COUNTRY FINISHES
‘Age’ your projects with our techniques

Special Report
FIGHT IN THE FOREST
Environmentalists and loggers square off over old-growth forests

ELECTRIC DRILLS
Tips on choosing the right model for your shop

BUILD THESE
5 easy-to-make country projects
Sandbox excavator
Bird feeder
Carved cardinal

THE AMERICANA COLLECTION
Pages 33-45
As "the" producer of top end industrial woodworking machines since 1921, Powermatic now focuses their engineering expertise and resources for the craftsman, contractor and home hobbyist.

Responding to your expressed needs, the Artisan's Line of woodworking machinery was developed. Leading the industry in quality, features, and exceptional value. Available now for little or no more than you'd pay for run-of-the-mill machinery.

- **10" Artisan's Saw** — setting the standard for accuracy, ruggedness and portability with industrial quality
- **Vega fence, built-in dust shroud, T-slot miter gauge and more**
- **15" Scroll Saw** — ideal for every shop, with clamp blade holder for ease of blade mount, and chip blower standard
- **14" Drill Press, Bench and Floor Models** — with front mounted switch with removable key; 12 spindle speeds; and a table that elevates by crank, tilts, and rotates
- **Shaper** — with ¾" solid and ½" interchangeable spindle cartridges, exclusive fence with integral dust shroud, and spindle reversing switch

Call your Powermatic Artisan's Line distributor today for assistance in selecting the right machines for you.

The Artisan's Choice

A Division of DeVlieg-Bullard, Inc.
McMinnville, Tennessee 37110
800/248-0144 □ 615/473-5551
TELEX - 554455
FAX # 615/473-7819
CONTROL THE SPEED OF YOUR ROUTER - ROUT AT THE SPEED THAT GIVES THE BEST RESULTS WITH THE WOOD AND BIT YOU ARE USING!

FEATURES:
- Speed adjustable from Full Speed to 0 RPM
- Full horsepower and torque at all speeds
- Go back and forth from any preset speed to full speed at the flip of a switch
- Works with all routers 3/4 HP or less
- 120V, 15Amp
- Gives your router a feature only available on routers costing hundreds of dollars!
- Reduced tear out
- Feed at comfortable rate
- Teeth deliver safer results with large diameter bits
- Less wear on bits
- Less noise and vibration starts at lower speeds

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.)

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

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>BEST CUT</th>
<th>DESCRIPTION</th>
<th>ANGLE/DEPTH</th>
<th>CIRCL. DIAMETER</th>
<th>LARGE DIA</th>
<th>CUTTING LENGTH</th>
<th>SHANK SIZE</th>
<th>PRICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1401</td>
<td>1/4&quot;</td>
<td>Classical</td>
<td>90° R</td>
<td>1/4&quot;</td>
<td>1/4&quot;</td>
<td>1/4&quot;</td>
<td>3/8&quot;</td>
<td>$12.00</td>
</tr>
<tr>
<td>1402</td>
<td>1/4&quot;</td>
<td>Classical</td>
<td>90° R</td>
<td>1/4&quot;</td>
<td>1/4&quot;</td>
<td>1/4&quot;</td>
<td>3/8&quot;</td>
<td>$14.50</td>
</tr>
<tr>
<td>1403</td>
<td>1/4&quot;</td>
<td>Classical</td>
<td>90° R</td>
<td>1/4&quot;</td>
<td>1/4&quot;</td>
<td>1/4&quot;</td>
<td>3/8&quot;</td>
<td>$16.00</td>
</tr>
<tr>
<td>1404</td>
<td>1/4&quot;</td>
<td>Classical</td>
<td>90° R</td>
<td>1/4&quot;</td>
<td>1/4&quot;</td>
<td>1/4&quot;</td>
<td>3/8&quot;</td>
<td>$18.00</td>
</tr>
<tr>
<td>1405</td>
<td>1/4&quot;</td>
<td>Classical</td>
<td>90° R</td>
<td>1/4&quot;</td>
<td>1/4&quot;</td>
<td>1/4&quot;</td>
<td>3/8&quot;</td>
<td>$20.00</td>
</tr>
<tr>
<td>1406</td>
<td>1/4&quot;</td>
<td>Classical</td>
<td>90° R</td>
<td>1/4&quot;</td>
<td>1/4&quot;</td>
<td>1/4&quot;</td>
<td>3/8&quot;</td>
<td>$22.00</td>
</tr>
<tr>
<td>1407</td>
<td>1/4&quot;</td>
<td>Classical</td>
<td>90° R</td>
<td>1/4&quot;</td>
<td>1/4&quot;</td>
<td>1/4&quot;</td>
<td>3/8&quot;</td>
<td>$24.00</td>
</tr>
<tr>
<td>1408</td>
<td>1/4&quot;</td>
<td>Classical</td>
<td>90° R</td>
<td>1/4&quot;</td>
<td>1/4&quot;</td>
<td>1/4&quot;</td>
<td>3/8&quot;</td>
<td>$26.00</td>
</tr>
<tr>
<td>1409</td>
<td>1/4&quot;</td>
<td>Classical</td>
<td>90° R</td>
<td>1/4&quot;</td>
<td>1/4&quot;</td>
<td>1/4&quot;</td>
<td>3/8&quot;</td>
<td>$28.00</td>
</tr>
</tbody>
</table>

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.

SALE PRICE $69.95 FOR COMPLETE SET

RAIL & STILE SHAPER CUTTER
Item #150 - $49.95

RAISED PANEL BIT SUPPLIED WITH BALL BEARING
2" Large Diameter

CARBIDE TIPPED - TWO FLUTE
1/4" Shank
supplied with Ball Bearing

ORDER ITEM # 554 for 1/4" Shank Set (includes all bits shown below)
Regular value Over $150.00

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 4053DF, Rydal, PA 19046
©1990
FREE! If your order totals over $35.00 ask for 5 camel hair brushes.

ARMOR PRODUCTS
The Best Values in Woodworking & Craft Supplies

- Clock Movements
- Toy Plans & Parts
- Furniture Plans
- Wood Goods
- Door Harp Parts

12-inch length
Some things improve with age. Create a classic Model A with our full size plan.
Model A Plan $4.75

Build this attractive trolley car for show or play. Size is 4" x 7" x 15".
Trolley Plan $4.75

Size: 21" x 55" x 49"
Roll Top Desk Plan $16.00

Size: 10" x 35" x 32"
Bookcase/Planter Plan $4.00

A - Build this classic Roll Top Desk, with plenty of storage space, for home or office.
B - This charming country planter/bookcase, made of pine, will fit well into any decor.
C - Create an heirloom when you build our Captains Desk. The top opens for storage.
D - This safe and sturdy swinging cradle is easily built using ready-made spindles.

Better Homes and Gardens WOOD
The Magazine for Home Woodworkers

August 1990 • Vol. 7, No. 4 • Issue No. 36

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 Boelling
Senior Graphic Designer PERRY A. McFarlin
Administrative Assistant DARLENE REYNOLDS
Business Office Clerk MARGARET CLOSSNER

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

Publisher WILLIAM R. REED
Advertising Representatives MARK S. JOSEPHSON, NEIL A.
ORNE, CHRIS W. SCHAFER
Promotion/Research Director THOMAS R. TROLAND
Marketing Research Manager EILEEN ELLISON
Marketing Services Manager NANCY DAILY
Marketing Services Assistant CORINNE OLESON
Sales Secretary LORIANN DelCIPPO
Circulation Director CLEM SEVE; 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
AUEBACHER
Group Vice Presidents: Publishing Directors MYRNA BLYTH,
BURTON H. BOERSMA, CHRISTOPHER M. LEHMAN;
Controller MAX RUMICH; 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. REM
Group Presidents: Book JEREMY LANGAN; Broadcasting PHILIP A.
JOMEN; Magazine JAMES A. AUTRY; Real Estate ALLEN SABBAG

WE CARE!

EDITORIAL MAILING ADDRESS: WOOD Magazine, P.O. Box 11454,
Des Moines, IA 50333-1454.
SUBSCRIPTION SERVICE (including change of address): WOOD
Customer Service, P.O. Box 11667, Des Moines, IA 50333-0667.
Please enclose your address label from a recent issue. If you wish to phone, call toll-free 800-457-2968.

Better Homes and Gardens WOOD — the magazine for
home woodworkers (ISSN 0743-894X) is published bi-monthly
in February, April, June, August, October, and December by
Meredith Corporation, 1716 Locust St., Des Moines, IA 50309.
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, $18; Canada, $24;
other countries, $30. POSTMASTER: Send address changes to
WOOD, 1716 Locust St., Des Moines, IA 50309.
COPYRIGHT MEREDITH CORPORATION 1990. ALL
RIGHTS RESERVED. PRINTED IN U.S.A.
Unlock your creativity and let your woodworking dreams come true with the RBI Hawk Precision Scroll Saw. The whole family can join in on the fun, making charming toys, handsome heirlooms, and practical household items to save money… and even earn it!

It's so easy to use, even the kids will enjoy hours of safe-vibration free cutting. They will learn responsibility and a sense of accomplishment with every project they complete. You'll enjoy the precision that is built right into every Hawk—make cuts so smooth you'll never want to sand your projects again!

Folks will tell you your projects are so fantastic "you should sell them!" and you just might want to… many others have!

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 how the entire family can have fun and earn extra money with the Hawk in your workshop.

Fill out the coupon and mail today, or for faster service call FREE at 1-800-535-8665.

[Image of people using the Hawk Precision Scroll Saw]

rbi Industries, inc.
1801 Vine Street
Harrisonville, MO 64701
Sugar maple: Hard as rock, but how sweet it is! 31
Because of its hardness, maple tests the skills of many woodworkers. You'll find plenty of machining tips in our performance profile.

The Americana Collection
Sofa table 34
We introduce our country collection of painted projects with a slim table that looks perfect behind a sofa or in a hallway.

Candle box 38
Try your hand at carving the facet-ed heart that accents this practical pine box with a sliding lid.

Candlestand 40
Get this project off the ground with a pre-turned baluster you can pick up from any homecenter.

Wall box 43
Here's the simplest of all our country projects! And, it's a perfect match for someone's fireplace.

Country clock 44
With a battery-operated movement and schoolhouse-style face, you'll finish this project in no time at all.

Shop-Tested Techniques
Country finishes 46
With the help of a finishing expert, you can learn to “age” your country projects by painting, staining, pickling, and crackling.

Way to go, Bosch! 51
Look at a new jigsaw with click-in blades and a random-orbit sander.
Sandbox excavator 52
We just had to find room in our Fat Cat® fleet for this heavy-equipment replica. Our staff, who plays with . . . er, tests every toy, raves about the realistic scoop and boom.

SPECIAL REPORT
Fight in the forest 57
In the Pacific Northwest, environmentalists and logging interests have locked horns over harvesting old-growth forests.

CRAFTSMAN CLOSE-UP
A Carolina legend in wood 62
Meet P. J. Jeter, a rare man who learned woodworking behind bars and now runs a prison-industry wood shop. And, find out how Mr. Jeter—as he's known by all—ingrains a work ethic in South Carolina inmates.

TOOL BUYNERSHIP
The great electric-drill shootout 66
What's the difference between a $30 drill and a $130 drill? A lot more than $100, as we discovered while testing 18 models.

DEVELOP YOUR SHOP SKILLS
Make raised panels with your tablesaw 72
Who says you need a shaper or router to build a raised-panel door? Conquer this technique in eight easy-to-understand steps.

CARVING PATTERN
Carve a cardinal 74
Lindel Porter of Tulsa, Oklahoma, shares his secrets to carving one of America's favorite songbirds. For your convenience, we've included full-sized patterns.

Fine-feathered-friend feeder 76
Birds should flock to your backyard after they discover our hexagonal feeder. It features a huge seed tray and large storage capacity.

SHORT-SUBJECT FEATURES
Editor's Angle . . . 7 Products That Perform . . . 24
Talking Back . . . 10 Yesterday's Tools . . . . 80
Tips from Your Shop (And Ours) . . . . . 14
Finishing Touches . . . . . 96
Quality Woodworking Machines At Affordable Prices

Super 15" Scroll Saw
On Sale ... $119.95
(Includes $52 FREE Accessories)
Cut intricate wood patterns with this versatile machine. Features:
• Parallel rocker arm cutting system
• Eliminates blade breakage & sanding
• E-Z set blade change system
• Permanent, upper arm blade holder plus new E-Z Jig for standard holders.
• FREE Accessories - 1" x 2" blades, extra blade holders, E-Z set system, Plastic lettering guide set... a $52 Value
SPECIFICATIONS:
• Cast iron construction
• 15" throat
• Motor: 1/8 HP, 115V, 1500 RPM, 110V, UL Listed
• 3/4" stroke x 2" depth of cut
• Table tilts to 45° x 45°
Item #5AW .... $119.95 (UPS $10)

Super 125 Planer
On Sale ... $349.95
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, 9000RPM, 2HP
• 26.2rpm auto feed rate x 16,000
• Cuts/mn * Thickness of stock: 1/16" - 6" 1/8"
• Max depth of cut: 2 HSS or Knives
Item #PLA .... $349.95 (UPS $15)

Planer Accessories

Free plans for
Roller Stand
with purchase of rollars

Extra Set of 2 Knives
High Speed steel, 12 1/2" long.
#PKN .......................... $25.00 set (+)

Dust Chute
For vacuum takeoff of wood chips.
#IDS ................................ $15.00 set (+)

Roller Stand
HTC brand support stand w/heavy duty ball bearing roller. Height adjusts from 28" - 44".
#IDS ................................ $33.88 (UPS $6)

Ball Bearing Rollers
(Minimum purchase 2 rollers). Build a roller stand, indexed/outfeed table etc. with these 13" X 2" Heavy Duty rollers. Includes FREE plans for roller stand shown above.
#BBR ....................... $65.50 ea ($3 UPS (order)

Conveyor Section
(4"x12"
Soon or later you’ll need one of these. A must for feeding large pieces through planer & table saws, etc. Steel Channels, 4" X 12" overall, 1-3/8" dia. ball bearing rollers, Vt. 350. The best value in conveyor sections anywhere!
#BCS ................................ $69.00 (UPS $6)

Penn State’s Commitment
We unconditionally guarantee your satisfaction with our first machines. All of our machines carry a Thirty Day Money Back Guarantee and One year Warranty for Parts and Labor

Super 24" x 8" Sander
On Sale ... $114.95 (UPS $8)
(Includes $14 FREE Belts & Discs)
Here’s a machine that adds true versatility to your shop.
New design uses universally available 8" discs. 4" x 36" belts.
• Includes Assortment Of 3 Belts, 4 Discs
• Of Various Grits
• Built In Dust Collection outlet
• Aluminum table, tilts to allow bevel sanding to 45°
Includes mitre gauge, movable for use with disc or belt. Belt tilts to any position from horizontal to vertical. Quick release for changing belts. Single action tracking adjustment. Motor 1/2HP, 1720RPM, 115V, Weight: 40lbs
Item #S48

DC-1 Dust Collector
On Sale ... $189.95
(Includes $15 FREE Hose & Fittings)
On Sale ... $189.95
(Includes $15 FREE Hose & Fittings)
Keep your shop clean and safe from saw dust with this large capacity, commercial style system.
SPECIFICATIONS:
• HP: 110/220V (pre-wired 110V)
• 610 CFM air flow
• 2ea 20 gauge bags
• 4" inlet
• Castors on base
• WT.: 75 lbs
FREE With Purchase ($15 Value)
Dust collection hose, 4" to 3" rigid adapter, 4" to 2" flexible adapter. Plans for 2 stage setup. Sources for accessories

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 "solid steel rails". "Live" center & tailstock. Motor mounted for easy positioning and belt changes. Sturdy 52" steel base mounts on table top or optional casters.
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: 600, 1500, 2500 RPM
• Headstock thread - 3/4" x 10 (tpi)
• Overall length: 62" Weight: 180bs
Item #L40 ... On Sale $249.95 (UPS $30)

Lathe Stand
Heavy duty, Wt. 25Lbs
Size: 20" X 55" X 21" W
Item #LST .... $550.00 (UPS $6)

"MOBILE-K" Air Cleaning System
This new product removes fine sawdust, wood chips, smoke, paint, dust etc. From the air more efficiently than commercial products many times the price. A remarkable new patented filter media captures particles as small as .3 microns! Unit includes filter media on a roll - just pull and advance the roll when a secondarily dirty...<120" long, good for 80 replacements.
Reg $296.00
On Sale ... $229.95
(UPS $5)

FEATURES:
• Three speed motor
• Castors on base
• Steel construction
• 22" X 36" X W 55"
• Hands free room size up to 20" X 30" - Made in USA
Replacement filter rolls.
#MOK ... $45.00 (UPS $5)

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 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)
Q. WHAT'S RED HOT... AND GETTING WARMER?

A. THE ENVIRONMENT
IT'S ALL WE HAVE

Not too many years ago, when a few brave souls began to warn people about the dangers of industrial waste to the ozone layer, ground-water pollution, acid rain, lead poisoning of humans and wildfowl, lung damage caused by exposure to asbestos, and any number of other concerns, many Americans did little more than yawn and wonder about these people's mental well being. But that's all changed today. Many of these concerns have become reality, and people are paying attention to the environment like never before. It's darned near impossible on any given day to pick up a newspaper that doesn't have one or more articles dealing with the environment. More specifically, the abuse of it.

And it's just beginning
If the information I've been exposed to lately is correct, debate over the environment will become even more heated in the '90s. One recent national study (Yankelovich Monitor 1989) reveals that in the past three years, "active concern" about the environment has doubled. Ninety-three percent of Americans are "concerned about what's happening to our planet. Twenty-eight percent are "actively concerned" and support the effort to make needed changes.

In a 1989 study commissioned by American Demographics magazine, 97 percent of Americans said they want natural areas preserved for future generations. People everywhere are asking penetrating questions... about the quality of the food they eat, about the safety of the water they drink, even about what's being done to ensure that they will have a plentiful supply of wood in the future. The environment has definitely arrived as a front-burner issue.

We'll keep you informed
Chances are, none of the preceding is news to you. Yet I'm sure that as a woodworker you have your share of questions about the environment as it relates to your favorite hobby. We're concerned here at WOOD magazine, too. And that's why we have increased our editorial coverage in this important area. In the October 1989 issue of WOOD magazine, for example, we presented our report, "What's Happening to the World's Wood" (pages 46-49). And frankly, reaction to the article was so healthy—both pro and con—that we decided to follow up that piece with another in our environmental series. Beginning on page 57 of this issue, Features Editor Pete Stephano details the "Fight in the Forest" between the conservationists and the timber-producing industry in the Pacific Northwest. He also prognosticates about the eventual outcome of what has erupted into a truly fearsome battle. Don't miss this article; it's important reading for every woodworker.

As mentioned earlier, the debate is just heating up. As it progresses during the '90s, you can count on WOOD magazine to keep you abreast of the situation.
With this exciting how-to-build-it series designed especially for the home woodworker!


Try your first book—SHELVING AND STORAGE—free for 21 days!

From the moment you receive your copy of SHELVING AND STORAGE, you'll be amazed at how easy it is to build professional-looking projects you'll be proud to use and display.

Improve your woodworking skills with simple weekend projects like Super-Quick Shelves. Master new techniques with more challenging projects such as a Wall Unit or a Classic Television Stand. The clear how-to advice ensures success and gives you hours of woodworking enjoyment.

Get great woodworking projects for every room, indoors and out!

If you like SHELVING AND STORAGE, you'll love the other books in this exciting series. You'll receive a new, project-packed volume every other month for your free 21-day examination. You're not obligated to buy any book in the series, and you may cancel at any time.

Lifetime money-back guarantee!

We guarantee your satisfaction. You may return any book in the series at any time for a full refund of its purchase price.
Close-up photos make even intricate handwork easy.

Complete materials lists tell you exactly what parts you'll need and the number and size of each.

Exploded illustrations show you exactly how to put each project together.

Step-by-step instructions eliminate guesswork.

Expert tips and techniques save you time and money and help you do the work right the first time.

Finished photos show you how your project will look.

FREE GIFT!

Get the complete plans to build this American Harvest Table, an authentic reproduction of the antique, measured and drawn by master woodworker Carlyle Lynch. This $7.50 value is yours absolutely free when you agree to preview SHELVING AND STORAGE, your introductory volume of this series.

FREE 21-DAY TRIAL

YES! Send me a copy of SHELVING AND STORAGE, the first volume of Build-It-Better-Yourself Woodworking Projects, to examine free for 21 days. If I decide to keep it, I'll pay $14.95 ($17.95 Canadian) plus postage and handling. In addition, I'll be entitled to preview the next volume in the series, also for 21 days. I am not obligated to buy any book, and I may cancel at any time simply by notifying you. If I decide not to keep SHELVING AND STORAGE, I'll return it within 21 days and owe nothing. No other books in the series will be sent. The American Harvest Table plans are mine to keep regardless.

NO RISK! NO OBLIGATION!

Name
Address
City
State
 Apt.
 Zip

SEND NO MONEY NOW. WE'LL BILL YOU LATER!
Clip and mail to: Rodale Books,
Des Moines, IA 50336
Talking Back

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

It was great while it lasted...

...but we're buried in requests for free full-sized patterns and article reprints. To help cover our printing and handling costs, we ask that from now on you send along $1 for each pattern offer. You'll need to enclose a stamped, self-addressed business-sized envelope for each pattern. Of course, we'll continue to publish gridded patterns so you can enlarge your own patterns.

When you request a photocopy of a WOOD magazine article from a previous issue, we ask that you include $2 with a stamped, self-addressed business-sized envelope—again to cover our costs.

Foreign readers: Please enclose an international reply coupon for patterns or reprints.

Something else to consider for your router table

I'd like to say that I almost flipped out when I saw your router-table project featured in the February 1990 issue. About a year ago when the Ryobi RE600 came out, I saw this router's immediate use in a router table. My design was almost identical in configuration and dimension to yours.

What prompted this letter are the drawbacks I've experienced and changed. Because the router cooling fan sucks up air from inside the table, I assure you that the switch and speed-control dial cover will fill with fine sawdust. I solved this problem by taping some loosely fitting clear 4-mil plastic over the controls where shown below.

One additional change helps protect the router electronics and allows the router to breathe clean, cool air from outside the cabinet. Clamp a flexible 4" dryer vent hose around the top of the router where shown and vent it through the cabinet side.

—Paul Pizzimenti, Medley, Fla.
Laminated hinge improves tabletop easel

Congratulations to all the fine people at WOOD magazine! In my opinion, you are at the apex in the woodworking magazine field. You do everything right... great projects, clear descriptions, exceptional artwork and photography, and excellent tips.

I've built so many of your projects and have received so many compliments on them that I just can't say enough in praise for your support of us woodworking enthusiasts. Once in a while, the construction process generates an idea worth sharing with others. Such was the case in building a couple of Jim Boelling's tabletop easels from the December 1989 issue. This is a really attractive piece, and Jim certainly deserves plaudits for his creative ability.

The one thing about it that made me think twice was the thin ¼" hinge. If cut out of a piece of solid stock, the hinge becomes a structurally weak spot. The long rear leg provides a huge lever that if moved aside (perhaps by a curious child) would easily split the hinge in two... end of an easel.

My solution to the weak spot is to fabricate a hinge from ⅛"-thick walnut plywood. I cut five pieces of walnut veneer about 3 x 3" and laminated them together with wood glue while alternating the grain direction of each piece. The five thicknesses I used resulted in a finished thickness of precisely ¼"—and virtually unbreakable.

—Norman Harrington, Manlius, N.Y.

Norm sent along a piece of lamination scrap that certainly is stronger than solid stock. Great suggestion for the hinge!

Credit check on spoon/thimble case

We incorrectly credited the spoon/thimble case design in our June 1990 issue. Arnold Davison of Colborne, Ontario, submitted the illustrations and how-to instruction for this great-looking project. Some readers have adapted the plans for other collections including sea shells.

Clearing the error on the dry sink

In the dry-sink project shown in the February 1990, we inadvertently published two different dimensions for the same drawer rabbet. You should cut ⅜" rabbets ½" deep for each drawer side.

Continued on page 12
FACE FRAME CLAMP
Lightweight alloy clamp features a patented jaw system that prevents slippage. Clamps joints right where the pressure is needed, eliminating bowing of long pieces.
MODEL G1314
ONLY $16.50

BRAD NAILER
MODEL G1852
ONLY $99.95

SUPER BRAD NAILER
The best all-around finishing gun complete with safety. Well balanced, lightweight — weighs only 3.3 lbs. Takes 5/8" to 1-9/16" nails.
MODEL G1861
ONLY $129.95

7 PC. FORSTNER BIT SET
Our low prices are unbeatable. This set consists of the 7 most popular sizes: 1/4", 3/8", 1/2", 5/8", 3/4", 7/8" and 1".
MODEL G1752
ONLY $33.95

DRAFTING BOARD
Fits easily on desk, table, counter-top or lap. Comes with carrying case.
MODEL G1303
ONLY $39.95
G1364 Drafting Head
ONLY $19.95

PEDESTAL ROLLER
Adjustable work support is constructed for heavy duty use! Adjusts in height from 26" to 45". Folds flat for storage.
MODEL G1318
ONLY $36.50

IMPROVED DOWELING JIG
Automatically centers itself. Handles stock up to 2" thick. Drill-hole sizes are 1/4", 5/16", 3/8" and 1/2".
MODEL G1874
ONLY $27.50

We import and sell direct.
CALL FOR YOUR FREE CATALOG!
1-800-541-5537 (West of Mississippi)
1-800-523-4777 (East of Mississippi)

TALKING BACK
Continued from page 11
Reader takes a closer look at router speed controllers
In response to the original question by John Calver in the December 1989 issue (can a speed controller damage a router?), both electronic speed reducers, such as the MLCS, and the reduction of line voltage can safely lower the operating speed of a router. The average no-load operating current and motor heating drops to nominally the same value in each case. There is, however, a considerable difference in cutting performance.

There’s a misconception that reduced line voltage damages all AC motors. Although this is true of induction motors, such as the capacitor-start tablesaw motor, it is not true for the series-wound universal AC/DC motors used in routers and other small power tools. Not only can universal motors operate without overheating at line voltages reduced less than 10 percent, reducing the line voltage with a resistor or rheostat is an acceptable method of speed control in some applications. However, this is not a desirable method for users since lowering the voltage also reduces the available torque at the lower speed.

Electronic speed controllers, on the other hand, have an electronic feedback mechanism that increases the torque available at the lower operating speeds. This feedback increases torque as the load is applied, keeping the speed more uniform with increased loads.

In the interest of demonstrating that routers are not damaged by operating at less than line voltage, I performed a number of tests on four routers: a Craftsman 315.25060, Ryobi R150, Porter-Cable 690, and Elu 3358. Using a rheostat, voltmeter, ammeter, and tachometer, the voltage was reduced to each router in 10-percent increments down to stall voltage. At each increment, the routers were run for 10 minutes to check for possible overheating. There was no noticeable change in case or armature temperatures from 120 volts down to, and including, the stall voltage. At the stall voltage, the routers were operated for 30 minutes. The armatures buzzed, but did not turn (i.e., zero-connection cooling). After 30 minutes, there was some warming of the armature. This warming was less, however, than observed when operating a router at normal cutting loads at full line voltage.

—Eugene Holladay, Audubon, Pa.

Gene, an electronic engineer with an aerospace firm, provided us with eight pages of analysis of motor operation and charts from his tests. Drop us a note if you’d like us to publish more information about electric motors—as related to woodworking.
Mils—one more time
In the October 1989 issue, Mr. Bingham added to the confusion [about DuPont double-matte Mylar] by injecting “circular mils.” The term mil comes from the Latin prefix mili-, meaning one-thousandth. It has been shortened in common usage to mil, meaning one-thousandth of an inch in lineal measure.

“Circular mils” is a measure of area generally used to indicate sizes of large electrical cables. As a draftsman, I would consider “mil” unacceptable as a dimension on a drawing and would use inches, as an example, “.003 inches.” To add to the confusion for woodworkers, the letter M (the Roman numeral for one thousand) designates one thousand board feet of lumber, e.g. $2000/M.

—David Robertson, Peterborough, Ontario

Are we a timber colony for the Orient?
With all due respect to Mary Wirth's comments in your February 1990 issue, Mrs. Wirth does not have the facts straight. A simple review of export statistics reveals the root of the problem. It is not the spotted owl, nor is it Greenpeace. It is the wholesale auction of our old-growth forests to the Japanese.

I'm a native Washingtonian and live a quarter mile from the Port of Olympia log-export facility. I'd be happy to give the Wirths a tour if they're ever out this way. Meanwhile, life goes on in the Great Pacific Northwest, timber colony of the Orient.

Eric Bailey, Olympia, Wash.

We expect the forest article in this issue will bring additional letters. We'll keep you posted.

Good stuff for stave-bowl turners
John Monaghan, a New Hampshire woodworker, puts in a fair amount of time at the computer, too. In fact, he has worked out the most helpful chart for stave construction we've ever seen. His formulas include stock thicknesses from 1/4" to 3/4", number of sides from 6 to 36, the outside width of each stave, the inside diameter of the container, and cut angles. For example, to build a six-sided planter from 1/2" stock, John knows his staves will be 3/16" wide on the outside if he wants an inside diameter of 2 3/8". If you'd like a copy of this four-page chart, send 82 and a stamped, self-addressed business-sized envelope to: John Monaghan, 40 Hook Road, Candia, NH 03034. Foreign residents, please include an international reply coupon.

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. Contact your local dealer or the factory today!

