **\$28.00**
 2 or more sets **\$25.00 ea.**

HARTVILLE TRUE VALUE

Tool and Supply Inc.

End of Year **SALE**

Sale prices good until Jan. 15, 1991

Classic Rocker
 Mane, bridle, stirrup & saddle kit **\$17.50**
 Plans not included

This classic rocker will become a family heirloom to be cherished for generations.

Full size plan #400 **\$10.25**



Size: 35 x 58 **All Plans Full Size**

Cradle Plans
 You can easily build this classic cradle which is sure to become a family heirloom. Available in two sizes: Baby & Doll size.

Two Cradle Plans
 One for Babies
 One for Dolls



72 pg. catalog free with order

Baby size Plan (21 x 35) \$11.50
Spindle Kit/Rosettes \$19.50
Doll size Plan (10 x 18) \$5.25
Spindle Kit/Rosettes \$12.95

Phywood 1/8 x 1 1/2 sq.	Wood Balls	Pegs & Cups
Tuning Pins 30 cents ea.	BA 3/4" 6.00/100	Peg 5" 4.00/10
10.00/50	BA 1" 25.00/500	Peg 3/4" 14.00/100
14.00/100	BA 1 1/2" 8.50/100	Peg 1 1/2" 5.00/100
53.00/500	BA 1 3/4" 25 each	Cup Reg 15.00/100
105.00/1000	BA 2" 80 each	Liner Reg 7.50/100
	BA 2 1/2" 1.25 each	Cup Mini 7.00/100
	BA 3" 2.00 each	
Harp Wire		
25 feet \$2.50		
350 feet \$9.00		

M/C-Visa orders call toll-free **1-800-292-8296**

Frt. 48 States \$3.50. AK, HI add 25% of order. NY add tax. Canada add 50%. Use Visa/MC or M.O. in U.S. funds. Min. order is \$15.00. Catalog \$1.00 or sent FREE with order.

ARMOR, Box 445-C, East Northport, NY 11731

Do-It-Yourself Kits



Factory Direct
Clocks and Furniture

Also Assembled and Finished

- Grandfather Clocks, Mantel and Wall Clocks
- Curios, Tables, Chairs, Desks, Cradle...and more!
- Solid 3/4" Black Walnut, Cherry, or Oak
- Heirloom Quality
- Solid Brass West German Movements and Dials
- Money Back Guarantee



SEND \$1 FOR COLOR CATALOG

I am interested in
 Do-It-Yourself Kits
 Finished Clocks
 Finished Furniture

Name _____
 Street _____
 City _____
 State _____ Zip _____

(Please Print)
EMPEROR
CLOCK COMPANY

World's Largest Manufacturer of Grandfather Clock Kits
 Dept. 3705, Emperor Industrial Park
 Fairhope, Alabama 36532 • Phone 1-205-928-2316

ANYTIME ANYWHERE ANYWOOD
 mold plane and edge



Professionals and hobbyists alike know the strengths of the W&H molder-planer. Superior US-made construction and quick two-minute cutter changes make it a snap to cut moldings and plane hardwoods. It's fast, easy, and super-smooth.

Our five-year warranty and free 30-day trial are your assurance that W&H goes the distance.

Mail this ad or call us toll-free today.
1-800-258-1380 In NH 603-654-6828

Williams & Hussey Dept. 230KM
 Riverview Mill, P.O. Box 1149
 Wilton, NH 03086



YES! Send your free information kit today.

Name _____
 Address _____
 City _____ State _____ Zip _____

Woodcarving Art 1991 Wall Calendar



A large 11" x 25" wall calendar featuring 13 FULL COLOR and 12 Black & White photos of some of the best woodcarvings done in North America today! Includes a biography of each artist and tells where to find woodcarvings and woodcarving information. \$9.95 plus \$2.00 for shipping. A GREAT GIFT IDEA!

Satisfaction guaranteed!

WOODCARVING ART
P.O. Box 336C
Whitewater, WI 53190

UNBEATABLE PRICES ON PREMIUM TOOLS

10" Benchtop Bandsaw **\$129.95**



Upper & Lower blade guides w/ bearing wheels for maximum stability.
#20-210

1"x30" Benchtop Belt Sander **\$64.95**



Balanced 3-Wheel belt system for even sanding.
#35-130

10" Motorized Benchtop Table Saw **\$149.00**



Heavy-Duty cast aluminum table.
#30-310

8" 5 Speed "Mini" Benchtop Drill Press #60-085 **\$119.00**

15" Benchtop Scroll Saw #25-215 **\$99.95**

4"x36" Belt / 6" Sander #35-406 **\$139.95**

10" Motorized Miter Saw #10-100C **\$209.95**

12" Benchtop Planer #50-120 **\$379.00**

6" Bench Grinder #15-220 **\$39.99**

10" 40 Tooth Carbide Blade #30-32010 **\$11.50**

FREE FREIGHT ON ALL ORDERS

Dealer inquiries invited. In Kansas add 5.85% sales tax.

Phone in your Visa or Mastercard orders.

800-593-TOOL

Or write:



SELECTOOLS, INC.
P.O. Box 15511 • Lenexa, KS 66215



SHOP SENSE

Print this article



TUNE IN TO WORKSHOP CONSCIOUSNESS

Have you ever noticed that on some days everything goes perfectly when you're working in the shop? Then, at other times, you can't seem to do anything right? Here's how to avoid those not-so-good experiences, especially with the holidays coming up.

What mood you're in has a lot to do with the effectiveness and efficiency with which you accomplish things, in the woodshop as well as anywhere else. And, there's a bunch of factors that can affect your work:

- *Fatigue dulls your senses, making it difficult to concentrate or to work at peak efficiency.* If you're driven to do something, limit your activities to the uncomplicated, such as finish-sanding.

- *Emotional stress directs your mind away from the task at hand, preferring instead to dwell on what's causing it.* Focusing attention on your work becomes impossible. Some woodworking activities, such as carving, can help you wind down. Really upset? Stay out of the shop.

- *Numbed senses have no place in the shop.* Never attempt woodworking when you're under the influence of alcohol or drugs (even medicine that makes you drowsy). Anything that impedes your judgement or response time will directly affect your ability to work and your safety.

- *Distractions pull your attention away from tasks and procedures that require your total concentration.* That's why it's wise to post the shop "off limits" to the uninformed. Teach children, for instance, that the shop isn't a play

area. Instead, involve them in shop activities, but make certain that they follow strict safety rules. A shop isn't a kennel, either. Maintain strict control over your pets. An eager puppy underfoot could cause a nasty accident.

- *Fear of either machine or tool prevents you from operating it safely.* On the other hand, overconfidence begs for trouble, too. So, learn how to safely operate a machine, then always respect it.

How to make things go right

Good planning plays an important role in getting everything running smoothly in your shop. You can't help but feel frustrated if you're constantly backtracking due to forgetfulness. But, rushing a job can be equally bad.

Your work speed relates directly to your experience. For that reason, there's a limit to how quickly you can work without affecting performance. Machines, too, have their limits. For instance, there's a limit to how fast you can feed a saw blade without lowering the quality of the cut or risking an accident.

So, be sensible. Don't set unrealistic goals for what you can accomplish in one session. And, do the work in carefully thought-out stages. (Write down a plan of attack to get organized.) Then, your thoughts and actions will come together in what some woodworkers call "workshop consciousness." That's when you feel familiar tools responding, when you get a rush of exultation as a difficult joint slips together, and you have a sense of accomplishment as a project becomes reality. And, that's really what woodworking is all about. ♣

Illustration: Jim Stevenson

Now you can have Lifetime Security in a CASH business where you can easily make up to \$200.00 per day and more

Find out how ...

... send NOW for your

FREE Lifetime Security Fact Kit

Your FREE Lifetime Security Fact Kit tells you how to make \$18.00 to \$30.00 an hour in your own Foley-Belsaw Full-Service Saw and Tool Sharpening Business. Your FREE Fact Kit explains how you can:

- be your own BOSS!
- work full time or part time, right at home.
- do work you enjoy and take pride in.
- operate a CASH business where 90¢ of every dollar you take in is clear cash profit.

And it is *so easy* to learn. Foley-Belsaw gives you all the facts and instructions. No previous experience or special training is necessary. All you need is the desire and ambition to be your own boss. Foley-Belsaw tells you everything you need to know to be successful.

There's plenty of business where you live to keep you busy. It doesn't matter whether you live in a big city, small town or a small farm community.

You'll quickly be able to develop the skills necessary to earn a steady income. You'll be able to sharpen all types of saws, garden and shop tools for home, farm and industry.

Profits from your Foley-Belsaw Full-Service Sharpening Business can provide...

- ... CASH for future security or supplemental income
- ... CASH for travel, vacations, fishing trips
- ... CASH for the things you've always wanted!

And you'll be able to set your own hours and not



have to worry about layoffs and strikes. There are no franchise fees. Best of all—age or physical condition is no barrier—any age person can succeed.

You can be like Steve Taylor of Brookville, Ohio, who told us:

"... the first year I grossed \$21,000.00."

Or James B. Jones, of Albuquerque, NM who reported:

"This past summer my sales and service amounted to almost \$6,000.00 a month."

But you've got to get the FACTS before you can get started. So WRITE NOW for your FREE Lifetime Security Fact Kit. It's yours to keep with NO OBLIGATION.

The Foley-Belsaw Company
6301 Equitable Rd., Dept 20939
Kansas City, MO 64120



**FREE
LIFETIME
SECURITY
FACT KIT**



Foley-Belsaw Co.
6301 Equitable Rd., Dept. 20939
Kansas City, Mo. 64120

- YES, I want to know more! Please rush my FREE Lifetime Security Fact Kit. No obligation

Name _____

Address _____

City _____ State _____ Zip _____

(_____) _____
Area Code Phone

RYOBI PRESENTS "THE WORKAHOLICS™" OF NEW CORDLESS DRILLS.



ENGINEERED TO SET A NEW PERFORMANCE STANDARD FOR CORDLESS DRIVER/DRILLS. THE RYOBI 7.2V, 9.6V AND 12V TORQUE FORCE SERIES FEATURES BREAKTHROUGH MOTOR TECHNOLOGY TO DELIVER MORE POWER LONGER. A KEYLESS CHUCK, ELECTRIC BRAKE AND BUILT-IN BIT STORAGE ARE STANDARD. NEW ERGONOMIC DESIGN AND PRECISION ENGINEERING MEAN BALANCE, HANDLING EASE AND POWER SECOND TO NONE. SEE THE RYOBI RETAILER NEAR YOU.

RYOBI®

W O R K A H O L I C S

RYOBI AMERICA CORPORATION, 1424 PEARMAN DAIRY RD., ANDERSON, SC 29625



HOLIDAY GIFT LIST

Check the items you want, tear out this section and casually leave it where your family can find it. They'll get the hint!



Sand on a cushion of air! We supply 5 free "flexible" sanding sleeves to go along with the 1 1/2" diameter x 4" long heavy-duty sander. Chuck into your drill press or drill, (3/8" shaft incl. in drum), & quickly polish out scratches, burns, & cutting marks. \$33.95 + \$4.50 s&h. Catalog #01606. INDUSTRIAL ABRASIVES CO, W642 8th St., Reading, PA 19603. 800-428-2222, 800-222-2292 (PA only).



Personalize your finished projects with BrandMark's solid brass, torch heated branding iron. Easy to use, lasts for years, satisfaction guaranteed. Makes an ideal gift. Custom irons available. Standard "Handcrafted By" and your name (20 letters). \$23.95 plus \$2.50 s/h. Electric, \$44.95. Check/Visa/MC/Amex. Order from BRANDMARK by F&K, Dept. W12-0, 462 Carthage Dr., Beavercreek, OH 45385. 1-800-323-2570 or 513-426-6843.

Exotic & Domestic Hardwoods

THE BEREAHARDWOODS CO.

Quality exotic lumber and turning wood. Most exotic species available such as rosewoods, ebony, etc. Specializing in highly decorative lumber and turning wood from Australia/Tasmania. Special Christmas gift certificates available. THE BEREAHARDWOODS CO., 125 Jacqueline Dr., Berea, OH 44017. 1-216-243-4452.



If you value your fingers you need RIPSTRATE®. Holds the work tight against the fence with no hands near the blade; makes perfect cuts; wheels lock to prevent kickbacks. No adjustment needed for stock width or thickness. One year guarantee. \$69 delivered. Check/M.O./Visa/MC. Free brochure. FISHER HILL PRODUCTS, 4 Fisher Hill, Fitzwilliam, NH 03447. 1-800-421-0256.



For your favorite little someone, this kit features a beautiful wood case made of select solid American cherry. The quartz pendulum movement plays the famous Westminster melody on the hour, partial melody each quarter hour and counts out the hours. A brass urn provides the finishing touch to the scrolled top crown. Runs on "D" battery. Finished clock size: 24" x 8 1/2" W x 4-1/8" D. Clock kit and matching shelf retail for \$149.95. For more information about this beautiful kit, call 1-800-KLOCK-IT (that's 556-2548). Dept. WDA129.



One man saw mill, weighing only 45 lbs. Ripsaw cuts 20" diameter logs any length into dimensional lumber. The narrow kerf band saw blade cuts quickly & accurately with minimum waste. Maximum cutting width of 14" with a thickness adjustment from 1/8" to 9". High performance model for only \$1599. Less expensive models available. BETTER BUILT CORPORATION, 845 Woburn St., Wilmington, MA 01887, or call (508) 657-5636.



Patterns by Design Group - toys, games, puzzles, birdhouses, rock horses, cars, trucks, and more! All patterns are "same size" blueprints. No enlarging necessary. Simply trace and create. Money back guarantee. For Design Group's fully illustrated new catalog, send \$1.00 to: DESIGN GROUP, Box 514 JJ, Miller Place, New York, NY 11764.



Add beauty and charm to your home with Emperor's Marquis Mantel Clock. This easy to assemble kit is solid 3/4" cherry and features triple chimes and beveled glass. Sale priced at \$199.50. Send \$1.00 for full color catalog. EMPEROR CLOCK COMPANY, Dept. 3794, Emperor Industrial Park, Fairhope, AL 36532.



What a great gift idea! A 50-year calendar as small as a pocket watch. Made of solid brass and highly polished it will give the month and day at a glance until the year 2035. It is ideal as a paper weight too. They're inexpensive so why not order a few. \$6.50 each post-paid, two for \$12.00 or six for \$30.00. ARMOR PRODUCTS, Box 445, East Northport, NY 11731. New York residents add tax.