☐ PLEASE SEND ME FREE BROCHURE

Telephone orders (417) 223-4031
ROSS Industries Dept. FB-14
100 North Highway W, Box 637, Pineville, MO 64856

Name __________________________ Phone __________________________
Address __________________________
City __________________________ State _______ Zip ________

CRAFTER'S MART
P.O. BOX 2342W • GREELEY, CO 80632
48-Page CATALOG: $2.00 with credit against first order, FREE with any order. MIN. ORDER: $20 - Check, MasterCard or Visa (includes card no., exp. date, signature and daytime phone). CO residents add 3% tax. No C.O.D.'s. PROCESSING CHARGE: $4 - provide UPS street address. Alaska, Hawaii, APO & FPO add $10 Processing Charge, Canada add $10, Foreign orders pay US funds plus 20% and $10 Processing Charge, PHONE ORDERS: 9 am - 5 pm - Mon.-Fri., MST.
1 - 800 - 999-3445

WOOD MAGAZINE • AUGUST 1990
Beefy clamping jigs strengthen mitered corners
Many corner clamps fail to provide adequate pressure. As a result, the mitered joints are weak or have sloppy glue lines.

**TIP:** Construct one or more pairs of clamping jigs as shown, using 4-5" lengths of ¼" plywood ¾" wide. With your tablesaw miter gauge set to 45°, cut triangular blocks from ¾" stock. Glue the blocks to the plywood strips and, when dry, clamp frame corners as shown below.

—John Tanzini, Hamilton Square, N.J.

For his tip, John receives a Dremel 13" scroll saw.

---

Low-cost cover keeps sawdust from flying
The exposed upper pulleys on some 1" belt sanders permit sanding inside curves. However, when using the lower portion of the belt, the top may shower you with fine sanding debris.

**TIP:** With scissors or snips, fashion a cover from a plastic margarine container for the top of the sander. Attach as shown below.

—Michael Weigandt, Rancho Cordova, Calif.

---

Make gauges for quickly setting your plate jointer

On many plate jointers, setting the fence height for various thicknesses of stock can be time-consuming work. It sure would be nice if you could quickly set the fence at predetermined heights. Another tricky task: keeping the fence parallel to the workpiece.

**TIP:** Solve both problems by making a set of gauges from scrap. To start, place your plate jointer on a flat table so its base rests flush with the surface. Use a piece of material of the desired thickness and set the fence for a centered cut. For 1½"-and-thicker stock, it makes sense to center two slots. Mark the blocks for material thickness and number of biscuits.

To set the fence, place the jointer on a table, loosen and lift the fence, place the correct block under it, and tighten the fence locking screws while holding it against the block.

—Bob Hockenberry, Rochester, Minn.

---

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's magazine readers? For each published submission, you get:
- At least $25 from WOOD magazine (up to $200 if we devote a full page to your idea);
- A $25 gift certificate. The winners in this issue choose merchandise from the Trendlines catalog.

- And, a chance to win a free woodworking power 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, address, and daytime phone number to:
**Top Shop Tip**
Better Homes and Gardens®
WOOD Magazine
P.O. Box 11454
Des Moines, IA 50336-1454

---

[Continued on page 16]
"Custom furniture fits your lifestyle. Safe & Simple™ finishes fit mine. I can concentrate 100% on the job because there are no solvent vapors and no smells. All year round, without even thinking about it, I can get fast drying finishes; tough, clear and non-yellowing."

Terry Horan
New England Workshop
Rumford, Rhode Island

Safe & Simple™
Environmentally Responsible Finishes

- No toxic vapors, nonflammable, odorless.
- Dries in 30 minutes to a hard, crystal clear finish that never yellows.
- Easy water clean up.

Proud Sponsor of
"This Old House" &
"The New Yankee Workshop"

Carver Tripp Super Poly

$5 Introductory Rebate Offer
$5 per gallon

Parks Corporation, Somerset, MA 02726, 1-800-225-8543

Complete this coupon and mail, together with cash register receipt (with Carver Tripp Super Poly circled) and the UPC code from the back label, to Parks Corporation, PO Box 3102, Lowell, MA 01853-3102. Please allow 6 to 8 weeks for payment.

Name ____________________________
Address __________________________
City ____________________________ State _______ Zip __________

Offer expires 12/31/90. Limited to one rebate per individual or household.
TIPS FROM YOUR SHOP
(AND OURS)

Continued from page 14

‘Wrenching’ solution for misplaced calipers
Suppose you have to determine the diameter of a piece of pipe or dowel, but calipers aren’t to be found in your shop. How can you take the measurement?

TIP: Slip an adjustable wrench over the piece, tighten snugly, and then use a tape measure to determine the jaw opening.

—From the WOOD magazine shop

Tennis ball lobbs time off sanding bowls
Sanding the inside of a turned bowl can be a tricky task. Holding sandpaper with your fingers works, but the paper soon gets hot and your hands quickly tire.

TIP: Wrap sandpaper around a tennis ball and use the combination as a sanding block. It’s comfortable and easy to control.

—John T. Schulte, Temecula, Calif.
Your Home Workshop can PAY-OFF ... BIG!
This one power-fed tool-PLANES

SAWS  SANDS  MOLDS

— Separately... Or in Combination!

From the day it arrives the versatile Planer-Molder-Saw-Sander will make and save you money by converting low-cost rough lumber into high value finished stock. Handles tough oak and walnut as easily as pine, and simple enough even beginners can use it. Men and women everywhere are using this one low-cost power-feed machine to start and build their own new business... and YOU can do the same. Supply lumberyards, carpenters and contractors with all their trim. Sell picture frame to paint stores, department stores and direct to users. All patterns available or design your own.

Does the Foley-Belsaw Pay? YOU BET! READ WHAT OWNERS SAY:
"This machine pays for itself making money out of scrap boards. It is a very well built machine and I contest it is more than I really expected for the price. It does everything you say it will." — Stephen Schultz - Orangeville, Pennsylvania

NO OBLIGATION and NO SALESMAN Will Call!

30 DAY FREE TRIAL
SEND FOR EXCITING FACTS RUSH COUPON TODAY!

SANDPAPER

* NO GIMMICKS — GREAT PRICES

BELTS: GRITS ASSORTED

<table>
<thead>
<tr>
<th>UNLESS OTHERWISE SPECIFIED</th>
<th>CABINET PAPER</th>
<th>SHEETS: (9 x 11) PRICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 x 30</td>
<td>50 / pk</td>
<td>100 / pk</td>
</tr>
<tr>
<td>1 x 42</td>
<td>40 / D</td>
<td>$16 / pk</td>
</tr>
<tr>
<td>1 x 44</td>
<td>50 / D</td>
<td>$15 / pk</td>
</tr>
<tr>
<td>2½ X 16</td>
<td>2½ X 16</td>
<td>14 / pk</td>
</tr>
<tr>
<td>3 X 18</td>
<td>80 / D</td>
<td>13 / pk</td>
</tr>
<tr>
<td>3 X 21</td>
<td>12 / pk</td>
<td>21 / pk</td>
</tr>
<tr>
<td>3 X 23½</td>
<td>12 / pk</td>
<td>21 / pk</td>
</tr>
</tbody>
</table>

NO LOAD PAPER

| NO LOAD PAPER | 50 / pk | 100 / pk |

PRESSES SENSITIVE

| ADHESIVE DISCS! | 100 thru 280A | 8 / pk |

6" $1.06 ea | Other Items * * JUMBO CLEANING STICK $9.80 * |
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!!

WOOD PARTS FROM MIDWEST DOWEL WORKS

Compare Our Low Prices!

<table>
<thead>
<tr>
<th>BELT</th>
<th>Qty. Cost</th>
<th>GREAT BUYS</th>
</tr>
</thead>
<tbody>
<tr>
<td>3½&quot; x 36&quot; Standard Dowels</td>
<td>$2.75 / 100</td>
<td></td>
</tr>
<tr>
<td>3½&quot; x 36&quot; Pole Dowels</td>
<td>$2.75 / 100</td>
<td></td>
</tr>
<tr>
<td>3½&quot; x 36&quot; Maple Buttons</td>
<td>$2.75 / 100</td>
<td></td>
</tr>
</tbody>
</table>

ORDER NOW

<table>
<thead>
<tr>
<th>MC/Visa</th>
<th>Check Enclosed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Cost: $3.00</td>
<td></td>
</tr>
<tr>
<td>Handling: $0.00</td>
<td></td>
</tr>
<tr>
<td>Ohio residents add 5% sales tax</td>
<td></td>
</tr>
<tr>
<td>Final Cost:</td>
<td></td>
</tr>
</tbody>
</table>

MIDWEST DOWEL WORKS

4631 Hutchinson Road
Cincinnati, Ohio 45226
(513) 574-8498
Same Day Service/Order before Noon
Factory Direct/Satisfaction Guaranteed
New Exciting Router Video Series

by Bob Rosendahl
VHS Series of 8 Tapes $179.95
1) VV061 Router Table Circle Work
Mounting
2) VV062 Router Miter Internal Guide Work
3) VV063 Raised Panels with External Guide Work
Your Router
4) VV064 Router Spacer Inlay Work
Joinery

Retail Price $24.95 ea.

Special Bonus Offer
$19.95 each + $4 shpg. & hdg. per order or
$149.95 for set of 8 shpg. & hdg. included

Order Now
We accept Visa or MasterCard
U.S. call 1-800-665-0252 or
1-204-353-2692

MAPLE TABLE KIT

Size
30" x 60" x 1 1/4"
30" x 72" x 1 1/4"  
36" x 72" x 1 1/2"  

Cost
$229
$255
$285

Includes
Solid laminated
Top, 4" Turned
Legs & Hardware
Available from many Warehouses

ORDER 1-800-767-7150

McCombs Maple, 3061 NW 112th Street
Toucan, WA 98445 (206) 351-9227

WOODWORKERS

Save on Wood - Tools - Supplies!

Send for New 1990 148 Page
Money Saving CATALOG

Send for New 1990 148 Page
Money Saving CATALOG

Finest Dimensioned
HARDWOODS and
Quality VENEERS

42 VARIETIES
1/64" to 4" Thickness


CRAFTSMAN WOOD SERVICE

Dept. WM-790, 1735 W Cortlandt Ct, Addison, IL 60101
Please enclose $1.00 to help pay postage and handling.

140 WOOD PROJECTS

Easy-To-Follow Construction for more than 140 unusually fine wood Projects... Hanging from Elementary to Advanced. Plans for desks, chairs, coffee and end tables, bookcases, magazine racks, and numerous other pieces of well designed furniture. Also, attractive and useful novelties and gift items such as sewing cabinets, serving trays, lamp and record holders, many lovely kitchen accessories, figure shelf, tennis rack, an Italian Provincial Cocktail Table, fishing tackle rack, even a toboggan for winter fun! Such a wealth of wood projects we can only hint at the variety here. Projects in this book, if carefully constructed and finished, will compare favorably with many items sold by leading gift shops, and will make fine gift items projects. For your copy of WOOD PROJECTS by Floyd Moms - many project patterns shown full size and easy to trace right onto the stock, only $11.95. Add $1.95 per household for shipping and handling. Send to:

* A.T.H. CO. DEPT. 1865, P.O. BOX 78, STROUDSBURG, PA 18301 *

The Maple Ridge Tool Chest

* NOW AVAILABLE IN KIT FORM *

Drumers foot automatically when lid is closed. All parts are solid kiln-dried red Oak or Black Ash (except for shaggy plywood bottoms). All parts assembled and ready to install, all meticulous work, and ready to assemble. Kit comes complete with all hardware and felt drawer runniers. Small order cannot equal deep discount, with pre-drilled holes. KITS - $149.95 * FULLY ASSEMBLED - $249.95

VISA - MASTERCARD ACCEPTED

$1.00 FOR BROCHURE

1-800-645-6100

115TH AVENUE
WHEAT RIDGE, CO 80033
TIPS FROM YOUR SHOP (AND OURS)
Continued from page 16
Make these inexpensive, handy hold-downs
When using a drill press, it’s crucial to prevent the stock from slipping around, especially as you start the bit into the wood. C-clamps work nicely on longer pieces, but require some setup.

TIP: From 3/4” plywood or solid stock, make a few hold-downs as shown below: Epoxy wing nuts to lengths of 1/4” threaded rod and use 1/4” T-nuts on the underside of the table for anchors. These hold-downs also work on other surfaces such as your workbench.

—Richard S. Michely, Marysville, Ohio

Sandwich bag locks out shop dust and moisture
A pocket calculator comes in handy in a shop, and some woodworkers rely on one constantly. However, wood dust, moisture, and liquid spills can play havoc with a calculator’s delicate workings.

TIP: Place the calculator inside a clear, resealable sandwich bag and keep it there. You can still easily operate the calculator and read its results, without worrying about damage from dust or fluids.

—R. C. Proffitt, Oak Harbor, Wash.

CASCADE TOOLS, INC.
P.O. Box 3110, Bellingham, WA 98227

♀ Solid Carbide and Specialty Bits

<table>
<thead>
<tr>
<th>Solid Carbide Spiral — 2 Flutes</th>
<th>Straight — Single Flute</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4&quot; SHANK</td>
<td>1/4&quot; SHANK</td>
</tr>
<tr>
<td>Part No. DIA. C.L. O.L. PRICE</td>
<td>Part No. DIA. C.L. O.L. PRICE</td>
</tr>
<tr>
<td>C1441 1/8” 3/4” 3” $8</td>
<td>C1471 1/8” 1/2” 1/2” $12</td>
</tr>
<tr>
<td>C1442 1/4” 3/4” 3” $10</td>
<td>C1472 1/4” 1/2” 1/2” $12</td>
</tr>
<tr>
<td>C1454 5/8” 3/2” 3” $19</td>
<td>C1473 5/8” 1/2” 1/2” $12</td>
</tr>
<tr>
<td>C1443 1/2” 3/4” 3” $15</td>
<td>Due to the nature of Solid Carbide, these bits are not warranted against breakage.</td>
</tr>
</tbody>
</table>

Made in U.S.A.

HSS (Cobalt) Roundnose — 2 Flutes

| 1/4" SHANK | 1/4" SHANK |
| Part No. DIA. C.L. O.L. PRICE | Part No. DIA. C.L. O.L. PRICE |
| C1450 1/8” 3/8” 1” $16 | C1457 1/8” 1/2” 1/2” $12 |
| C1452 1/4” 3/8” 1” $16 | Due to the nature of Solid Carbide, these bits are not warranted against breakage. |

You’ll place this bit next to your favorites! Made in U.S.A.

ORDER TOLL FREE 1-800-235-0272

We get all the breaks.

When it comes to repairing all kinds of wood, Elmer’s Carpenter’s Wood Glue is the #1 seller. It grabs fast, sets fast and is heat and water resistant. So it’s no wonder we get all the breaks. Available in regular and darker wood formulas.

The Home Solution® is:

Continued on page 20
PROTECT SAW ACCESSORIES FROM DAMAGING FALLS

TIP: Install wooden holders for both the miter gauge and rip fence on the saw's stand. To make the miter gauge holder, simply cut a channel into a block to receive the bar on the gauge. For a retainer for the rip fence, add a side cleat of plywood to a length of wood slightly thicker than the fence and as long as the depth of the saw's base as illustrated below.

—David M. Johnson, New Springfield, Ohio

A LITTLE HEAT LOOSENS STUBBORN RUSTY SCREWS

TIP: Heat the head of the screw with a hot soldering iron for a few minutes. That should loosen the fastener enough so you can remove it easily. This method also helps you remove screws held in place with epoxies and other adhesives.

—Michael A. Yahn, Jamestown, N.Y.
Compare this offer with any other book club for Price • Quality • Benefits • Selection!
An absolutely no-risk guarantee.

Select 5 Books for only $3.95
(values to $130.70)
and get a FREE Gift!

Membership Benefits • Big Savings. In addition to this introductory offer, you keep saving substantially with members' prices of up to 50% off the publishers' prices. • Bonus Books. Starting immediately, you will be eligible for our Bonus Book Plan, with savings of up to 80% off publishers' prices. • Club News Bulletins. 15 times per year you will receive the Book Club News, describing all the current selections—main, alternates, extras—plus bonus offers and special sales, with scores of titles to choose from. • Automatic Order. If you want the Main Selection, do nothing and it will be sent to you automatically. If you prefer another selection, or no book at all, simply indicate your choice on the reply form provided. You will always have at least 10 days to decide. As a member, you agree to purchase at least 3 books within the next 2 years and may resign at any time thereafter. • Ironclad No-Risk Guarantee. If not satisfied with your books, return them within 10 days without obligation! • Exceptional Quality. All books are quality publishers' editions especially selected by our Editorial Board.

FREE when you join!
15 Practical Woodworking Projects From Percy Blandford
Fascinating projects from master craftsman Percy Blandford include toys, furniture, a go-cart, and more!

HOW-TO BOOK CLUB
Blue Ridge Summit, PA 17294-0800

Please accept my membership in the How-To Book Club and send the 5 volumes listed below, plus my FREE copy of 15 Practical Woodworking Projects From Percy Blandford (0149P), billing me $3.95. If not satisfied, I may return the books within ten days without obligation and have my membership cancelled. I agree to purchase at least 3 books at regular Club prices during the next 2 years, and may resign at any time thereafter. A shipping/handling charge and sales tax will be added to all orders.

Name __________________________
Address
City ____________________________
State ____________________________ Zip ____________
Phone __________________________
Signature _______________________

(Publishers' Prices Shown) All books are hardcover unless number is followed by a "P" for paperback.

Name __________________________
Address
City ____________________________
State ____________________________ Zip ____________
Phone __________________________
Signature _______________________

Valid for new members only. Foreign applicants will receive special ordering instructions. Canada must remit in U.S. currency. This order subject to acceptance by the How-To Book Club.

W0790
FROM YOUR SHOP
(AND OURS)

Continued from page 20

EARLY WARNING SYSTEM FOR CIRCLE CUTTERS
The swinging arm of a circle cutter is hard to see and can inflict serious injuries to fingers and bands.

TIP: Applying a bright-colored paint to the ends of the arm makes it more visible and somewhat less hazardous. But for an added margin of safety, attach a loop of masking tape that extends an inch or two from the end of the arm. If your hand wanders into the path of this loop, it will smack you as a warning that you are getting too close. Also, remember to operate your circle cutter no faster than 500 rpm.

—Bud Borneman, North Ridgeville, Ohio

CLAMP BOARD ENSURES A SANDPAPER BOND THAT KEEPS ON HOLDING ON

Self-adhesive sanding discs and those that require spray-on adhesive can come loose or buckle after little use. For most adhesives, it helps to hold the sanding disc firmly in place against the sanding plate for a day or so as the glue sets.

TIP: Cut a circular piece of 3/4" plywood the same size as the sanding disc. After applying the sandpaper, clamp the plywood to the mounting plate to press the sandpaper securely in place. Leave the plywood disc attached for at least a day to ensure a solid grip. If you can’t remove the sanding table, or a dust chute obstructs the bottom half of the disc, cut the clamp board in half. Then, apply the board to the top half of the disc for one day, remove the board, rotate the disc 180°, and apply the plywood to the other half of the disc.

—Philip Cole, Ware, Mass.

FORSTNER BIT AMAZING OFFER!

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.

7-pc Set

1/4" to 1" in wood case

ONLY $34.99

ITEM NO. #10-1329

• Precision Ground, Quality Bits
• Machined from High-Carbon Steel
• Hardened to HRC 50-52
• Reusable Moulded Covers Protect Rims

CALL TOLL FREE (Canada included): 800-666-7227 • VISA/AMEX/MC

or write: DOLLAR TRADING CORP. DEPT WM 50
PO Box 68666 INDIANAPOLIS, IN 46268
Indiana and Connecticut buyers please add sales tax.
Stop blocks assure consistent dado cuts

Making identical dado cuts in a series of pieces can be really tricky, particularly when the cut happens to be wider than the widest setting for your dado blade.

**TIP:** Measure carefully and clamp two separate blocks (A and B in the drawing below) to the top of your tablesaw to establish the right- and left-hand limits of the dado. Position the stock against stop block A, make the cut, and do likewise after aligning the stock with block B. Use scrap stock to check settings before cutting the actual workpieces, and hold the stock securely against the miter gauge.

—Silvia Eder, Rio de Janeiro, Brazil

---

**More tips from our woodworking pros**

- Have you always wanted to know how to cut tapered legs? If so, check our tried-and-true method on page 36.
- To save time when assembling drawers, try the tape-and-glue procedure on page 37.
- If you would like an introduction to relief carving that's easy as can be, try the heart pattern on page 38.
- Clamping irregular-shaped parts can be a real challenge. We offer two solutions in projects on pages 41 and 78.
- On page 42 you'll find a simple jig for holding workpieces upright on a tablesaw as you cut kerfs into their ends.
- Aging a clock face by 100 years takes less time than you may think. See page 45.

---

**TRANSPower**

**HEAVY DUTY, HIGH QUALITY & FULL WARRANTY**

**SHAPER / ROUTER MACHINE**
Extra Large Table

Only $698

**WIDE BELT SANDER**

**AUTO PLANER**

**BAND SAW**

**EDGE Sander**

**JOINTER**

**DUST COLLECTOR**

**AIR DRUM SANDER**

**WOOD LATHE**

For express catalogue call (714) 594-9018

**TABLE SAW**

**AUTO FEEDER**

---

1", 3/32" & 1/4" spindles, 1/4" & 1/8" router bit chucks, 3 HP motor, 205" x 22" miter table. 3-shot miter gauge, 8000 / 11000 reversible 2 speeds. 3" spindle travel, independent precision fence, 6" insert opening, side & top spring hold-downs.

**SP650 Tiltling spindle sander** $1150

**HP600 3-Hp sander** $825

**DH150 1 1/2 HP sander** $596

**5200 6" x 72" belt** $392

**J650 6", 1 HP** $395

**J980-6", 1 1/2 HP** $430

**J1000 8", 1 1/2 HP** $490

**J980-8", 2 HP** $495

**J1120-12", 2 1/2 HP** $695

**S8000 14", 2 HP** $1295

**S8000 16", 3 HP** $1295

**S8000 18", 3 HP** $1295

**S8000 20", 3 HP** $1295

**S8000 22", 3 HP** $1295

---

**TRANSPower**

**TCM Industries, Inc.**

322 Paseo Sorrisa, Walnut, CA 91789

Send $1.00 or stamps for catalogue. (50 refund with first purchase)

WOOD MAGAZINE  AUGUST 1990
**A woodenware finish you'll go nuts over**

I've made more than my share of cutting boards, salad bowls, and other woodenwares, so I'm always on the lookout for a better nontoxic finish. Recently, I tried Preserve, a digestibly safe finish made from a blend of nut oils. The clear liquid built a thin surface finish, and dried in 24 hours. I suggest you coat your workpiece two or three times.

—Tested by Marlen Kemmet

**Master Blend Preserve finish, $12.45 ppd. for an 8-oz. bottle from Meisel Hardware Specialties, P.O. Box 70W-12, Mound, MN 55364-0070.**

---

**High-speed carving**

If you're looking for a fast, safe, and controllable way to remove large amounts of stock from free-form carving projects, then you'll find the Woodcarver a must-have tool. The six-toothed, hardened steel, Australian-made tool mounts to any 4" or 4½" grinder. Although I must admit that the Woodcarver initially scared me, a few test cuts changed my mind completely. The tool cut amazingly fast in any direction, in hard and soft wood, without a hint of grabbing the wood or kickback. It didn't burn the wood at all and produced little tearout, even on end grain. Because of the noise generated by the grinder, and the copious amount of chips produced, eye and ear protection are required.

—Tested by Bill Krier

**Woodcarver, $52.95 ppd. from FEC International, 2711 Blairstone Lane, Tallahassee, FL 32301. Call 800-942-1300.**

---

**No mix-up epoxy**

I've poured about 45 gallons of various epoxies into a 30-foot sailboat I'm building and believe me, there's no beating five-minute epoxies for fast, tough, gap-filling bonds. The only catch: You have to thoroughly mix the resin and hardener in the correct proportion (usually 1:1). If not blended properly, the epoxy remains tacky for a long time, and never develops full strength. However, Devcon's five-minute epoxy gel makes mixing a foolproof process, thanks to two product features. First, the syringe-type applicator helps you squeeze out the hardener and resin in equal proportions as shown at left. Next, a feature I haven't seen in any other five-minute epoxy: The two components tell you when they are properly mixed by turning from a light blue to white color.

—Tested by Jim Downing

**Devcon five-minute epoxy gel, about $3 for a 1-oz. dual syringe at hardware stores nationwide.**

---

**Stick a tape measure wherever you need it**

Many times, it's faster to bring a workpiece to a rolled-out tape measure than to pull a tape measure from your pocket, unwind it, and then make a reading. With that in mind, Stanley Tools developed Stick-A-Tape adhesive-backed steel measuring blades.

I placed the tape along the chipped and paint-coated edge of an old workbench and it has stayed firmly in position for the past few months. I placed leftover sections in other spots around my shop.

—Tested by Steve Oswalt

**Stanley Stick-A-Tape, available in 8' and 12' lengths at stores nationwide. Suggested retail price for both lengths: $6.28.**
Hooray for this hotmelt gun
With so many hotmelt glue guns on the market, few of them stand out from the pack. The Arrow hotmelt gun does, largely because of its stable stand and drip pan that helps you avoid a sticky mess. I liked its smooth and positive trigger feed. And when you use a hotmelt gun as much as I do, it's the little things that really add up. For my money, a hotmelt gun can never heat up too fast, and this one comes up to operating temperature faster than any other I've ever tried. Glue sticks come in 4" and 10" lengths with caulking and weatherstripping sticks also available.
—Tested by Jim Boelling
Arrow hotmelt glue gun model TR-550, about $26 at hardware and home-center stores nationwide.

Put the clamp on irregular objects
This product consists of two parts: nonmarring, leather-padded blocks that fit your 9" or 11"-wide vise and pivoting jaws that sit atop the padded blocks. The latter allow you to lock onto irregular-shaped workpieces with ease—something that's not possible otherwise. Thanks to clear instructions, installation was relatively easy. The product appears well-built and, should last the lifetime of your vise.
—Tested by Larry Clayton
Vise blocks and pivoting jaws, no. 06M06 for the 9" size, $39.95 ppd.; no. 06N09 for the 11" size, $42.50 ppd.; from Woodcraft, 210 Wood County Industrial Park, P.O. Box 1686, Parkersburg, WV 26102.

IF YOU THINK OUR NEW BAR CLAMP LOOKS GREAT, WAIT UNTIL YOU GET YOUR HANDS ON IT.

Pick up the new QUICK-GRIP™ Bar Clamp. Squeeze the pistol grip handle to tighten clamping pressure. One finger on the quick-release trigger unlocks the clamp.
You've only used one hand.
The revolutionary pistol-grip mechanism puts control of clamping pressure in the palm of your hand. You can work faster, with more precision. Positive locking action holds work tight. Quick-release trigger lets go in a snap. High-tech resin construction is strong yet lightweight. Instantly adjustable clamping pressure. Large, pliable pads won't mar work. Available in five sizes – 6"/150mm, 12"/300mm, 18"/455mm, 24"/605mm, 36"/910mm. Get your hand on the new QUICK-GRIP Bar Clamp wherever quality tools are sold. Yes, it looks revolutionary. And this time, looks aren't deceiving.

QUICK-GRIP
A UNIT OF AMERICAN TOOL COMPANIES, INC.
U.S. AND FOREIGN PATENTS PENDING.
CAN YOU BUILD THESE?

You bet you can! With our easy-to-follow plans, it's a snap. Your kids or grandkids will love the Canopy Top Sandbox. It protects them from the sun and the top can be lowered to cover toys and keep out the weather. The popular Child's Rockin' Duck is hours of fun and will last so you can pass it on to the grandchildren. Many more plans are available. Send $7 for one plan or $12 for both, and write for FREE catalog to: J & I Enterprises, 7316 Baer Road Fort Wayne, Indiana 46809

STENCILS
FOR
Sandblasting Wood & Glass Signs
See Article In April 1990 Issue Of Wood
On Sandblasting to Dress Up Projects
Cut Vinyl Lettering and Designs For
Painted Signs & Decorative Projects
Large Selection of Stencils And Sizes
Custom Stencils From Your Artwork

Grafix Masters
PO Box 27368
Lansing, MI 48809
(517) 484-8667

Send $5.00 For Full Line Catalog

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
900-234-0330

INDESTRUCTIBLE SCREWDRIVER
SET
The blade and handle are a single forging with a smooth, oval-shaped hardwood grip riveted to each side of the handle for comfort. Set of 4: 6", 8", 10" and 12" long overall.

$9.99 INCLUDES SHIPPING
Ordering Information:
1-800-533-5305
□ Mastercard □ Visa □ Amex
Card No. ___________ Expires ___________
OR send $9.99 to:
The Fine Tool Shops
P.O. Box 7091-PY2
Portsmouth, NH 03802

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 hardwoods, softwoods and hardwood-to-hardwood 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

PRODUCTS THAT PERFORM
Continued from page 25

Finally! a solution to pegboard fallout
After years of seeing my pegboard hooks fall to the floor, I welcomed the opportunity to try out a product that promised a solution. M-Cliips, a plastic fastener for pegboard hooks, kept its promise. After a quick-and-easy installation, M-Cliips tenaciously held my hooks in place, giving me more time to get my work done. However, carefully plan the position of your hooks because once the M-Cliips are in place, you will have a difficult time removing them.

—Tested by Steve Oswalt

Dustblocker shop apron, $25.45 ppd. from Woodworker's Supply of New Mexico, 5604 Alameda Place, NE, Albuquerque, NM 87113.

These pulleys reduce tablesaw vibration
Vibration in a tablesaw can lead to all sorts of problems, including inaccurate cuts and blade marks. One source of vibration: the standard, cast-metal pulleys on most tablesaws. A set of turned metal pulleys from Inline Industries went a long way toward reducing vibration in my Delta contractor's saw. Currently, you can purchase the pulleys for 1/2", 3/8", and 3/4" motor and blade arbors. Specify the make and model of your saw when ordering.

—Tested by Jim Downing
M-Clips pegboard book fasteners, $6.99 ppd. for 50 clips from Aetech Corp., P.O. Box 6298, Lawrenceville, NJ 08648.

Apron stops dusty pain in the neck

Because I'm an avid woodturner, I jumped at the chance to test any product that would stem the inevitable tide of chips that fall down the inside of my shirt as I work at the lathe. The Dustblocker shop apron did the trick. How? Unlike other shop aprons, this model has a turtleneck that forms a chip-tight barrier around your neck. The collar fits up to a size 18 neck.

The smock's durable, urethane-coated nylon material resists liquids and dusts off easily. Although I keep the apron next to my lathe, I also found the garment suitable for sawing and routing.

—Tested by C. L. Gatzke

Turned metal pulleys, $17.50 ppd. per pair from Inline Industries, 661 S. Main St., Webster, MA 01570. To order, call 800-533-6709 (508/949-2968 in MA).

Continued on page 28
PRODUCTS THAT PERFORM

Continued from page 27

Air filter gives your lungs a dust break

Even the most elaborate dust collection systems won’t capture the barely-visible, super-fine dust that spews from most woodworking machinery. Now, Tech Paper offers a helping hand: the Mobile “K” air filtration unit.

This stand-alone machine consists of a window fan inside a metal enclosure on casters. That sounds awfully simple, but a sophisticated paper filter helps this unit capture particles as small as 0.3 microns in size. The manufacturer says you’ll get 65 filter changes from the 18” x 130” paper roll. We ran the filter continuously for three weeks in the WOOD magazine shop before it needed a change. Tech Paper tells us one unit will adequately handle the needs of a 20’ x 30’ shop.

—Tested by Jim Boelling

Mobile “K” filter, $296.50 (with one roll of filter paper) plus shipping, from Tech Paper, Inc., 64 Euclid Ave., Pittsfield, MA 01201. Replacement filters cost $47.50. Write or call the company at 413/499-3351 for shipping costs.

The best countersink bits I’ve ever seen

I’ve never liked the rough, faceted marks left along the walls of my countersunk holes by traditional fluted countersink bits. When I heard that Garrett Wade had a countersink bit that shears the wood fibers, rather than scraping them like 2- and 5-fluted bits, I just had to try them out. I wasn’t disappointed. The bits cut exceptionally smooth, even without a predrilled hole. The no. 2 bit shown below cut the smooth hole on the left side of the oak-veneered plywood. I cut the rougher hole on the right with a 5-fluted countersink bit.

The no. 0 bit will countersink holes from 3/8” to 1/2”, the no. 1 from 3/16” to 3/8”, and the no. 2 from 1/4” to 1/2”. Shank are 1/4”.

—Tested by Jim Boelling

Countersink bits, $14.25–$17.40 each plus postage from Garrett Wade. Call 212/827-1155 or 800-221-2942 (orders only).
CARBIDE TIPPED ROUTER BITS AND SHAPER CUTTERS, INDUSTRIAL QUALITY AT DISCOUNT PRICE
NEW COMPLETE RANGE FREE CATALOG AVAILABLE ON REQUEST

<table>
<thead>
<tr>
<th>CUTTER</th>
<th>ORDER#</th>
<th>CUT DIA</th>
<th>CUT L</th>
<th>SH DIA</th>
<th>PRICE</th>
<th>CUTTER</th>
<th>ORDER#</th>
<th>R</th>
<th>CUT L</th>
<th>SH DIA</th>
<th>PRICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>STRAIGHT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ST206</td>
<td>1/4</td>
<td>3/4</td>
<td>1/4</td>
<td>5.50</td>
<td></td>
<td>CR203</td>
<td>1/8</td>
<td>3/8</td>
<td>1/4</td>
<td>10.00</td>
<td></td>
</tr>
<tr>
<td>ST210</td>
<td>3/8</td>
<td>1</td>
<td>1/4</td>
<td>5.50</td>
<td></td>
<td>CR205</td>
<td>3/8</td>
<td>3/8</td>
<td>1/4</td>
<td>10.00</td>
<td></td>
</tr>
<tr>
<td>ST213</td>
<td>1/2</td>
<td>1</td>
<td>1/4</td>
<td>5.50</td>
<td></td>
<td>CR206</td>
<td>1/2</td>
<td>3/8</td>
<td>1/4</td>
<td>12.00</td>
<td></td>
</tr>
<tr>
<td>ST413E</td>
<td>1/2</td>
<td>2</td>
<td>1/2</td>
<td>12.00</td>
<td></td>
<td>CR210</td>
<td>3/8</td>
<td>5/8</td>
<td>1/4</td>
<td>14.00</td>
<td></td>
</tr>
<tr>
<td>ST216</td>
<td>5/8</td>
<td>1</td>
<td>1/4</td>
<td>5.50</td>
<td></td>
<td>CR213</td>
<td>1/2</td>
<td>3/4</td>
<td>1/4</td>
<td>16.00</td>
<td></td>
</tr>
<tr>
<td>ST219</td>
<td>3/4</td>
<td>1/4</td>
<td>1/4</td>
<td>8.50</td>
<td></td>
<td>CR419</td>
<td>3/4</td>
<td>1</td>
<td>1/2</td>
<td>20.00</td>
<td></td>
</tr>
<tr>
<td>STRAIGHT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ST425</td>
<td>1 1/8</td>
<td>1/2</td>
<td>1/2</td>
<td>8.90</td>
<td></td>
<td>CR425</td>
<td>1</td>
<td>1</td>
<td>1/2</td>
<td>32.00</td>
<td></td>
</tr>
<tr>
<td>FT210</td>
<td>3/8</td>
<td>1</td>
<td>1/4</td>
<td>6.50</td>
<td></td>
<td>RO204</td>
<td>5/32</td>
<td>15/32</td>
<td>1/4</td>
<td>15.00</td>
<td></td>
</tr>
<tr>
<td>FT213</td>
<td>1/2</td>
<td>1</td>
<td>1/4</td>
<td>6.50</td>
<td></td>
<td>RO206</td>
<td>1/4</td>
<td>3/4</td>
<td>1/4</td>
<td>16.00</td>
<td></td>
</tr>
<tr>
<td>FT413</td>
<td>1/2</td>
<td>1/4</td>
<td>1/2</td>
<td>6.50</td>
<td></td>
<td>RO406</td>
<td>1/4</td>
<td>3/4</td>
<td>1/4</td>
<td>16.00</td>
<td></td>
</tr>
<tr>
<td>FLUSH TRIM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DV213</td>
<td>1/2</td>
<td>1/2</td>
<td>1/4</td>
<td>4.60</td>
<td></td>
<td>DV210</td>
<td>1/2</td>
<td>3/8</td>
<td>1/4</td>
<td>11.00</td>
<td></td>
</tr>
<tr>
<td>DV413</td>
<td>1/2</td>
<td>1/2</td>
<td>1/2</td>
<td>4.60</td>
<td></td>
<td>CV210</td>
<td>3/8</td>
<td>9/16</td>
<td>1/4</td>
<td>12.00</td>
<td></td>
</tr>
<tr>
<td>DV419</td>
<td>3/4</td>
<td>7/8</td>
<td>1/2</td>
<td>6.50</td>
<td></td>
<td>CV213</td>
<td>1/2</td>
<td>5/8</td>
<td>1/4</td>
<td>13.00</td>
<td></td>
</tr>
<tr>
<td>DV425</td>
<td>1 7/8</td>
<td>1/2</td>
<td>1/2</td>
<td>7.50</td>
<td></td>
<td>CV419</td>
<td>3/4</td>
<td>3/4</td>
<td>1/2</td>
<td>25.00</td>
<td></td>
</tr>
<tr>
<td>DOVETAIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CB205</td>
<td>1/4</td>
<td>1/4</td>
<td>1/4</td>
<td>8.00</td>
<td></td>
<td>CS206</td>
<td>1/4</td>
<td>5/8</td>
<td>1/4</td>
<td>19.00</td>
<td></td>
</tr>
<tr>
<td>CB210</td>
<td>3/8</td>
<td>5/16</td>
<td>1/4</td>
<td>9.00</td>
<td></td>
<td>CS406</td>
<td>1/4</td>
<td>5/8</td>
<td>1/4</td>
<td>19.00</td>
<td></td>
</tr>
<tr>
<td>CB213</td>
<td>1/2</td>
<td>3/8</td>
<td>1/4</td>
<td>11.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CB219</td>
<td>3/4</td>
<td>1/2</td>
<td>1/4</td>
<td>14.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CB425</td>
<td>1 5/8</td>
<td>1/2</td>
<td>1/2</td>
<td>16.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CORE BOX</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH216</td>
<td>1 1/4</td>
<td>5/8</td>
<td>1/2</td>
<td>13.00</td>
<td></td>
<td>RB232</td>
<td>1 1/4</td>
<td>1 1/4</td>
<td>1/2</td>
<td>12.00</td>
<td></td>
</tr>
<tr>
<td>CH422</td>
<td>1 1/4</td>
<td>7/8</td>
<td>1/2</td>
<td>18.00</td>
<td></td>
<td>RB432</td>
<td>1 1/4</td>
<td>1 1/4</td>
<td>1/2</td>
<td>12.00</td>
<td></td>
</tr>
</tbody>
</table>

* 3 WING SHAPER CUTTERS MORE THAN 50 ITEMS

- 16" SCROLL SAW
  ORDER #SS-16 $99.00
  * RETAIL VALUE $209.00

- CAST IRON BASE AND TABLE
- LIGHT LOAD, CUTTING WITHOUT BLADE BREAKAGE
- 1725 STROKES / MIN
- "CUTTING CAPACITY 2" DEPTH AT 90° AND 1" DEPTH AT 45°

**Nicholson®**
TOP OF THE LINE 6 1/8"-10" 20T - 60T

TO ORDER BY MASTER CHARGE OR VISA CALL TOLL FREE
1-800-78 26629 (1-800-78 AMMAX)
7AM-5PM PACIFIC TIME MONDAY-FRIDAY, OR SEND CHECK TO
AMMAX TOOLS CO.
12655 DANIELSON COURT SUITE 310. POWAY CA 92064

SAME DAY SHIPPING

Nicholson
60° 10" CIRCULAR TIPPED
10" X 60T ORDER # NIC 81030
$39.99
RETAIL VALUE $60.09

|$39.99
| $60.09

Nicholson
Another Way To Look At Routers.

Freud's new FT2000, 3-1/4 HP Plunge Router with 1/2 inch collet has been engineered with your needs for a safe and versatile tool in mind. The mighty 3-1/4 HP motor is the most powerful you can buy.

When mounted under a router table the Freud FT2000 can take the place of a more expensive spindle shaper.

Four major features separate the FT2000 from other routers and make it a pleasure to use!

The Long Collet, 1-3/8 inch long, allows for a longer, more even grip of the bit shank. This decreases run out and increases operating safety.

The Micro-adjustment Depth Control makes accurate vertical settings quick and easy. An effortless turn of the knob does the trick!

The Sliding Shaft Lock makes bit changing simple, safe and easy. Only the one wrench provided is needed. This is especially appreciated when changing a bit with your router mounted under a table.

Safety was an important factor when the on-off switch and the plunge lock were designed! Both were created with a downward stroke to disengage each feature. The on-off switch is controlled by the left hand and the plunge lock is controlled by the right hand.

A 1/4 inch collet reducer and collet wrench are standard with this powerful machine. Optional accessories include micro-adjustment parallel fence and set of template guides. To get your hands on the FT2000, 3-1/4 HP Plunge Router call us for the name of your local Freud distributor!

Precisely what you need.

High Point, NC • (919) 434-3171
SUGAR MAPLE

Hard as a rock, but how sweet it is!

Acer, part of the maple family's Latin, scientific name, means hard or sharp. And to the Romans, the wood was just that. From it, they made lance and pike shafts for battle. It was furniture, though, that bestowed the term "rock hard" on this traditional stock.

As the story goes, a colonial American cabinetmaker by the name of Rock promoted his work as "Rock's Hard Maple Furniture." That's why to this day many people refer to sugar maple as rock or rock-hard maple.

Sugar maple, although tough as its reputation, has a sweeter side. The other half of its genus name—saccarum—refers to its sap, a source of syrup and sugar.

Wood identification

Practically all states east of the Great Plains boast sugar maple (Acer saccharum), that in a forest setting, grows 70–130' tall with a diameter of 2–3'. Open-grown trees have shorter trunks with a rounded crown of many branches. All sugar maples when young have a smooth silvery bark that with age turns ash-gray and breaks into unevenly layered flakes or scales.

Sugar maple has palm-sized leaves with five pointed lobes that in the fall call forth brilliant shades of red and orange. In early summer, double-winged keys—the tree's inedible fruit—emerge. Straight-grained, fine-textured, hard, strong, and at 44 pounds per cubic foot as heavy as red oak, the wood of sugar maple has high commercial value. Its sapwood, frequently 3–5" thick, appears much lighter in color than the slightly pinkish-tan heartwood. Both are sold.

Some trees produce spectacularly figured wood in curly, fiddleback, quilt, and bird's-eye.

Uses in woodworking

Known for its toughness and durability, sugar maple takes a pounding as bowling-lane surfaces, bowling pins, school desks, tool handles, and ladder rungs. On a gentler side, it's sugar maple that becomes much of the furniture we call "Early American." The wood also shows up as cabinets, countertops, cutting boards, butcher block, and flooring.

Turners find figured sugar maple, particularly burls and intricately colored spalted stock, appealing for bowls. Fiddleback sugar maple has always been popular for the backs of stringed instruments, such as violins.

Availability

Sugar maple, sold all across the continent, often comes in board lengths of 12' and widths to 10'. Large dealers may also offer figured wood as well as plain lumber. And, furniture squares, hardwood plywood, and figured veneers are easily obtained.

In abundant supply, sugar maple lumber sells for about $1.50 per board foot (slightly more for figured stock). Veneer, from plain to exquisitely figured, costs from 50 cents to $1 per square foot.
sugar maple
(Acer saccharum)

Machining methods
Sugar maple isn't dubbed “hard maple” without reason. It dulls cutting edges, yet it chips. And, sugar maple burns more easily from cutting and machining than any other wood. Here's how to overcome this wood's pesky traits:
- Feed densely figured wood, such as bird's-eye, very slowly into the planer, and never plane it exactly to thickness. Leave some for sanding. Otherwise, the grain tears out in pocks. For hand-planing, set the iron at a 15°–20° angle.
- Dense, close-grained sugar maple demands a rip-profile blade with no more than 28 teeth. Sawdust won't accumulate, causing friction that heats the blade to burn the wood. If tearout occurs, allow for a 1/8" jointing pass to clean the edge.
- Crosscut figured wood with help from a backing board.
- Drill sugar maple at about 250 rpm, and back the bit out to clear chips. A stubby, spurred brad-point bit won't burn the wood as easily as one with long spurs.
- Burning glazes the wood.
- Avoid burning by routing only with bits that have ballbearing pilots. With speed control, rout slowly. Use a consistent feed rate.
- Lubricate screws.
- Sugar maple doesn't absorb glue immediately, sometimes resulting in joint slippage from excess glue. If this happens, switch to a glue with longer open time (such as a white glue) and put down a lighter coat. Briefly join the pieces, then pull them apart and let the glue set up before reassembling. Note: Solid joinery usually requires a machined joint.
- Don't oversand sugar maple with extremely fine paper, such as 400- or 600-grit. Excessive sanding burns the wood so that it won't readily accept stain.
- Avoid cross-grain sanding. Better yet, use a cabinet scraper.
- For even staining on sugar maple, first apply a wood conditioner, or use aniline dyes. Tinting the topcoat works, too.

Carving comments
- Sugar maple discourages the most accomplished carvers, but it does take very fine detail. Here's how to handle it:
  - Even a shallow gouge bevel of 15°–20° erodes fast in this wood. To add edge longevity, grind a slight (10°) bevel on the backside of the gouge tip.
  - Power carvers should start with medium-cut burrs, then follow with finer ones. Coarse-cutting burrs chip the wood.

Turning tips
- Sugar maple turns like a dream, even for beginners, and requires little or no sanding when sheared with sharp tools. Here's two tips to avoid burning:
  - Don't let the turning tool's bevel ride in one spot very long.
  - When sanding on the lathe, watch for abrasives wearing off. Bare sandpaper running against the wood will burn it, too.

<table>
<thead>
<tr>
<th>SUGAR MAPLE AT A GLANCE</th>
<th>$</th>
<th>$</th>
<th>$</th>
<th>$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hardness</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stability</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Durability</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strength</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Toxicity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Workability</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Look-Alike</td>
<td>Yellow birch</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Compiled with woodworkers Jim Boelling, Paul McClure, Don Wipperman, woodcarver Phil Odden, turner Rick Reeves Illustrations: Steve Schindler
AMERICANA
COLLECTION

Five simply styled pine projects with origins in colonial America
EARLY-DAYS

SOFA TABLE

New arrivals to America faced an enormous task in scratching out an existence in the colonies. And because they had little time or need for elaborate furniture, the pieces they crafted reflected a practical, down-home lifestyle. That straightforward design approach—as shown in the table below—draws raves even today from families who enjoy the country look. The table, with its single drawer, painted base, and stained top, works well behind a sofa or in a hallway.

Start with the tapered legs

1. From 3/4”-thick pine stock, cut eight pieces 15 1/2” wide by 30 1/4” long for the legs (A). With the edges and ends flush, glue and clamp together two pieces of pine, face to face, for each leg.
2. Scrape the excess glue from one edge of each leg, and joint or plane the scraped edge. Using your tablesaw, rip the opposite edge of each leg for a 1 1/2” finished width.
3. Trim both ends of each leg for a 29 1/4” finished length.
4. Mark the centerpoints and drill 3/8” holes 5/8” deep on two adjoining sides of each leg where located on the Leg Blank Drawing below. (We used a doweling jig when drilling the dowel holes.)
5. Using the Leg Blank Drawing below for reference, locate and mark the cutlines on all four surfaces of one leg.

LEG BLANK

6. Following the steps on the drawing on page 36, taper-cut each leg to shape. See our plans in the August 1987 issue of WOOD® magazine if you don’t have a taper jig.

Continued
Bill of Materials

<table>
<thead>
<tr>
<th>Part</th>
<th>Finished Size*</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>T</td>
<td>W</td>
<td>L</td>
</tr>
<tr>
<td><strong>TABLE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A* legs</td>
<td>1 1/2&quot;</td>
<td>1 1/2&quot;</td>
</tr>
<tr>
<td>B sides</td>
<td>3/4&quot;</td>
<td>5 1/2&quot;</td>
</tr>
<tr>
<td>C back</td>
<td>3/4&quot;</td>
<td>5 1/2&quot;</td>
</tr>
<tr>
<td>D front</td>
<td>3/4&quot;</td>
<td>5 1/2&quot;</td>
</tr>
<tr>
<td>E cleats</td>
<td>3/4&quot;</td>
<td>3/4&quot;</td>
</tr>
<tr>
<td>F drawer liners</td>
<td>3/4&quot;</td>
<td>4 1/2&quot;</td>
</tr>
<tr>
<td>G guides</td>
<td>3/4&quot;</td>
<td>3/4&quot;</td>
</tr>
<tr>
<td>H cleats</td>
<td>3/4&quot;</td>
<td>3/4&quot;</td>
</tr>
<tr>
<td>I* top</td>
<td>3/4&quot;</td>
<td>10 1/2&quot;</td>
</tr>
<tr>
<td><strong>DRAWER</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>J sides</td>
<td>1/2&quot;</td>
<td>2 7/8&quot;</td>
</tr>
<tr>
<td>K front</td>
<td>1/2&quot;</td>
<td>2 7/8&quot;</td>
</tr>
<tr>
<td>L back</td>
<td>1/2&quot;</td>
<td>2&quot;</td>
</tr>
<tr>
<td>M bottom</td>
<td>1/4&quot;</td>
<td>6 1/4&quot;</td>
</tr>
<tr>
<td>N face</td>
<td>3/4&quot;</td>
<td>3 3/8&quot;</td>
</tr>
</tbody>
</table>

*Initially out parts marked with an * oversized. Trim each to the finished size listed according to the how-to instructions.


Supplies: 1" dia. knob, #8 x 1 1/4" oval head brass wood screw, 3/8" dowel pins 1 1/2" long, #8 x 1" F.H. wood screws, #8 x 1 1/4" flathead wood screws, #10 x 1 1/4" roundhead wood screws, #10 washers, 1"x17 brads, double-faced (carpet) tape, finish.
It's time to add the aprons

1. Cut the side aprons (B) and back apron (C) to the sizes listed in the Bill of Materials. Cut the front apron parts (D) to the sizes shown on the drawing at right.
2. With the ends flush, glue and clamp together the front apron as shown in the photo below right.
3. Cut a piece of heavy paper to 2 x 16", and draw a 1" grid on it. Using the grid pattern at right for reference, lay out the half-pattern on the piece of paper. To do this, mark the points where the pattern outline crosses each grid line. Draw lines to connect the points. Cut the pattern to shape, position the bottom of the template flush with the bottom of the front apron, and use it to lay out the curved bottom on one half of the apron. Repeat to mark the outline on the other half of the apron.

Now, join the aprons to the legs

1. Using dowel centers, transfer the dowel-hole centerpoints from the legs to the side aprons (B), back apron (C) and front apron (D). The aprons set back 3/8" from the face of the legs where shown on the Corner Detail.
2. Drill 3/8" holes 1 1/8" deep for the dowel pins where marked in the ends of the aprons.
3. Glue and clamp a side apron between a front and rear leg. Using the two other legs and side apron, repeat the process.

Check that the ends are flush when clamping the front-apron pieces.

4. Glue the back apron (C) and front apron (D) between the leg assemblies as photographed above right. Check for square.
5. Cut the cleats (E) to size. Drill the mounting holes. (As shown in the Corner Detail accompanying the Exploded-View Drawing, we drilled one of the top mounting holes oversized. This allows the mounting screw to move slightly as the top expands and contracts.) Glue and screw the cleats to the inside edge of the side aprons.
Next, install the drawer guides

1. To verify the length, measure the distance between the front and back aprons. Cut the drawer liners (F) and guides (G) to the sizes listed in the Bill of Materials and to the measured length.
2. Glue and nail the guides flush with the top and bottom edges of the drawer opening where shown on the Exploded-View Drawing.
3. Cut the mounting cleats (H) to size, and glue and nail them to the outside surface of each drawer liner flush with the ends.
4. Glue and nail the drawer-guide assemblies (F, G, H) between the front and back aprons. The inside edge of the drawer liners (F) should be flush with the inside edge of the drawer opening in the front apron.

And now for the tabletop

1. Cut three pieces of 3/4" pine stock to 37" long by 3½" wide for the top panel (I). Edge-join the pieces with the surfaces and ends flush. Use clamp blocks to prevent denting the pine edges.
2. Scrape the excess glue and sand smooth. Trim the top panel to 36" long. Rout a 3/8" round-over bit along the front and side edges of the tabletop. See the Edge Detail accompanying the Exploded-View Drawing for reference.

Add the drawer for a bit of storage

1. Rip and crosscut the drawer sides (J), front (K), back (L), and bottom (M) to the sizes listed in the Bill of Materials.
2. Cut a 1/4" groove 1/4" deep, 3/8" from the bottom edge of the drawer sides and drawer front. (See the Drawer Drawing for reference.) Now, cut a 5/8" dado 1/4" deep, 2" from the back end of each drawer side. Also, cut a 3/8" rabbet 1/4" deep along the front inside edge of each drawer side.
3. Drill and countersink a pair of 3/8" holes through the drawer front (K) where shown on the Drawer Drawing. You'll use these holes to attach the drawer face (N) to the drawer front later.
4. Dry-clamp the drawer pieces to check the fit of the pieces and to check the fit of the drawer into the front-apron opening. Glue and clamp the drawer together, checking for square. Do not glue the bottom (M) in the 1/4" groove; instead, secure it to the back (L) with 1" x 17 brads. (We butted masking tape on the inside of each drawer corner to catch excess glue. After the glue dried, we peeled off the tape. This saved lots of sanding and prevents unsightly chisel or scraper marks that result from trying to remove the hardened glue from the soft pine.)

5. Cut the drawer face (N) to size. Drill a 3/8" hole in the center of the face for attaching the knob.
6. Rout a 3/8" round-over along the front edges of the drawer face.
7. Screw the drawer face (N) to the drawer front (K).

Sand smooth and add the country finish

1. Sand smooth the base, tabletop, and drawer.
2. Finish as desired. For information on how to achieve the country look like that on the sofa-table base, refer to the country-finish techniques article starting on page 46. (For the sofa table and other pieces in this section, here are the finishes in the order we applied them: Wood Kote's traditional walnut stain, clear lacquer, Sherwin-Williams cajun red paint, Stubb's soldier blue paint, Bartley's jet mahogany gel stain, and two coats of satin polyurethane.)
3. Stain the tabletop and apply the finish. (We used Wood Kote's traditional walnut stain. After that dried, we used a toothbrush to splatter on Bartley's jet mahogany gel stain, followed by two coats of clear satin polyurethane.)
4. When dry, place the tabletop (I) upside down on a blanket on your workbench. Position the table base, also upside down, on the tabletop. With the back edges flush, center the base from side to side. Screw the base to the top through the mounting cleats (E) where shown on the Exploded-View Drawing. Insert the #10 x 1 1/4" roundhead wood screws with washers through the 3/4" holes and drive tight. Then, loosen the screw one full turn to allow for seasonal expansions and contractions of the tabletop.
5. Add a 1" knob to the drawer. (We used a porcelain knob available at most hardware stores—and attached it with a #8 x 1 1/4" oval brass wood screw. To prevent the screw from working loose, we added a drop of epoxy to the threads.)

Country Section Produced by Marlen Kemmet

Photographs: Hopkins Associates; Bob Calmer

Project Designs by Gray Fisher
COLONIAL CANDLE BOX

Because they provided the only source of light other than the fireplace in colonial American homes, candles were important to our forefathers. Early American woodworkers built candle boxes to store and to protect this valuable commodity from heat and from mice, which feasted on the tallow shafts. Like many of the originals, the lid on our pine box contains a simple-to-carve decorative design and thumb grasp. Larger versions of this same box were constructed to store family papers, records, and other valuable documents.

First, machine the box parts

1 From ½" pine stock, cut a piece 3½" wide by 24" long for the box sides (A) and back (B). Now, cut the front (C) to the size listed in the Bill of Materials.

2 Cut a ¼" groove ¼" deep and ¼" from the top and bottom edges of the 24"-long piece. See the Exploded-View Drawing for reference. Now, cut the same-sized groove ¼" from the bottom edge of the front piece. (We used a ¼" dado blade to make the cuts. You also could fit your table-mounted router with a ¼" straight bit and fence to form the groove.)

3 Crosscut the sides (A) and back (B) to length from the 24"-long grooved board.

4 Cut the box bottom (D) to size from ½" plywood. (We cut the bottom ¼" smaller in length and width than the opening to allow for expansion and contraction of the box.) Dry-clamp the box together to check the fit.

Assemble the box and plug the grooves

1 Glue and clamp the box (do not glue the bottom in place; you want it to float in the grooves).

2 Nail the box together with ¾"x17 brads. Check for square. Using a nail set, indent the nails slightly below the pine surface.

3 Cut a piece of pine to ¾" by 12" long (we used a dovetail saw). Crosscut six pieces ¾" long from the strip for the groove filler blocks. See the Exploded-View Drawing for reference.

4 Glue the filler blocks in the ends of the exposed grooves. Let the glue dry, and then trim and sand the ends of the blocks flush with the surfaces of the box.

Cut and shape the lid; then sand and add the finish

1 Cut the lid (E) to size. Using carbon paper, transfer the full-sized heart pattern to the top of the lid where located on the Exploded-View Drawing.

2 Carve the outline of the heart with a hobby knife (we cut about ¾" deep). Using a ¼" chisel (you could also use a carving gouge if you have one), remove the stock inside the cut outline as shown in the photo at right. (We used double-faced tape to hold the lid securely to our workbench top when we carved the heart.) For a more realistic look, leave the faceted chisel cuts visible.

3 Transfer the thumb grasp outline to the lid. Then, shape the thumb grasp using the procedure listed above and the Thumb Grasp Detail accompanying the Exploded-View Drawing.

4 Using Step 1 of the drawing above right for reference, cut
After outlining the heart with a hobby knife, remove the stock with a chisel.

**Bill of Materials**

<table>
<thead>
<tr>
<th>Part</th>
<th>Finished Size*</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>A* sides</td>
<td>1/2” 3/16” 8 1/4”</td>
<td>P 2</td>
</tr>
<tr>
<td>B* back</td>
<td>1/2” 3/16” 4”</td>
<td>P 1</td>
</tr>
<tr>
<td>C front</td>
<td>1/2” 3” 4”</td>
<td>P 1</td>
</tr>
<tr>
<td>D bottom</td>
<td>1/4” 4 7/16” 8 1/4”</td>
<td>PW 1</td>
</tr>
<tr>
<td>E lid</td>
<td>1/2” 4 7/16” 8 1/2”</td>
<td>P 1</td>
</tr>
</tbody>
</table>

*Initially cut parts marked with an * oversized. Trim each to the finished size listed according to the how-to instructions.