Stop pegboard hook fall-out forever! M-CLIPS are the guaranteed perfect solution to the annoying problems of pegboard hooks that come loose when a tool is removed. Fit both 1/4" and 1/8" perboard, lock into adjacent holes and hold hooks tightly in place. Send self-addressed stamped envelope for free sample or \$5.99 plus \$1 p/h for package of 50 to: AETECH CORP., Dept. W, Box 6289, Lawrenceville, NJ 08648.



Holiday candle holder. Made from a wheel, spindle, candle cup and insert. Wood parts and dowels from MIDWEST DOWEL WORKS, INC., 4631 Hutchinson Rd., Cincinnati, OH 45248.



The Dupli-Carver is a wood duplicating machine that can reproduce three-dimensional carving in wood. The machine uses a stylus (tracer) to follow the contours of a statue or plaque. Two models starting at \$359. WOODMIZER®, 8180 W. 10th St., Dept. QQ29, Indianapolis, IN 46214. 1-800-553-0219, IN 317-271-1542.



Level surfaces when gluing stock together using Double Bar Clamps exclusively from Shopsmith. Eliminate workpiece bowing with pressure applied to sides, top and bottom. Three sizes: 24" (555162) \$33.00, 36" (555163) \$37.00, 48" (555164) \$40.00. SHOPSMITH, INC., Dept. AKTV, 3931 Image Drive, Dayton, OH 45414-2591. 1-800-543-7586.



Like a third hand. Provides that extra support so often needed. Its rugged, heavy-duty, all-steel construction makes it a tool you'll depend on for years. Roller is 13" long, galvanized and ball bearing. Adjusts in height from 25 3/4" to 45". When you're done it folds flat. #HPR-13, \$39.95 + UPS, HTC PRODUCTS, INC. Toll free 1-800-624-2027. In MI, 313-399-6185.



Warren Tool Company's Woodcarver's Catalog features the finest quality whittling and carving hand and power tools, books, sharpening stones, wood & supplies. Remember our motto, "Warren Tools give you the edge." We sell only the finest professional tools. Send \$1.00 to: WARREN TOOL CO., INC., RT. 1, Box 14A, Dept. PDW, Rhinebeck, NY 12572. 1-914-876-7817.



Create a spectacular 8 1/2" high Dentzel stander carousel horse with this complete precut kit. Send check or call toll free 1-800-284-6229 and charge it to your Visa/MC/Amex. Ask for kit #617000, \$32.50 ppd. \$2.00 for our 64-page color catalog featuring over 2,000 woodcarving tools, books and supplies. (Catalog free with order.) WOOD CARVERS SUPPLY, INC., P.O. Box 8928-W, Norfolk, VA 23503.



The new RBI 720 Woodplaner-Molder-Sander, power fed gang rip saw is built to handle any of these basic wood-working functions with speed and precision. Set up is easy with RBI's patented quick change cutterhead system. Available in 8", 12" and 20" models. Proudly made in America, RBI, 1801 Vine St., Harrisonville, MO 64701. 1-800-535-8665.



Simply cut sandpaper from standard sheets for these sleeveless drum sanders. Special: 1" x 3" & 2 1/2" x 3" set, \$29.95 + \$2.50 s/h. Many other sizes available. Money-back guarantee. Send check to: SINGLY SPECIALTY CO. INC., P.O. Box 5087B, Greensboro, NC 27403.



Drill Press and Radial Arm Saw Rotary Planers! Won't grab or kick back! Planes, tenons, rabbets, molding, raised panels, and decorative cuts; all with a Safe-T-Planer. Safety designed diecast unit with detailed instructions and sharpening tools for easy maintenance. Guaranteed! Moderately priced through suppliers & catalogs or contact: G.&W. TOOL, INC., P.O. Box 691464, Tulsa, OK 77169.



A great third hand. Many, many uses. Support for your table saw, extension for your jointer, hold up that piece on your planer or maybe just a saw horse. Adjusts from 22" to as tall as 48". Heavy cast iron base with sturdy chrome tubes. Call to order today. TOTAL SHOP. 1-800-845-9356. \$39.95 + \$6.00 shipping. Order #914.



30 lbs. of assorted hardwoods. Excellent for small crafts and toys. Random species and thicknesses. All surfaced 2 sides. 1/2" - 2" thick, 3" - 10" wide and 6" - 24" long. Shipped UPS prepaid, \$29.95. STEVE H. WALL LUMBER CO., Rt. 1, Box 287, Mayodan, NC 27027. 1-800-633-4062 or 919-427-0637.



If you enjoy woodworking, a versatile Marlin Wood Carving Machine may be just what you need. Three-dimensional carving of sculptures, plaques, panels and mouldings is easy. Wood sign carving is simple. Available in three sizes. MARLIN INDUSTRIES, INC. Route 70, Box 191, Cashiers, NC 28717. 704-743-5551.



Now you can lay out precise letters and numbers for your wood craft projects. Scroll-saws and sign carvers use these specially designed lettering layout guide sets. Quick and easy to use - simply trace around the letters - guides are very durable. Several styles and different sizes are available. Brochure \$1.00. SEYCO SALES, 1414 Cranford Drive, P.O. Box 472749, Garland, TX 75047.



Edico is offering a bundle of lumber. 10 board feet of 3/8" shorts, 3" and wider, 18" - 36" long in cherry, oak or walnut. Includes a "How To" project book and top-grade lumber catalog! Only \$42.95 delivered. Specify species and send check or money order to: EDUCATIONAL LUMBER COMPANY, Box 5373 W, Asheville, NC 28813.



Create a beautiful life size male woodduck decoy in a few hours! Finely sanded basswood decoy with true to life accuracy. Included in complete kit: quality glass eyes, painting instructions & pattern, acrylic tube colors and brushes. Anyone can produce this heirloom quality art piece with a minimum of money, effort and time! \$49.95 ppd. Order #8900. 1-800-843-3320. VAN DYKES, Dept. 55, Woonsocket, SD 57385.



The Makita 6093 DW drill comes complete with a one hour fast charger, 9.6 volt battery, steel carrying case, and double-ended phillips bit. The 6093 DW drill kit is variable speed (0-400 and 0-1100 RPM) with six position clutch for a variety of fastening applications. List price \$261, yours for \$127. TOOLS ON SALE, 216 W. 7th St., St. Paul, MN 55102. Call 1-800-328-0457. In MN, 612-224-4859.



12" capacity, conveyor feed, Thickness Sander for the hobby woodworker. Delivers same precise, flat, smooth surface as our heavy industrial sanders. Complete with separate feed motor, steel stand, and main motor! Only \$989.00! Financing available! ROSS INDUSTRIES INC., Box 637, Pineville, Mo. 64856. (417) 223-4031.



Personalize your wood items quickly and easily with this brass branding iron. First line: HAND CRAFTED BY; second line: your choice of up to 20 characters including spaces. Compact size. \$26 ppd. Guaranteed. Order toll-free 1-800-826-7606 (NE residents 402-464-0511) or by mail from NOVA TOOL CO., P.O. Box 29341, Dept. BGL, Lincoln, NE 68529. Shipped within 1 week.



Moisture-related problems such as shrinking, warping and cracking can ruin the most beautiful wooden pieces built. Avoid wood moisture problems by checking the wood with a moisture meter! The pocket-size Mini Ligno moisture meter is for the serious hobbyist and professional woodworker. LIGNOMAT, P.O. Box 30125, Portland, OR 97230. Call 503-257-8957 or 800-227-2105.



Create a family treasure! Be remembered for giving elegant Spirit of Liberty Westminster chiming wall clock. Best quality West German movement. Choose rare walnut cherry or oak. Crystal clear beveled glass. Kits made by grandfather craftsmen, Excelsior MN. Catalog \$2.00. Visa/MC. KUEMPEL CLOCK WORKS, 21195 Minnetonka Blvd., Excelsior, MN 55331. 1-800-328-6445.



"How-To-Video Tapes" Bandsaw, tablesaw, jointer, planer, shaper, drill press basic operations are shown in these 20 minute VHS format tapes. See your local JET distributor.



Portable drafting kit with graduated protractor, straight edge and side scales. Professional quality W. German product with durable white plastic surface takes 11x17 paper. Ideal for on-the-spot sketches and drawings. Carrying case included. \$82.70 ppd. GARRETT WADE, 161 6th Ave., New York, NY 10013 or call 1-800-221-2942.



Build tomorrow's heirloom today! "Merrilegs" is designed to capture the spirit and beauty of a child's loyal steed as well as provide pleasure and satisfaction for the woodworker. Build this rocking horse using our full-size, easy-to-make plan. Plan #121, \$12.95 ppd. Catalog of 200 professionally designed plans for building furniture \$3.00. FURNITURE DESIGNS, INC., 1827 Elmdale Ave., Glenview, IL 60025. UPS, COD. 312-657-7526.



AMERICAN WOODCRAFTERS SUPPLY

A terrific selection of Turned Wood Parts. All American made. Shaker pegs, candle cups, Wheels, balls, dowels, screw-hole buttons, and much more. Free shipping on orders over \$25.00. Bulk prices available. High quality - Reasonable prices - fast service. 28-page catalog 75¢. AMERICAN WOODCRAFTERS SUPPLY, R.R. 2, Box G, Riceville, IA 50466. Serving the continental U.S. (515) 985-4032.



Model 7335 Variable-Speed Random Orbital Sander with 5" Pad

The new Variable Speed Porter Cable #7335 Random Orbital Sander can be yours for only \$129.00. This new sander removes stock three times faster than conventional finishing sanders. To order call TOOL CRIB 1-800-358-3096 or write P.O. Box 1716, Grand Forks N.D. 58206.



You'll be amazed at the performance of Freud's Thin Kerf Blades. Needs less energy from under powered saws, less waste of rare and expensive woods and far less heat build up. Order now and save up to 44%. LU88 10" x 60T - \$44, LU87 10" x 24T Rip - \$39. WOOD PECKERS, Toll-free 1-800-752-0725.



Build a musical instrument for someone in your family this winter! We have the finest precut kits, plans, and hardware for making harps, dulcimers, lyres, banjos, mandolins, violins, and much more. Catalog \$1.00. MUSICMAKER'S KITS INC, Dept B-7, 423 S. Main St, Stillwater, MN 55082. (612) 439-9120.



From the workshop of master craftsman Harry Wicks: 40 great projects you can build - from pie safe, rollout desk to Shaker table, and more. Catalog, \$1.00 (refunded with first order). HAMMERMARK ASSOCIATES, P.O. Box 201-WFL, Floral Park, NY 11002-0201.



Make a gift ... don't shop the Mall - go to your shop! Our "Baby" grand piano would be welcomed by anyone on your Christmas list. Fully operating 15-note electronic keyboard! #04565Z Plans & parts kit (no lumber) \$8.95, Candleabra #79005 \$2.49/ea, please add \$4 processing charge. 64-page catalog \$2.00. CRAFTER'S MART, P.O. Box 2342, Greeley, CO 80632.



Executive Wood Toys! Now you can create this 1929 Ford van and many others like it from our detailed and easy-to-read patterns. We offer you a complete line of patterns, parts, and wheels. Make this holiday season a time to remember with our Executive Wood Toys. Send \$1.00 for catalog to: TOYS AND JOYS, Box 628 GL, Lynden, WA 98264.



15-piece router bits set. (1/4" shank only) All high grade carbide tipped, and most popular two flute router bits are selected in this set. Best buy for the woodworking beginner, and ideal gift for the advanced woodworker. Buy one set and get a free 5 piece working set (\$25.00 value), all for only \$109.00. AMMAX, 12655 Danielson Court, Suite 310, Poway, CA 92064.



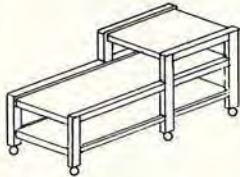
Tungsten carbide router bits and cutters. Large selection of the most wanted profiles. Nationally known for money saving discounts, quality tools, and fast service. Call or write now for our Christmas sale catalog. Special Christmas delivery available. SKYCROFT TOOLS, INC. P.O. Box 498GL, Myersville, MD 21773-0418. Call 1-800-767-4747. 24 Hour service.



Now anyone can set a table and radial arm saw accurate to within 10/100". Designed for both the home handyman & professional, ParaGauge provides a parallel measurement up to 18". for setting rip fences & up to 2 1/2" in blade depth. Completely portable, ParaGauge can also be used to set band saws, drill presses & router tables. Perfect gift idea. PG12 \$34.95 + \$3.50 s&h, PG18 \$39.95 + \$5.00 s&h. To order call 1-800-343-6129 or write ACCUSET TOOL CO., INC., P.O. Box 1088, Troy MI 48099. MC/Visa accepted.



There always seems to be one certain hanger which works best for each different item you need to hang. This 370-piece assortment includes 14 different hangers - 140 in all plus 230 fasteners and organizer box. Order #8403 assortment at \$14.99 plus \$4.95 per order p/h to MEISEL HARDWARE SPECIALTIES, P.O. Box 70GS, Mound, MN 55364.



J & I Enterprises

- You can build this – easily constructed, very functional home entertainment center. Keeps VCR, stereo, T.V. in one place. Moves anywhere on casters. You will appreciate its versatility, cost. Express your creativity and show with pride! Order the plans now. \$7.00 (catalog included) from J & I ENTERPRISES, 7316 Baer Rd., Ft. Wayne, IN 46809.



- Add a holiday welcome to your home and yard! This full size pattern packet includes our popular 35" tall x 44" long "Santa and Sleigh", 29" long x 33" high reindeer, over 30 Christmas decorations and centerpieces, plus woodcraft catalog. Only \$16.00. ACCENTS, Dept. ZA110, Box 7387, Gonic, NH 03839.



- A weekend is all it takes to build a graceful Shaker table ... a space-saving chest of drawers ... a magnificent school-house clock ... and 98 other top-quality woodworking projects. The Weekend Woodworker brings you step-by-step plans, exploded illustrations and detailed materials lists to make every project easy, fast and fun! To order your copy of THE WEEKEND WOODWORKER, send \$23.95 to Rodale Books, P.O. Box 8, Emmaus, PA 18098.