**Material Key:**
P- pine, PW- plywood.

**Supplies:**
double-faced tape, 1/8”x17 brads, finish.

---

**HEART DESIGN**

**FULL-SIZED PATTERN**

---

Cutting Bevels

STEP 1

- Tablesaw
- Saw blade angled 15° from vertical

Cutting the Rabbets

STEP 2

- Wooden auxiliary fence
- Fence

---

A bevel along three sides of the lid. Switch to a 1/4” dado blade and refer to Step 2 above to cut the rabbet along the same three lid sides. Check the fit of the lid in the grooves in the box; trim if necessary for smooth operation.

5 Sand the box and lid. Paint the candle box. To achieve the country look as shown, refer to the country-finish techniques article starting on page 46. Then, read the section on finishing the sofa table on page 37 for the names of the paints and finishes we used.
Nowadays, most people use a candlestand as a decorative accent. But during the early years of this nation, it was an important piece of furniture for quite a different reason. If someone wanted to pursue a hobby such as reading or needlework, he or she needed sufficient light nearby. The candlestand, which was lightweight enough to move to the desired location, provided the perfect platform for that light source—the candle. Today, you can take a shortcut by substituting a 2 x 2 x 30" baluster for the turned pedestal. Turned balusters—used to support hand railings—are available at most homecenters.

Note: Like the originals, our candlestand is designed for candles and small objects. If you wish to use the stand for larger items, increase the spread of the legs and the diameter of the top for more stability. For example, the turned-pedestal display table we presented in the August 1985 issue of WOOD® magazine had a 14"-diameter top and a 17"-long spread from toe to toe on the legs.

Start with the legs
1 Using the Leg Pattern on page 42 for reference, use tracing paper or a photocopy machine to make a copy. (We made a photocopy, adhered it to ½" hardboard with spray-on adhesive, and then cut the hardboard template to shape on a bandsaw.) Cut the paper pattern to shape, and use it as a template to mark four leg outlines on ¾"-thick pine stock.
2 Bandsaw the legs (A) to shape. Using double-faced tape, tape together the legs, face-to-face, with the edges and ends flush. Using the round end of a stationary or belt sander, sand the edges of the legs flush as shown at left.
3 Using a square, mark the dowel-hole locations on each leg. Separate the legs and remove the double-faced tape.
4 As shown on page 42, use a doweling jig and drill ¾" holes ¾" deep where marked.
5 Rout or sand a ½" round-over on all edges of each leg, except those that will fit against the baluster. See the drawing at right for reference. Sand the legs.

A turned pedestal that requires no lathe
1 If you're a turner, you might enjoy turning the pedestal. If not, buy a 2 x 2 x 30" baluster. (We used a Mansion Industries
2 × 2 × 30" traditional baluster, part no. P230TR.) Although it's called a 2 × 2 baluster, ours measured 1 3/8" square. Crosscut the top end for a 28" finished length.

2 Mark reference centerlines on the bottom of the pedestal where shown on the drawing at right. Mark a second line perpendicular to the first line and 3/4" from the bottom of the pedestal.

3 Insert a pair of 3/8" dowel centers into the dowel holes in one leg. Align the dowel centers on the reference lines and squeeze the pieces together to transfer the hole centerpoints to the pedestal.

4 Drill 3/4" holes 7/8" deep into the pedestal where marked. Sand the pedestal smooth.

**Now, add the legs to the pedestal**

1 Glue a pair of 3/8" dowel pins 1 1/2" long in each leg.

2 Clamp a handscrew clamp to each leg where shown in the photo below. (We wrapped sandpaper between the leg and clamp to prevent the clamp from slipping.)

3 Using a pair of sliding-head clamps, clamp two legs to the pedestal by placing the clamp jaws on the handscrew clamps where shown above. To help

Continued
Candlestand

To keep the legs parallel, clamp a piece of scrap stock to the legs as shown at the top of the photo.

4. After the glue dries, remove the clamps and redrill the remaining four holes in the baluster to 3/8" deep. (The dowel pins installed with the first two legs reduce some of the depth.) Using the same procedure as in steps 1 and 2, glue, dowel, and clamp the remaining two legs to the pedestal.

And to top things off...

1. Edge-join two 3/4"-thick pieces of flat stock 5" wide by 10" long. (To prevent cupping later, don't use one solid piece for the top. Even if it's flat now, a piece this wide will tend to cup over time.)

2. Draw diagonals to find center, and use a compass to mark a 9" circle (4 1/2" radius) on the top. Bandsaw the top to shape, cutting just outside the marked line. Sand to the line for the finished shape. (We used a disk sander.)

3. Rout a thumb mold on the top edge of the round top. See the detail on page 39 for reference.

4. Finish-sand the pedestal assembly and top smooth.

5. Cut four mounting cleats to the size shown on the Exploded-View Drawing on the previous page. Glue and nail the cleats to the pedestal. Then, glue and nail the pedestal and cleats, centered on the bottom side of the top.

6. Paint the candlestand. To achieve the look shown, refer to the country-finish techniques article starting on page 46. Read the section on finishing the sofa table on page 37 for the names of the paints and finishes we used on the country projects.
PILGRIM'S-PRIDE WALL BOX

This simple project has its roots planted firmly in colonial America. But back then, boxes of this shape couldn't have held matches—they weren't invented until 1816. Rather, colonists stored delicate, long-stemmed clay pipes in similar wall-hung boxes.

Cut the parts and carve the heart
1. From 1/4" pine (we resawed 3/4" stock to this thickness), cut a piece 2 1/4" wide by 13 3/4" long for the box back (A). Use carbon paper to transfer the full-sized top pattern outline and hole centerpoint to one end of the pine. Drill the 1/4" hole, and cut the back to shape.
2. Cut the sides (B), front (C), and bottom (D) to the sizes shown at right.
3. Transfer the full-sized heart pattern shown on page 39 to the front piece (C).
4. Carve the outline of the heart with an X-acto (we cut about 1/8" deep). Using a 1/4" chisel, remove the stock inside the cut outline. (We used double-faced tape to hold the back securely to our workbench top when we carved the heart.)
5. Apply glue to the mating surfaces, and hold the box together with tape. Nail together the box with 1/2"x18 brads. Using a nail set, indent the nails slightly below the wood's surface.
6. Sand and paint the box. To achieve the country look as shown, refer to the country-finish techniques article starting on page 46. Then, read the section on finishing the sofa table on page 37 for the names of the paints and finishes we used.

Supplies: double-faced tape, 1/2"x18 brads, finish.
CLOCKS were a luxury item in America during the early years. Only the wealthy could afford to have one imported from England. In fact, it wasn’t until around 1800, and the invention of the relatively inexpensive mantel or shelf clock, that timepieces came to the masses. Boy, how times have changed!

We ran across the idea for this wall clock (vintage unknown) in a small antique store in Massachusetts. It’s powered by an easy-to-install quartz movement.
Start with the clock front
1 Cut two pieces of 3/4"-thick pine stock to 6 1/2" wide by 13 1/2" long. Glue and clamp the pieces edge to edge for the clock front (A). Immediately remove excess glue with a damp cloth or by scraping lightly with a scraper.
2 After the glue dries, remove the clamps, and trim the clock front (A) to 12 1/4" square.
3 Draw diagonals on the clock front to find center. With a compass, mark a 4 1/2" radius (9" diameter) on the clock front. Drill a blade start hole on the inside of the marked circle, and use a jigsaw or scrollsaw to cut just on the inside of the marked circle. Then, drum-sand to the line. (As shown in the photo at right, we taped spacers to the bottom of the clock front to raise it above the surface of the drill-press table.)

4 Rout a 1/2" round-over along the front edge of the opening where shown on the Exploded-View Drawing. Switch bits, and rout a 1/4" rabbet 1/4" deep along the back edge of the opening.

5 Next, rout a 1/4" round-over along the outside edges of the clock front. Keep this bit in your router; you'll use it to rout the frame members. Sand the clock front smooth.

The frame comes next
1 Cut two pieces of 3/4"-thick pine to 2" wide by 30" long.
2 Rout 1/4" round-overs along one edge of each piece.
3 Miter-cut the frame pieces (B) to 14°. Glue and nail the frame pieces to the clock front (A). Be sure the frame members are flush with the clock front, and sand.

You're almost done
1 Trace the clock-face outline and shaft opening onto a piece of 1/4" hardboard or plywood for the dial backing (D). (See the Buying Guide for our source of the dial and movement.)
2 Drill a 3/4" shaft hole through the backing, and then cut and sand the backing to shape.
3 Adhere the dial to the backing. (We used double-faced tape; epoxy also would work.) Check the fit of the dial and backing into the rabbet in the clock front. (We had to belt-sand the edges of our dial and backing to make it fit.)
4 To "age" the dial, lightly hand-sand the front of the dial with 320-grit sandpaper on a wooden block. Then, dampen a cloth with a bit of stain and lightly wipe the front of the dial.
5 Finish as desired. To duplicate the finish we used, refer to the country-finish techniques article starting on page 46. Then, turn to the section on finishing the sofa table on page 37 for the paints and finishes we used.
6 Secure the dial and backing in the rabbet with hotmelt adhesive. Mount the clock movement to the dial and backing. Snip 1/4" off the end of the minute hand. Finally, add the hands and hang.

*Country photographs: Hopkins Associates; Bob Calmer
Country illustrations: Kim Downing; Mike Henry; Bill Zaun
COUNTRY FINISHES

If you’ve had any experience building country projects such as those in our Americana Collection on page 33, you know that the finish you apply can make or break the looks of the end product. You have to be able to “age” the piece to make it look authentic.

On these five pages, we’ll show you how to apply a painted finish that should add at least 100 years to the appearance of your project. You’ll also learn how to produce the popular crackled and limed finishes. In case you prefer a clear finish, we’ll share a simple method for gracefully aging a natural wood surface.

Most of the finishing experience we have here at WOOD® magazine centers around clear finishes. Usually, we like to let the wood show itself off—naturally.

But country finishes are a different matter. And frankly, until recently we didn’t know much about the topic. But that was before we met up with Dick Fitch, a master of the art, who consults with the people at the Barley Collection, Ltd., a woodworking-kit manufacturer and finish formulator in Easton, Maryland. With more than a half-century of experience in paint and other finishes, Dick is a veritable storehouse of knowledge on the subject.

Now that we’ve spent two days working alongside Dick in his shop, and several more experimenting in our own, we’re finally ready to show you what we’ve discovered about these interesting and not-too-difficult techniques.

How to build up a painted country finish
1. Bare wood
2. Dark stain
3. Clear finish (two coats)
4. Primer
5. Color coat (paint)
6. Wipe-on antiquing
7. Spattering
IN JUST A FEW DAYS, MAKE YOUR PROJECTS LOOK LIKE ANTIQUES

5 EASY STEPS TO A PAINTED ANTIQUE FINISH

1. Distress the unpainted surface. Antiques usually have their fair share of dings, nicks, and scratches. But, before you go about blemishing the surface of your new project, imagine where the object would have received the greatest wear through the years. Then, plan your distressing accordingly. You can use a ball peen hammer to simulate dents, a screwdriver to make scratches, and a rasp to scuff heavily used areas. Then, gently round the edges and corners with 80-grit sandpaper wrapped around a 1" dowel as shown below left. For a natural “worn” look, remember to sand the edges unevenly from spot to spot.

And, don’t overdo it. If a surface would have received little wear over the years, leave it alone. As Dick Fitch told us: “You want to distress—not destroy.”

2. Apply the finish in layers as shown in the photo opposite. This process yields great results, but it does require up to seven coats of finishes. So, be patient. As you’ll see in Step 3, these multiple layers will lead to the aged look you’re after.

To start, wipe on a dark stain and let dry. Then, apply two protective layers of a clear finish (preferably polyurethane), and lightly sand the second coat before laying down a primer paint. The primer can be any paint, but it should be close in color to one of the favorite colonial primer colors: iron-oxide red (our favorite), black, or mustard yellow.

After the primer dries, follow up with the color coat. (The earthy hues shown at the bottom of the following pages look great on country projects.)

Latex and oil-based paints work fine, and you can apply one over the other. However, always sand an oil-based paint before applying a latex finish over it. Otherwise, the latex material may pool or not adhere properly.

3. Now, roll back the years by using 320-grit sandpaper to wear away the color coat along edges, corners, and other areas where the paint would have worn off through use. Although 320-grit paper loads up fast, a coarser paper cuts too quickly through the various layers. First, lightly sand the entire surface, then sand down to the primer coat around hard-use areas as shown below. If you should accidentally sand through the primer, the two clear coats will protect the stained wood. Since old wood is darker than new wood, try not to reveal the bare wood.

For an edge-rounding tool, wrap 80-grit sandpaper around a 1" dowel.

You can purchase paints in the colors shown on this page and the following two pages from these sources:
*Heritage colors available from Sherwin Williams. See your local dealer.
**From The Stuhl Paint Company. Call 800-221-8444 for the dealer nearest you.

320-grit sandpaper helps you remove the color coat without sanding through the primer.

Continued
4 **Patina in five minutes?**
Sure! Just apply a coat of dark oil-based gel stain over the surface, then wipe away most of it with a lint-free cloth as shown below. Leave deposits in crevices and other areas not likely to have received wear and cleaning over the years. The residue left behind after you remove the stain simulates the buildup of grime referred to as "patina." For a source of gel stain, see page 50.

5 **Add a bit more character** by spattering the surface. To achieve this accent (called "fly specks" by some), first mix two parts gel stain with one part mineral spirits in a shallow container. Then, dab an old toothbrush, or a paintbrush with its bristles trimmed to 1/4" long, into the mixture. Practice your spattering technique on a piece of paper before trying it on your project. Place the brush about 6" from the paper, and run your finger through the bristles. When you feel you have the right touch, add a uniform spattering of fine speckles to the workpiece as we're doing below. Don't overdo it. A little spattering goes a long way.

**Note:** Spattering and antiquing work well on non-wood surfaces, too. For example, see page 45 where we aged a clock face.

---

**THE CRACKLED**

No painted surface looks as old as one that has crackled. This process can take decades to occur naturally, but this method requires only a few days:

First give the project a base coat of paint if you don't want bare wood to show between the crackles. After this coat dries, brush on a thin, uniform coat of hide glue over any areas that you want to crackle. The hide glue must dry thoroughly, and this may take a day or more. Then, apply latex paint in long, even strokes. In 20 to 30 seconds the paint will begin to crackle. We achieved the effect.

---

**Paint: the finish of choice for 18th-century Americans**
During colonial times, most citizens painted their furniture. Why? Paints cost less than clear finishes.

---

*Saltbox blue*
*Soldier blue**
*Arcadian*
*Village green*
A cracked finish made with latex paints over hide glue and (inset) a cracked surface covered with an oil-based paint above by skipping the first coat of paint and applying hide glue over bare wood, followed with coats of white and green paint.

Once again, it pays to experiment in order to achieve just the effect you want. If you prefer a more subtle crackling, use the above procedure, but cover the latex coat with oil-based paint, as we did in the example above inset. Because the oil-based paint doesn't crackle, it covers the surface completely.

When WOOD magazine's design editor, Jim Downing, visited the Highpoint International Furniture Show in Highpoint, North Carolina, last fall, he reported seeing a lot of pine furniture with a limed finish. The pieces looked as if they had been painted white and then partially stripped. We investigated the liming process, and found it surprisingly simple.

Liming (left) gives wood a partially stripped look.

As you can see by the side-by-side comparison above, this procedure adds a soft elegance to pine. Open-grain woods, such as oak, soak up more paint, making them look even whiter.

Oil-based paint works best for liming because its longer drying period gives you more working time. To get a shade of white that suits your tastes, experiment by mixing small amounts of black, green, yellow, and other colors into a pure-white base. Also, practice this technique on scrap stock before you lime your project.

To start, brush white paint over the entire surface and wipe it off of the high areas, leaving paint in the crevices and corners. For an added effect, next use a small brush to place more paint in all the crevices, being careful to feather the new paint into the old.

If you want to make the piece look even older, score around the knots with an X-acto knife prior to painting as shown at left. Use the same knife to open up glue joints slightly—the extra paint will accentuate the crevices.

Accentuate knots by cutting a shallow, paint-holding crevice with an X-acto knife or similar tool.

of the day, and applied quicker and easier. Also, furniture was often made from several wood species that would not stain evenly.

For instance, the classic Windsor chair was often made from as many as four different woods. The spindles and legs might be made of oak or maple, the bent back from hickory or ash, and the seat from pine. Imagine trying to evenly stain such a chair!
To make a natural wood surface look old, as we did with the top on the sofa table on page 34, follow these steps:

1. **Distress the piece** just as described on page 47, keeping in mind that the surface will look older and older with every scratch, nick, and dent.

2. **Apply a dark stain** to areas such as the base of legs and other places along edges where dirt would likely accumulate over time as shown at right. Add the same stain to scratches and nicks to accentuate these blemishes. Again, we prefer gel stains for greater controllability.

3. **Apply a lighter stain** to the remaining areas, and blend the stains where they meet. Let both stains sit for a few minutes, then wipe away the excess.

4. **Lighten heavily worn areas** with paint thinner before the stain dries. As shown at right, we lightened the areas of the foot stool where shoes would have likely worn off the finish. To add highlights along edges and corners, sand lightly with 320-grit paper. Now, you can add spatters and a clear coat of your choice.

**Buying Guide**

- **Gel stain.** For a free catalog, write The Bartley Collection, 3 Airpark Drive, Easton, MD 21601.

Written by Bill Krier with Dick Fitch and Jim Boelling
Photographs: John Hetherington
Way to Go Bosch!

Two Innovative Tools You Should Know About

Here at WOOD® magazine, we're always on the lookout for tools that help our readers work safer and more effectively. So, Bosch really got our attention when they recently introduced the first scroll saw with click-in blades, and an easy-to-handle, electric, random-orbit sander. Both machines have smartly designed dust-collection features to boot. Here's what we discovered when we put these tools to the test in the WOOD magazine shop.

Comparing Sander Pad Actions

Random-orbit sander: Abrasive grains on the pad of a random-orbit sander spin in large circles as the pad moves in a "jitterbug" fashion. Orbital-sander pads move in tight circles.

Orbital sander: You can add a new blade to the Bosch 1582DVS jigsaw by inserting the blade sideways, then turning it so it faces forward and making a few quick twists of the top knob.

A jigsaw with dust pickup and convenience to spare

Since introducing the world's first jigsaw under the brand name Lesto, Bosch has continually broken new ground in jigsaw technology. Now, they've done it again. Like its companion models, the 1582 (single speed) and 1582VS (variable speed), the 1582DVS (dustless, variable speed) performs superbly in solid stock, particleboard, and plywood. This newest Bosch jigsaw has good balance, control, and operates relatively quietly.

Best of all, though, you don't have to worry about misplacing any blade-changing screwdrivers or wrenches. You simply twist the top knob three times, insert the new blade, and twist the knob again until it clicks. All of the 1582 models have the "CLIC" blade-changing system, and all require that you buy Bosch's bayonet-style blades.

The 1582DVS has a blower to clear chips away from your cut line, and by hooking up an optional 1" vacuum hose, you can pick up most of the dust.

Priced among the Cadillacs of jigsaws at a suggested list of $265, the Bosch 1582DVS performs like a Rolls Royce. ♠

Front and rear handles, plus a motor directly over the pad, contributed to overall balance and control in our tests of the Bosch 3283DVS electric-powered random-orbit sander.

The model 3283DVS random-orbit sander: Wow!

Many woodworkers lucky enough to own an air compressor have long known the benefits of pneumatic random-orbit sanders. These tools have round pads that spin in eccentric orbits as shown below, so they don't leave the telltale swirl marks left by 1/4- and 1/2-sheet orbital finish sanders. Bosch's electric random-orbit sander has these advantages, plus variable speed for greater control and dust pickup with a dust bag or optional vacuum hose.

In our tests, the lightweight (4 pounds) model 3282DVS performed quietly, and had good balance because most of its weight sits directly over the pad.

Finally, the 3283DVS has excellent dust extraction thanks to holes in the 5" pad that draw dust directly through perforated abrasive discs. The heavy-duty discs attach by means of Velcro, so they can be changed and reused again and again. A pack of five discs sells at a list price of $3.80. The Bosch machine has a list price of $159. You also can purchase buffing accessories.
Years ago, as a member of my father's construction crew, I spent many hours glued to the operator's seat of real-McCoy versions of our excavator. What I like most about this toy design is that it works just like the big ones. Your little construction foreman can actually dig, hoist, and dump.

Thanks, Alex Hacker of Corpus Christi, Texas, for submitting this project in our 1989 Design-A-Toy competition.
**Bill of Materials**

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
<th>Finished Size</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>chassis</td>
<td>1½&quot; x 1½&quot; x 9&quot;</td>
<td>P</td>
</tr>
<tr>
<td>B</td>
<td>bed</td>
<td>¾&quot; x 3½&quot; x 9&quot;</td>
<td>P</td>
</tr>
<tr>
<td>C</td>
<td>cab</td>
<td>1½&quot; x 3½&quot; x 3½&quot;</td>
<td>LP</td>
</tr>
<tr>
<td>D</td>
<td>house</td>
<td>3½&quot; x 3½&quot; x 4½&quot;</td>
<td>LP</td>
</tr>
</tbody>
</table>

**BOOM ASSEMBLY**

| E   | boom sides  | ¾" x 1½" x 8½" | P | 2 |
| F   | spacer      | ¾" x ¾" x 2"   | P | 1 |
| G   | knobs        | ¾" x 1½" dia.  | P | 3 |

**BUCKET**

| H   | sides       | ⅜" x 2" x 2"   | P | 2 |
| I   | back        | ⅜" x 2" x 2"   | P | 1 |
| J   | bottom      | ⅜" x 2" x 2½"  | P | 1 |
| K   | top         | ⅜" x 2" x 1½"  | P | 1 |

**WHEELS**

| L   | outer wheels | ¾" x 2" dia.   | P | 6 |
| M   | inner wheels | ¾" x 2" dia.   | P | 4 |

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

**Material Key:** P-pine, LP-laminated pine

**Supplies:** double-faced tape, ¼" dowel stock, ⅛" dowel stock, ⅝" dowel stock, ⅜" dowel stock, ⅜" dowel stock, ¼" x 17 brads, ⅝" flat washers, ⅝" plywood for turntable, 1/2" wood buttons, clear finish.
Note: You'll need some thin stock for this project. You can plane or resaw thicker stock to size.

Start with the chassis
1. Cut the chassis (A) and bed (B) to the sizes listed in the Bill of Materials on the previous page.
2. Cut a 1¾" dado ½" deep in the chassis where shown on the drawing at right. Mark the three axle-hole centerpoints on one edge of the chassis, hold the chassis in a handscrew clamp, and use a drill press to drill the ⅜" axle holes. (To minimize wander, we used a brad-point bit.) Now, bore a 1" hole through the bed where located on the same drawing.
3. Sand or rout ¼" round-overs along the bottom ends of the chassis where shown on the drawing. Sand ¼" round-overs on each corner of the bed.
4. Center the chassis from side to side under the bed and ⅛" short of the bed's back end (see the drawing at right for reference).

Make room for the driver, add the cab
1. Cut a piece of ¾"-thick pine to 3½" wide by 12" long for the cab parts (C).
2. Follow the four-step drawing below right to form the cab parts.
3. Apply glue to the mating surfaces, align the grooves, and clamp together the cab parts. Remove excess glue before it dries. Sand ¼" round-overs along the cab where shown on the Truck Assembly Drawing.
4. Mark the cab headlight locations, and drill ½" holes ⅛" deep.
5. Glue the cab to the bed, positioning it ⅛" from the front end of the bed to form the bumper.

Shape the swiveling house
1. To form the house (D), cut two pieces of 1"-thick pine to 3½" wide by 4½" long for the engine house sides (we planed thicker stock to size). Plane another piece of stock to 1¾" thick. Then, rip it to 3½" wide and crosscut it to 3½" long.

FORMING THE CAB

STEP 1 Cut 1½ × 1¾" notches on both ends.

STEP 2 Cut a 1¾" groove ½" deep on bottom of stock ⅛" from edge.

STEP 3 Cut windshield out of front (C) with a scroll saw or coping saw.

STEP 4 Trim both pieces of cab (C) to length.
2 With the back ends flush, glue together the three pieces. Immediately remove glue squeeze-out from the boom notch.

3 Mark the centerpoint, and drill the ½" boom-pivot hole through the house sides. (See the drawing at left for reference.)

4 Mark the centerpoint, and bore a 1" pivot hole in the bottom of the house. Now, turn the house over and drill a ½" hole ¾" deep for the smokestack.

5 Mark a 3" radius on the back face of the house and bandsaw the radius to shape. Lay out a 3" radius on the top surface and cut it to shape. Next, mark a 1⅛" radius on one front side corner and cut it to shape.

6 Sand the house smooth. Cut a 1" dowel 2¼" long, and glue it into the 1" hole in the house. Cut the 1¼"-long smokestack from ½" dowel stock, and glue it in place.

**The boom comes next**

1 Plane or resaw two pieces of stock to ½" thick and cut to 1½" wide by 10" long for the boom sides (E). Transfer the outline and hole locations to one of the pieces of stock, using the Boom-Side Detail accompanying the Boom-Assembly Drawing for reference.

2 With double-faced tape, adhere the boom sides together, with the edges and ends flush. Drill the three holes through both boom sides. Cut the boom sides to shape. Sand the edges flush. Remove the tape, and sand smooth.

3 Cut the boom spacer (F) to size. (Held tightly together, the boom sides and spacer assembly should fit snugly in the boom notch in the house. A tight fit prevents the assembled boom from falling down later when held in place with the dowel.) If necessary, cut a new spacer.

4 From ¾" and ½" dowel stock, cut the dowels to the lengths shown on the drawing above.

5 With the holes aligned (we used the dowels to align the pieces), glue and clamp the spacer between the boom sides.

6 Using a bandsaw or circle cutter, cut the three knobs (G) to shape. Drill a ½" hole ½" deep in the center of two of the knobs. Then, drill a ¾" hole ½" deep in the remaining knob. Sand ¼" round-overs on each knob.

**Next, assemble the bucket**

1 Cut the bucket sides (H), back (I), and bottom (J) to size and shape from ¾" stock. Then, from

Continued
SA N D B O X  E X C A V A T O R

1/2" stock, cut the top (K) to size. See the Exploded-View and Bucket drawings for reference and the Bill of Materials for sizes.

2 With the edges and ends flush, glue and clamp together bucket parts (H, I, K). Later, remove the clamps and belt-sand or bandsaw the front edge of part K flush with the rounded edge of parts H where shown on the Hole Detail accompanying the Exploded-View Drawing. Sand a bevel on the front edge of the bottom piece (J) and glue it in place.

3 As shown below, hold the bucket in a handscrew clamp, and drill a 3/8" hole 1/2" deep at a 30° angle. (We eyeballed an approximate 30° angle.) See the Hole Detail accompanying the Exploded-View Drawing for reference.

4 For the dipper arm, cut a 3/8" dowel to 9" long. Cut a 3/4" dowel to 13/8" long for the dipper-arm pivot. Drill a 7/8" hole centered through the pivot where shown on the Exploded-View Drawing. Glue the bucket to the arm.

Add the Fat Cat wheels

1 Cut the wheels with a circle cutter. Enlarge the 1/4" pilot hole in each wheel to 3/8". (For additional help building our Fat Cat wheels, refer to "Now, Forming the Dulls" on page 73 of the heavy-haulers article in the February 1990 issue or the same section on page 34 of the lowboy and dump-truck article in the August 1988 issue. For a free reprint of the wheel-making section, send a #10 self-addressed, stamped envelope to Fat Cat Wheels, P.O. Box 11454, Des Moines, IA 50336-1454. Foreign readers: Please include an international reply coupon. For complete Fat Cat plans listed above, send $2 per article with a SASE to the address above.)

2 Drill a 1" counterbore 1/2" deep, centered in each outside wheel. Sand slight round-overs on the edges of each wheel.

You're nearly ready to move some earth

1 Lay out a 3 3/4"-diameter circle on a piece of 1/4" stock (we used plywood). Bore a 1" hole in the center, and then cut the piece to shape for the turntable between the house (D) and the bed (B).

2 Finish-sand all the parts. Add the finish. (We used polyurethane. If left unfinished or finished with an oil, pine toys quickly get dirty).

3 Slip the 1" house pivot dowel through the 3/8" spacer and bed. Referring to the House-Mounting Detail accompanying the Exploded-View Drawing, drill a 1/4" hole through the center of the pivot dowel. Now, cut a 3/4" dowel to 1 3/8" long glue it in place to pin the house to the chassis.

4 Using the drawings for reference, add the bucket/dipper arm to the boom. Fasten the boom to the house. Finally, mount the wheels to the chassis.

Tilt and secure the bucket in a handscrew clamp and then drill the hole.

Produced by Marlen Kemmet
Project Design: Alex Hacker
Photographs: Hopkins Associates; Bob Calmer
Illustrations: Kim Downing; Mike Henry
The controversy over logging the Pacific Northwest's remaining old-growth forests has, at times, turned into a bare-knuckles brawl. Environmentalists, waving the banner of the northern spotted owl, have thrown punishing combinations of legal rights and protesting fists. Loggers, their backs to the ropes, have put industry and congressional muscle behind their punches. And, trying to referee, the Forest Service couldn't duck.

The final bell hasn't yet rung in the squabble over trees in our national forests, a fight where the decision could directly affect the cost and availability of the wood we use for homes and hobbies. But, after weighing in the evidence, we at WOOD® magazine sense the outcome—one that undoubtedly means big changes in the future.

Continued
Ancient forests. Cathedral forests. Old-growth forests. No matter what they’re called, these stands of towering firs on public land in Oregon and Washington convey images of either irreplaceable natural beauty or as-yet-un-tapped riches.

To the Pacific Northwest’s forest-products industry, these aged stands represent saw logs, profit, and a way of life. Environmentalists, on the other hand, see the remaining old-growth forest as complex ecological systems—awe-inspiring reference libraries to the past and keys to the future.

“We’ve found that we only have about 40 to 50 percent of the amount of old growth in the Northwest that the Forest Service has been saying we have.”

—Larry Tuttle, director of the Wilderness Society in Oregon

The Forest Service, charged by Congress with managing old growth in the national forests, looks on the centuries-mature timber as necessary inclusions in the annual harvest.

Save old growth. Harvest old growth. That’s what the fight has been about. And, it took the early rounds just to decide what old growth actually is.

Coming to terms: commodity or ecosystem?

“In past years, we [the Forest Service] operated under a commodity definition of old growth,” explains Barry Cordova, a public-affairs officer with the Forest Service’s Region 6 headquarters in Portland, Oregon. “We looked at old growth in terms of how much wood fiber it could produce, and ignored the other attributes.”

The Forest Service’s commodity-oriented definition suited the Northwest forest-products industry to a T. If old growth meant only large, old trees, there were plenty of those on public lands in the Northwest—close to 7.2 million acres, the industry estimates. To their way of thinking, that’s enough to protect for the satisfaction of the environmentalists and enough to log for five decades. Besides, say industry spokesmen such as Barry Polsky of the American Forest Resource Alliance, old growth is a successional stage of a forest. If left unharvested, old growth will develop into forests of less desirable (from an industry standpoint) silver fir, hemlock, and alder. And, important at this time, the industry is set up to process large old-growth logs. It wouldn’t be economically feasible to reinvest now in new mills and machinery to process the smaller, more uniformly sized second-growth trees not expected to mature for another 20 years.

The environmentalists, however, saw old-growth forest much differently. And in their eyes, what remained of it was too rapidly shrinking.

“We pushed for an ecological definition of old growth,” says Larry Tuttle, director of the Wilderness Society in Oregon. That definition, now accepted by both sides and the Forest Service, has detailed, qualifying elements, but basically, for a stand of trees (10-plus acres) to be classed as old growth, it must have:

- two or more species in a wide range of ages and sizes;
- eight or more Douglas fir trees greater than 32” in diameter or older than 200 years;
- several other species at least 16” in diameter covering at least half an acre;

Top: An aerial view of Oregon’s Willamette National Forest, hotbed of old-growth controversy, shows clearcut areas that will be replanted with one species—Douglas fir.
Enter the spotted owl
During the last few years, environmental groups in the Northwest have successfully blocked national forest timber sales that included old growth by turning to the courts for injunctions. Last year in particular, they tied up sales totaling 3.5 billion board feet, about three-quarters of the fiscal 1989 timber sale program in Region 6 national forests. At the time, Mark Rey, vice president of the National Forest Products Association, remarked that the injunctions locked up enough timber to build more than 200,000 houses. To the industry, it couldn’t have happened at a worse time—both domestic and international use of paper and wood products were on a dramatic rise.

That's why last October a congressionally authorized compromise agreement released 7.7 billion board feet of the blockaded national forest wood to the Northwest forest products industry for 1989 and 1990.

In the past, appeals and legal suits have surfaced over everything from possible damage to clean air and water to adherence to federal land policy. In the spring of 1989, the issue to save the Northwest’s old growth focused on the northern spotted owl, a visible part of the life cycle that environmentalists say is dependent on the big trees.

Ten years ago, the small, speckled bird that nests in old growth from Washington to California was thought to be practically extinct. Today, the Forest Service claims about 1,500 pairs on national forests. Environmentalists

Continued
fight in the forest

feel that the spotted owl is still threatened and warrants protection of its old-growth habitat.

A survey of spotted owl habitat by the U.S. Fish and Wildlife Service will be completed in 1992, and assess the threat. Meanwhile, to those in the Northwest dependent on national forest timber for their livelihood, the bird has become a symbol of frustration.

Their trees, your trees, our trees?
The building boom that followed World War II and grew through the 1950s and 1960s cleared most of the timber from private lands in the Northwest and across the nation. To feed a hungry industry, loggers turned to the vast resource of the national forests.

As a result, logging on federal land increased from 2.5 billion board feet in 1946 to about 12 billion board feet in the mid-1960s, equivalent to 13 percent of total timber production. In the Pacific Northwest, timber harvest from national forests has hovered near 5 billion board feet per year since 1986. (See chart, page 59.)

"The old-growth stands on private and state lands have been nearly used up, all cut," explains Cordova of the Forest Service. "Now, we've come down to the last few significant stands on the national forests, and every tree is being fought over."

When it gets right down to it, one of the real reasons for the fight in the forest is the question of ownership. Who has the just claim to old growth on national forest lands? The environmentalists, of course, have their opinion. "We're talking about publicly owned forests," comments the Wilderness Society's Tuttle. "The very best tree-growing areas in the Northwest are on private-industrial and private-nonindustrial lands, because those are the lands that companies gobbled up first in the early part of the century. That's why much of the national forest is at higher elevations, with less-desirable soil types than on private lands. Yet, only the public [federal] lands are mandated to provide a variety of values in addition to timber. And, we must make sure that it's not just our national forests that produce it."

Chris West, a forester and vice president of the Northwest Forestry Association, along with others in the forest-products industry, believes in saving some old growth. He questions environmentalists' motives, though, in requesting additional national forest land withdrawn from the timber resource. "They play a numbers game," says West. "They say there's only about 100,000 acres of ecologically significant old-growth, but they want millions of acres protected. Essentially, they want to shut us down. What they fail to bring up is the question, 'What will we substitute for timber if we have to shut down?' Concrete, steel, synthetics? All are more damaging to the environment than producing wood."

Opponents note that—despite grumbling over the future availability of logs—the forest-products industry finds enough for export. In 1988, export of solid wood products, notably saw logs, exceeded $5 billion, a jump of over $1 billion from the previous year. Of that, companies in the states of Oregon and Washington exported almost 3.7 billion board feet. These logs must come from private or state-owned land, since federal law restricts the export of unprocessed national forest logs.

Softwood forestry in the Northwest has always meant growing trees of even age. Here, land reforested with Douglas fir contrasts sharply with remaining old growth in the Willamette National Forest, Oregon.
So, in essence, the two sides have been drawn. Environmentalists believe that the national forests, including those with old growth, should be more than resources for raw material to supply the forest-products industry. They say that the Forest Service’s traditional management policy—multiple-use—has become too heavily weighted toward timber production. Old-growth trees and wildlife such as the spotted owl have been the victims.

On the other hand, the forest-products industry relies on the national forests as an economic resource—25 percent of the nation’s timber supply comes from federal lands. Trees can be cut, replanted, managed, and cut again—forever. And, they point out, logging doesn’t interfere with other natural forest uses, such as recreation. Besides, they say, there’s already over 90 million acres of protected wilderness. Temporary compromises have been made between the two factions. Changes, however, seem destined for the decades ahead.

**The likely outcome**
The fight in the forest may go several more rounds, but here’s some likely possibilities for the future:
- *Old-growth controversy will influence national forest management.* Significant stands of old growth in the Northwest will be permanently protected. They will serve as a resource, a genetic pool, not only for the science of growing trees, but as a reserve of knowledge. The Pacific yew tree, for instance, found in old-growth forests, produces resins that have recently proven valuable in cancer research. There may be more secrets to unlock.

A logger sets a choker chain in the Umpqua National Forest, Oregon. Without national forest timber, the industry couldn’t meet all present demand for wood, since reforested lands can’t be harvested for another 20 years.

- *Foresters on federal timberlands will adapt silvicultural techniques that preserve the complex ecosystems as found in old growth.* Says Frederick Smith, associate professor of forestry at Colorado State University, “We can grow trees over a short period of time or a long period of time, one species or several species. We can mix sizes—tall trees and short trees. We can create snags for nesting and logs on the ground.” Techniques to replace fast-growing monoculture (one species) reforestation will be demanded.
- *Major investments will be made by the forest-products industry to handle the Northwest’s second-growth fir, as well as produce new products.* More jobs will be created through renewed industry efforts to increase export of products to foreign markets.
- *The Forest Service will shift management emphasis.* The principle of multiple-use became law under the federal Multiple-Use-Sustained-Yield Act of 1960. It requires national forest management to utilize resources in a way that best meets the needs of the American people, from recreation to timber production. Environmental concern will dictate a shift in policy to emphasize forest management for cleaner air and water, wildlife, recreation, and pristine beauty. Logging probably will take a back seat.

---

*Written by Peter J. Stephano
Photographs: Old growth, Doug Wechsler; Reforestation, clearcut, protests, logger, ship, by David J. Gross/Biological Photo Service; Owl, N. M. Barrett/VIREO
Compiled with information from the American Forestry Association; American Forest Resource Alliance; Appalachian Hardwood Manufacturers Association; Audubon Society; Colorado State University; Forest Service, USDA; National Hardwood Manufacturers Association; Native Forest Council; Northwest Forestry Association; Public Timber Council; National Forest Products Association; Sierra Club; Western Wood Products Association; Wilderness Society.*
When the Correctional Industries Association of the American Correctional Association announced the winner of its National Supervisory Award last year, we took notice. The association put the spotlight on a woodworker in charge of a prison furniture-production facility, a man who also happens to be a former inmate.

Paul J. ("P.J.") Jeter, 71, wood-mill supervisor at the Kirkland Correctional Institution of the Broad River Complex, Columbia, South Carolina, turns out to be quite a man. As an inmate, P.J. Jeter was a woodworking legend, known not only for crafting furniture commissioned by the state's top corrections administrators, but also for creating an entire line of prison-made products. Outside the gates, he helps ex-offenders and their families, the aged, the poor, and children with missionary zeal. We came away from our visit impressed with P.J. Jeter.

In his handcrafted oak rocking chair, P.J. Jeter reflects on his woodworking years in prison—27 as an inmate, 18 as an employee.

Far across town from Columbia's bustling downtown and the dignified setting of South Carolina's capitol, there's another type of urban lifestyle. On the sweeping acreage once called Walden's Farm, 3,500 inmates of the South Carolina Department of Corrections' Broad River Complex wake up each day just to cross it off the calendar.

A percentage of those who leave Broad River do return, of course. Repeat offenders can't seem to cope with freedom or responsibility on the outside.

That's not why P.J. Jeter, incarcerated in 1945 to face a life sentence and paroled 27 years later, came back, though. He returned the gates on a mission: To teach inmates the woodworking skills and job performance that build self-pride, responsibility, and the attitude it takes to adjust to society beyond the fence.

A price once paid
Soft-spoken at times, boisterous at others, P.J. Jeter, even at a grandfather's age still burly, has thought about his past. "When I did my time, they gave me my release paper, which is a receipt," he says, emphasizing the last word. "I paid the price to society. When I walked out those gates, I walked out as a taxpayer to start with, because the Department of Corrections gave me a job. My first week I was on the tax roll. I didn't go out there feeling like an ex-convict. I went out there feeling like an American citizen, a taxpayer. Not a tax user."

"Mr. Jeter," as he's fondly called up and down the line, attempts to instill that outlook in every inmate who works for him in the Prison Industries' wood mill. "This is the point I get over to everyone I deal with," he explains, the statement's seriousness set in his eyes. "Look at me. I did it. You can do it. You may not do it exactly like I did, but you can do something for yourself."

The words aren't bravado. Mr. Jeter speaks with pride, and to those who listen, with a dose of hope. Has his approach worked? How many men have changed?

Mr. Jeter thinks for a second, then begins a story. "I had a life that came right out from under [worked for] me. He made parole. Now he's a cabinetmaker at the South Carolina State Law Enforcement Hall of Fame." He reflects, then continues.

"Another, he owns a big janitorial business now. A wife, kids, a respected man in the community." Again, a pause.

"A white boy, he was from Charleston, and he had five years. They said he was a hopeless case. His own mother says he was bad. I took that kid, and first I taught him how to build chairs, gave him a few basics. All he needed was a chance, but nobody had ever spent any time with him," he recalls. "He learned how to build desks. The first decent desk he built I showed to his mother and father. They didn't believe it."

"When he got out I got him a job with a little cabinet company in Charleston. About 10 years later I heard that he had become part owner of that little cabinet company." Mr. Jeter leans back. His aged swivel chair squeaks.

Continued
A CAROLINA LEGEND

"I want to think I'm of value to the system and make it better," he says slowly. "I might only save one or two people out of 1,000. But, if I can, then I'm a winner."

Even tough guys cry

From Day One of prison life, inmates face routine and regimentation. Even the required blue-denim jeans that brand the wearer as serving time create similarity. Mr. Jeter, though, seeks out the individual. "The first thing, I try to find out who he is. I sit him down in front of me and want him to feel free to talk about anything. He can cry if he wants," Mr. Jeter explains. "Then, I try to find out his attitude—some of 'em don't even smile, you know. That's the way of life with them."

Leaning forward, lowering his voice, and lapsing once again into prison lingo, he continues: "What I'm saying is, you gotta take time with them. You learn to listen, let him explain how he feels. I'm knowin' he's going to take his best shot at me. I know he's going to run the con game at me. He's going to beat me if he can, 'cause that's his way of life. It's up to me to stop him. And when I find out who he is, I know how."

In prison industries, Mr. Jeter has the reputation of taking in the troublemakers, the problem inmates, the ones who can't get along, and turning them around. How he does it seems too simple. "I tell him, 'Forget about my being a civilian and your supervisor,'" says Mr. Jeter. "'We going to throw it out the winda.' Then I say, 'Now, look at it like this: Just two men sit in down tryin' to solve a problem. And, I'm going to help you with it because I'm not here just drawin' a check from payday to payday. I'm concerned about you.' I've had the toughest ones cry."

James Dominick, imprisoned in 1978, has worked in the wood mill since July 1984. He describes Mr. Jeter's approach: "He takes his time to work with you instead of just putting you on a job. Mr. Jeter will be straight up with you. But, you got to be willing to learn in order to deal with Mr. Jeter."

"When you look at PI [Prison Industries] furniture, you're lookin' at Jeter, really. I have history."

—P. J. Jeter

Inmates grasp that lesson in the shop, where Mr. Jeter also ingrains the work ethic. "I let them learn that they have a responsibility to fill even though they're in here," he says. "And—because I know—one they get used to having that responsibility, they don't want to lose it."

The line that Mr. Jeter built

The vast Broad River Corrections Complex includes several separate prisons. Kirkland Correctional Institution, where Mr. Jeter heads the wood mill, translates to maximum-security detention. As its contribution to prison industries, Kirkland produces a line of office furniture, and offers furniture repair, stripping, and refinishing.

Kirkland Furniture includes exposed wood-frame chairs and settees, fully upholstered pieces, swivel desk chairs, side chairs, tables, and bookcases. And Mr. Jeter has had a hand in the design and production of every piece.

"When you look at PI [Prison Industries] furniture, you're lookin' at Jeter, really," he says matter-of-factly. "I have history."

Correctional officer Richard Pearson drops by to watch the sanding stage of a 250-chair refinishing job. Louis Evans listens to instructions from Mr. Jeter while Calvin McKnight, left, and Eric Council, right, continue work.
The history reaches back to what Mr. Jeter terms "The Company Days" of the 1940s, when the new inmate first encountered woodworking, and an influence that shaped his future.

"Captain George, with the Fiber Craft Company [a private firm that manufactured office and hotel furniture with prison labor], was the man who taught me," Mr. Jeter remembers vividly. "He told me one day—I was sandin'—'You look like you going to learn.' So, he put me on the chair-frame assembly line. He taught me how. Then, he moved me up.

Over a few years, the young inmate improved his skills and his understanding of the wood machining and assembly process. Eventually, Captain George saw the need for a major advancement, and announced, 'I want you to put together a whole furniture suite, a new design. I said, 'I don't know about that,' but he said that I could do it. And, I was going to do it, or bust a gut!

"When he saw it put together, he told the president, 'He's ready. He's goin' to make you a good man.' Then, he put me as floor-walker over the whole shop—150-160 inmates without security! Captain George took a gamble, and he proved a point to society.'"

Over time, Mr. Jeter became a craftsman. Throughout his inmate years corrections commissioners called on him ("I want it built by Jeter") to handcraft desks, conference tables, entire offices, and to design new pieces of furniture to add to the production line. At the time of his parole, there was no one more experienced to supervise PI wood-furniture production. So, prison officials asked him to stay on—as a civilian.

Prison industries: skills to take home

Although many state and federal correction programs have prison industries, South Carolina's dates back to 1868. Today, about 1,200 inmates work in South Carolina's PI, producing everything from furniture to cleaning chemicals, and providing services from book-binding to telemarketing. Profits from sales, which totaled about $10 million in fiscal year 1989-90, help defray the cost of the state's correctional system. Working at jobs that develop skills, inmates can earn up to $50 per month.

Kirkland's wood mill usually employs 35 to 40 inmates. Administrators send men as needed to meet production. Woodworking skill isn't a prerequisite. "Some of my best men had never picked up a hammer in their life, never had a job," notes Mr. Jeter.

From basic techniques, such as sanding, the supervisor softly nudges his inmates through the steps to finished furniture. When he finds a mistake, he helps them unravel how it happened.

A chair frame that somehow doesn't square up turns out to have parts crosscut on a tablesaw with the blade not quite perpendicular. He shows the men how and where to check square, then has them take the chair apart. "They'll make new parts where needed and use the good ones. We don't waste wood," he says.

From a local restaurant, there are 250 chairs to be refinished a lighter color. What's the best way? Problem-solving becomes part of the learning process.

In the wood mill, Mr. Jeter repeats his experience, inmate after inmate. Among them, Gene Osborne has benefited.

"I been in here three and a half years, and in the wood mill about two years, eight months. I did some carpenter work when I was out on the street," he says, "but Mr. Jeter has taught me a lot about buildin' chairs and furniture, and it's really been a lesson. He's kind of hard to explain, though. He cooperates with you. He don't get all upset and cuss you out. He's understanding. Yet, he likes it done right." ♦

Written by Peter J. Stephano
Photographs: Steve Uzzell
Have you taken a look recently at all of today's options in 3/8" electric drills? If not, we think you'll be pleasantly surprised by how much manufacturers have improved their offerings since you last purchased one for your shop. Read on and we'll fill you in on what our investigation revealed.

THE GREAT ELECTRIC-DRILL SHOOT-OUT

For the past few years, the big news in portable drills has concerned cordless technology. Today, it's hard to find a woodworker who hasn't tried a battery-powered drill. And now that they have, most everyone agrees that these machines, although terrific for many applications, aren't the answer to every woodworking situation.

That's why for this report we decided to focus on the less glamorous, but certainly more powerful, 3/8" variable-speed, reversing (VSR) portable electric drill. And after testing 18 popular models in the $50-$150 price range from 11 manufacturers, we know two things for sure. First, these tools offer more torque than their cordless cousins, and they can give you the kind of quick, clean holes that cordless drills can't match. What's more, our tests revealed that a few electric models turn screws with as much control as highly regarded cordless models.

Drills with special talents
Although the 3/8" VSR drills covered in this article will handle most woodworking chores, we'd like to make you aware of a few other special-purpose drills:

- **1/2" Drills.** These machines have extra speed-reduction gearing to increase torque. This gearing makes the tool bulkier, but you'll appreciate its muscle when drilling 1/2"-and-larger holes in steel and 1"-and-larger holes in wood.
- **Hammer drills.** Available in 3/8" or 1/2" sizes, these drills have a jackhammer-like action for speedy holes in concrete.
- **Right-angle drills.** Ideal for tight spots, smaller versions of this tool work well for power-sanding the inside of turned bowls.

Speed, torque, and other driving concerns
As we discovered in our tests, the drills with top speeds in the 1,000-1,300 rpm range performed a greater variety of tasks with more ease than those with top speeds over 2,000 rpm. The slower drills have more torque for jobs with big bits or hard material.

Also, the slower drills tended to ease gradually into their lowest speeds, making screwdriving a breeze. The faster drills tended to jerk on start-up, making screwdriving a hairy experience. However, there were two exceptions to this rule. As shown in the chart
Anatomy of a 3/8-inch drill
As electric current enters an electric drill, it meets up with the variable-speed trigger switch that allows you to change the motor's speed—the further you depress the switch, the faster the motor turns. Once you bring the drill up to full speed, you can keep it there by depressing the trigger lock-on. Manufacturers place this mechanism, as well as the reversing switch, in various places around the handle of the drill.

Next, the current flows to the motor field windings and brushes. The brushes in turn transfer their share of the power to the motor commutator and the motor armature. The greater the amperage surging through these components, the greater the mechanical power delivered to the speed reduction gearing. Unlike routers that have no gearing to slow their 20,000-plus rpm universal motors, a 3/8" drill's chuck has a maximum speed of 1,000–2,700 rpm.

on page 71, the Hitachi DW15Y and Metabo 5010 had excellent screwdriving abilities despite top speeds over 2,500 rpm. Manufacturers classify both of these drills, along with the Makita 6000 LI, as drill/drivers because of their optional screwdriving mode. In this setting, the chuck of the drill will not turn until you apply pressure to the screw. This feature prevents stripped screwheads, and allows you to quickly move from one screw to the next without waiting for the chuck to stop spinning.

Tool construction dictates durability and accuracy
Let's face it: Some of us pamper our tools while others pay them little respect. If you fall into the latter group, look for a drill with inline construction. Inline drills, such as those shown on page 69, have a one-piece gear housing fastened to a one- or two-piece body/handle assembly. The screws holding the drill together are in line with the length of the drill.

With the other type of drill construction, called clamshell, the tool's entire housing consists of two halves with a seam running the length of the drill. This construction makes for quick manufacturing because the components simply fit into one half of the "shell," then the other half screws into place on top. Most drills under $70, such as those on page 70, have clamshell assembly. Although fine for the light user, these housings don't hold up to heavy-duty drilling.

Regardless of construction, nearly all of today's drills have glass-reinforced nylon bodies and handles to lighten the tool and electrically insulate it. However, plastic's advantage ends when it comes to gear housings. Generally available only on drills over $100, aluminum gear housings hold the gears and chuck in more-rigid alignment and contribute to the tool's durability.

Continued
DRILLS

Switches: more choices than just ON/OFF

Similar to a hammer, a drill should feel like a natural extension of your hand. So, all three switch mechanisms—ON/OFF, trigger lock-on, and reversing switch—should operate smoothly and conveniently without slowing you down. Here’s what we uncovered after hundreds of switch squeezes, pushes, and flips.

*Trigger switch.* About one-third of the tested drills have dials on the trigger that allow you to set the maximum depth to which you can squeeze the trigger, thereby limiting the top speed. Despite its uncomfortable feel, we found this feature useful for maintaining steady, slower speeds. We recommend click-stop dial triggers such as the one on the Hitachi DW 15Y shown below. The click stops help prevent accidental dial rotation. We also like Hitachi’s “plus” and “minus” speed symbols.

*Trigger lock-on.* For extended drill operation, you’ll appreciate a trigger lock-on button. We found this feature on every drill except the Porter-Cable 666. Since most manufacturers place this button on the left side of the handle, left-handers will prefer a drill with a recessed button. Why? As you can see in the photo middle, top, wrapping your left hand around the handle of a drill with a protruding lock-on button invariably pushes in the button. The result: accidental locking of the trigger.

We were disappointed that none of the models in our test could be locked at a speed slower than the top speed. For woodworking tasks such as applying wax, polishing surfaces, or wire brushing, it would be nice to lock the drill at an intermediate speed.

*Reversing switch.* Manufacturers place this switch in one of three places: above the trigger, or at the bottom or top of the handle as shown in the photos below and below, left. Frankly, we had a hard time making up our minds about the best position of this switch. Most WOOD® magazine staff members prefer the above-the-trigger position for speedy changes. But, a vocal minority of the staff swears that this positioning leads to accidental changes and like the top-of-handle position. We didn’t find anyone in favor of a reversing switch at the bottom of the handle.

△ Hitachi’s model DW 15Y features a click-stop dial trigger to help you conveniently set the top speed.

△ Gripping a drill firmly with your left hand invariably depresses a protruding trigger lock-on button.

△ Milwaukee’s 0228-1 has its reversing switch above the trigger—a position WOOD staff members prefer.

△ You’ll find the reversing switch on the Hitachi D 10V1 at the top of the handle—convenient for some users.

▼ We found bottom-of-handle reversing switches inconvenient, such as the one on the Makita 6510.
Belt clips: Side-mounted varieties work best

Any type of belt clip comes in handy, but one kind makes a lot more sense than the others. As shown below, Hitachi's belt clip mounts to the side of the tool, so the drill clips to your belt in a comfortable position. All the other belt clips we ran across were mounted to the top of the tool, leaving the handle of the drill pointing away from your body.

The Hitachi D 10V1 has a convenient side-mounted belt clip. Top-mounted belt clips leave the tool sticking out from your body.

Chucks: Beefiness counts where drill meets bit

Some easy-to-see qualities separate good chucks from so-so ones. For a slightly higher price, manufacturers outfit their better drills, such as the Skil model 6635 shown below, with chuck bodies made of machined steel. These beefy components have less play in them than stamped-steel chucks such as the one on the Skil 6523 shown at left, below.

Chucks made completely of machined steel also have larger teeth, which grip the key better and make for easier bit changes. We opt for large, T-shaped keys such as the one shown above that comes with the Black & Decker 1166. The small, L-shaped key furnished with the less expensive Black & Decker 7193 slipped easily out of its chuck and provided little leverage.

For a few dollars more, the Skil 6635 at top left offers a machined-steel chuck and aluminum gear housing. The lower-priced Skil 6523 at left has a stamped-steel chuck and plastic gear housing.

Gripping concerns: handles, balance, weight, and size

Like gloves, drill handles vary greatly in size and texture, so you really have to walk into a store and put a drill in your hand before you know how it fits.

If you're like us, you'll like the feel of textured handles over smooth, slick ones. One of our favorites was the Black & Decker 1166 shown on page 70. The tiny bumps covering the sides of the handle felt comfortable and improved our grip.

We also prefer handles that we can wrap our fingers around, such as the Porter-Cable 666 shown below right. The P-C 621 shown just above the model 666 had the fattest handle of all the models tested, and only the largest of hands can get a hold on this drill. The P-C 666 also has a big advantage in balance over most conventionally designed drills, thanks to its T-handle shape. We found that front-heavy drills fatigued our hands when held in a horizontal position.

However, most any drill can tire your hand if you hold it in one position long enough, so size and weight must figure into your buying decision, too. Of the drills we tested, the Bosch 9164 shown on page 70 offered the best combination of power (3.7 amps) and compactness. At 3.2 pounds, it was among the lightest machines in our test, and it was the only drill less than 8" long.

The T-handled Porter-Cable 666 has a balance-and-gripping advantage over the P-C 621.

Continued
DRILLS

Seven good drills in three price ranges

- **Under $70:** Selling in the $65–$70 range, the Black & Decker 1166, Bosch 1158, and Makita 6404 (shown at right) don’t have tremendous torque, but they will handle most wood-boring tasks. If you don’t rely on your electric drill for turning screws, one of these models will perform well.

  With a $62 price tag, the Sears 10403 has inline construction, aluminum gear housing, and we rated its screwdriving ability “excellent.” However, this 5.4-pound drill might be too bulky for some.

- **$70–$100:** Most drills in this price range have a gearing system that allows the chuck to be positioned close to the top of the housing. You’ll appreciate this feature when you’re trying to drill a 90° hole as close as possible to a corner. Although neither the Hitachi D 10V1 or Makita 6510 LVR shown at below right draw more than 3.5 amps, both have good torque and screwdriving ability.

- **Over $100:** The Bosch 9164 and Milwaukee 0224-1 shown on page 66 get our vote for having plenty of power and features packed into their well-constructed housings. Appropriately named the “Mighty Midget” by Bosch, the 9164 has a permanent-magnet motor that turns slower than a standard universal motor, so it requires less gearing. The 9164 pulses out a smooth, consistent stream of power, and was the smallest drill tested.

  With 5.4 amps of muscle behind it, the Milwaukee 0224-1 pours forth a steady stream of torque, but at 4.7 pounds, it could cramp your hand after extended use. We liked the Milwaukee’s accessible brushes and detachable cord for quick, hassle-free repairs. All the other drills in our test require disassembly for brush and cord replacements.

Written by Bill Krier
Technical Consultant: Bob Yapp
Photographs: Bob Calmer

We rate these drills as good buys under $70: from top, Makita 6404, Black & Decker 1166, and Bosch 1158.