- Make popular country shelves and shadow boxes. Great gift ideas, highly profitable sellers. Full size patterns and instructions for twenty unique designs plus our Woodcraft Pattern catalog featuring over 1000 fun, profitable projects ... only \$9.50. Send to: THE WINFIELD COLLECTION, Dept. HGL, 12044 Parkin Lane, Fenton, MI 48430.



- Decorate with this old-fashioned sleigh and reindeer. Built from plywood, parts just interlock. Dismantles in seconds, stores flat. Full-size patterns for cutting parts and painting. Sleigh is 36" long. Request #WD2091 (\$9.95). Includes shipping. Visa/MC. CRAFT PATTERNS. 1-800-747-1429.



- Free Woodworking Tool catalog! WOODCRAFT SUPPLY offers over 4,000 of the finest quality woodworking tools, books, and supplies in our complete catalog. Cabinetmakers, craftsmen, carvers, woodturners, and wood-working hobbyists have depended on Woodcraft since 1928. Free technical assistance, too. Call toll free: 1-800-542-9115, Dept. 90W110T.



- Carbide Tipped Brad Point Drills outperform High Speed and Alloy and run at faster speeds without burning bit or work-piece. Accurate and clean entry holes. 7-pc. set: 1/8, 3/16, 1/4, 5/16, 3/8, 7/16, 1/2". #10-7777 specially priced \$38.99 prepaid to you. DOLLAR TRADING CORP (WM), P.O. Box 68666, Indianapolis, IN 46268.



- Give yourself a Forrest Woodworker II 40 Tooth Blade – the one blade that gives you a smooth-as-sanded surface. This single blade rips and crosscuts rock hards and soft woods splinter-free. It also cross cuts oak and birch ply-veneers with no bottom splinters. Call Keith or Anthony 1-800-733-7111. Amex/MC/Visa. FORREST MFG. CO., INC.

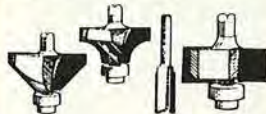


- Any woodworker would love to own this Bronze Low Angle Block Plane. Blade comes fully sharpened and ready for use. Made in the U.S.A. by Lie-Nielsen. Only \$75.00, and we pay shipping. The JAPAN WOODWORKER, 1731 Clement, Alameda CA 94501 Order toll-free: 1-800-537-7820.



- GRIZZLY's Model G1880 slickplane puts an 1/8" radius on your woodworking project. No more sanding to soften edges. Two carbide-tipped blades are micro-adjustable. Body is made from select hard maple and brass sole conforms to a 90° work edge. Only \$14.95. To order call 1-800-541-5537 west of the Mississippi and 1-800-523-4777 east of the Mississippi.

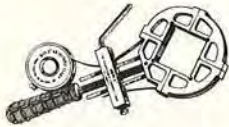
CARBIDE TIPPED 1/4" SHANK ROUTER BIT SETS



- "Must Have" Carbide Tipped Router Bits Set includes most desired bits used by all woodworkers. Set makes a special gift. 8-piece set includes: 3/8" round over bit, 1/4" straight bit, 1/2" straight bit, 1/2" flush trim bit, 3/8" rabbeting bit, 45° chamfer bit, 3/8" key hole bit, and 1/2" 14° dovetail bit. Exceptional quality and value. \$69.95 for set. MLCS LTD., P.O. Box 4053D, Rydal, PA 19046. Call toll free 1-800-533-9298.



- Clock makers special! 3" Multi Spurred Forstner Bit makes quick work of routing opening for clock movements. 1/2" shank and spurs insure professional results. Prepaid \$35.00 WOODWORKS, 4500 Anderson, Ft. Worth, TX 76117. (817) 281-4447.



"Merle," the adjustable corner clamp, forces your project into square. Full adjustable from 2⁵/₈" x 2⁵/₈" to 69" x 69". Perfect for anything that requires 90 degree corner clamping. Cast aluminum and steel construction; quick and easy to use. \$22.95. MLCS LTD., P.O. Box 4053D, Rydal, PA 19046 or call toll-free 1-800-533-9298. Visa/MC.



Delta 1" belt sander with flexible shaft sands, grinds, deburs, contours, sharpens, buffs and polishes almost any material. Uses standard 1"x30" abrasive belts. It features a unique power take-off for mounting a flexible shaft with accessory attachments that perform many extra jobs like carving, drum sanding and finishing. Die-cast aluminum table tilts 45° for angle operations. 2-year limited warranty. For a dealer in your area, call DELTA INTERNATIONAL MACHINERY CORP., 800-438-2486.



Super 125 Surface Planer from Penn State Industries. Re-surface your wood and reduce it to exactly the thickness you need with Penn State's Super 125, 12¹/₂" planer. The planer features portability at 65 lbs., high speed knives, and an auto feed mechanism. Only \$359.95 (add \$15 UPS shipping). PENN STATE INDUSTRIES, 2850 Comly Rd., Philadelphia, PA 19154. Credit card orders taken by phone: 1-800-288-7297.



Delta 16" 2-Speed Scroll Saw performs intricate inside curve cutting. Speeds of 850 & 1790 CS/M cut woods, metals, plastics, & compositions. 16" arm to blade & 2" depth of cut. 11³/₄" dia. table tilts 45° for bevel cutting. Quickset blade changing has instant-acting blade tension release lever with patented pivoting chucks & wrench. Frame & table cast-iron construction; 1/10 HP 1.6 Amp, single-phase, 115V induction motor, & fingertip blade tensioning control. 2-year limited warranty. DELTA INTERNATIONAL MACHINERY CORP., 800-438-2486.



6" Diamond Whetstone™ feature an interrupted diamond patterned surface – great for sharpening, lapping, and deburring any hard materials: steel, carbides, ceramic, glass, stone, etc. Available in 3", 4", 6", 8", & 12" models; fine, coarse, and extra-coarse diamond mesh. Contact your woodworking or hardware store or call MDT 1-800-666-4368. DIAMOND MACHINE TECHNOLOGY, INC., 85 Hayes Memorial Drive, Marlborough, MA 01752.



Variable Speed Scroll Saw from Penn State Industries. A variable speed scroll saw is a necessity for cutting metals, plastics and hardwoods where slow speeds are necessary. Penn State's new US-15 saw features infinity variable speeds from 400-1,800 cpm with full power at all speeds. Only \$189.95 (add \$10 UPS shipping) from PENN STATE INDUSTRIES, 2850 Comly Rd., Philadelphia, PA 19154. Credit card orders taken by phone: 1-800-288-7297.



Here's a complete antique picture frame restoration kit, including training manual and video, that shows you how to capture big profits fixing frames. Frame-Kit is great add-on business or part-time opportunity for men, women. Complete in-home, stand-alone business. Frame-Kit is just \$499.95. Complete furniture restoration catalog, \$2. Free workshops. MINUTEMAN, INC., Dept. 17, 115 N. Monroe, Waterloo, WI 53594. 1-800-733-1776.



Cabinetmaking and Millwork. The bible of woodworking! 928 pages, lavishly illustrated, covers subjects of cabinetmaking and millwork with the thoroughness of a complete course of instruction. Designs, materials, working layouts, construction principles and methods, hand and power tool operation, jigs and fixtures, fasteners, finishes. Every step is in detail with the practical help of clear text, illustrations and charts. \$33.45.



15 piece Forstner Bit Set. Reg \$119.95; Now \$99.95. Create clean, flat bottom holes in thin veneers or through end grain and knots. Sizes 1/4" to 2", 3 1/2" long with a 3/8 inch shank. Wooden case included. TREND-LINES, Dept WD291, 100 Justin Drive, Chelsea, MA 02150.



Ryobi's three new "Torque Force™" cordless driver/drills will drive longer screws, drill holes quicker and drive more screws than any other cordless driver/drills. The 3/8" Torque Force drills are available in 7.2-volt, 9.6-volt and 12-volt models. For more information contact RYOBI at 1-800-323-5615.

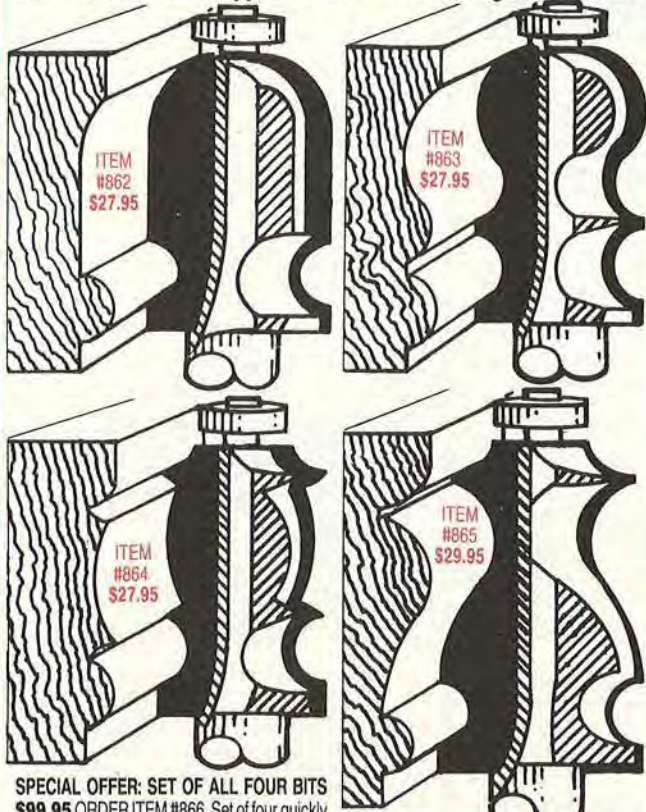


Exclusive Leichtung Innovation! "Brute-Strength" Cam Clamp holds with such steady force, you can drill and nail face frames, cabinets and shelves without setting up shaky C-clamps or bulky bar clamps. Credit card, order #24844-WD (only \$19.99 + \$3.95 p&h.) Toll-free 1-800-321-6840. LEICHTUNG WORKSHOPS, 4944 Commerce Pkwy., Cleveland, OH 44128-5985.



Perfect gift ... BYROMGOLD. New superior high performance titanium nitride coated high speed steel, industrial quality router bits. Lasts 3 to 8 times longer. Costs 35% to 40% less than carbide tipped. "6 Piece Pro Starter Kit" complete with Byromgold Pro Pledge Guarantee, booklet, six (6) Byromgold router bits, storage case. Available at all Woodcraft Supply Stores. information/order call toll free 1-800-225-1153.

1/2" Shank Carbide-Tipped Router Bits Moulding Plane Profiles

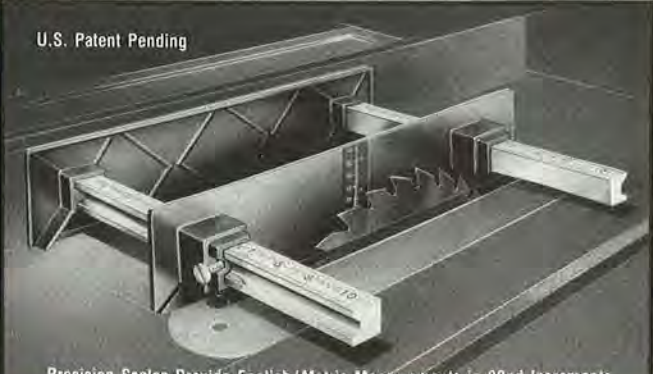


SPECIAL OFFER: SET OF ALL FOUR BITS \$99.95 ORDER ITEM #866. Set of four quickly produce classic traditional mouldings. Bits are shown Full Size - 2 Flute Carbide Tipped.

Order by VISA / MasterCard, 7 Day / 24 Hour Service, Call 1-800-533-9298

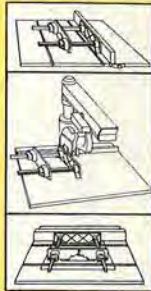
© 1990 or send check to: **MLCS Ltd., P.O. Box 4053DD, Rydal, PA 19046**

U.S. Patent Pending



Precision Scales Provide English / Metric Measurements in 32nd Increments

NOW, CUT WOOD ACCURATELY TO 10/1000"



Introducing **PARAGAUGE™**. The new parallel gauging tool for virtually every table and radial arm saw. It measures the distance from blade to fence so precisely, you can cut wood accurate to within $\pm 10/1000$ of an inch.

PARAGAUGE. The portable gauge that produces perfect parallel alignment of the fence and your blade up to 18 inches in width, virtually eliminating kick back, binding, and burning.

PARAGAUGE. So versatile, you can use it to square your radial arm saw, gauge depth of cut, even set inside bevvels. Use **PARAGAUGE** on router tables, band saws and drill presses, too.

SPECIAL
Purchase Direct
at Wholesale
Prices!

Please specify
Model when ordering

Model
PG-12
(12 inch) **\$3495**
+ \$350 S & H

PG-18
(18 inch) **\$3995**
+ \$500 S & H

MI Res. Add 4% Sales Tax

To order your **PARAGAUGE** using Mastercard or Visa:

Call Toll-Free **1-800-343-6129** 7 day/24 hour order service

To order by CHECK or for a FREE BROCHURE write:
Accuset Tool Co., Inc., P.O. Box 1088 Dept. D, Troy, MI 48099
30 Day Money Back Satisfaction Guarantee • SORRY, NO C.O.D.'s

DELTA	
34-782	10" 3 HP UNISAW W/ UNIFENCE
34-783	10" 5 HP 3 PH W/ UNIFENCE
43-375	3 HP 1 PH HD/Shaper
37-350	8" DJ-20 Joiner W/STAND
31-730	6" Belt 12" Disc
33-890	12" RADIAL ARM SAW
40-901	18" YS SCROLL SAW
33-990	10" RADIAL ARM SAW
22-661	DC 33 13" PLANER
50-179	3/4 HP DUST COLLECTOR
50-180	1 HP DUST COLLECTOR
50-181	2 HP DUST COLLECTOR
34-985	1 PH STOCK FEEDER 110V
34-984	1 PH STOCK FEEDER 230V
34-995	3 PH STOCK FEEDER 230V
33-150	8-1/4" SAW BUCK
34-444	10" CONTR. SAW COMPLETE
31-380	4" X 132" EDGE SANDER
34-670	10" MOTORIZED SAW
40-150	15" SCROLL SAW
31-050	1" X 30" SANDER
23-700	WET DRY GRINDER
31-460	4" BELT 6" DISC
17-900	16-1/2" DRILL PRESS
34-897	DELTA UNIFENCE

RYOBI		
RE600	3HP VAR. SPD. ROUTER	\$214
AP10	10" SURFACE PLANNER	357
TS25IU	10" MITER SAW	169

BOSCH		
1611	3 HP PLUNGE ROUTER	\$199
1611EVF	3HP V-SPD PLUNGE ROUTER	234
1604	1-3/4 HP ROUTER	119
1604K	1-3/4 HP ROUTER KIT	166
1606	1-3/4 HP D-HANDLE ROUTER	140
1608	5.5 AMP. LAM. TRIMMER	88
1609K	3 IN 1 TRIMMER KIT	163
3270D	3 X 21 SANDER W/BAG	126
1272	3 X 24 SANDER	163
1272D	3 X 24 SANDER W/BAG	168
1273DVS	4 X 24 VARIABLE SPEED SANDER W/BAG	188
3050VSRK	9.6V CORDLESS W/CLUTCH	133
91066	1/2" MIGHTY MIDGET VSR	108
1347	4-1/2" MINI-GRINDER	84
1582VS	BARREL GRIP JIG SAW	132
1581VS	TOP HANDLE JIG SAW	132
1632VSK	VS RECIP. SAW W/CASE	135

HITACHI		
C-8FB	8-1/2" COMPOUND MITER SAW	\$465
C-15FB	15" MITER SAW	400
TR-12	3HP PLUNGE ROUTER W/ACCESS. VALUE AT \$60	175

MAKITA		
5402A	16-5/16" CIRC. SAW	329
5201NA	10-1/4" CIRC. SAW	299
5077B	7-1/4" HYPOID CIRC. SAW	139
5007NB	7-1/4" CIRC. SAW	114
5007NBA	7-1/4" CIRC. SAW W/ELEC. BRAKE	124
1900BW	3-1/4" PLANER W/CASE	113
1100	3-1/4" PLANER HD W/CASE	210
2708W	8-1/4" TABLE SAW	257
3612BR	3 HP PLUNGE ROUTER	199
3601B	1-3/8" HP D-HANDLE ROUTER	137
9030	1-1/8" X 21" BELT SANDER	135
9900B	3" X 21" BELT SANDER W/BAG	145
9924B	3" X 24" BELT SANDER	139
9924DB	3" X 24" BELT SANDER W/BAG	148
9401	4" X 24" BELT SANDER W/BAG	167
JR3000V	RECIPRO SAW W/CASE	121
6510LVR	3/8" VSR DRILL	85
6093DW	3/8" CORDLESS KIT 2SP VSR	127
EXTRA	9.6 VOLT BATTERY W/PURCHASE	26
B04510	4-3/8" X 4" FINISH SANDER	48.

FREUD		
JS-100	PLATE JOINER W/CASE	\$159
EC-900	DOOR SYSTEM SHAPER SET	278
94-100	DOOR SYSTEM ROUTER SET	159
FB-107	7 PC. FORSTNER BIT SET	49
FB-100	16 PC. FORSTNER BIT SET	149
FT2000	ROUTER	185

SAW BLADES		
5/8" BORE, INDUSTRIAL GRADE, CARBIDE TIPPED		
LU72M010	Gen. Purp. A.T.B.	10" 40 58 39
LU81M010	Gen. Purp.	10" 40 45 43
LU82M010	Cut-off	10" 50 77 45
LU84M011	Combination	10" 50 55 42
LU85M010	Super Cut-off	10" 80 95 57
LM72M010	Ripping	10" 24 57 38
LU73M010	Cut off	10" 60 70 44
LU87M010	Thin kerf	10" 24 68 39
LU88M010	Ultimate	10" 60 74 44
LU98M010	Ultimate	10" 80 107 79
LU88M010	Non-ferrous metal	10" 72 87 59
PS203	Plywood 7-1/4"	40 36 25
PS303	Gen'l Purp. 7-1/4"	24 25 19
DS306	8" Dado - Carbide	184 105
DS308	8" Dado - Carbide	195 109
F0	1-3/4" X 1/8" Biscuits 1000 Qty	32 27
F10	2-1/8" X 3/8" Biscuits 1000 Qty	32 27
F20	2-3/8" X 1" Biscuits 1000 Qty	34 27
FA	Assorted Biscuits 1000 Qty	34 27
WC103	4 pc. chisel set w/case, 1/4"-1"	54 39
WC105	6 pc. chisel set w/case, 1/4"-1"	73 52
WC110	10 pc. chisel set w/case, 1/4"-1-1/2"	119 79
FB100	16 pc. forstner bit set 1/4"-2-1/4"	284 149
94-100	5 pc. router bit door system	230 159
JS100	Biscuit Joiner w/case	300 159

LEIGH DOVETAIL JIGS		
D1258-12—List \$14.00—Sale 258.00		
D1258-24—List \$75.00—Sale 285.00		
LEIGH INSTRUCTIONAL VIDEO—SALE 29.00!!		

PORTER—CABLE		
330	SPEED BLOC SANDER	\$55
351	3 X 21 SANDER	125
352	3 X 21 SANDER W/BAG	128
360	3 X 24 SANDER W/BAG	175
361	3 X 24 SANDER	169
362	4 X 24 SANDER W/BAG	185
363	4 X 24 SANDER	181
617	7-1/4" SAW 13 AMP	114
315	7-1/4" SAW 13 AMP	114
314	4-1/2" TRIM SAW	124
690	1-1/2 HP ROUTER	128
9118	PORTA PLANE KIT	185
555	PLATE JOINER W/CASE	159
505	1/2 SHEET PAD SANDER	109
7334	RANDOM ORBIT SANDER	118

POWERMATIC *imi*

Model 66 Table Saw

50" Biesemeyer Rip Fence, 3HP 1PH or 5HP, 3 PH motor

Model 180 18" Planer
7 1/2 HP, 3 PH OR 5 HP, 1 PH motor
Knife Grinder, Sectional Roll and Chipbreaker.

Call For Our Low Prices!
We carry the entire Powermatic line at very attractive prices. Please call for our prices on the Model 66 and other Powermatic machines. You'll be glad you did!

F.O.B. Our Warehouse

TARHEEL FILING CO., INC.
CALL TOLL FREE 1-800-322-6641
LOCAL 919-231-3323
FAX 919-231-9980

MAIL CHECK OR MONEY ORDER TO TARHEEL FILING
3400 LAKE WOODARD DR. RALEIGH, NC 27604

PLEASE MENTION THIS AD WHEN YOU CALL!
ORDERS PLACED BY VISA, MASTERCARD, CASHIER CHECKS OR MONEY ORDERS WILL BE SHIPPED THE SAME DAY. ALLOW 2-3 WEEKS FOR PERSONAL OR COMPANY CHECKS.

FREE FREIGHT ON PORTABLES (CONT. U.S.A. ONLY).
NO C.O.D.'S PLEASE. PRICES SUBJECT TO CHANGE WITHOUT NOTICE.



Be sure to enter the
**1991
Build-A-Toy
Contest™**

Refer to pages 78 and 79 in the October 1990 issue of Wood Magazine for further details. Entry deadline February 1, 1991.

**SKYCROFT TOOLS, INC.
TUNGSTEN CARBIDE
ROUTER BITS**

INDUSTRIAL GRADE, THICK CARBIDE
SEALED BALL BEARINGS
40 - 60% BELOW WHOLESALE
TOP VALUE, NO GIMMICKS.



COVE BITS

RADIUS	PRICE
1/4	\$ 14
3/8	\$ 15
1/2	\$ 17



ROUNDROVER OR BEADING

RADIUS	PRICE
3/16	\$ 12
1/4	\$ 13
5/16	\$ 14
3/8	\$ 14
1/2	\$ 15



ROUNDNOSE BITS

DIAMETER	PRICE
1/8	\$ 8
1/4	\$ 9
3/8	\$ 11

100% MONEY BACK GUARANTEE

AMER. EXPRESS ORDERS - TOLL FREE
1-800-767-4747 24 HRS.

Or mail check to:
P.O. Box 418W3
Myersville, MD 21773-0418
Catalog \$1.00, comes with \$3.00 coupon

**NEW "FINGER RELEASE"
BLADE CLAMPS FOR
SCROLL SAWS**

Designed to fit most constant tension scroll saws (except far east imports).



FREE CATALOG with details and information on--
BLADES - BOOKS
PATTERNS

**EXCALIBUR
SCROLL SAWS**

SEYCO "The Scroll Saw Specialist"

1414 Cranford Dr • Box 472749

Garland, TX 75047 - 2749

1 800 462-3353

**BUILD THIS FRENCH-
CANADIAN SETTLE BENCH**



14"d x 21-1/2'h x 65-1/2"

The original is on display at the Ethan Allen Homestead, in Burlington, VT; you can make an accurate copy using our plans with how-to instructions from craftsman Harry Wicks. Send check or money order for \$9. Allow 4-5 weeks for delivery (Canadian residents remit postal money order in U.S. funds to):

HAMMERMARK ASSOCIATES
P.O. Box 201-ABW12, Floral Park, NY 10002-0201

*In a rush? Call 516.352.5198
and use your Visa or MasterCard.*

Catalog available for \$1 (refundable)

WOODWORKERS

Save on Wood - Tools - Supplies!

OVER
4000
ITEMS

Send for
New 1990
148 Page
Money Saving
CATALOG

OUR
60th Year

Dept. WM-1190, 1735 W. Cortland Ct., Addison, IL 60101
Please enclose \$1.00 for postage and handling.

Finest Dimensioned
HARDWOODS and
Quality **VENEERS**
42 VARIETIES

1/64" to 4" Thickness

Fast service on choice kiln dried Wood and Veneers, Moldings, Trim, Hand and Power Tools, Lamp Parts, Upholstery Supplies, Clock Movements and Kits, Hard-to-Find Hardware, Finishing Materials, Books ... over 4000 items in stock! Craftsman—Woodworker's best friend.

CRAFTSMAN WOOD SERVICE

BRANDING IRON

Your Satisfaction Guaranteed

- Convenient torch heating
- Solid Brass—lasts years
- Special wording available
- Electric Models Start at \$44.95
- 2nd line—
20 letters/spaces max.
- 1/4" letters
- Distinctive Border
- Add \$2.50 shipping and handling
- OH res. add 6% sales tax



\$23⁹⁵

Order by mail from:

BrandMark

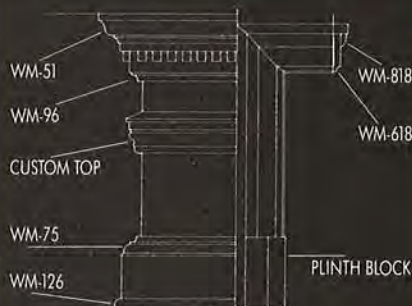
462 Carthage Drive
Department W12-0
Beavercreek, OH 45385
(513) 426-6843

TO ORDER CALL TOLL FREE

1-800-323-2570

(ORDERS ONLY)

8:00-5:00 EASTERN TIME



**OVER 400 MOLDING
PATTERN KNIVES FOR YOUR
BELSAW, WOODMASTER,
AND RBI PLANERS!**

With five special features!

All knives are finish ground of high tech aerospace steel for durability and precision. Send today for your free profile catalog and information on custom grinding. Call today to receive your free custom knife catalog. **1-800-535-8665**

Yes! Please rush me all the facts telling about the full line of Molding Pattern Knives and how I can turn my hobby into income!

Name _____

Address _____

City _____ State _____ Zip _____

Phone _____

rbi Industries, Inc.
P.O. Box 369, 1801 Vine Street
Harrisonville, MO 64701

KW1290

TotalShop



FREE

30 pg.
**FULL
COLOR**

**Woodworkers
Catalog**

Full of
top quality
woodworking machines
tools and accessories.

P.O. Box 25429, Greenville, SC 29616
Dept. #3

1-800-845-9356

CALL TODAY!





WOODCRAFT

The Leading Edge
in Woodworking Tools

FREE Catalog Subscription

Our complete woodworking tool catalog features over 4,000 of the finest quality woodworking tools, books, and supplies available today. See the difference yourself **FREE!**

Order yours today!
Call 1-800-542-9115

Or write: Woodcraft Supply, Dept. 90W1119
#210 Wood County Park, P.O. Box 1686
Parkersburg, WV 26101

WOODCRAFT

FULL-SIZE PATTERNS

Fun - Profitable - Easy to Make Projects

● NEXT DAY SHIPMENT
● GUARANTEED SATISFACTION

TO GREET YOUR NEIGHBORS.....
FUN SANTA YARD DECORATIONS
A. Rooftop Santa(64" tall).....\$7.50
B. Santa in Truck(41" tall).....\$6.50
C. Santa on Tractor(42" tall).....\$7.50
D. Santa and Reindeer(47" tall)..\$10.50

CATALOG of over 1,000 Top Selling designs \$1.00 - FREE with ORDER

GIFT AND DECORATING PROJECTS

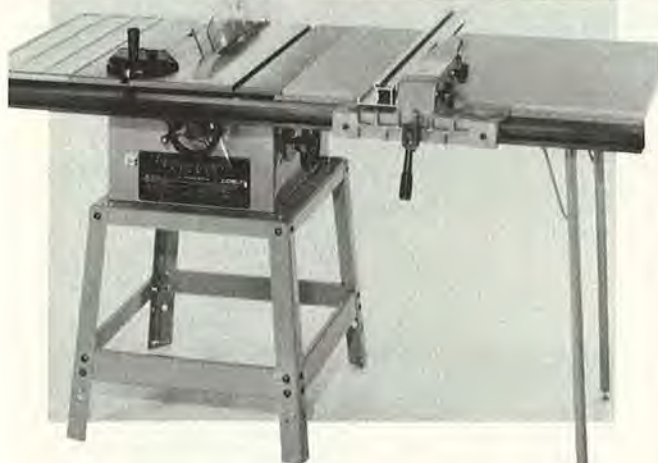
E. 50 Unique Shelf Critters J. 8 New Shadow Box Designs
F. 6 Fun Dinosaurs Patterns K. 10 Old Fashion St. Nicks
G. 45 Country Folkart Figures L. 13 Holiday Shelf Sitters
H. 11 Country Shelf Designs M. 8 Small Country Projects
I. 75 Country Minatures N. 61 New Tree Decorations

E. thru N. \$5.50 EA; or - 3 for \$13.50
Add \$2.00 P & H (Can. \$3.00) with Order

The Winfield Collection, DEPT. W110
12044 Parkin Lane, Fenton, MI 48430

VISA / MC (\$25.00 MINIMUM CHARGE ORDERS) CALL 313-629-7712

100 BUCKS LESS THAN YOU BARGAINED FOR.



The one and only Delta 10" Contractor's Saw equipped with the brand new Delta 30" Unifence® Saw Guide.* Made for each other. Made in the USA.