The Hitachi D 10V1 and Makita 6510 LVR performed well in our test among $70-to-$100-priced drills.
### TELLING SPECS. ON 3/8" DRILLS

<table>
<thead>
<tr>
<th>MANUFACTURER</th>
<th>MODEL NO.</th>
<th>TYPE</th>
<th>RPM</th>
<th>AMPS</th>
<th>LOCATION OF REVERSING SWITCH</th>
<th>LOCKING SWITCH TYPE</th>
<th>VARIABLE SPEED SWITCH TYPE</th>
<th>LENGTH (INCHES)</th>
<th>BODY MATERIAL</th>
<th>KEY SHAPE</th>
<th>TYPE</th>
<th>CONSTRUCTION</th>
<th>SIDE HANDLE</th>
<th>SCREW DRIVING CAPABILITY</th>
<th>WEIGHT (LBS)</th>
<th>COUNTRY OF ORIGIN</th>
<th>LIST PRICE</th>
<th>SELLING PRICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEG</td>
<td>BE BRIL</td>
<td>D</td>
<td>2,200</td>
<td>3.8</td>
<td>AT</td>
<td>SH</td>
<td>T</td>
<td>10</td>
<td>SS</td>
<td>T</td>
<td>CS</td>
<td>GN</td>
<td>T</td>
<td>N/A</td>
<td>N/A</td>
<td>F</td>
<td>3</td>
<td>109</td>
</tr>
<tr>
<td>Black &amp; Decker</td>
<td>7103</td>
<td>D</td>
<td>2,500</td>
<td>3.5</td>
<td>AT</td>
<td>BT</td>
<td>T-O</td>
<td>94</td>
<td>SS</td>
<td>L</td>
<td>CS</td>
<td>GN</td>
<td>6</td>
<td>N/A</td>
<td>N/A</td>
<td>F</td>
<td>3.7</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>1165</td>
<td>D</td>
<td>2,500</td>
<td>4</td>
<td>AT</td>
<td>BT</td>
<td>T</td>
<td>99</td>
<td>MS</td>
<td>T</td>
<td>CS</td>
<td>GN</td>
<td>8</td>
<td>N/A</td>
<td>N/A</td>
<td>G</td>
<td>3.7</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>1180</td>
<td>D</td>
<td>1,200</td>
<td>10</td>
<td>AT</td>
<td>BT</td>
<td>T</td>
<td>99</td>
<td>MS</td>
<td>T</td>
<td>IL</td>
<td>A</td>
<td>8</td>
<td>N/A</td>
<td>N/A</td>
<td>G</td>
<td>4.5</td>
<td>182</td>
</tr>
<tr>
<td>Bosch</td>
<td>1156</td>
<td>D</td>
<td>2,100</td>
<td>2.8</td>
<td>AT</td>
<td>SH</td>
<td>T</td>
<td>10</td>
<td>SS</td>
<td>T</td>
<td>CS</td>
<td>GN</td>
<td>6</td>
<td>N/A</td>
<td>O</td>
<td>G</td>
<td>3.2</td>
<td>99</td>
</tr>
<tr>
<td></td>
<td>9164</td>
<td>D</td>
<td>1,000</td>
<td>3.7</td>
<td>AT</td>
<td>SH-R</td>
<td>T</td>
<td>74</td>
<td>MS</td>
<td>T</td>
<td>IL</td>
<td>GN</td>
<td>7</td>
<td>N/A</td>
<td>O</td>
<td>E</td>
<td>3.2</td>
<td>169</td>
</tr>
<tr>
<td>Hitachi</td>
<td>D 10V1</td>
<td>D</td>
<td>1,100</td>
<td>3.8</td>
<td>TH</td>
<td>SH</td>
<td>T-O</td>
<td>99</td>
<td>MS</td>
<td>T</td>
<td>IL</td>
<td>GN</td>
<td>8</td>
<td>S</td>
<td>N/A</td>
<td>E</td>
<td>3.3</td>
<td>148</td>
</tr>
<tr>
<td></td>
<td>DW 15Y</td>
<td>D/D</td>
<td>2,600</td>
<td>3.3</td>
<td>TH</td>
<td>SH</td>
<td>T-O</td>
<td>99</td>
<td>MS</td>
<td>T</td>
<td>IL</td>
<td>A</td>
<td>6</td>
<td>S</td>
<td>S</td>
<td>E</td>
<td>3.5</td>
<td>269</td>
</tr>
<tr>
<td>Makita</td>
<td>6404</td>
<td>D</td>
<td>2,100</td>
<td>2.8</td>
<td>AT</td>
<td>SH</td>
<td>T-O</td>
<td>99</td>
<td>MS</td>
<td>T</td>
<td>CS</td>
<td>GN</td>
<td>6</td>
<td>T</td>
<td>N/A</td>
<td>G</td>
<td>3.1</td>
<td>102</td>
</tr>
<tr>
<td></td>
<td>6510 LVR</td>
<td>D</td>
<td>1,200</td>
<td>3.5</td>
<td>BH</td>
<td>SH</td>
<td>T</td>
<td>99</td>
<td>MS</td>
<td>T</td>
<td>IL</td>
<td>GN</td>
<td>8</td>
<td>T</td>
<td>N/A</td>
<td>E</td>
<td>3.3</td>
<td>153</td>
</tr>
<tr>
<td></td>
<td>6000 LR</td>
<td>D/D</td>
<td>1,300</td>
<td>3.5</td>
<td>BH</td>
<td>SH</td>
<td>T</td>
<td>10</td>
<td>MS</td>
<td>T</td>
<td>IL</td>
<td>A</td>
<td>8</td>
<td>T</td>
<td>S</td>
<td>E</td>
<td>4.2</td>
<td>243</td>
</tr>
<tr>
<td>Metabo</td>
<td>5010</td>
<td>D/D</td>
<td>2,700</td>
<td>4</td>
<td>AT</td>
<td>BH</td>
<td>T-O</td>
<td>10</td>
<td>SS</td>
<td>T</td>
<td>CS</td>
<td>GN</td>
<td>14H</td>
<td>N/A</td>
<td>N/A</td>
<td>E</td>
<td>3.5</td>
<td>163</td>
</tr>
<tr>
<td>Milwaukee</td>
<td>0222-1</td>
<td>D</td>
<td>1,000</td>
<td>3.5</td>
<td>AT</td>
<td>SH-R</td>
<td>T</td>
<td>99</td>
<td>MS</td>
<td>T</td>
<td>IL</td>
<td>A</td>
<td>8</td>
<td>T-O</td>
<td>N/A</td>
<td>G</td>
<td>3.7</td>
<td>154</td>
</tr>
<tr>
<td></td>
<td>0224-1</td>
<td>D</td>
<td>1,200</td>
<td>3.4</td>
<td>AT</td>
<td>AT</td>
<td>T</td>
<td>10</td>
<td>MS</td>
<td>T</td>
<td>IL</td>
<td>A</td>
<td>8</td>
<td>or 25**</td>
<td>N/A</td>
<td>E</td>
<td>4.7</td>
<td>179</td>
</tr>
<tr>
<td>Porter-Cable</td>
<td>621</td>
<td>D</td>
<td>1,200</td>
<td>4</td>
<td>AT</td>
<td>SH-R</td>
<td>T</td>
<td>99</td>
<td>MS</td>
<td>T</td>
<td>IL</td>
<td>A</td>
<td>10</td>
<td>N/A</td>
<td>N/A</td>
<td>G</td>
<td>3.7</td>
<td>148</td>
</tr>
<tr>
<td></td>
<td>666</td>
<td>D</td>
<td>1,200</td>
<td>4</td>
<td>AT</td>
<td>N/A</td>
<td>T</td>
<td>99</td>
<td>MS</td>
<td>T</td>
<td>IL</td>
<td>A</td>
<td>7</td>
<td>N/A</td>
<td>N/A</td>
<td>G</td>
<td>4</td>
<td>181</td>
</tr>
<tr>
<td>Ryobi</td>
<td>D-1000</td>
<td>D</td>
<td>1,300</td>
<td>3.3</td>
<td>BH</td>
<td>SH</td>
<td>T-O</td>
<td>99</td>
<td>SS</td>
<td>T</td>
<td>IL</td>
<td>GN</td>
<td>6</td>
<td>T</td>
<td>S</td>
<td>F</td>
<td>3</td>
<td>179</td>
</tr>
<tr>
<td></td>
<td>D10P/R</td>
<td>D</td>
<td>1,200</td>
<td>3.2</td>
<td>AT</td>
<td>SH</td>
<td>T-O</td>
<td>99</td>
<td>SS</td>
<td>T</td>
<td>IL</td>
<td>GN</td>
<td>6</td>
<td>T</td>
<td>O</td>
<td>F</td>
<td>3.1</td>
<td>113</td>
</tr>
<tr>
<td>Sears</td>
<td>10493</td>
<td>D</td>
<td>1,200</td>
<td>3</td>
<td>AT</td>
<td>SH-R</td>
<td>T</td>
<td>10</td>
<td>MS</td>
<td>T</td>
<td>IL</td>
<td>A</td>
<td>10</td>
<td>N/A</td>
<td>S</td>
<td>E</td>
<td>5.4</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>27602</td>
<td>D</td>
<td>1,200</td>
<td>2,500</td>
<td>4.5</td>
<td>AT</td>
<td>BT</td>
<td>T</td>
<td>11</td>
<td>MS</td>
<td>T</td>
<td>IL</td>
<td>A</td>
<td>8</td>
<td>N/A</td>
<td>N/A</td>
<td>G</td>
<td>4.4</td>
</tr>
<tr>
<td>Skil</td>
<td>6523</td>
<td>D</td>
<td>2,500</td>
<td>3.5</td>
<td>SB</td>
<td>SH</td>
<td>T</td>
<td>10</td>
<td>SS</td>
<td>T</td>
<td>IL</td>
<td>GN</td>
<td>8</td>
<td>N/A</td>
<td>N/A</td>
<td>F</td>
<td>3</td>
<td>127</td>
</tr>
<tr>
<td></td>
<td>6025</td>
<td>D</td>
<td>1,200</td>
<td>5</td>
<td>SB</td>
<td>SH</td>
<td>T</td>
<td>10</td>
<td>MS</td>
<td>T</td>
<td>IL</td>
<td>A</td>
<td>8</td>
<td>S</td>
<td>G</td>
<td>E</td>
<td>3.7</td>
<td>179</td>
</tr>
</tbody>
</table>

N/A Not available
1. (D) Drill; (D/C) Drill/driver.
2. * Dual-speed ranges.
3. (AT) Above trigger; (SH) Bottom of handle; (BT) Below trigger; (SH-R) Side of handle-recessed.
4. (AT) Above trigger; (SH) Bottom of handle; (BT) Below trigger; (SH-R) Side of handle-recessed.
5. (T) Trigger; (T-O) Trigger with dial; (T-DC) Trigger with click-stop dial.
6. (IM) Machined steel; (SS) Stamped steel.
7. (CS) Clamshell; (IL) Inline.
8. (A) Aluminum; (GN) Glass-filled nylon.
9. **Interchangeable cords.
10. (S) Side-mounted; (T) Top-mounted; (T-O) Top-mounted, optional.
11. (O) Optional; (S) Standard.
12. (E) Excellent; (G) Good; (F) Fair.
13. (J) Japan; (S) Switzerland; (US) United States; (WG) West Germany.
14. Selling prices based on advertisements, catalogs, and dealer inquiries at time of article's production.

### MANUFACTURERS LISTING

<table>
<thead>
<tr>
<th>AEG</th>
<th>Hitachi</th>
<th>Milwaukee</th>
<th>Sears</th>
</tr>
</thead>
<tbody>
<tr>
<td>203/447-4600</td>
<td>404/525-1774</td>
<td>414/781-3600</td>
<td>Call your nearest store</td>
</tr>
<tr>
<td>Black &amp; Decker</td>
<td>Makita</td>
<td>Porter-Cable</td>
<td>Skil</td>
</tr>
<tr>
<td>301/259-5300</td>
<td>714/522-8088</td>
<td>801/889-8600</td>
<td>312/269-7330</td>
</tr>
<tr>
<td>Bosch</td>
<td>Metabo</td>
<td>Ryobi 803/228-6511</td>
<td></td>
</tr>
<tr>
<td>Look in your Yellow Pages under “tools”</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
MAKE RAISED PANELS

1. First, you'll need to construct the door frame from 3/4" stock. Start by determining the outside dimensions of the door. Typically, a door about this size has 2"-wide stiles and top rail, and a 2 1/2"-wide bottom rail. Now, subtract the combined widths of the stiles from the width of the door to determine the length of the rails. As shown in the drawing below left, our sample door has 11"-long rails and 20"-long stiles.

2. After cutting the rails and stiles to size, select your 1/4" plywood spline stock. We prefer fir plywood because we've found that it's consistently uniform in thickness.

Now, with a dado blade, cut a 3/4" groove, 3/8" deep into a piece of scrap, and test the spline for a tight fit. Adjust the width of the cut as necessary. For the upcoming groove cuts, keep the face side of the frame pieces against the fence. Set your rip fence 3/8" from the blade and cut a 3/4" groove, 3/8" deep along the inside edges of the rails and stiles and the ends of the rails where shown. Using the setup below, cut the groove in the rail ends.

3. To cut the splines to the proper size, take a look at the drawing above right, and follow these steps: First, rip the spline stock to a width that's 3/8" less than the combined depths of two grooves. For our 3/8"-deep grooves, we cut the spline stock 1 1/8" wide. To cut the splines to length, subtract the depth of one groove from the width of the rails. For example, to join our top rail to the stiles, we needed two splines, each 1 3/8" long. The bottom rail required two 2 3/8"-long splines.

4. You're almost ready to make the raised panel, but first you must determine its size. First, dry-fit the frame and measure the distance from the far end of one spline to the far end of the other along the width of the
WITH YOUR TABLESAW

frame as shown below left. From this figure, subtract 3/8" for expansion, which gives you the panel’s width. To judge the panel’s length, disassemble the frame and measure the distance between the stile splines as shown below left, and subtract 3/8".

To make the panel, first resaw or plane a piece of 3/4" stock to 5/8". Then, edge-join three or more pieces of this stock and cut the panel to size. Set your fence 1 3/4" from the blade and make 1/8" kerfs, 1/8" deep along all four sides of the panel's face.

Next, lay out the profile of the raised panel's beveled border along one edge of the panel as shown above right. To check your layout, hold the edge of one of the frame pieces against the panel edge as shown at right. The panel edge should be slightly oversized so that it fits snugly after you sand it.

Now, set a T-bevel according to the angle of the beveled border and use the T-bevel to duplicate the same angle on your tablesaw's blade. Then, set the blade's height so it removes all the material up to the 1/8" kerfs in the panel's face. As you make the cut, hold the panel firmly against the auxiliary wood fence as shown at right. Move the panel through the blade at a consistent speed.

With a hardwood sanding block, sand away any saw marks on the beveled border, and dry clamp the door to check for fit. Remember to stain and seal the panel prior to assembling the door. This way, any seasonal contraction of the panel will not reveal unfinished areas. Then, glue together the assembly and sand the frame pieces flush. Finish-sand the frame, stain the rest of the door, and apply your finish.☆

Illustrations: Kim Downing; Jim Stevenson
CARVE A
OKLAHOMA CARVER LINDEL PORTER

Section your bird
"To resist breakage, I carve the cardinal's head, tail, and body separately," notes Lindel. Following the grain directions shown at right, bandsaw the head, tail, and body from a 2 x 2 x 8" basswood block. "On the bandsaw, notch out the pointed feathers at the rear [see side view]. Leave them 1/4" thick for detailing," he says.

Shape up the body first
With a knife, a No. 3 or 5 gouge, or a power-carving bit, round the body to the neck-joint. Next, outline the feather pattern with a knife or V-tool, undercutting each feather so that it stands out from the body, as in detail photo, right. Next, round the feathers off slightly so they conform to the body, then detail the quills and barbs.

Attent to the head
Round and shape the head. Then, define the bill's outline. "Use undercuts to slightly recess the lower bill and a tiny V-cut for the nostrils," says Lindel. Mark eye locations, and with a 1/8" bit drill sockets 1/8" deep. Carve the area to be joined to the body so that the two pieces come together cleanly. "Make the bird more lifelike," suggests the craftsman, "by tilting the head." Then, glue the head to the body and let dry. For hidden joints, Lindel cuts a shallow, V-shaped trough on the glue lines, fills it with wood putty, then after it dries, sands the joint to blend with the wood.

Mount 7mm glass eyes (see the Buying Guide) in the head by first filling the sockets with soft wood putty. Push the eyes about one-third their diameter into the putty, then shape the squeeze-out to form upper and lower eyelids. If you don't shape eyelids, the eyes will look too large.

Tarry on the tail
For realism, the tail must fan out and curve—like a sail filling with wind. "Hollow the underside of the tail," instructs the carver. "Then, trace the feather pattern, undercut and round them, and detail the quills and barbs."

Join the tail to the body by cutting a slot to match tail width and curvature in the underside of the rear body. Dry-fit the parts, then glue in place. "Strengthen the joint by drilling a 1/8" hole through the tail and into the body to fit a 1/8" dowel," says Lindel. "Dip the dowel in glue and then push it in place."

Wet-on-wet for natural color
"I use acrylics," says Lindel, "and first I paint on a base coat of three parts Gesso [a thickening medium] to one part burnt umber and one part mars black. I thin this wash to a milky consistency."

To duplicate Lindel's wet-on-wet painting technique, which allows details to show through, thin your colors or mix of colors to wash-consistency, then paint them on coat by coat until you've built up the color saturation you want. Refer to the color key above right.

Get the cardinal on its feet
To attach the pewter feet (see Buying Guide), drill 1/8" holes in the body where shown. Dip the feet-insertion wires in glue and insert in the holes. Paint after the glue dries, then mount by inserting the short pegs on the feet into holes drilled in a piece of branch. Add a base.

By day, Lindel Porter, right, directs the respiratory therapy program at Tulsa City College, but at day's end he heads for his workshop. There, he carves eagles, waterfowl, and songbirds. And, when he's not carving, he's watching.

"I study the birds that come to the bird feeder. But, I enjoy the cardinals best. They light up our landscape."

Buying Guide
- Pewter feet, 7mm glass eyes, $8 ppd. (U.S.), from: Little Mountain Carving Supply, Rte. 2, Box 1329, Front Royal, VA 22630. Free catalog. 800-752-7573 or 703/636-3125.

Drawings: Jim Stevenson
Photographs: John Heatherington; Bob Hawks
CARDINAL
CAPTURES AN AMERICAN BEAUTY

COLOR KEY
1. Red shaded areas—cadmium red dark
2. Black areas—3 parts mars black to one-half part thalo blue
3. Beak—cadmium red light and cadmium yellow medium
4. Top of head—cadmium red light highlighted by cadmium yellow light
5. Back—one part cadmium red dark to \( \frac{1}{4} \) part thalo blue
6. Body and feather highlights—cadmium red light
7. Back and underside—cadmium red medium to cadmium red light to cadmium yellow light

Pewter feet (not on pattern)—yellow ochra, titanium white, burnt umber

Drill socket for 7mm eye insertion
Outline bill recess by cutting on line
Recess cut for back of head and to establish tuft
Recess cut for cheek
Recess lower mandible of bill
Head joint

Tail joint
\( \frac{1}{4} \) dowel center line
Quills and barbs detailed with a woodburner
Undercut feathers
FINE-FEATHERED
A CONTEMPORARY DESIGN THAT CAN

Start with the hexagonal column
Note: We used 3/4" cedar for our bird feeder; redwood also would work. If you select 3/4" cedar, it will have one rough side. You can either plane or belt-sand the rough side smooth. For joints that will stand up to the extremes of Mother Nature, use either slow-set epoxy or resorcinol glue.

1 Rip and crosscut six pieces of 3/4"-thick cedar to 4 1/2" wide by 18 1/2" long for the column sections (A).

2 Tilt your tablesaw blade 30° from vertical. Bevel-rip one edge of each column section. Reposition the fence, and bevel-rip the opposite edge of each for 4"-wide pieces. (We cut scrap stock first to check for accurate 30° cuts.)

3 Lay out a notch on the bottom end of each piece. See the Notch Detail accompanying the Exploded-View Drawing for reference. Cut the notches to shape (we cut ours on the bandsaw).

4 As shown in Step 1 of the two-step drawing below, position the column sections with the beveled edges facing down. Butt the pieces together with the notched ends flush. Using masking tape, join the six pieces. In addition to holding the pieces together, the tape prevents the adhesive from squeezing out onto the column exterior. Flip over the assembly and apply adhesive to the mating edges. (We used a small brush to completely coat both surfaces of each joint with epoxy.)

5 As shown in Step 2 of the drawing, roll the column assembly together, tape the remaining joint, and secure the column with band clamps. Let the epoxy cure. Then, remove the band clamps and tape. Sand the column smooth.

The sloped roof comes next
Note: For tight joints on the sloped roof, we found it helpful to use an adjustable triangle to set our miter-gauge and saw-blade angles. See the Buying Guide for our source of this handy shop aid.

1 Cut a piece of 3/4" cedar to 9 1/4" X 48". Following the three-step drawing at right, cut the six roof pieces (B) to shape. See the Cutting Diagram for reference.

2 Position three of the roof pieces together, topside up (bevels facing down), and run masking or duct tape across the two joints. Carefully flip over the assembly and apply epoxy to the mating bevels. Now, pull the opposite ends together by running a piece

I was astounded last fall while scouting garden stores for bird feeders. As you’ve probably noticed, run-of-the-mill bird feeders, built from 1/2" cedar and stapled together, run short on design and practicality. Yuck!

I think you—and your feathered friends—will like this hexagonal feeder. It holds a whopping 10 pounds of seed and features a large 15"-diameter feeding tray.

Mark Kermott
How-to Editor

Continued
FRIEND FEEDER
FEED A FLOCK

CUTTING THE ROOF PIECES TO SHAPE

Step 1: Trim end of board at compound angle
- Tilt blade 9" from vertical
- Auxiliary fence 36" long

Step 2: Flip board over and cut first piece to length
- 3/4 × 9 1/2 × 48" stock for six roof pieces

Step 3: Trim 1/2" off end

Step 4: Flip board over and repeat cut as shown in Step 2. Repeat steps 3 and 4 to cut all six pieces.

NOTCH DETAIL

1/2" hole 3/4" in from edge of (E)

30° bevel on edges of (A)

Note: Only five (A)'s are shown, six are required

18 1/2"

1/2" hole

Drill a 3/4" drain hole in each corner

Cutting Diagram

3/4 × 11 1/4 × 96" Cedar

3/4 × 11 1/4 × 96" Cedar

Bill of Materials

<table>
<thead>
<tr>
<th>Part</th>
<th>Finished Size*</th>
<th>Matt.</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A* column pieces</td>
<td>3 1/2&quot; × 4&quot; × 18 1/2&quot;</td>
<td>C</td>
<td>6</td>
</tr>
<tr>
<td>B* roof pieces</td>
<td>3 1/2&quot; × 9 1/2&quot; × 10 1/2&quot;</td>
<td>C</td>
<td>6</td>
</tr>
<tr>
<td>C* seed-tray pieces</td>
<td>3 1/2&quot; × 7 1/2&quot; × 17 1/4&quot;</td>
<td>EC</td>
<td>2</td>
</tr>
<tr>
<td>D banding</td>
<td>3 1/2&quot; × 1&quot; × 9&quot;</td>
<td>C</td>
<td>6</td>
</tr>
<tr>
<td>E roof supports</td>
<td>3 1/2&quot; × 5&quot; × 6&quot;</td>
<td>C</td>
<td>3</td>
</tr>
<tr>
<td>F seed-tray support</td>
<td>3 1/2&quot; × 7&quot; × 8&quot;</td>
<td>C</td>
<td>1</td>
</tr>
</tbody>
</table>

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

Material Key: C-cedar, EC-edge-jointed cedar

Supplies: slow-set epoxy or resorcinol glue, waxed paper, masking tape, #8 × 1 1/2" flathead brass wood screws, #8 × 2 1/4" flathead brass wood screws, #14 × 1 1/2" flathead wood screws, 1 1/2" pipe flange, 1 1/2" pipe threaded on one end, exterior finish.
of tape from end to end where shown in the photo at right. To
hold the half-section together until the epoxy cures, place it on a
board covered with waxed paper.
Drive nails around the roof section's perimeter where shown. Re-
peat the procedure with the three remaining roof pieces. Later, re-
move the nails, and peel the tape from the joints.
3 To true the mating edges of the roof half-sections, support each on
a piece of flat stock. (The outside edge of the middle section must
be flush with the outside edge of the flat stock.) As shown below,
trim about 3/8" off the mating edge of each roof half-section.
4 Apply epoxy to the mating edges, and tape together the two
roof sections. Later, sand the roof.

Drive nails into a scrap board around the perimeter of the roof half-section to hold the assembly together until the glue cures.

**SEED TRAY**

**ROOF SUPPORT**

**SEED-TRAY SUPPORT**

Next, build the seed tray
1 To form the tray (C), start by
cutting two pieces of 3/4" cedar to
7 1/2 x 17 3/4" long, miter-cutting the
ends at a 30° angle as shown
on the Seed Tray Drawing.
2 Epoxy the two pieces together
drag to edge. After the epoxy
cures, sand the tray surfaces.
3 Cut the banding pieces (D) to
length, miter-cutting the ends at
30°. Check the fit against the tray, then epoxy and clamp (or tape)
the banding strips to the tray.

Cut the remaining pieces and
assemble the feeder
1 Center the hexagonal column
on the seed tray. Trace around the
edges where the bottom end of
the column comes in contact
with the tray. Remove the column
and drill a pair of 5/8" holes inside
each outline (see the Exploded-
View Drawing for reference).
Viewing the same drawing for
reference, drill a 3/8" drain hole in
each corner of the tray. Screw (no
adhesive) the column to the tray.
2 Cut the roof supports (E) and
seed-tray support (F) to shape, using
the drawings above for reference.
With the edges and ends
flush, epoxy together the three
roof supports. Check the fit of
the roof support inside the column.
Trim or sand the edges of the roof
support if necessary for a good fit.
3 Center the roof-support lamina-
tion (E) on the bottom side of
the roof (B). Drill holes, then epoxy
and screw the roof support to
the bottom of the roof. Repeat
the procedure to center and fasten
the seed-tray support (F) to the bot-
tom side of the tray (C).
4 Stain and finish. (We left ours
unstained, and sealed the wood
with two coats of Thompson's
Water Seal.) Center and screw a
1 1/2" pipe flange to the bottom of
the tray support. Bury the bottom end of a 1 1/2" pipe 30" in the
ground, and mount the feeder.

**Buying Guide**
- **Slow-set epoxy.** One 8-oz. bottle of resin and one 8-oz. bottle of hardener, catalog no. WM9, $16 ppd. System Three Resins, P.O. Box 70436, Seattle, WA 98107.
- **8" adjustable triangle.** Acrylic, graduated .5" increments. $14.95 ppd. The Art Store, 600 Harding Road, Des Moines, IA 50312. Or, call 800-652-2225 to order.

Produced by Marlen Kemnet
Project Design: James R. Downing
Photographs: John Hetherington
Illustrations: Kim Downing, Bill Zaun
BACK-ISSUE SALE

While supplies last, you can order the issues listed below. We will process orders on a first-come, first-serve basis, and when the magazines are gone, that's it.

**WOOD® MAGAZINE**

- #7 Surface sander, coffee table, hall shelf, magazine rack, doll furniture, classic radio, carving tools, rosewood jigs, palm sander.
- #8 Coat-tree, snack tray, desk lamp, chair set, lamp, chins, necklace, wall hanging, sled, mallets, scrollsaws, bending wood, router bits.
- #9 Dining table, clocks, jewelry box, multi-machine, Japanese hand tools, furniture touching, water storage.
- #10 Parsons table, dining chair, table, ceiling fixture, wire house, airplane, plastic lamination, waterstones.
- #12 Scrollsaw, breakfast tray, tie rack, tow truck, sandpaper storage, parrot magnets, bookends, power miter saws, old tools.
- #13 Cedar chest, kid's table and chair, mug rack, kitchen cabinet standards, jewelry cases, drum-sanding, thickness planers.
- #14 Rocking horse, candy caddy, earrings, folk toys, magazine rack, sanding block, faceplate turning, turning tools, tung oil.
- #17 Outdoor settee, dining table, carving board, plane rack, template and pin routing, radial-arm saws, dust control.
- #18 Crib, bed, furniture, kid's mirror, turned clock and vase, notepad holder, tool chest, power cutters, router, dovetail jigs.
- #20 Mantel clock, wine rack, candle holder, money clip, key chain, doll stroller, hand mirror, bulldozer, buckles, scrollsaw tips.
- #21 Barrister's bookcase, file cabinet, picture frame, letter opener, bandsawed boxes, turned spice jars, plunge routers.
- #22 Tall clock, onlay vase and table, blade-height gauge, teddy bear clock, swan necklace, clothes rack, combination machines.
- #23 Pet set, 2-stave bowls, panto graph board, turned earrings, playhouse, plate piners, chair carving, diamond stones.
- #24 Outdoor plants, kids' cars, 3 cutting boards, homemade sawhorse, drillpresso ratings and techniques, woodcarving.
- #25 Curio cabinet, glue caddy, kid's wheelbarrow, zoo carousel, rolling pin, safe/ key keeper, oval marker, layout tools, framing.
- #26 Ornaments, yo-yo, wall clock, balsa buggy, whale notepad holder, depth gauge, cribbage board, inlay tray, shop vacuum.
- #27 Country bench and cabinet, floor lamp, box-joint jig, recipe-card box, truck, perfume decanter, relief carving, circular saws.
- #28 Trestle table, finish scraper, birdhouse, plant stand, stack-laminated bowls, stationary belt sander, cowboy boot carving.
- #29 Entertainment center, low-voltage lighting, train whistle, bud vase, napkin holder, parrot mobile, tops, replacemant rip fences.
- #30 Shaker chair, doll cradle, rod rack, strip sander, carved whale, portable belt sander, cabinet clean-up, treated wood.
- #31 Woody car, rip fence, wadding clock, woven basket, candle holder, tabletop frame, joints, working small, world's woods.
- #32 Tambour desk, oak mirror, bookends, table top easel, recipe-card holder, biplane, carved angel, table saws, toxic woods.
- #33 Router table, dry sink, desert landscape, FAT CAT trucks, turned bracelets, router tests and tricks, microwaved bowls.
- #34 Psalter, dollhouse, tablesaw base, framed hummingbird, carved bluegill, sandblasting, planers, thin kerf blades.
- #35 Oak settee, monster truck, spoon rack, handscrew clamps, toy wheels, table top finish, shopsmith vs. Total Shop.

**WEEKEND WOODWORKING PROJECTS**

- #1 Helicopter toy, cutting board, decorative sleigh, spice rack, sconce, pocket watch.
- #2 Rose jewelry box, arched-top clock, napkin rings, paining, message center, jelly-bean machine.
- #3 Sportsman's coatrack, tractor, nameplate, decorative rocking horse, teddy bear bookshelf.
- #4 Salt-and-pepper set, bird feeder, honey bee, dresser mirror, crayon caddy, towel ring, house sign.
- #5 Adirondack chair, foot stool, bandsawed basket, plant stand, oak casseroles, server, acorn box.
- #6 Scandinavian candle holder, door hanger, wall clock, bandsawed box, music box.
- #7 Bookcase, carved fruits, country basket, dresser-top kid's lamp, chair hang, hand saw bookends.
- #8 Armored-car bank, coaster set, white stamp box, turned biscuit cutter, serving tray, table lamp.
- #9 Redwood bench, marble game, toy dining set, barn birdhouse, carousel, night-light clown.
- #10 Child's rocker, hourglass, antique clothes rack, wall plaque, planter basket, butter churn.
- #11 Country wood quilt, plate rack, drogister, pineapple bookends, heron wall clock, eggs and bowl.
- #12 Holiday blocks, turned telescoposcope, tree candle holder, shadow box, clown toy, wood jewelry.
- #13 Mortar and pestle, wall mirror, fish cutting board, grasshopper toy, dovetail shelving, lamp.
- #14 Two-part patio chair, tone box, carved spoon, rocking cow, whirigig, turned baseball bat.
- #15 Corner cabinet and shelf, clothes tree, folding table, keepsake box, candle lantern, U.S. puzzle.
- #16 Porch swing, stately planter, wood cabinet, country cabinet, alpine-ride toy, crumb-box cutting board.

**HERE'S HOW TO PLACE YOUR ORDER**

1) Fill out the form at right, indicating which issues you want to purchase.
2) Send the order form to:
WOOD Back-Issue Sale
P.O. Box 11454
Des Moines, IA 50336-1454

**NOTE:** Due to our limited supplies of these magazines, we'd prefer that you purchase your magazines by credit card (MasterCard, Visa). This allows us to charge you only for those magazines we have in stock at the time we receive your order. We will also accept checks, payable to WOOD Back Issue Sale, but this may increase the processing time on our end. Thanks for your cooperation on this. Allow 4-6 weeks for delivery.

Name: ____________________________
Address: ____________________________
City: ____________________________
State: __________________ Zip Code: __________

[ ] VISA [ ] MasterCard Exp. Date ____________
Credit Card #: ____________________________
Signature: ____________________________

WEEKEND 1-2-3-4-5-6-7-8-9-10-11-12-13-14-15-16

WOOD 7-8-9-10-11-12-13-14-15-16

Single issues @ $4.95 ppd. For foreign orders, please add $1 per issue.
The Basics Of Cabinetry

**Table Saw**
- Rips
- Mitered
- Finger Joints

**Spindle Shaper**
- Raised Panels
- Mouldings

**Jointer**
- Glue-ups
- Facing

**Thickness Planer**
- Dimensions
- Smooth Finish

Call or Write for Complete Details on This Remarkable Compact Workshop 800-USA-KITY

---

**TRY SQUARES**

Try squares, top to bottom: 24" tongue try square by I. Wheatcroft, New York, and typical of late 1800's decoration; Stanley patent 1896, rosewood-handled, 3" try square; Stanley "Extra Heavy" No. 10's with steel-framed rosewood handles and 10", 8", 6", and 4" tongue lengths.

Checking for square has always been a critical craftsman concern. Egyptian hieroglyphics, ancient Greek relief carvings, Roman mosaics, and Renaissance art depict framing, or carpenters' squares, similar to those of today. But what we now commonly call the try square, with a handle thicker than the tongue, didn't appear in the woodworker's tool chest until the mid-1600s, when western civilization was emerging from medieval to modern times. There was a growing emphasis on furniture design and construction, and wood craftsmen needed a small square to double-check the joinery of furniture and cabinets. Since this new breed of specialized craftsmen were called "joiners," the small square they developed was at first referred to as a joiner's square.

Prior to the 19th century, try squares were usually handmade by the craftsmen using them. Of all hardwood construction, try squares of the period featured a through-mortise connecting the tongue to the handle at a 90° angle. Dowels pinned the tongue in place. Made to the size needed (a craftsman might have had many, in different lengths, on hand), these wooden tools were proved square by careful, repeated testing ("trying") and planing.

**Try squares for building a nation**

Following the Civil War, U.S. manufacturers could focus on tools for a nation set on expansion, instead of armament. Factory-made try squares began...
THE TOOL TIME HASN'T CHANGED

to represent a cornucopia of diversity. And slowly, metal began to replace wood.

Tongues of tempered spring steel replaced wooden ones. Brass wear plates protected the faces of roosewood or ebony handles. Beautiful brass escutcheons (ornamental flanges) often held the rivets securing the tongue. In 1870, the Stanley Rule & Level Co. offered more than 25 try squares in different sizes. Many of these have become prized collectors' items. As an example, a Stanley No. 1 try square, with a brass star inlay, has a value of $50—$60.

By 1900, try-square manufacturing hit its zenith. Small companies in the Northeast, such as Goodell-Pratt, Disston, Fulton Tool, Keen Kutter, and Stanley competed for a share of a growing tool market as the nation built westward.

The last major push in woodworking hand tool development took place after World War I. By 1929, Stanley was offering more than 40 different squares, while many earlier competitors dropped out of the market.

Length equals value

Even if you don’t plan to collect tools, you’ll find having different-sized try squares helpful as you build projects in your home shop. Expect to pay $5—$20 or more for old but usable common sizes and up to $150 for those over 15” long (the 16” length is extremely rare). At the other end of the scale, you’ll pay more for try squares 3” and smaller. Try squares from early makers, or those once owned by a known craftsman, increase collectibility and price. Features can increase value, too, such as roosewood or ebony handles or ivory inlay.

Written with Philip J. Whity
Photograph: Hopkins Associates
1. Router owners - large discounts! New 24-page catalog featuring hundreds of high quality router bits, the "Router Speed Control" and the "Mere Adjustable Corner Clamp" plus other professional woodworking products. Prices 50% to 70% lower than elsewhere. Value, quality and prompt service guaranteed! MLCS LTD. Free.

2. EDUCATIONAL LUMBER COMPANY offers you a new catalog of the finest quality domestic and exotic species available, including turning stock, veneers, hardwoods and softwoods. This catalog itself is an educational experience! $2.00.

3. If you are making toys and other items for craft shows and fairs, don't overlook our great selection of patterns for rocking horses, toys, clocks and furniture. Speciality supplies, hardware, tools and gift items also available. ARMOR PRODUCTS. Catalog $1.00.

4. Powermatic offers a broad line of quality woodworking machinery brought to market through a network of selective woodworking machinery distributors. Powermatic offers its customers video tape educational programs, printed materials and machinery manuals to help ensure optimal service, performance and life. POWEROMATIC, a division of DeVlieg-Bullard, Inc. Illustrated catalog $1.00.

5. High speed tapered drill/countersink set; 7 HSS tapered drills, 7 HSS countersink/countersinks, 7 stop collars, 1 hex wrench packed in wood case. For screw sizes: 5, 6, 7, 8, 9, 10, 12. DOLLAR TRADING CORP. Free catalog.

6. FARLEY-BELSAW'S new woodworking correspondence course for everyone wishing to learn woodworking skills. Create over 20 projects using professional plans & tools like a table saw, router & more ... all included with course. Money-back guarantee. Free 30-day trial. Free information.

7. 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 "1x1" and "1x2" pegboard; lock into adjacent holes and hold hooks tightly in place. AETECH CORP. Further information and sample $1.00.

8. You're not alone when you do it yourself. CONSTANTINE'S Woodworkers Catalog is right alongside with whatever you need to build, restore, repair and refurbish. Over 4,000 items including hardwoods, brass cabinet hardware, 150 kinds of veneers, inlays, moldings, specialty woodworking tools, wood finishes, plans and books. Catalog $1.00.

9. Power drum sander will sand material perfectly flat and smooth every time! Reduces sanding time by 80%! Delivers sanding at very moderate cost. Models available in seven sizes. American made! Ross Industries INC. Free catalog.


11. Find out why the Hawk precision scroll saw is America's favorite! Send today to get all the facts on all six models, one that fits your needs. Find out how fun & profitable scrolling can be...we'll show you how! RBI. Send for free information.

12. The jointer planer JP-155 from RYOBI. The only variable speed (16,000-32,000 rpm) 6 1/4" jointer on the market. Weighs under 30 lbs., but 28" table and rugged 10.5 amp motor handle all woods for jointing, planing, surfacing, beveling (45°) and chamfering. Information free!
13. MAKITA U.S.A., INC. offers a new 81-page catalog featuring an extensive professional line with emphasis on cordless power tools. Complete information is provided, including accessory listings and practical applications. Free.


15. Econ-Abrasives is proud to introduce our new line of Bosch carbide tipped router bits. As with our famous sandpapers, our industrial router bits will cut thru the competition and impress you both in quality and price. ECON-ABRASIVES—every bit worth asking for! Free information.

16. Saw blades of all types are offered in our catalog featuring band, circular, hack, hand, jigsaw and scroll. Abrasives such as sanding belts, disks, sheets and drums. Plus many other cutting tool items. BUCKEY SAW CO. Catalog $1.00.

17. Patterns by Design Group—toys, games, puzzles, birdhouses, rocking horse, cars, trucks and more! All patterns are "Same Size" blueprints. No enlarging necessory. Simply trace and create. Money back guarantee. DESIGN GROUP'S fully illustrated catalog $1.00.

18. STEVE H. WALL LUMBER CO. provides 15 varieties of hardwood lumber and several lines of woodworking machinery. Catalog $1.00.

19. McFeely Hardwoods' 32-page catalog features the incredible square drive screw in steel, solid brass and stainless steel, router bits, veneers and veneer tape and other woodworking specialties. MCFEELY HARDWOODS AND LUMBER. Catalog 75c.

20. Collectors sample kit. 36 exotic and domestic woods. 1/2" x 3" x 5" sanded finish, ideal for collectors, cabinet and furniture makers, designers and architects. WOODWORKERS SUPPLY. Catalog $1.00.

21. Executive wood toys! If you want more in the line of wood toys, let Toys and Joys offer you a line of detailed patterns for classic cars, trucks, trains, etc. We also carry a complete line of wood toy parts. Ask about our deluxe spoke wheels. TOYS AND JOYS. Catalog $1.00.

22. Woodworkers! Help celebrate our 60th year of service. Send for our new 148-page Craftsman 1989-90 catalog. 42 varieties of choice hardwoods 1/4" to 4" thickness. Fine hardwood veneers, tools, moldings, trim, marquetry inlays, finishes and hard-to-find hardware. 4,000 plus items for your projects. CRAFTSMAN WOOD SERVICE CO. Catalog $1.00.

23. 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 in a moisture meter! The pocket-size Mini Lignomat is for the serious hobbyist and professional woodworker. LIGNOMAT. Free literature.

24. Project plans: Over 400 easy-to-build woodworking project plans (100 new for 1990). Nation's leading source for door, arch, pan, holstein cow projects, toy plans, country furniture, etc. Over 3000 hard-to-find specialty items. MEISEL HARDWARE SPECIALTIES. Send for your big new 96-page catalog $1.00.

25. You will simply be amazed at the number of new items we have brought on line for 1990. Machinery, accessories and specialty items abound. This catalog is a definite collectible that you will save for years. GRIZZLY IMPORTS, INC. Free catalog.

26. Woodworking tools from WOODCRAFT SUPPLY CORPORATION. Since 1928, we have searched the world for tools you don't just buy, but adapt. Tools made by craftsmen for craftsmen, classics of lifetime quality for people who love to work with their hands. Free catalog.

27. The Maple Ridge tool chest is an heirloom quality ready-to-assemble kit, which features an automatic drawer locking mechanism that operates when the lid is closed. Also used for silverware, jewelry, or collectibles, the maple Ridge tool chest is available in solid Red Oak or Black Ash. MAPLE RIDGE. Brochure $1.00.

28. Our epoxy adhesives and wood fillers, originally developed for marine use, will bond or restore all woods. They develop a true adhesive bond which is waterproof and permanent. 50-50 mixing ratio takes the guesswork out of using our epoxies. SMITH & CO. $1.50.
29. VAN DYKE'S RESTORERS offers an informative catalog for all antiques including oil lamps and parts, brass hardware, trunk hardware, wood finishing materials, caring and basketry, wood carvings, moldings, trim, hardware, lumber and veneers, roll top desk parts, curved china cabinet glass, etc. Whole sale prices on most items. Catalog $1.00.

30. Woodworking tools. Freud provides the finest in hand tools, carbide cutting tools and hand held power tools. From drills and sanders to carbide blades and router bits. FREUD. Catalog $6.00.

31. 102 bird houses, feeders you can make! Complete illustrated plans for building charming bird houses & feeders. Designed to attract your choice of 26 species such as Bluebirds, Song Sparrows, Wood Duck, House Finches, Purple Martins, etc. Complete plans with tips on materials, painting, finishing, drainage and ventilation. ATH INC. Only $19.95.

32. Carbide tipped router bits and shaper cutters are recognized worldwide for quality and performance at an affordable price. We use the latest in diamond grinding techniques and cnc equipment to give you exacting tolerances. Remember, there are hundreds of styles, thousands in stock ready to be shipped. We specialize in same day shipping and quantity discounts. Free catalog.

33. Build the Continental Kit pool table and save hundreds of dollars. We sell complete kits, individual components and accessories. Factory direct. CONTINENTAL BILLIARDS. Complete information $1.00.

34. One page brochure from NOVA TOOL COMPANY describes branding irons that enable you to put your name on your woodwork quickly and easily. Made especially for branding wood, they are available with 1, 2 or 3 lines of copy or with your logo. $1.00.

35. HAMMER/MARK ASSOCIATES 20-page catalog features 33 country furniture plans, plus products for workshops. Our weekend workshop plans can be completed in a weekend or two. Our classic plans are a bit more extensive. Catalog $1.00 (deducted from first order).

36. Known for its quality hardwoods, EMPEROR CLOCK COMPANY offers a broad selection of mantel clocks, wall clocks and grandfather clocks, as well as furniture accent pieces, in do-it-yourself kit form or completely assembled and finished. Color catalog $1.00.

37. 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 SunPorch. This two-in-one sunspace features sturdy aluminum framing 1" shatter-resistant glazing, do-it-yourself assembly and mounts readily on decks, patios, landscape ties. VEGETABLE FACTORY, INC. Color catalog $2.00.

38. 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. Catalog $1.00.

39. Discover a world of musical instrument projects designed for home assembly: Kits, plans and supplies for making guitars, banjos, harps, dulcimers, violins, pianos and more - the finest designs available. ST. CROIX KITS. Musicmakers Keep Book $1.00.

40. Discover the rewarding experience of clockmaking! Free 76-page color catalog features the lowest prices on quartz clock movements, kits, for all skill levels, dial, hands, hardware and other clockmaking components, plus much more! KLOCKIT. Free catalog.

41. 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.

42. If you enjoy woodworking, a versatile Marlin Woodcarving Machine may be just what you need. Three-dimensional carving of sculptures, plaques, panels and moldings is easy. Wood sign carving is simple. Available in three sizes. MARLIN INDUSTRIES, INC. Free.

43. Discount of quality wood parts, including dowels, spindles, toy parts, plugs and buttons in most species of wood. MIDWEST DOWEL WORKS, INC. Free 18-page catalog.

44. Anytime, anywhere, anywood with the WILLIAMS & HUSSEY mold er-planer. Picture frames, crown moldings, raised panels, curved panels, curved moldings and more. Each two-minute cutter change-over makes it easy to plane hard woods and cut moldings. Five year warranty and free 30-day trial. Catalog $1.00.
45. World leader in furniture restoration, MINUTEMAN offers the latest in systems and equipment—best by performance. Earn $200 to $1,000 per day stripping, repairing, refinishing, mirror reinstalling and/or veneering. No experience necessary. Complete training provided. Free professional furniture restoration workshop. Catalog $2.00.


47. Over 1000 woodcraft patterns! Create gifts, toys, whirligigs, lawn ornaments, folk art, bird houses and feeders, magazine racks, shelves, children’s items, kitchen and household accessories plus much more! Simple enough for the beginner, fun and profitable for the pro. ACCENTS IN PINE Catalog plus sample pattern only $2.00.

48. Penn State’s new brochure features lower pricing on their expanded line of woodworking equipment. Scroll saws, planers, dust collectors, wood lathes and several new items are described. Valuable discount coupons are included. PENN STATE INDUSTRIES. Free.

49. High quality caning and seat weaving materials for the craftsman. Wood parts, brass hardware, reeds, upholstery supplies, furniture kits, Danish cord, basketry supplies, books, tools, implements and much, much more. Everything required for a top notch job. FRANK’S CANE AND RUSH SUPPLY. Free literature.

50. One man saw mill, weighing only 45 lbs. Rip saw 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 1 1/4” with a thickness adjustment from 1/8” to 9/32”. High performance model for only $1599. Less expensive models available. BETTER BUILT CORPORATION. Free information.

51. 212-page GARRETT WADE catalog with over 2500 selections of the finest tools and finishes. Also valuable reference material on care and use of tools. This premium group of products includes hand tools, books, finishes, stones, benches and turning tools. Power tools and accessories featuring INCA woodworking machinery. $4.00.

52. The Japan Woodworker’s 80-page catalog is loaded with a huge selection of Japanese saws, waterstones, chisels, planes, carving tools, cutting and garden tools. See our Tools As Art section. THE JAPAN WOODWORKER. Send $1.00 for 1990 catalog and all supplements for two years.

53. The most complete selection of scroll saw blades, accessories and improvements for almost any scroll saw. Also includes Hegner lathes & lathe duplicators, Jet clamps, workbenches, Felder Systems and more! Exclusive from ADVANCED MACHINERY IMPORTS LTD. $2.00 (refundable with order).

54. Ripstrake saves fingers for table saw and radial arm saw users. Brochure describes the Ripstrake and shows how it gives straighter cuts, speeds the work, prevents kickbacks and keeps hands away from the blade. FISHER HILL PRODUCTS. 25c.

55. Finally, a solution for accurately setting your table & radial arm saw. Designed for both the home handyman & professional, PARAGUAGE provides a parallel measurement up to 10” for setting rip fences & up to 21/8” in blade depth. Being completely portable, ParaGauge can also be used to set band saws, drill presses & router tables. A perfect gift idea. Free literature.

56. Lawn swing on wheels. Plans and patterns. Suspension kit. Includes 4 wheels 6” diameter, 2 axles 3/8” diameter, 4 nylon bearings, 8 aluminum rockers and 8 fixtures for braces. VIET TOOLS. Free.

57. LOBO POWER TOOLS. Our lower prices make our fine woodworking machines more affordable for you. We sell a complete line of bandsaws, jointers, planers, drum sanders, shapers and much, much more. All of our machines come with a 1-year warranty. $2.00.

58. Catalog of 200 full-size professional plans for building fine, museum-quality furniture, including cradles, roll-top desks, tables, chairs, buffets, beds, chests, gun cabinets, rocking horse, children’s furniture and more. FURNITURE DESIGNS, INC. Catalog $3.00.

59. We feature quality hard and soft woods for all your woodworking project needs. Our large inventory includes ash, basswood, birch, butternut, cherry, chestnut, elm, maple, oak, poplar, rosewood, teak, walnut, sugar pine, cypress, cedar, spruce and Douglas fir. We also carry special plywood, moldings and quality stock for cabinet work. Information $1.00.

60. PERFORMAX PRODUCTS offers the factory assembled Pro Max II for precise, ultra wide sanding. The 22” wide aluminum extruded drum is suspended for a maximum sanding width of 44” in two passes. An infinitely variable power feed operates at 0-10” per minute. Thin veneers and pieces as short as 21/4” can be sanded hands-free. Product brochure highlights our complete line. $1.00.

Furniture Designs, Inc.

MAURICE L. CONDON
DOMESTIC AND FOREIGN HARDWOODS
61. 24-page catalog from one of America's larger woodworking tool suppliers - quite different than the first flyer Total Shop sent out back in 1977. This catalog is the best ever and will inform you on the finest woodworking tools available. TOTAL SHOP. Free catalog.

62. CRAFTSMAN'S CORNER Woodcraft Collection offers a full selection of outstanding furniture kits featuring top quality materials and outstanding workmanship. With these kits, you can build beautiful solid oak pieces with only hand tools. Satisfaction guaranteed. Free full-color catalog featuring more than 50 beautiful oak projects.

63. A new, 52-page catalog features Wilke's exclusive line of Bridgewood and metalworking machinery available for purchase or lease. The Bridgewood line includes industrial quality, heavy-duty machines for serious, amateur and professional mechanics. WILKE MACHINERY COMPANY. Catalog $1.00.

64. Quality exotic lumber/turning woods. Fine quality ebony, kingwood, tulipwood, snakewood, African blackwood, cocobolo, bloodwood, figured maple, spalted maple, padouk, etc. Unique and unusual turning wood and burl are also available. BEREAL WOODS. Catalog $1.00.

65. 1990 "Wood Working Power Tools" from the editors of WOOD Magazine. Features more than 300 power tools including lathes, band saws, tablesaws, circular saws, drill presses, thickness planers, portable circular saws, plunge routers, cordless drill/drivers, portable sanders, radial arm saws. Helpful comparison charts and articles provide information you need before buying. $3.95.

66. Build your own cue with our Cue Kit. Three kits to choose from. Simplified step-by-step instructions with easy to read diagram. Cue Kits $99.95 and up. Or let us build you a high quality custom Cue, you choose the parts. Custom Cues $300.00 and up. Send for catalogue today! PRATHER'S CUSTOM CUE PARTS. $6.00.

67. Classical designs and modern electronic music box plans. Full size patterns, with parts kits available, for beginner to intermediate woodworker. Largest selection/lowest prices for electronic music boxes. Wood turning parts and supplies. Bulk prices available. CRAFTER'S MART. $2.00 (refundable).


69. Acme Electric is announcing our new 1990 catalog. It features a wide selection of merchandise for home woodworkers to industrial builders. 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. 1990 ACME ELECTRIC catalog... It's worth it! $2.00.

70. Our wood parts make it easy to make professional looking furniture. We feature legs, arms & turned columns for tables, chairs, etc., in styles including Chippendale and Queen Anne plus chairs & occasional tables to assemble & finish. Our woods include walnut, mahogany, cherry & oak. ADAMS WOOD PRODUCTS. Brochure packet $1.00.

71. Maple table kit. Build a solid maple table for half the price of retail. A nice project for the first-time or experienced. Kit includes finished hard maple laminated top, 4" turned legs and hidden hardware for attaching legs to table top. Available from many warehouses in stock sizes of 24" x 36", 24" x 48" & 30" x 72" all 1/4" thick. MC COMBS MAPLE. Color brochure $1.00.

72. THE FINE TOOLS SHOP catalog offers products for professional woodworkers and serious hobbyists. Specially selected offerings range from measuring and marking and drafting needs to the finest chisels and carving tools. Catalog $1.00.

73. Send for catalog offering detailed plans for a wide range of children's furniture and functional, contemporary furniture pieces for the family room, living room or den. Projects are designed for solid construction and lasting durability. For all skill levels! J & I ENTERPRISES. $1.00.

74. 198 easy-to-follow construction plans. Many project patterns are full-size and can be traced right onto the wood. Windmills, animal house-markers and plaques, tables, amusing animated weather vanes, scroll sawed shelves, trivets, planters, Christmas projects, coffee table, hurricane lamp, kitchen accessories and much more! BRAD FRANKLIN ADVERTISING, INC. Only $11.95, complete.

75. Doing what Forstner's do best. These precision machined bits are the best possible choice to bore a clean, flat bottomed hole at any angle. Machined from a solid steel billet to avoid grain deformation. Available in 5-piece set or 8-piece set. Bits come in a fitted wood box. SKYCROFT TOOLS INC. Free.

76. Tools on Sale, a division of Seven Comers Ace Hardware, has a wide variety of tools for the professional or do-it-yourselfer. Our catalog, perfect for anyone using hand or power tools, is packed with the most respected names in the industry: Makita, Milwaukee, Skil, B & D Ryobi, Delta, Bosch & many more. We are noted for fast, friendly service. TOOLS ON SALE. Free catalog.

WOOD MAGAZINE  AUGUST 1990
ORDER FORM

Fill out the coupon and include your check made out to Better Homes and Gardens® WOOD for the cost of the catalogs you ordered plus the $2.00 handling fee. Please allow 4-6 weeks for delivery. Coupon expires August 19, 1991.

Circle the catalogs you want to receive.

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Price 1</th>
<th>Price 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Free</td>
<td>27. $ 1.00</td>
<td>53. $ 2.00</td>
</tr>
<tr>
<td>2.</td>
<td>$ 2.00</td>
<td>28. $ 1.50</td>
<td>54. $ .25</td>
</tr>
<tr>
<td>3.</td>
<td>$ 1.00</td>
<td>29. $ 1.00</td>
<td>55. Free</td>
</tr>
<tr>
<td>4.</td>
<td>$ 1.00</td>
<td>30. $ 2.00</td>
<td>56. Free</td>
</tr>
<tr>
<td>5.</td>
<td>Free</td>
<td>31. $10.95</td>
<td>57. $ 2.00</td>
</tr>
<tr>
<td>6.</td>
<td>Free</td>
<td>32. Free</td>
<td>58. $ 3.00</td>
</tr>
<tr>
<td>7.</td>
<td>$ 1.00</td>
<td>33. $ 1.00</td>
<td>59. $ 1.00</td>
</tr>
<tr>
<td>8.</td>
<td>$ 1.00</td>
<td>34. $ 1.00</td>
<td>60. $ 1.00</td>
</tr>
<tr>
<td>9.</td>
<td>Free</td>
<td>35. $ 1.00</td>
<td>61. Free</td>
</tr>
<tr>
<td>10.</td>
<td>$ .75</td>
<td>36. $ 1.00</td>
<td>62. Free</td>
</tr>
<tr>
<td>11.</td>
<td>Free</td>
<td>37. $ 2.00</td>
<td>63. $ 1.00</td>
</tr>
<tr>
<td>12.</td>
<td>Free</td>
<td>38. $ 1.00</td>
<td>64. $ 1.00</td>
</tr>
<tr>
<td>13.</td>
<td>Free</td>
<td>39. $ 1.00</td>
<td>65. $ 3.95</td>
</tr>
<tr>
<td>14.</td>
<td>Free</td>
<td>40. Free</td>
<td>66. $ 6.00</td>
</tr>
<tr>
<td>15.</td>
<td>Free</td>
<td>41. $ 1.00</td>
<td>67. $ 2.00</td>
</tr>
<tr>
<td>16.</td>
<td>$ 1.00</td>
<td>42. Free</td>
<td>68. $ 1.00</td>
</tr>
<tr>
<td>17.</td>
<td>$ 1.00</td>
<td>43. Free</td>
<td>69. $ 2.00</td>
</tr>
<tr>
<td>18.</td>
<td>$ 1.00</td>
<td>44. $ 1.00</td>
<td>70. $ 1.00</td>
</tr>
<tr>
<td>19.</td>
<td>$ .75</td>
<td>45. $ 2.00</td>
<td>71. $ 1.00</td>
</tr>
<tr>
<td>20.</td>
<td>$ 1.00</td>
<td>46. $ 6.95</td>
<td>72. $ 1.00</td>
</tr>
<tr>
<td>21.</td>
<td>$ 1.00</td>
<td>47. $ 2.00</td>
<td>73. $ 1.00</td>
</tr>
<tr>
<td>22.</td>
<td>$ 1.00</td>
<td>48. Free</td>
<td>74. $11.95</td>
</tr>
<tr>
<td>23.</td>
<td>Free</td>
<td>49. Free</td>
<td>75. Free</td>
</tr>
<tr>
<td>24.</td>
<td>$ 1.00</td>
<td>50. Free</td>
<td>76. Free</td>
</tr>
<tr>
<td>25.</td>
<td>Free</td>
<td>51. $ 4.00</td>
<td></td>
</tr>
<tr>
<td>26.</td>
<td>Free</td>
<td>52. $ 1.00</td>
<td></td>
</tr>
</tbody>
</table>

Send to: Better Homes and Gardens®, WOOD Dept. JACS90, P.O. BOX 5103 Pittsfield, MA 01203-5103

I am enclosing: $_____ for priced items

$ 2.00 for handling

$_____ total remittance

Name ____________________________

Address __________________________

City/State/Zip ______________________

NOW! Plane, Mold, Sand & Saw with Infinitely Variable Power-Feed!

Put this versatile power-feed tool to work in your own shop. See how fast it pays for itself! Quickly converts low-cost rough lumber into valuable finished stock, quarter-round, casing, base mold, tongue & groove ... all popular patterns ... even custom designs!

NEW! Variable Feed Rate—Now, just a twist of the dial adjusts your planer from 70 to over 1000 cuts-per-inch! Produces a glass-smooth finish on tricky grain patterns no other planer can handle.