Right now, Delta distributors are offering a great deal on this dynamic duo. Plus a \$100 rebate from Delta. For the name of your participating Delta distributor, call toll free: Delta International Machinery Corp. 800/438-2486.

Offer good on Model 34-445 (Saw with Unifence) in continental U.S., Alaska and Hawaii from Aug. 1 thru Feb. 28, 1991.

*Shown with accessory table board.

Building On Tradition
DELTA
A Pentair Company

WOOD PARTS FROM MIDWEST DOWEL WORKS

Compare Our Low Prices!

	Qty.	Cost
3-1/2" Poplar Shaker Peg	\$15/100	---
1-3/4" Mini Shaker Peg	\$7/100	---
3-1/2" Country Wall / Mug Peg	\$15/100	---
2-1/2" Country Shorty Peg	\$12/100	---
Large Bean Pot Candle Cup	\$17/100	---
Brass Inserts	\$9/100	---
1/2" Mini Candle Cup	\$10/100	---
1-1/2" Toy Wheel	\$10/100	---
2" Toy Wheel	\$17/100	---
Axel Pegs	\$4/100	---

SMOOTH SANDED HEARTS

3/4" x 1/8" Hearts	\$2.75/100	---
3/4" x 1/2" Hearts	\$4.50/100	---
1" x 3/16" Hearts	\$4.00/c	---
1" x 3/8" Hearts	\$6.50/c	---
1-3/8" x 1/8" Hearts	\$5.50/c	---
1-3/8" x 1/4" Hearts	\$7.50/c	---
1-3/8" x 1/2" Hearts	\$10/100	---
2" x 1/2" Hearts	\$18/100	---

Great Buys!

	Qty.	Cost
3/8" x 36" Standard Dowels	\$21/100	---
3/4" x 36" Oak Dowels	\$15/10	---
3/8" Maple Buttons	\$2.15/100	---
1/2" Maple Buttons	\$2.25/100	---
1-1/2" Maple Spindles	\$9/100	---
2-1/8" Maple Spindles	\$18/100	---

ORDER NOW

MC/Visa Check Enclosed

Total Cost _____

Handling **\$3.00**

Ohio residents add 5 1/2% sales tax _____

Final Cost _____

MC/Visa Number _____
Expires _____ Phone _____
Name _____
Address _____
City/State/Zip _____

FREE 16-PAGE CATALOGUE

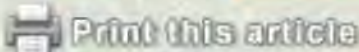
Circle this section for FREE Dowels - mixed pack, Maple, Oak, Walnut Cherry, from 1/4" up to 1" Approximately 10 LFT. 14" long. \$5.00 value with any order.

MIDWEST DOWEL WORKS

4631 Hutchinson Road
Cincinnati, Ohio 45248
(513) 574-8488

Same Day Service | Order before Noon
Factory Direct | Satisfaction Guaranteed

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 AND LATHE INFORMATION—More than 20 pages of information, including full-color photos, on HEGNER precision scroll saws, HEGNER lathes, and HEGNER duplicators. Find out why these machines are considered state of the art, and what to look for when shopping for scroll saws or lathes. AMI, LTD. \$1.00. *Circle No. 3.*

WOODWORKING PROFESSIONALS ONLY—Now save 50% on machinery, 70% on operating costs! How? By using the world's finest production quality universal machine. Commercial durability, utmost precision, set-up in seconds. No other tool combines usable capabilities like FELDER. Thousands sold all over the world. Now available in America through AMI. Send for brochure. AMI LTD. \$1.00. *Circle No. 4.*

TOOL CRIB OF THE NORTH IS ANNOUNCING OUR NEW 1990 CATALOG—It features a wide selection of merchandise for your home woodworker to your industrial builder. Top manufacturers such as Black & Decker, Delta, Makita, Porter Cable, Bosch, Milwaukee, Ryobi, Freud and many more. We offer competitive prices with quality service and same day shipping. Send today for your new 1990 Acme Electric catalog. It's worth it. ACME ELECTRIC. \$2.00. *Circle No. 6.*

PORTABLE SAW MILL—a one man saw mill weighing 45 lbs. Gas and electric models will cut dimensional lumber from logs up to 20 in. diameter. Send for brochure. BETTER BUILT CORP. Free. *Circle No. 10.*

175-PLUS USES GUIDE—for Dremel Moto-Tool. Written from the do-it-yourselfers' view, this book shows how to plan and do a variety of everyday projects using the versatile Moto-Tool and cordless Free Wheeler. 96-page book with over 275 photos includes tips on using Moto-Tool with flex-shaft, drill press, router attachment, chainsaw sharpening attachment, shaper/router table. DREMEL. \$4.00. *Circle No. 33.*

FREE WOODWORKING POWER TOOL CATALOG—Buy planers, jointers, shapers, table saws, scroll saws, bandsaws, drill presses, wood lathes, sanders, dust collection systems, and more...direct from the factory and save. Foley-Belsaw sells direct to you...so you save on every purchase. You'll find quality power tools, plus hand tools and accessories to meet all of your woodworking requirements. Complete money-back guarantee. Send for details. FOLEY-BELSAW. Free. *Circle No. 41.*

MANUFACTURED SINCE 1926—the Foley-Belsaw Circular Sawmill lets you go right to the trees to turn out smooth, true-cut lumber. Available with heavy-duty steel base or with plans and track provided for owner built wood base. Will accurately saw logs up to 14 ft. in length and up to 24 in. in diameter. Complete money-back guarantee. Send for details. FOLEY-BELSAW CO. Free. *Circle No. 42.*

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, bandsaws, joiner/planners, dust collector, radial arm saw. GARRETT WADE CO. Free. *Circle No. 44.*

POWER TOOLS YOU CAN BUILD AND SAVE—Build sturdy woodworking tools from kits and save—sold for over 40 years—warranty on parts. Simple step-by-step plans with full size patterns for wood base. Plans and patterns can be purchased separately. Send for descriptive brochure. GIL-LIOM MFG. INC. \$1.00. *Circle No. 47.*

MAKITA U.S.A. INC.—offers all new 132-page mini-catalog on their professional line of electric power tools, with special emphasis on the entire cordless line. Catalog provides complete information along with available accessories and practical applications. MAKITA U.S.A. INC. Free. *Circle No. 61.*

WOODWORKING MACHINE CATALOG—New 16-page color catalog introduces many new do-it-yourself woodworking machines. Includes planers, dust collectors, drill presses, sanders, lathes, and specializes in scroll saws and accessories. PENN STATE INDUSTRIES. Free. *Circle No. 75.*

SCROLL SAW—Information package available from Penn State Industries describing the specifications and applications of its super VS-15' variable speed scroll saw. Special discount pricing available on current promotion. PENN STATE INDUSTRIES. Free. *Circle No. 76.*

SURFACE PLANNER—Information package available from Penn State Industries describing the specifications and applications of its super 12½-inch surface planer. Special discount pricing available on current promotion. PENN STATE INDUSTRIES. Free. *Circle No. 77.*

PERFORMAX DRUM SANDERS—Exclusive features at an affordable price for precise wide surface sanding. The complete line includes the retrofitting Performax Component Sander, the Pro Max and the Super Max 25, Super Max 25X2, and super brush sander. New accessories for production-mode sanding of pieces as small as 2¼" long. Send for brochure. PERFORMAX PRODUCTS. \$1.00. *Circle No. 78.*

THE PRECISION SCROLL SAW FOR THE ENTIRE FAMILY—The Hawk was designed for beginners and built for expert woodworkers. Learn how to produce creative leisure time projects for fun or to make money...we'll show you how! Make cuts so intricate and smooth they don't require sanding. Over six models to choose from. Send today for all the facts. Send for the facts. RB INDUSTRIES, INC. Free. *Circle No. 84.*

THE VERSATILE RBI WOODPLANNER/MOLDER/SANDER—It's indispensable! It's 4-in-1. It's RBI's Woodplaner/Molder/Sander/Gang Rip Saw. Find out how the Woodplaner saves you money turning rough stock into beautiful professional quality projects. With 3 models to choose from there's one that fits your needs. It does it all, so you can do it all! Send today. RB INDUSTRIES, INC. Free. *Circle No. 85.*

SCROLL SAWS, ACCESSORIES, PATTERNS, BOOKS—A complete brochure on all kinds of scroll saw accessories. Featuring Excalibur scroll saws and lettering layout guides from Seyco, "The Scroll Saw Specialists." Free pamphlet, "Selecting Your Scroll Saw" included. Send for brochure. SEYCO SALES CO. \$1.00. *Circle No. 89.*

MOLDER-PLANERS FROM WILLIAMS & HUSSEY—Mold, plane, and edge, convert from moulder to planer in less than 2 minutes. The W-7 series is available in 3 models for manual, power in feed, or power in feed/out feed. The units plane to a satin, almost sanded finish, produce doll house to crown sized mouldings, raised panels, and virtually any shape profile. Custom knives available up to 7" wide and ¾" depth of profile. Rugged, well-made, dependable, and transportable. Complete with sturdy movable stand. 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 44-page catalog. WOOD-MIZER PRODUCTS. \$1.00. *Circle No. 94.*

HAND TOOLS

QUICK-GRIP® BAR CLAMPS—Revolutionary new tool for one-handed operation. Positive locking action; strong, yet lightweight; large pads won't mar work. Sizes 6"–36". AMERICAN TOOL CO., INC. 25¢. *Circle No. 105.*

DIAMOND WHETSTONES BY DMT—Discover the ease and speed of sharpening on the finest Diamond Whetstones. Five sizes from 3" to 12" in fine, coarse, and extra coarse. Finest monocrystalline industrial diamonds permanently bonded in nickel. Lubricated with water rather than messy oil. Stays flat, unbreakable, long life. Fourteen years of serving sharpening needs. Satisfaction guaranteed. Send for full color catalog. DIAMOND MACHINING TECHNOLOGY, INC. \$2.00. *Circle No. 112.*

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, or 3 lines of copy or with your logo. Changeable date also available. NOVA TOOL CO. \$1.00. *Circle No. 160.*

THE JAPAN WORKER'S 72-PAGE CATALOG—is loaded with the huge selection of Japanese saws, waterstones, chisels, planes, carving knives, cutlery and garden tools. See our Tools As Art section for the most expensive hand tools available. Send for 1990 catalog and all supplements for two years. WOODLINE TOOL & SUPPLY. \$1.50. *Circle No. 190.*

STAINS/FINISHES

FREE WOOD REFINISHING PRODUCTS—Make wood refinishing easy with products from 3M. Do-it-yourselfers can restore and protect wood like the experts. Send today for free sample. 3M. Free. *Circle No. 268.*

PLANS

OVER 1000 WOODCRAFT PATTERNS!—Enjoy making gifts, toys, lawn ornaments, holiday designs, whirligigs, folk art, bird houses and feeders, household and yard accessories plus much more! Simple enough for the beginner, fun and profitable for the pro. Send for catalog plus sample pattern. ACCENTS IN PINE. \$2.00. *Circle No. 310.*

WOODWORKERS' PLANS AND SUPPLIES—Wood projects are simplified with the high quality plans, specialty hardware and other supplies offered by Armor Products. Over 100 plans are available for making toys, desks, clocks, pool tables, lamps, chests, and other furniture. Movements, dials, moldings, ornaments, dollhouse kits, door harp supplies and tuning pins are also available. ARMOR PRODUCTS. \$1.00. *Circle No. 315.*

SALES TESTED DESIGNS—available as plans only, parts kits, or plans and parts kits. Complete stock of parts, tools and supplies. Door harps to digital electronic/wood projects. Full size plans! Catalog price refundable on first order. CRAFTER'S MART. \$2.00. *Circle No. 328.*

PATTERNS BY DESIGN GROUP—Hundreds of interesting, useful and fun items to create for personal use or profitable sale. Our newest catalog contains plans for toys, games, plaques, puzzles, birdhouses, planters, furniture, and much more! All Design Group patterns are professional, "same size" blueprints. No enlarging or reducing is necessary. Simply trace outline of item onto wood and create! Started in 1977, Design Group has sold thousands of patterns to thousands of satisfied customers. Prices start at \$1.00, all patterns come with a full money-back guarantee. Wholesale and bulk prices are available on request. Fully illustrated catalog. DESIGN GROUP. \$1.00. *Circle No. 340.*

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 rollout 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.*

STICKLER FOR DETAIL?—At last an exciting new line of realistic wood block models that you can build with your own scrap wood and dowels and my easy-to-follow instructions. Highly detailed plans for a 20x8¾-in. dump truck. GATTO PLAN SUPPLY. \$8.00. *Circle No. 355.*

COUNTRY FURNITURE PLANS—Our catalog features more than 37 designs—from a washtand to a roll top desk. Our new book on finishing and refinishing will show you how to finish projects like the pros. Also included are various products for the home workshop. Send for our latest catalog (price of catalog deductible from first order). HAM-MERMARK ASSOCIATES. \$1.00. *Circle No. 370.*

PROJECT PLANS—Over 400 easy-to-build woodworking project plans. Nation's leading source for door harp plans and parts, holstein cow projects, toy plans, country furniture, etc. Over 3000 hard-to-find specialty items. Send for your big new 72-page catalog. MEISEL HARDWARE SPECIALTIES. \$1.00. *Circle No. 401.*

MAKE TOPSELLING COUNTRY WOODCRAFTS—from full size patterns. Turn your scrapwood into decorative, highly profitable projects. Easy to make from our full size patterns and instructions—no enlarging necessary! Over 1000 unique designs include popular folk art, old fashioned St. Nicks, nostalgic country furniture, country shelves and shadowboxes, action toys, shelf sitters, country critters, life size yard animals, Christmas yard decorations and more! Next day shipment, satisfaction guaranteed. Send for our latest catalog. THE WINFIELD COLLECTION. \$1.00. *Circle No. 480.*

WOOD—MET SERVICES CATALOG LISTS SOME 700 PLANS—to build a wide variety of tools and accessories to equip your workshop. They vary from complete machines to hand tools, photo accessories to shop methods. Included are some 80 attachments for your lathes, drill presses & routers, over 60 hand tools, plus sander, welder, shaper, table saw accessories, etc. Others include a portable band sander, metal spinning tools, air compressor, ¾" spindle

wood shaper, wood lathe & chisels & a 12-in. thickness planer. Send for catalog, order plans, build the equipment for your shop and save. WOOD-MET. \$1.00. Circle No. 496.

LUMBER

QUALITY EXOTIC LUMBER/TURNING WOODS—We offer a comprehensive selection of fine quality exotic woods: 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. BÉREA HARDWOODS. \$1.00. Circle No. 510.

WOODWORKERS! HELP CELEBRATE OUR 60TH YEAR OF SERVICE — Send for our new 148-page Craftsman 1990-91 Catalog #57. 42 varieties of choice hardwoods 1/64 in. to 4-in. thickness. Fine hardwood veneers, tools, moldings, trim, marquetry inlays, upholstery and lamp supplies, finishes, clock kits, and hard-to-find hardware. 4,000-plus items for your projects. CRAFTSMAN WOOD SERVICE CO. \$1.00. Circle No. 520.

EdLco — WE KNOW OUR LUMBER — Educational Lumber Company is pleased to offer you our new catalog, stacked with excellent buys at delivered prices. Available to you are over 21 species of imported as well as domestic hardwoods, softwoods, turnings, shorts, veneers. All our lumber is kiln dried. As school shop suppliers for 35 years, we know our lumber. It is top-grade. Send today and receive your BONUS GIFT: 4 new furniture designs. EDUCATIONAL LUMBER CO., Inc. \$2.00. Circle No. 530.

THIN LUMBER—Approximately 20 species—1/8" to 3/4" thickness. Thinner material sanded, all KD & surfaced—UPS delivery in continental US included in price. Packages of micro-lumber 1/8" - 1/2" thick. HARDWOODS OF ILLINOIS. 50¢. Circle No. 545.

NATIVE AMERICAN HARDWOODS—We feature the finest northern kiln dried hardwoods. Our large inventory has been carefully selected to ensure quick service. Ed Seeley and Tim Johnston's experience and personal assistance can quickly help you satisfy your hardwood needs. We carry all sizes of domestic hardwoods with no minimum or maximum order required. Send for catalog. NATIVE AMERICAN HARDWOODS, LTD. \$1.00. Circle No. 558.

NORTHEASTERN HARDWOODS—We offer over 20 species of high quality domestic and imported hardwoods for the most discriminating craftsman. No minimum orders. Compare our Pennsylvania grade hardwoods for quality, beauty, machinability, and workability. Send for catalog. NORTHEASTERN HARDWOODS. \$1.00. Circle No. 563.

RARE IMPORTED EXOTIC AND DOMESTIC HARDWOODS—The world renowned Martin Guitar Co. sells exotic woods (4/4, 6/4, 8/4) and sawn veneers (1/8", 1/4", & 1/2" Sanded Stock), plus guitar parts, kits, accessories and second quality guitars. No minimum order. Send for catalog. WOODWORKER'S DREAM. \$2.00. Circle No. 578.

STEVE H. WALL LUMBER CO.—Quality hardwoods and woodworking machinery for the craftsman and educational institutions. 22-page catalog lists 15 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 planks, 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 SUPPLY. \$1.00. Circle No. 598.

VIDEOS

IF YOU ARE A DEMANDING HOBBYIST—or professional and you want to make a quality workshop, you owe it to yourself to investigate the intelligent one man shop from Laguna Tools. This tool can make 90% of all woodworking projects. Send for a 40-min. video presentation. LAGUNA TOOLS (100% refundable). \$6.00. Circle No. 640.

EPOXIES/GLUES

ARE YOU CURIOUS ABOUT EPOXIES?—Our application notes and product literature will tell you how adhesives work, how coating systems are designed, and how to make paint, varnish and fillers stick better and last longer. We are chemists. We make all our own products and write all our own literature. We can answer your questions. SMITH & CO. Free. Circle No. 760.

GENERAL WOODWORKING CATALOGS

ADVANCED WOODWORKING—Specialty products catalog from the exclusive distributors of Hegner & Felder woodworking machinery. Includes complete selection of

scroll saw blades, accessories, and improvements for almost any scroll saw. Also the Hegner precision scroll saws, lathes & duplicators, Jet clamps, workbenches, Felder systems & more. AMI, LTD. \$2.00. Circle No. 801.

CONSTANTINES' CATALOG FOR WOODWORKERS—116 pages packed with over 4,000 products for fine woodworking. Included are 250 kinds and sizes of domestic and imported hardwoods; 150 varieties of exotic veneers, top quality woodworking tools, hard-to-find specialty hardware and accessories; wood finishes, books, plans, and more. 60-day money back guarantee if not fully satisfied. Serving the woodworker since 1812. ALBERT CONSTANTINE AND SON, INC. \$1.00. Circle No. 820.

MASTER TOOLS CATALOG—1990-91 220-page master woodworking tools catalog. Full line of the best hand tools, power tools & accessories, machinery, glues, finishing supplies, and much more. Hundreds of books included. 220 pages. All four-color. Lots of technical information. GARRETT WADE CO. \$4.00. Circle No. 855.

THE BEST THING THAT EVER HAPPENED TO THE AMERICAN WORKSHOP—You will simply be amazed at the number of new items we have brought on line this year. Our incredible catalog features a huge selection of wood and metal working machinery and accessories. Loaded with tons of goodies you can't resist. GRIZZLY IMPORTS INC. Free. Circle No. 860.

SEND FOR JET EQUIPMENT & TOOLS FREE CATALOG—to get details on bandsaws, tablesaws, jointers, shapers, drill presses, lathes, sanders, dust collectors and training videos. All Jet machinery comes with a 1-year limited warranty, replacement parts and repair service availability. JET EQUIPMENT & TOOLS. Free. Circle No. 876.

TOOL CATALOG—"Innovation" sets Leichtung apart from the rest! You'll find tools and accessories for the serious woodworker, do-it-yourselfer and hobbyist, many of exclusive design. 78 page full color catalog, 400-plus items. LEICHTUNG WORKSHOPS. Free. Circle No. 878.

WOODWORKING TOOL CATALOGS — R.A. Ness & Co., the Woodworkers Emporium, offers a 2-year subscription, a total of eight huge sale catalogs. Thousands of industrial quality items — machinery, hand tools, portable electric tools, and supplies — are featured at super sale prices. The fee is refundable with purchase. R. A. NESS & CO., the Woodworkers Emporium. \$4.00. Circle No. 900.

TOOLS ON SALE—A division of Seven Corners Ace Hardware Inc. offers a comprehensive catalog featuring over 820 pages of the most competitive prices in the industry. If you're looking for savings and fast delivery on over 6500 items, request our catalog. This catalog offers one of the most complete selections of power tools available anywhere from the most respected manufacturers in the industry: Milwaukee, Makita, Porter-Cable, Black & Decker, Freud, Bosch, Delta, and many more. SEVEN CORNERS ACE HARDWARE. \$1.00. Circle No. 920.

WOODWORKING TOOLS OF EXCEPTIONAL QUALITY—Since 1928, we have searched the world for tools you don't just buy, but adopt; tools made by craftsmen for craftsmen, classics of lifetime quality for people who love to work with their hands...carvers, cabinetmakers, finishers, hobbyists, builders, teachers. Our catalog details over 4,000 tools, each backed by Woodcraft's unconditional guarantee of satisfaction. WOODCRAFT SUPPLY CORP. Free. Circle No. 955.

THE WOODWORKERS STORE CATALOG—New! The Woodworkers' Store 1990-91 catalog with over 250 new items features 100 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 24-48 hours. \$1.00 credited toward first purchase. Satisfaction guaranteed. WOODWORKERS STORE. \$1.00. Circle No. 965.

KITS

OAK FURNITURE AND ACCESSORY KIT CATALOG—features a full range of top quality oak furniture kits and accessory items plus unfinished assembled furniture. Featured items include roll top desks in several styles, stacking barrister's bookshelves, tables, chairs, trunks, file cabinets, bedroom furniture, Mariner's globe, plus many more. Send for full color catalog and enjoy true woodcrafting pleasure. CRAFTSMAN'S CORNER. Free. Circle No. 1017.

DO-IT-YOURSELF KITS—Choose from a large selection of grandfather, wall and mantel clocks, as well as elegantly styled accent furniture pieces. Kits are made of solid 3/4" hardwoods, primarily cherry, oak, and black walnut. Buy direct from the factory and save. Send for 36 page color catalog. EMPEROR CLOCK CO. \$1.00. Circle No. 1030.

QUALITY CLOCK KITS AND PLANS — Handmade and semi-assembled of carefully selected 3/4 in. cherry, oak, or walnut with beveled glass. Or build from "scratch" using our detailed plans and trim pieces. Choice of quality movements. Established in 1916. KUEMPEL CHIME CLOCK WORKS. \$2.00. Circle No. 1050.

MUSIC MAKER'S KEEP BOOK—a 32-page resource catalog for building and learning to play handmade musical instruments. This source book contains plans, blueprints, kits, books, hardware, strings and accessories for building such instruments as guitars, banjos, dulcimers, harps, violins, pipes, and more. MUSICMAKER'S KITS. \$1.00. Circle No. 1080.

SHOP ACCESSORIES

PARAGAUGE—NOW ANYONE CAN CUT WOOD ACCURATE TO WITHIN 10/1000 INCH — ParaGauge was developed to provide the woodworker a perfectly parallel measurement quickly and accurately to help alleviate the tedious and sometimes inaccurate task of setting a rip fence. ParaGauge accurately measures distances up to 18 in. in length between the saw blade and rip fence and up to 2.5 in. in depth without resetting or relocating the gauge. Para Gauge is completely portable and can be used on just about any tool requiring a parallel measurement. ACCUSET TOOL CO. INC. 25¢. Circle No. 1205.

RIPSTRATE SAVES FINGERS — for table saw and radial arm saw users. Brochure describes the RIPSTRATE and shows how it gives straighter cuts, speeds the work, prevents kickbacks, and keeps hands away from the blade. FISHER HILL PRODUCTS. 25¢. Circle No. 1235.

CLASSIC WORKBENCH—This workbench is made in Denmark of kiln dried red beech. Top of the line quality designed with the true shouldervise. The bench is available in 2 sizes in both right- and left-handed versions. Send for information. LAGUNA TOOLS. \$1.00. Circle No. 1240.

ROBLAND INTELLIGENT ONE-MAN SHOP—This 1000-pound cast iron machine is the ideal tool for a one man professional shop or a demanding hobbyist. With this machine it is possible to have a professional shop in a room the size of a single car garage. Send for information. LAGUNA TOOLS. \$1.00. Circle No. 1241.

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.

BUY YOUR SANDING BELTS DIRECT FROM THE MANUFACTURER — Industrial Abrasives is the company that gives you six free belts with every dozen ordered. But, sanding belts are not the only product we have to offer. In our catalog you will find many specialty items not readily available in your hardware store. Price of catalog refunded with first order. INDUSTRIAL ABRASIVES CO. \$1.00. Circle No. 1248.

WOOD MOISTURE METER — Avoid moisture problems such as cracking, warping, splitting, delamination etc. by using a moisture meter, as described in the latest brochure. Moisture Meter Mini-Ligno is designed for serious hobbyists and woodworkers. Attachments for depth measurements and remote reading during air and kiln drying are available. Available Moisture Range 6-20%, 6-36% or 4-30%, 4-60%. Catalog 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.

BITS, BLADES CUTTING TOOLS

AmMax TOOL CO.—offers "Professional Quality" tungsten carbide tipped router bits, shaper cutters, saw blades, and 16" scroll saw machine, at lower "wholesale prices." 16" scroll saw featuring light load, cutting without blade breakage. UL and CSA approved. Nicholson carbide tipped saw blades from \$6.90; woodworking files from \$6.95. AM-MAX TOOL CO. Free. Circle No. 1304.

BANDSAW BLADES FOR ALMOST ANY TYPE BANDSAW—both wood and metal cutting. Also circular saw blades, router bits, sanding belts and discs. Send for catalog. BUCKEYE SAW CO. \$1.00. Circle No. 1307.

BYROM INTERNATIONAL "THE WORLD'S ROUTER BIT SOURCE"—manufactures and offers you over 1,000 industrial quality router bits. Choose from high speed steel, solid carbide, carbide tipped, and the newest innovation in router bits today. "Byrom Gold Titanium Nitride coated high speed steel." All Byrom router bits are available in English and metric sizes. Send for your new Byrom router bit catalog. Get \$3 back off your first purchase from your dealer. BYROM INTERNATIONAL. \$3.00. Circle No. 1308.

CARBIDE-TIPPED ROUTER BIT AND SHAPER CUTTER CATALOG—We have hundreds of styles and thousands in stock ready to be shipped. We specialize in quantity discounts and same day shipping. These are top quality industrial router bits and shaper cutters at super low prices. Send now to receive new giant catalog. CASCADE TOOLS, INC. Free. Circle No. 1315.

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. offers a full line of professional production quality carbide tipped router bits at 50-70% lower than retail prices. We sell through the mail and only direct to craftsmen. Send today for catalog. MLCS LTD. Free. *Circle No. 1350.*

ROUTER ACCESSORIES CATALOG—Is your router still in the box? Get quality parts to make the router a complete workshop. Make panel doors, dovetail drawers, box joints, picture frames, and much more. Make your router more versatile today with these quality accessories that fit all routers. OAK PARK ENTERPRISES LTD. \$1.00. *Circle No. 1360.*

SAW BLADE VALUES—Olson Saw's unique "furniture band" is specifically designed to provide fast, smooth cuts in all types of wood. Included in Olson's free literature package are a huge list of resin on resin abrasives and carbide tipped circular saw blades in addition to a growing selection of band scroll (incl. pinned), jewelers and spiral saw blades. OLSON CATALOG SALES. Free. *Circle No. 1365.*

TUNGSTEN CARBIDE ROUTER BITS AND SHAPER CUTTERS—Heavy duty industrial grade. Router bits furnished in both 1/4 and 1/2 in. diameter shafts. Shaper cutters are 3/4 in. bore, with 1/2 in. bushings. You can buy cheaper, but not better. Save up to 50% over "wholesale" prices. Tremendous selection. Catalog comes with \$3 discount coupon. SKYCROFT TOOLS INC. \$1.00. *Circle No. 1372.*

HARDWARE/WOOD PARTS

OUR READY TO ASSEMBLE KITS—for Queen Anne chairs and occasional tables make it easy for you to make professional looking furniture. We also stock individual Queen Anne legs for every project. Complete information in our brochure packet. ADAMS WOOD PRODUCTS. 50¢. *Circle No. 1401.*

TURNED WOOD PARTS—Quality shaker pegs, candle cups, spindles, wheels, balls, dowels, screw hole buttons, cargo and much more. High quality. Reasonable prices. Fast service. American made. Free shipping on orders over \$25. 28-page catalog. AMERICAN WOODCRAFTERS SUPPLY. 75¢. *Circle No. 1405.*

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.*

BRASS FURNITURE HARDWARE—This 36-page catalog shows over 500 items of authentic reproduction hardware from the 1700's and on into this century. This fine quality hardware is a must for the furniture craftsman working on a new project, or the refinisher who needs replacement hardware. HORTON BRASSES. \$3.00. *Circle No. 1430.*

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 3/4" 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. 1450.*

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 and receive a coupon for free wheels and axle pegs. TOYS AND JOYS. \$1.00. *Circle No. 1480.*

QUALITY AMERICAN-MADE WOOD TURNINGS—such as shaker pegs, spindles, toy wheels, toy parts, craft items, and dowel rods in birch, oak, walnut, and cherry. Send for complete 32-page catalog. WOODWORKS. \$1.00. *Circle No. 1490.*

INCOME OPPORTUNITIES

AMITY, NATION'S #1 QUALITY FURNITURE RESTORATION CO. SINCE 1971—New product catalog featuring: Complete restoration systems, Amity non-flammable water based stains and finishes, Permatuse repair products, stripping solvents, chemicals and supplies. Amity 1-2-3 wipe-on finishes and much more. Regional workshops in your area. AMITY. \$1.00. *Circle No. 1605.*

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 hob-

biyst 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. 1659.*

MAKE MONEY IN FURNITURE RESTORATION THE MINUTEMAN WAY—Earn \$200-\$1000 per day stripping, re-pairing, refinishing, mirror resilvering, and/or veneering, at home or in shop, spare time or full time. We provide complete free training; no experience necessary. Free workshop teaches you latest in furniture restoration. You have to see it to believe it! Intro video \$12.95. Send for catalog. MINUTEMAN. \$2.00. *Circle No. 1661.*

MISCELLANEOUS

FOLEY-BELSAW INSTITUTES' NEW WOODWORKING CORRESPONDENCE COURSE—for people with the desire to learn how to work with wood and the proper use of tools. Create over 20 projects using professional plans and tools like a table saw, router with stand, and more...all included with the course. Complete money-back guarantee. Send for details. FOLEY-BELSAW INSTITUTE. Free. *Circle No. 1930.*

LEARN ALL THE SKILLS—of professional upholstery and refinishing techniques in the comfort of your own home. The Foley-Belsaw Institute system of "hands on" training provides clear, step-by-step instructions in the use of tools and materials on actual furniture "kits"...all included with the course. Complete money-back guarantee. Send for details. FOLEY-BELSAW INSTITUTE. Free. *Circle No. 1931.*

THE CUSHION CONTOUR SANDER—is a new concept in pneumatic drum sanding. Sanding sleeves are slid over an air bag (inflated with a hand tire pump) on an arbor to mount it between centers on a wood lathe. Drum effectively takes on profiles, curves, and bevels practically eliminating flat spots and chatter marks. INDUSTRIAL ABRASIVES CO. \$1.00 (refunded with first order). *Circle No. 1976.*

ATTENTION! ANTIQUE RESTORERS! WOODWORKERS! COLLECTORS! AND HOBBYISTS!—This 216-page wholesale catalog is loaded with unique, hard to find items! Includes hundreds of essential antique restoration parts, brass reproduction hardware, oil lamps and accessories, wood parts, caning, basketry, upholstery, and art supplies, wood refinishing products, tools, books, etc. VAN DYKE'S RESTORERS. \$1.00. *Circle No. 2077.*

UNIQUE GREENHOUSE/SCREENHOUSE IDEA—A gardener's paradise during the winter months, a bug-free screen room during the summer months. That's the concept behind the versatile new Sun-Porch. This two-in-one sun-space features sturdy aluminum framing, 1" shatter-resistant glazing, do-it-yourself assembly, and mounts readily on decks, patios, landscape ties. Color catalog includes models, prices; send first class mail. VEGETABLE FACTORY, INC. \$2.00. *Circle No. 2078.*

CARVING SUPPLIES

WOODCARVING TOOLS—Whittlers and carvers—Warren Tool Co. offers a complete catalog of whittling and carving, hand/power tools, sharpening stones, wood cut-outs and related wood carving supplies. WARREN TOOL CO., INC. \$1.00. *Circle No. 2185.*

WOOD CARVERS SUPPLY INC.—OUR 35TH YEAR—Complete 64-page color catalog including over 2,000 carving tools, books & supplies, such as carousel animal kits, gun checkering tools, ship model kits, plus much more. We offer great service, quality products and a 30-day money back guarantee. Send for 2-year subscription. WOOD CARVERS SUPPLY INC. \$2.00. *Circle No. 2190.*

CLAMPS

MERLE ADJUSTABLE CORNER CLAMP—Quick & easy to use. Fully adjustable from 2 1/2" to 6 9/16" 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.*

CLOCKS

BUILD HEIRLOOM CLOCKS—Now create beautiful heirloom quality clocks right in your own home. Choose from magnificent chiming grandfather clocks to charming wall clocks. 32-page catalog also offers a selection of music boxes, music movements, traditional barometers, and a huge variety of quartz movements and dials for custom clock building. Satisfaction guaranteed. THE AMERICAN CLOCKMAKER. 25¢. *Circle No. 2320.*

KLOCKIT'S FREE 64-PAGE COLOR CATALOG—is packed with the largest selection of beautiful wood clock kits for all skill levels, a huge selection of quartz and mechanical clock movements, dials and accessories, turned wood parts, music movements, tools and much more for the craftsman! KLOCKIT. Free. *Circle No. 2335.*

Worth writing for...



Better Homes and Gardens®
WOOD MAGAZINE, December 1990
Dept. NDWO90
P.O. BOX 5103
Pittsfield, MA 01203-5103

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/foreign)
- Send coupon and remittance to address above
- ALLOW 4-6 WEEKS FOR DELIVERY
- Coupon expires December 11, 1991

WOOD SUBSCRIPTION

1. A 1 year WOOD subscription (8 issues) for \$19.97 (U.S. price) — an \$11.63 savings off newsstand rate. Allow 6-8 weeks for first issue. Canadian price \$27.97. Be sure to include payment with total below. NO FOREIGN ORDERS ACCEPTED ON THIS COUPON; please contact Subscription Dept. directly.

FREE LITERATURE

Circle numbers below corresponding to items in this issue.
Please include \$2.00 for handling charge

10.	61.	84.	860.	1017.	1304.	1930.
41.	75.	85.	876.	1245.	1315.	1931.
42.	76.	268.	878.	1250.	1350.	2250.
44.	77.	760.	955.	1251.	1365.	2335.

PRICED LITERATURE

Numbers below refer to items on which there is a charge.
Please include proper remittance.

3....\$1.00	112....\$2.00	401....\$1.00	592....\$1.00	1050....\$2.00	1360....\$1.00	1659....\$1.00
4....\$1.00	160....\$1.00	480....\$1.00	598....\$1.00	1080....\$1.00	1372....\$1.00	1661....\$2.00
6....\$2.00	190....\$1.50	496....\$1.00	640....\$6.00	1205....25¢	1401....50¢	1976....\$1.00
33....\$4.00	310....\$2.00	510....\$1.00	801....\$2.00	1235....25¢	1405....75¢	2077....\$1.00
47....\$1.00	315....\$1.00	520....\$1.00	820....\$1.00	1240....\$1.00	1427....\$3.00	2078....\$2.00
78....\$1.00	328....\$2.00	530....\$2.00	855....\$4.00	1241....\$1.00	1430....\$3.00	2185....\$1.00
89....\$1.00	340....\$1.00	545....50¢	900....\$4.00	1248....\$1.00	1450....\$1.00	2190....\$2.00
93....\$1.00	345....\$3.00	558....\$1.00	920....\$1.00	1307....\$1.00	1480....\$1.00	2320....25¢
94....\$1.00	355....\$8.00	563....\$1.00	965....\$1.00	1308....\$3.00	1490....\$1.00	
105....25¢	370....\$1.00	578....\$2.00	1030....\$1.00	1322....\$1.00	1605....\$1.00	

Name (please print) _____
Address _____
City _____
State _____ Zip Code _____

I AM ENCLOSING:

\$_____ for priced items
\$ 2.00 for handling
\$_____ total remittance

ORDER 1-800-328-0457 - MAIL ORDER HOURS 7:00-5:30 C.S.T. MONDAY-FRIDAY

DELTA BENCH TOP TOOLS		
Model	List	Sale
23-700	Wet/dry grinder	201 150
23-680	6" bench grinder 1/4 H.P.	81 75
23-880	8" bench grinder 1/2 H.P.	436 115
11-950	8" drill press	164 139
14-400	14" drill press	313 309
40-150	1 1/2" hobby scroll saw	178 139
49-180	10" hobby band saw	193 78
31-050	1" belt sander 2 amp.	193 78
31-460	4" belt/disc sander	178 139
31-340	NEW! 1/8" belt/disc sander	175 139

NEW TOOLS BY DELTA		
Model	List	Sale
40-520	16" 2 spd scroll saw	266 185
23-580	5" Bench grinder 1/5HP	60 54
11-990	12" Bench Drill Press	266 185

DELTA STATIONARY		
Model	List	Sale
34-760	10" table saw 1-1/2 H.P.	1715 1399
33-990	6" radial arm saw	727 569
37-280	6" mitered jointer	440 379
50-170	3/4 H.P. 2 spd. dust col.	435 339
50-180	1 H.P. dust collector	535 449
50-181	2 H.P. dust collector	760 599
22-667	13" planer w/2 HP motor	
	Wetland & ext. wings	1750 1099
33-050	NEW 8-1/4" miter saw	742 585
34-330	NEW 8-1/4" table saw	131 195
34-985	1/6 H.P. stock feeder	695 579
32-100	NEW station plate joint	645 289
36-400	NEW 8-1/4" comp mitre	216 159
34-997	50" Delta uniface	600 338
36-755	NEW! 10" Tilt Arbor Saw	1203 689

MILWAUKEE TOOLS		
Model	List	Sale
6527	NEW SawZall w/spd Bamp w/cse & Quick Loc Cord	299 175

0399-1	NEW! 12V dc cordless	var/spd drill w/bat., charger & case	290 165
0395-1	9.6V dc cordless	w/2 bit w/cse	270 154
0219-1	9.6V dc cordless	w/2 bit w/cse	285 165
0224-1	3 1/2" drill 4.5A magnum		109 114
0234-1	1/2" drill 4.5A magno-500rpm		209 114
0244-1	1/2" drill 4.5A magno-600rpm		209 114
0222-1	3/8" drill 3.5A 0-1000 rpm		170 104
0228-1	3/8" drill 3.5A 0-1000 rpm		169 99
0375-1	3/8" close quarter drill		208 125
0378-1	1/2" close quarter drill		243 154
6591-1	Cds. scrdry. 350 rpm		119 75
6540-1	Cds. scrdry. w/white & case		156 108
6546-1	Cds. scrdry. 2000-400rpm		129 79
3102-1	Pimbrs tr angle drill kit		330 189
3002-1	Electricians ir angle drill kit		330 189
5399	1/2" D-hole ham drill kit		312 179
1676-1	H.D. Hole Hawk w/cse		429 235
6511	2 sp SawZall w/cse		224 129
6750-1	Drywall gun #4000 4.5A		154 95
6507	15" SawZall w/cse		239 135
6170	14" chop saw		430 259
6014	Orb.sander 1/2 sheet		208 129
8977	Var. temp heat gun		114 76
5397-1	3/8" vsp ham. drill kit		232 137
5371-1	1/2" vsp ham. drill kit		335 185
3107-1	1/2" vsp tr angle drill kit		340 195
6754-1	Drywall gun 0-4000 4.5A		179 119
0234-1	3/8" drill 0-1700 rpm		189 99
3300-1	1/2" vsp mag. d angle kit		309 179
6660	Router 1-1/2 H.P. 10A		325 195
6680	Router 2 H.P. 12A		355 225
5455	7/8" polisher 1750rpm		216 129
6215	16" chain saw		260 169
6365	7-1/4" circular saw		204 119
6366	7-1/4" circ. saw w/fnc & bld214		125 75
6368	7-1/4" circ. saw w/fnc		239 135
0216-1	2 sp cds drill HF-router		245 130
0235-1	1/2" drill kys. chuck mag 215		125 75
6016	1/4 sheet pad sander		64 49
6145	4.5" grinder 10,000 rpm		159 99
6142	6145 w/cse & access		197 125
6749-1	Drywall gun 0-2500 4.5A		189 125
6377	7-1/4" worm drive saw		295 169

FREUD SAW BLADES		
5/8" Blade - Industrial Grade CARBIDE TIPPED SAW BLADES		
Item No.	Description	Teeth List Sale
L172M010	Gen Pur. A-T 8" 10"	40 38
L182M010	Cut-off 10"	60 77 44
L184M011	Comb 10"	50 65 40
L185M010	Super Cut-off 10"	80 96 65
LM72M010	Ripping 10"	24 37 37
L173M010	Cut-off 10"	60 70 44
L178M010	Thin kerf 10"	24 30 38
L188M010	Thin kerf 10"	60 74 44
L189M010	Ultimate 10"	80 107 65
SD306	8" Dado - Carbide	184 105
SD308	8" Dado - Carbide	196 109
FD	1-3/4" X5/8" Bisc. 1000 Qty.	32 27
F10	2-1/8" X3/4" Bisc. 1000 Qty.	32 27
F20	2-3/8" X1" Bisc. 1000 Qty.	34 29
FA	Assor. Discs 1000 Qty.	34 29
WC106	6 pc chisel set w/c1/4"-1"	73 52
WC110	10 pc chisel set w/cse	119 78
FB100	16 pc forstner bit set	284 155
FB107	7 pc forstner bit set 1/4"-1"	82 49
94-100	5 pc router bit dor system	288 155
JS100	Biscuit Joiner w/case	300 159
CE82	Planer w/case carb bids	218 135
FT2000	3-1/4" H.P. plunge router	299 185

THE NEW "TK" BLADE SERIES		
Item	Description	Teeth List Sale
TK203	7 1/4" Framing	24 29 17.35
TK206	10" Framing	24 33 18.60
TK303	7 1/4" Finishing	40 25 21.60
TK306	10" Finishing	40 28 23.40
TK903	7 1/4" Combo	30 31 18.60
TK906	10" Combo	40 35 26.95

MAKITA CORDLESS		
Model	List	Sale
6070DW3/8"	vsp rev. drill, 7.2v	130 78
6071DW3/8"	vsp rev. drill	
	w/removable batt., 7.2v	199 115
50900W	3-3/8" vsp saw kit, 9.6v	256 139
6010DW3/8"	cds drill kit, 7.2v	164 95
6010SDW3/8"	cds drill, 7.2v	99 65
0A5000DW3/8"	angle drill, 7.2v	251 139
8400DW	Hammer drill kit, 9.6v	272 149
43300W	9.6v cds. recip saw kit	230 129
43000W	Jig saw kit comp, 9.6v	232 129
6012HDW2	spd. driver drill	
	w/clutch & cse 9.6v	238 122
6092DW	Vsp drill, kit comp	250 127
6093DW	Vsp drill w/clutch-comp	261 129
6091DW	Drywall gun 0-1400 9.6v	237 135
632007	4.8 v battery	40 38
632002	4.2 v battery	40 38
50070BA7/16"	saw w/elec. brake	233 129
50080BA8-1/4"	saw w/elec. brake	245 129
804510	1/4 sheet pad sander	85 54
9900B	3/21" belt sander w/bag	268 146
99240B	3/21" belt sander w/bag	282 149
9045H	1/2" shft fin. sand. w/bag	231 129
420N	4-3/8" circ. saw 7.5A	228 127
4301B	Orb. vsp jig saw 3.5A	269 155
JR3000V	Vs. recip saw w/cse	227 129
LS1020	NEW 10" mitre saw	463 245
9820-2	Blade shorplaner	373 245
1900BW	3-3/4" planer w/cse	209 115
1911B	3/21" planer 7.5A	240 139
1100	3-1/4" planer w/case	401 219
9207SPC	7" sander-polisher	276 155
3501B	1/2 H.P. router	255 139
3700B	1/2 H.P. trimmer	190 108
9001BZ	4" grinder, 3.5 amp	126 65
804500	6" round sander	101 64
804550	1/4 shft pad sand w/bag	96 58
0A3000B3/8"	angle drill	270 148
92010N3/4"	vsp hmt. drill w/cse	300 165
270W	6-1/4" table saw	504 259
S711	1/2" belt sander w/wrake	641 489
2603N	12" belt sander	310 169
2040	15-1/8" planer	2595 1939
1605B	6-1/8" planer kit/case	579 359
5005BA	5-1/2" circular saw	223 135
6404	3/4" drill 0-2100 rpm	2A 104 65
6510VR	3/8" drill rev. 0-1050 rpm	145 79
6013BR	1/2" drill rev. 5amp	241 139
5402A	16" circular saw-12amp	636 349
9401	4x24" belt sander w/bp	377 185
9401	4x24" belt sander w/bp	377 185
3620	1-1/4 H.P. plunge router	192 109
4302C	V.sp. orb. jig saw	302 159
5077B	7-1/4" Hypoid saw	252 145
LS1440	14" Mitre saw	721 439
2414	14" cut-off saw AC/DC	351 199
3607NB	7-1/4" circ saw 13A	209 114
3612B	3 HP plunge router	693 377 189

DELTA TOOLS		
Model	List	Sale
34-444	Table Saw Complete w/1-1/2 H.P. motor & stand	619.00
34-445	34-444 Table Saw complete w/30" Uniface	799.00
37-154	DJ15 6" Jointer w/3/4 H.P. motor	1029.00
28-28314"	Band Saw w/closed stand 3/4 H.P. motor	689.00
70-200	NEW 200" Drill Press	729.00
17-900	16-1/2" Floor Drill Press	385.00
40-601	18" Scroll Saw w/stand and blades	689.00

SEBAST AIR NAILERS		
Model	List	Sale
SPN1	Finishing nailer 1-5/2"	377 285
SPN2	Fin. nailer 1-5/2"	571 405
SN228	Nailer 1-7/8"-3-1/4"	610 455
SN4	Gen I purpose 2"-3-1/2"	665 475
LS2	Pinner 5/8"-1"	351 255
SKS	Stapler 5/8"-1-1/2"	351 255
LS5	Pinner 1"-1-1/2"	399 295

BOSTITCH AIR NAILERS		
Model	List	Sale
N60C-1	Utility coil nailer	795 399
N60S-1	Stick nailer	795 399
T36-50	Sheath & decking stapler	595 334
N12B-1	Cool roofing nailer	795 399
N60FN-2	Finishing nailer	625 335
T34	8" coil nailer	635 335
CWC100	1 HP Pancake Comp.	445 295

SKIL SIZZLERS		
Model	List	Sale
6850-92	NEW! 1/2" EMH hammer drill w/case 4 amp	255 129
3810	10" Mitre saw	265 225
3810S	3810 w/cso tooth carb bid.	239 129
77	7-1/4" worm drive saw	230 145
2335-04	12v w/spd cordless drill complete w/cse. & 2 batt 210	139

PANASONIC CORDLESS		
Model	List	Sale
EY6205B	NEW vsp drill 12 volt drill w/15 minute charger	390 219
EY6005B	12v cds drill w/1hr chgr 315	169
NEW 2008	NEW 2 spd. 12 volt drill d-hdle w/15 minute charger	350 195
EY6281B	NEW vsp drill, 9.6 volt drill w/15 minute charger	350 189
EY571B	Vsp drill, 9.6 volt drill	339 135

LEIGH DOVETAIL JIGS		
Model	List	Sale
D1259R-12	List 329.00-Sale 255.00	
D1259R-14	List 399.00-Sale 295.00	

LEIGH INSTRUCTIONAL VIDEO-SALE 29.00!!!		
Model	List	Sale
MNT	12" multiple mort. & tenon attachment for D1258-12269	219
MNT	24" multiple mort. & tenon attachment for D1258-24299	239

HITACHI TOOLS		
Model	List	Sale
TR8	Plunge router, 1-1/2 H.P.	219 119
M12V	NEW 3H.P. vsp router	437 239
TR12	Plunge router, 3 H.P.	354 178
C10FA	10" dx. mitre saw	490 275
C12FA	NEW! 12" mitre saw	586 339
C8F8	8-1/2" slide compd saw	859 489
FREUD LU81M09	0.5" bid 48 tooth 58	
FREUD LU81M09	15" mitre saw	745 385
FREUD LU85M015	0.5" bid 108 tooth 181 115	

1990 TOOL CATALOG AVAILABLE
 Call Toll-Free 1-800-328-0457—in Minnesota Call (612) 224-4859
 FAX: (612) 224-8263
CHECK • MONEY ORDER • VISA • MASTERCARD • DISCOVER
SEVEN CORNERS ACE HDW. INC.
 216 West 7th St., St. Paul, MN 55102 • Est. 1933

DELTA TOOLS		
Model	List	Sale
34-444	Table Saw Complete w/1-1/2 H.P. motor & stand	619.00
34-445	34-444 Table Saw complete w/30" Uniface	799.00
37-154	DJ15 6" Jointer w/3/4 H.P. motor	1029.00
28-28314"	Band Saw w/closed stand 3/4 H.P. motor	689.00
70-200	NEW 200" Drill Press	729.00
17-900	16-1/2" Floor Drill Press	385.00
40-601	18" Scroll Saw w/stand and blades	689.00

DELTA #34-000 10" MITER BOX XTRA SPECIAL		
Model	List	Sale
34-000	10" Mitre Box	199.00

DELTA #34-000 10" MITER BOX XTRA SPECIAL		
Model	List	Sale
34-000	10" Mitre Box	199.00

JUST PASSING THROUGH

Holly, North America's whitest wood, has high standing in folklore. Early settlers believed the tree possessed curative powers, and practiced a procedure with it called "passing through."



Healers would split a holly sapling lengthwise, then pass the patient through the opening. The sapling was then bound back together. As the young tree healed, so would the patient, at least in theory.

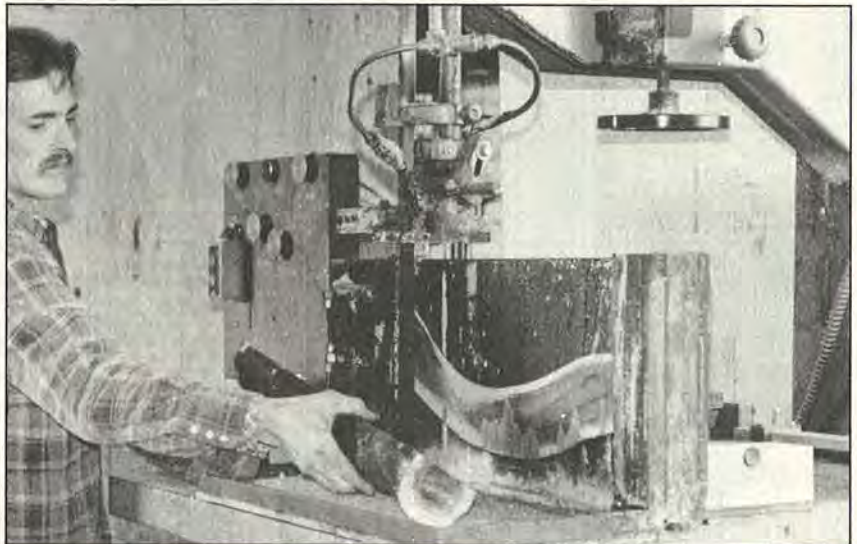
LET'S GET THIS STRAIGHT

Manzanita, usually little more than a gnarly, crooked shrub in California's arid areas, normally gets bulldozed and burned in land clearing. Only the deep-red burlied root finds its way into some craftsmen's hands. That was before Ed Burton.

An inventor and environmentalist from Willits, California, Ed decided to design a machine to make this wood more usable. After a few years of tinkering, he came up with what he calls the "Microsawmill," which saws crooked limbs into flat boards.

Ed's machine gets a vise-grip on the piece of wood from the ends with strong, air-powered jaws. Then, an air cylinder pushes the bent and angular piece through the bandsaw to be cut into woodworking stock from 1/2" to 1 1/2" in thickness. "Craftsmen can now make beautiful things from this wood, instead of watching it burn," says Ed, whose company focuses on ways to utilize waste.

If you want to learn more about handling manzanita, write Ed at: *EBC Company, 222 Franklin Ave., Willits, CA 95490.*



Scott White feeds crooked stock into Ed Burton's "Microsawmill."

WILD KINGDOM NO. 3

Work from wildlife carvers across the nation will again decorate Racine Festival Hall in Racine, Wisconsin, February 23-24. Last year, about 180 carvers entered the second annual Dremel/Ducks Unlimited Masters Carving Competition, and vied for \$10,000 in prizes.

For information on entering and show hours, contact Dremel at 4915 21st St., Racine, WI 53406, or call 414/554-1390.

◀ Judges Larry Barth, Marcus Schultz, and Bill Koelpin rate songbirds entered in the Dremel/Ducks Unlimited Masters Carving Competition.

DON'T RUIN THE BASIL!

Try saying that the next time someone uses your favorite wood chisel as a pry bar. According to English tool historian and author R. A. Salaman, *basil* refers to a sloping edge.

UP IN SMOKE

About half the 2.8 billion trees annually harvested around the world are burned for fuel, according to the United Nations. In India, 91 percent of the wood felled ends up in the fire; in the U.S., about 22 percent. 🌳

Illustrations: Jim Stevenson
Photographs: EBC Co.; Pete Stephano





ZAR. Don't let anything else come between you and great wood.

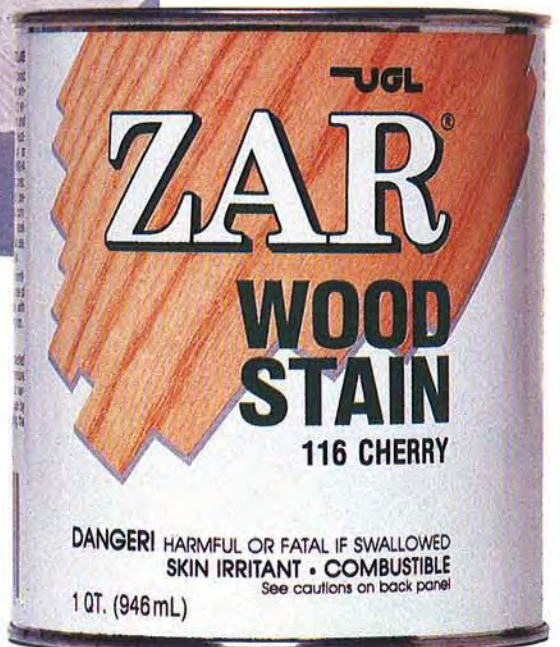
Whether you're restoring a family heirloom or creating one, you're looking for the ideal: a do-it-yourself job that looks professional.

Which is exactly what ZAR® wood stains are all about. ZAR brings wood to life while it brings confidence to you. It wipes on easily. Penetrates evenly. Colors consistently. And covers more surface than leading competitors. Time after time after time.

The ZAR family of fine products is at your hardware store, paint store, home center or lumber yard. Don't put anything else between you and timeless wood.

For a free booklet on how to refinish wood, call 1-800-UGL-LABS

The fine line between you and beautiful wood.





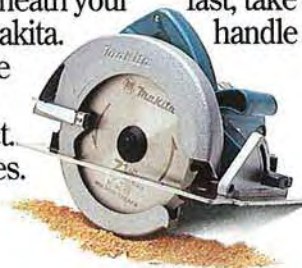
Solid Oak As Seen By A Makita Circular Saw.

Don't grit your teeth. Don't even tense your muscles. You're going to make one of the hardest hardwoods seem to melt beneath your blade. Don't worry. You're using a Makita.

Makita Circular Saws have motors that are extraordinarily powerful but exceptionally compact. They have durable, heavy-duty bases.

And precision ball-bearing construction.

So if you want to eat solid oak for breakfast, take a tip from us. Get a saw that can handle a high-fiber diet.



Makita
It's All The Power You Need.®