Phone TOLL FREE: 1-800-321-6851 Ext. PW38

WOODMASTER TOOLS, INC., DEPT. PW38 2908 OAK, KANSAS CITY, MO 64108

YES! Rush my FREE INFORMATION KIT and details of your 30-Day Free Trial Guarantee.

NAME ____________________________

ADDRESS __________________________

CITY ____________________________

STATE ____________________________

ZIP ____________________________
Log Cabin Dollhouse
Plans, Kits, Completed Houses
Standard scale 1" = 1'. House is 23' x 34' x 17' high. Stone chimney and fireplace, wood shingle roof. Plans adaptable to any style log house.
Plans - $12.50
Kit - $115.00
Completed Dollhouse - $95.00
Shipping Free in Continental USA
Woodworking Unlimited
261 Champlin Rd., Gilboa, NY 12076

Van Dyke's
Presents a Catalog
with supplies for upholstery, antique restoration, woodworking, 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, Woonsneck, S.O. 57385

BRANDING IRON
Hand crafted by your name here
$24.00
Plus $2.00 for shipping and handling
Satisfaction guaranteed
If you are not satisfied

12 SHOWS THIS FALL!
The Woodworking Shows ★
machinery tools ★ supplies
- Baltimore
- Detroit
- Louisville
- No. California
- Oregon
- Twin Cities
Call for free brochure
Monday - Friday 8:00 - 5 Pacific Time
1-800-826-8257, In Calif. 213/477-8521

MUSICAL INSTRUMENT PLANS, KITS & SUPPLIES:
Violins, Mandolins, Banjos, Guitars, Harps, Lyres, Dulcimers, Psalteries & more!
FREE CATALOG
MUSICMAKERS KITS
Dept. B6
423 S. Main St.
Stillwater, MN 55082
1-800-432-KITS

Wood Moisture Meter
- Avoid Moisture Problems
- Protect your Masterpiece

MINI LIGNO
Inc. Case, Batteries and Pins for 'M' Kit. Measuring Depth, only $18
Also from Lignomat:
MINI-LIGNO E Range: 0% - 9%
Easy-to-use, sturdy instruments for the professional woodworker or serious hobbyist. Great for lumber, veneer, fiberboards. Ask for free catalog on the complete line of moisture meters and accessories for kiln drying.
Lignomat USA Ltd.
PO Box 2945 Whittier, CA 90225

Garrett Wade
161 Avenue of the Americas
New York, NY 10013
(212) 807-1155 for service
(800) 221-2942 for orders
Woodworking Tool Catalog: 212 pages of tools from the USA and around the world. Workbenches; Router Bits and Accessories; Measuring Tools; Carving Tools; Planes; Chisels; Finishing Supplies; and Books. With tips on selecting, using, and maintaining the tools that will serve you best. $4.00
Classic Hardware Catalog: 64 pages of the finest brass furniture hardware. Hinges; Latches; Locks; Handles; Knobs; Casters; Architectural and Door Fittings. $2.00
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 PLUGS.

toys and joys
Box 628W Lynden, Wash. 98264

BAND SAW BLADES

WELDED TO YOUR EXACT LENGTH
Complete Band Saw Blade Line Including Saw Mill Blades
We also carry:
- Scroll Saw Blades
- Hand Saws
- Circular Saw Blades
- Hole Saws
- Hack Saws
- Sanding Belts
- Sanding Discs
- Router Bits
- Files
- Rasps
- Scrapers

SEND $1.00 FOR CATALOG or TO ORDER PHONE OR WRITE TO:
BUCKEYE SAW COMPANY
P.O. BOX 14794
CINCINNATI, OHIO 45250-0794
1-800-543-8864 (Except Ohio)
1-513-621-2159 (In Ohio)

FM138313

FULL SIZE WOODCRAFT PATTERNS

SIMPLE TO MAKE • FUN • PROFITABLE
- 200 pattern packet for scroll, band & jigsaws
- "Country Critters"-100 patterns, unique projects
- 6 enjoyable "Wind-Action" whirligigs
- "Country Classics" - best selling country projects
- 100 yard ornaments, animals, birds and more
- 17 "Show Stopper" - craft show best sellers

Send $7.00 per blueprint packet or choose any 3 FOR ONLY $14.00.

Fast Service • Satisfaction Guaranteed!

ACCENTS Dept. MA70, Box 7387, Genoa, OH 43431
Catalog of 1000 patterns $20.00 (Free with order)

BUILD THIS CLASSIC
"Roll Top" OAK DESK
from pre-cut first quality kit

HERE'S THE TURN-OF-THE-CENTURY "ROLL-TOP" YOU'VE ALWAYS WANTED. A FULL SIZE OAK DESK, YOURS NOW AT EXTRAORDINARY SAVINGS ... because you build it yourself from pre-cut kit parts. NO SPECIAL TOOLS NEEDED. WHEN FINISHED, IT'S PRICED AT SEVERAL HUNDRED DOLLARS LESS THAN YOU CAN PAY FOR IT! A MAGNIFICENT SHOWPIECE FOR YOUR HOME OR OFFICE — WORTH AT LEAST TWICE WHAT YOU PAY FOR THE KIT! SEND FOR DETAILS WITHOUT OBLIGATION.

Please send my free Craftsman's Corner color catalog featuring the Classic Roll Top Desk and many other top quality hardwood kits. I understand I have no obligation.

Print Name
Address
City
State Zip

CRAFTSMAN'S CORNER
Dept. 7G-1 • 4012 N.E. 14th St. • Box AP
Des Moines, IA 50310

THE JAPAN WOODWORKER

loaded with the best tools you can get your hands on.

THE JAPAN WOODWORKER
1721 Clement St., Alameda, CA 94501
Phone 1-505-355-7829

FULL SIZE PROFESSIONAL PLAN
ADIRONDACK CHAIR

Make this classic American design. Our special version may be folded for storage by using ordinary hardware available at your local store. Be ready for summer and get your plan now!

Catalog 200 full-size professional furniture plans — $3.50
Plan #700 . . . . . . . . . . . . . . . . . . $12.95 (Catalog free with order)

FURNITURE DESIGNS, INC. Dept. BA-80
1027 Elmadae Ave., Glenview, IL 60025
(708) 567-7826

The Better Built portable saw mill.

The "affordable portable" one man saw mill. Weights only 45 lbs. Cuts 20" diameter logs into lumber. Minimum 1 1/2" to maximum 5" thickness.

Write or call for free brochure.

Better Built Corporation
845 Weburn Street, Dept. FW, Wimington, MA 01887
(508) 657-5606

BUILD THIS CLASSIC
"Roll Top" OAK DESK
from pre-cut first quality kit

FREE Full color catalog gives you all the facts

Please send my free Craftsman's Corner color catalog featuring the Classic Roll Top Desk and many other top quality hardwood kits. I understand I have no obligation.

Print Name
Address
City
State Zip

CRAFTSMAN'S CORNER
Dept. 7G-1 • 4012 N.E. 14th St. • Box AP
Des Moines, IA 50310

THE JAPAN WOODWORKER
1721 Clement St., Alameda, CA 94501
Phone 1-505-355-7829

FULL SIZE WOODCRAFT PATTERNS

SIMPLE TO MAKE • FUN • PROFITABLE
- 200 pattern packet for scroll, band & jigsaws
- "Country Critters"-100 patterns, unique projects
- 6 enjoyable "Wind-Action" whirligigs
- "Country Classics" - best selling country projects
- 100 yard ornaments, animals, birds and more
- 17 "Show Stopper" - craft show best sellers

Send $7.00 per blueprint packet or choose any 3 FOR ONLY $14.00.

Fast Service • Satisfaction Guaranteed!

ACCENTS Dept. MA70, Box 7387, Genoa, OH 43431
Catalog of 1000 patterns $20.00 (Free with order)

BUILD THIS CLASSIC
"Roll Top" OAK DESK
from pre-cut first quality kit

FREE Full color catalog gives you all the facts

Please send my free Craftsman's Corner color catalog featuring the Classic Roll Top Desk and many other top quality hardwood kits. I understand I have no obligation.

Print Name
Address
City
State Zip

CRAFTSMAN'S CORNER
Dept. 7G-1 • 4012 N.E. 14th St. • Box AP
Des Moines, IA 50310

THE JAPAN WOODWORKER
1721 Clement St., Alameda, CA 94501
Phone 1-505-355-7829

FULL SIZE WOODCRAFT PATTERNS

SIMPLE TO MAKE • FUN • PROFITABLE
- 200 pattern packet for scroll, band & jigsaws
- "Country Critters"-100 patterns, unique projects
- 6 enjoyable "Wind-Action" whirligigs
- "Country Classics" - best selling country projects
- 100 yard ornaments, animals, birds and more
- 17 "Show Stopper" - craft show best sellers

Send $7.00 per blueprint packet or choose any 3 FOR ONLY $14.00.

Fast Service • Satisfaction Guaranteed!

ACCENTS Dept. MA70, Box 7387, Genoa, OH 43431
Catalog of 1000 patterns $20.00 (Free with order)

BUILD THIS CLASSIC
"Roll Top" OAK DESK
from pre-cut first quality kit

FREE Full color catalog gives you all the facts

Please send my free Craftsman's Corner color catalog featuring the Classic Roll Top Desk and many other top quality hardwood kits. I understand I have no obligation.

Print Name
Address
City
State Zip

CRAFTSMAN'S CORNER
Dept. 7G-1 • 4012 N.E. 14th St. • Box AP
Des Moines, IA 50310

THE JAPAN WOODWORKER
1721 Clement St., Alameda, CA 94501
Phone 1-505-355-7829

FULL SIZE WOODCRAFT PATTERNS

SIMPLE TO MAKE • FUN • PROFITABLE
- 200 pattern packet for scroll, band & jigsaws
- "Country Critters"-100 patterns, unique projects
- 6 enjoyable "Wind-Action" whirligigs
- "Country Classics" - best selling country projects
- 100 yard ornaments, animals, birds and more
- 17 "Show Stopper" - craft show best sellers

Send $7.00 per blueprint packet or choose any 3 FOR ONLY $14.00.

Fast Service • Satisfaction Guaranteed!

ACCENTS Dept. MA70, Box 7387, Genoa, OH 43431
Catalog of 1000 patterns $20.00 (Free with order)

BUILD THIS CLASSIC
"Roll Top" OAK DESK
from pre-cut first quality kit
STEVE WALL LUMBER CO.
Quality Hardwoods and Woodworking Machinery For
The Craftsmen and Educational Institutions

<table>
<thead>
<tr>
<th>Ash</th>
<th>4/4</th>
<th>Select</th>
<th>1.90</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beech</td>
<td>4/4</td>
<td>Select</td>
<td>1.30</td>
</tr>
<tr>
<td>Birch</td>
<td>4/4</td>
<td>Select</td>
<td>1.60</td>
</tr>
<tr>
<td>Butternut</td>
<td>4/4</td>
<td>Select</td>
<td>1.60</td>
</tr>
<tr>
<td>Cherry</td>
<td>4/4</td>
<td>Select</td>
<td>2.25</td>
</tr>
<tr>
<td>Hickory</td>
<td>4/4</td>
<td>Select</td>
<td>2.50</td>
</tr>
<tr>
<td>Mahogany</td>
<td>4/4</td>
<td>Select</td>
<td>2.25</td>
</tr>
<tr>
<td>Maple</td>
<td>4/4</td>
<td>Select</td>
<td>1.45</td>
</tr>
<tr>
<td>Maple (Hornbeam)</td>
<td>4/4</td>
<td>1.90</td>
<td></td>
</tr>
<tr>
<td>Pear</td>
<td>4/4</td>
<td>Select</td>
<td>1.20</td>
</tr>
<tr>
<td>Poplar</td>
<td>4/4</td>
<td>Select</td>
<td>1.10</td>
</tr>
<tr>
<td>Red Oak</td>
<td>4/4</td>
<td>Select</td>
<td>1.60</td>
</tr>
<tr>
<td>Walnut</td>
<td>4/4</td>
<td>Select</td>
<td>2.00</td>
</tr>
<tr>
<td>Cedar (Aromatic Red)</td>
<td>4/4</td>
<td>1.25</td>
<td></td>
</tr>
<tr>
<td>White Pine</td>
<td>4/4</td>
<td>Select</td>
<td>0.90</td>
</tr>
</tbody>
</table>

Above prices are for 100' quantities of kiln-dried lumber, unbroken, select grade and select grades A & B. Larger quantities of broken or reconditioned lumber are available upon request. Additional quantities and grades available. Call for details.

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

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

PATTERNS
SAME SIZE • NO ENLARGING
HUNDREDS OF PLANS
1,000 CRAFT & HOW-TO BOOKS
Design Group, Box 514-Z, Miller Place, N.Y. 11764

STOP PERFBOARD
HOOK FALLOUT!
M-CLIPS™ are THE guaranteed
easy solution to this annoying
problem! Fit both 1/8" and 1/4"
perfboard. Send SASE for free
catalog or $5.00 for book. O&H
items are available. Send $1.00
for catalog or $5.00 for book.

RYOBI
AP10
10" Portable
Planer
$348

FREE FREIGHT
RE-800
3 HP Variable Speed
Plunge Router
$208

P.O. Box 1716
Grand Forks, ND 58206-1716
1-800-358-3096

TOOL Crib
DIVISION OF THE NORTH

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-Refinish! Over 200
different woods...100 veneers...500 plans...cabi-
net hardware...96 How-To Books...116 carving tools
and kits...56 inlay designs...and lots more for
One-Stop, Right-Price Shopping without leaving home!

116 Page Catalog—Only $1.00

CONSTANTINE
Est. 1812
2054G Eastchester Rd., Bronx, NY 10461

BUILD YOUR OWN
POOL TABLE
Save hundreds of dollars while
gaining a sense of achievement.
Complete kits or
individual components, plans, slates,
pockets, cloths, etc. Brochure $1.00.

Continental Billiards
2905-B Peachtree Industrial Blvd.
Buford, Georgia 30518

SUBSCRIBERS
PLEASE NOTE
Wood® subscribers often express
interest in products and services
which are supplied by our com-
pany, Meredith Corporation, and by
other reputable firms.

Accordingly, we sometimes send
our subscribers offers for books,
other magazines or home related
products and services of potential
interest.

We also make subscriber names
and addresses available to other
firms who are able to supply ap-
propriate products and services.
We screen all such offers and take
great care to see that information
about these products and services
is sent only to subscribers who,
according to our records, are most
likely to be interested.

While we believe the distribution
of this information is of benefit to our
subscribers, we firmly respect the
wishes of any subscriber who
does not want to receive it. Should
you wish to restrict this, simply
send your request to:

Wood®
P.O. Box 10263
Des Moines, IA 50336

Please enclose a current address
mailing label. Please be specific as
to whether it is still all right to re-
ceive Meredith Corporation offers
or whether you want to stop all of-
fers from any company including
Meredith. We will gladly honor
your request.
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* Resin* Strip* Repair* Refinish
Intro Video $12.95 - Catalog $2.00
MINUTEMAN, INC., Ste. 17
Box 8, Waterloo, WI 53594
1-800-733-1776

BUILD THIS FRENCH-CANADIAN SETTLE BENCH
14'd x 21-1/2'h x 65'-1/2"d

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 craftsmen Harry Webb. Send check or money order for $15. Allow 4-6 weeks for delivery (Canadian residents remit postal money order in U.S. funds to):

HAMMERMARK ASSOCIATES
P.O. Box 201-ABWT, Floral Park, NY 11002-0201.

In a rush? Call S16.352.5198 and use your Visa or MasterCard.
Catalog available for $1 (refundable).

TUNGSTEN CARBIDE ROUTER BITS

- Heavy Duty Industrial Quality
- 1/4 by 1-1/4 inch long shafts
- Enclosed Ball Bearing Guides
- Bits pass ATCS Std. 103

Corner Round-over
Radius Price
1/4" $12.50
3/8" $13.75
1/2" $14.50

Cove Bits
Radius Price
1/4" $14.50
3/8" $15.50
1/2" $17.00

45° Chamfer Bits
Diameter Price
1" $12.00
1-1/4" $14.00
1-1/2" $15.50

100% Money Back Guarantee

ORDER NOW - TOLL FREE 1-800-767-4747 24 HRS
VISA / MC / AMEX
Or mail check to:
SKYCROFT TOOLS, INC.
P.O. BOX 418 W
Myersville, MD 21773-0418

WOODCRAFT
Dept. W074, Wood County Park #210
P.O. Box 1865, Parkersburg, WV 26101

Woodworkers!
Free Catalog Subscription
Call for yours today! Our new 120-page, full-color catalog is packed with over 4,000 new and best-selling woodworking tools, supplies, kits & books.
Our advice is free, too! Got a question about the right tool for the job? About sharpening? Need help with a project? Our expert technical reps are just a free phone call away! It’s all part of Woodcraft’s service.
Call free 1-800-225-1153 or write to:

WINDMILLS
FULL SIZE PATTERNS
Round up your lawn with these picturesque old windmills. 4 ft. high. Easy to make with full-size patterns and step-by-step instructions. Only $3.50 prepaid 1st Class for this big packet.

MASTER CRAFT PLANS WEST, Dept. 719H
P.O. Box 625, Redmond, WA 98073

ANTIQUE reproduction furniture HARDWARE
HORTON BRASSES
Nooks Hill Rd. PO Box 120J
Cromwell, Ct 06416 203-635-4400
send $3.00 for a catalog

FREE Catalog
Natural Materials for Seat Weaving,
Wicker, Basketry, Furniture and
Cabients - for fun or profit
High Quality - Quick Service
- Cane Webbing
- Strand Canes
- Furniture Kits
- Upholstery Supplies
- Tools
Frank’s Cane and Rush Supply,
Dept W91, 7252 Heil Ave., Huntington Beach, Ca. 92647 (714) 847-0707

GUARANTEED OR YOUR MONEY BACK
BAND SAW BLADES

Have you REALLY RINDED THE BEST?

Profit — Profit — Profit

Electro Heat Induction Hardened

Bi-Metal - M-2/M-42
Flex & Hard Back
Band Saw Mill Blades
24 HOUR SERVICE

FREE INFORMATION

SUFFOLK MACHINERY CORP.
10 Waverly Ave. Ste, 25. Patchogue, NY 11772
Call Toll Free 1-800-234-5AWS Ext. 23
13 YEARS OF GROWTH NATIONWIDE

FOR INFORMATION ABOUT PLACING AN ADVERTISEMENT IN
Better Homes and Gardens®

WOOD

PLEASE WRITE:
BART LEED, WOOD MAGAZINE
750 THIRD AVENUE, NEW YORK, NY 10017

OR CALL COLLECT:
212-551-7130
POWER TOOLS

SURFACE PLANER—Information package available from Penn State Industries describing the specifications and applications of its super 12-inch surface planer. Special discount is offered for Penn State Woodcraft hard tools. Send for package to PENN STATE INDUSTRIES. Circle No. 27.

PERFORMAX DRUM SANDERS—Exclusive features at an affordable price for precise wide surface sanding. This complete line of Performax Drum Sanders, the Pro Max and the Super Max. New accessories for production-mode sanding of pieces as small as 2' X 8' help you do it faster, safer and more accurately. PERFORMAX PRODUCTS. Circle No. 78.

THE PRECISION SCROLL SAW FOR THE ENTIRE FAMILY—The Delta was designed for beginners and built for expert woodworkers. Learn how to produce creative leather lace projects in 4 years. Full-year limited warranty. PENN STATE INDUSTRIES. Circle No. 83.

PORTABLE SAW MILL—a one man saw mill weighing 45 lbs. Gas and electric models will cut dimensional lumber from logs up to 20' long. Send for brochure. BETTER BUILT CORP. Circle No. 56.

117-PLUS USES GUIDE—for Dremel® Tool. Written from the do-it-yourselfer's view, this book shows how to use and do a variety of everyday projects using the versa- tool® Tool and Cordless Freewheeler, 98-page book with over 275 photos includes tips on using a Dremel® Tool with special wood, metal, plastic, leather, glass, etc. Complete money-back guarantee. SHAPER TOOL. Circle No. 31.

FREE WOODWORKING POWER TOOL CATALOG—By mail for free! This 40-page catalogue contains over 300 power tools and accessories for the home workshop. Send for free catalogue. FOLEY-BELSAY CO. Circle No. 41.

MANUFACTURED SINCE 1926—the Foley-Belsaw Model M-14 Circular Sawmill lets you go right to the trees to turn out smooth, true-cut lumber. Available with heavy-duty 11x14 beltsaw, heavy-duty 8x8 belt, portable wood type of belt and a variety of accessories, including a full set of blades, rip cutters, resawing, belt mill and more. Send for free catalogue. FOLEY-BELSAY CO. Circle No. 42.

INCA MACHINERY INFORMATION—Complete information on the famous line of INCA Swiss woodworking ma- chines. Designed for precision work by the small to medium sized cabinet shop. Used by thousands of hobbyists and professional such as cabinetmakers, woodworkers, artisans, etc. Send for free brochure. INCA MACHINES CO. Circle No. 42.

LOBO POWER TOOLS—Fine crafted woodworkng power tool, top quality, affordable prices. A commitment of cus- tomer satisfaction, with a full 1 year warranty. We sell a complete line of tools for our line of tools, table saws, table saws, planers, jointers, double drum sanders, edge sanders, wide belt Sanders, power feeders and many, many other items. Send for our free catalogue. LOBO POWER TOOLS. Circle No. 57.

MAKITA U.S.A., INC.—offers all new 198-page mini-catalog on their professional line of electric power tools, with spe- cial emphasis on the entire cordless line. Catalog provides complete information along with available accessories and optional attachments. MAKITA U.S.A., INC. Circle No. 61.

SCROLL SAW—Information package available from Penn State Industries describing the specifications and applications of its super 12-inch surface planer. Special discount is offered for Penn State Woodcraft hard tools. Send for package to PENN STATE INDUSTRIES. Circle No. 78.

THE JAPAN WOODWORKER'S 98-PAGE CATALOG—loaded with a huge selection of Japanese saws, waterstones, chisels, planes, carving knives, cutters and garden tools. Complete price list and availability of each tool and accessory. Send for catalog today. TOOLS OF THE TRADE. Circle No. 190.

STAINS/FINISHES

DEPT. SOUTHWEST COLLECTION PAMPHLET—Bring the beauty of the Southwest to your home. Desert Oak Wood Stain and tint base. Pamphlet shows a wide variety of pastel colors available. DEPT. SOUTHWEST. Circle No. 84.

RUST-OLEUM—Protect your home from costly damage caused by moisture and harsh sunlight. Your name in metal protection, Rust-Oleum is known for sealanting moisture and keeping its rich color. Now, Rust-Oleum Wood Stain and Wood Preservative in new Oil Enamel. Circle No. 44.

PLANS

140 WOOD PROJECTS—Easy-to-follow construction plans for desks, chairs, coffee and end tables, bookcases, magazine racks, sewing cabinets, kitchen accessories, woodworkers' tool kits, fishing tackle racks, etc. Send for your free plan catalog. CRAFTERS SUPPLY CO. Circle No. 48.

OVER 1000 WOODCRAFT PATTERNS—Create gifts, toys, wall hangings, lawn ornaments, folk art, bird houses and feeders, magazine racks, household accessories, plus much more. Send for your free plan catalog. Circle No. 150.

WOODWORKERS' PLANS AND SUPPLIES—Woodworking plans and kits for beginners, intermediate and advanced woodworkers. Send for your free plan catalog. EAGLE PLANS. Circle No. 315.

SALES TESTED DESIGNS—available as plans only, parts kits, or parts and kits. Complete stock of parts, tools and supplies. Door hangers to digital electronic wood pro- jects. Full size plans! Catalog price refundable on first or- der. CRAFTERS SUPPLY CO. Circle No. 328.

BUILD MINIATURE HORSE DRAWN VEHICLES—The Concord Stagecoach Sleigh of the Old West, the Conestoga Covered Wagon, and the Prairie Schooner are some of the vehicles you can build using our plans in 1/12 or 1/2 scale. Concord Coach and Conestoga are available in full size to scale cutting patterns. Also English vehicles, some in 1/20 scale. Send for our patterns catalog for beginners. Ready-made plastic wheels available for 1/20 scale vehi- cles. Send for our free plan catalog. CRAFTERS SUPPLY CO. Circle No. 328.

BIRDHOUSE PLANS—The Converse Streetbirdhouse of the Old West, the Conestoga Covered Wagon, and the Prairie Schooner are some of the vehicles you can build using our plans in 1/12 or 1/2 scale. Concord Coach and Conestoga are available in full size to scale cutting patterns. Also English vehicles, some in 1/20 scale. Send for our patterns catalog for beginners. Ready-made plastic wheels available for 1/20 scale vehi- cles. Send for our free plan catalog. CRAFTERS SUPPLY CO. Circle No. 328.

PATTERNS BY DESIGN GROUP—Hundreds of interesting, useful and fun items to create for personal use or profit- able sale. Our newest catalog contains plans for toys, games, puzzles, birdhouses, planters, furniture, and much more! All Design Group patterns are profession- ally designed, and each pattern includes everything necessary. Simply trace outline of item onto wood and create! Started in 1977, Design Group has sold thousands of patterns to hundreds of satisfied customers. Prices start at $1.00. All patterns come with a full money-back guarantee. Send for free pattern catalog. Design Group. Circle No. 340.


COUNTRY FURNITURE PLANS—Our catalog features more than 34 designs—from a washstand to a roll top desk. Our new book on finishing and refinishing will show you how
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, Spalted Maple, Padauk, etc. Unique and unusual turning woods and burls are also available. Send for catalog. BEAURED WOODS, Inc. $1.00. Circle No. 510.

WOODWORKERS’ HELP CELEBRATE OUR 80TH YEAR OF BUSINESS! Over 144 years of service to woodworkers. 1898-99 Catalog #256, 42 varieties of choice hardwoods available. Send today for your free catalog. $2.00. Circle No. 401.

NATIVE AMERICAN HARDWOODS—We feature the finest northern kiln dried hardwoods. Our large inventory has been carefully selected to ensure quality service. Ed Slisak and Tim Johnston's experience and personal assistance can make your woodworking project a success. Our wide selection of hardwoods, all sizes of domestic hardwoods with no minimum order required. Send for catalog. NATIVE AMERICAN OBSESSIONS, Inc. $1.00. Circle No. 402.

WOOD DRYING — Nyle Corp., the largest U.S. manufacturer or dehumidification dry kiln systems, offers literature and information on small kiln packages from 500-500,000 BF. NYLE CORP., Freeport, IL. 61032.

STEVE H. WALL LUMBER CO.—Quality hardwoods and woodworking machinery for the craftsman and educational institution. We carry a wide variety of popular hardwoods at wholesale prices. Also dealers for Delta, R&I, MiniMax, Freud and ProCut woodworking machinery. STEVE H. WALL LUMBER CO., 1011 S. Main, Springfield, IL. 62704.

EXOTIC IMPORTED AND DOMESTIC HARDWOODS—Over 75 varieties of lumber, bowl blanks, turning squares and veneer. Samples (3” x 3” x 6”) ideal for craftsmen, furniture and interior design professionals. Available at reasonable prices. Catalog provides common and botanical names, sources, and prices for all woods. WOODWORKERS SUPPLY, Inc. $1.00. Circle No. 542.

POOL TABLE KITS AND COMPONENTS—Save hundreds of dollars in dealer's mark-up fees by completing a kit or building from scratch. The "Continental" Kit is made from genuine maple and takes the "Continental" Corner off the table. A miniature of the entire kit is included. It will fit into the smallest space. "Continental" Corner, 4-1/2” x 7” x 4-1/2”, $1.00. Circle No. 305.

OAK FURNITURE AND ACCESSORY KIT CATALOG—Features a full range of top quality oak turnings and accessory items - plus unfinished assembled furniture. Items included are solid oak side chairs, solid oak tables, solid oak bookcases, solid oak cabinets, laquered furniture, etc. Send for our "Free Furniture Kit" catalog. "Free Furniture Kit" catalog. OAK FURNITURE AND ACCESSORY KIT CATALOG, 1016 W. Washington St., Eau Claire, WI. 54701.

FACTORY DIRECT GRANDFATHER CLOCKS—Build a magnificent grandfather clock kit from world's largest manufacturer. All parts are made from solid hardwoods, primarily walnut, oak and cherry. Send for free catalog and information. "Free Catalog and Information" catalog. FACTORY DIRECT GRANDFATHER CLOCKS, 1017 W. Washington St., Eau Claire, WI. 54701.

IT'S TIME TO ORDER THESE BOOKLETS. USE COUPON ON PAGE 95.
PRODUCTION QUALITY CARBIDE TIPPED ROUTER BITS — MCLS Ltd. offers a full line of professional production quality carbide tipped router bits at 50-75% lower than retail prices. We sell through the mail and only direct to craftsmen. Send today for information. MCLS LTD. Free. Circle No. 1350.

ROUTER ACCESSORIES CATALOG—Is your router still in the box? The 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 by adding these quality accessories that fit all routers. OAK PARK ENTERPRISES LTD. $1.00. Circle No. 1350.

SAW BLADE VALUES—Olson Saw’s unique “furniture blade” is fast and easy to change. Designed to provide fast, smooth cuts in all types of wood. Included in Olson’s free literature package is a list of large blanks on saws in various sizes of blades. Tungsten Carbide tipped circular saw blades in addition to a growing selection of hand saws and saws for various types of blades. OLSON CATALOG SALES Price. Circle No. 1385.

TUNGSTEN CARBIDE ROUTER BITS AND SHAPER CUTTERS—Heavy duty industrial grade. Router bits furnished in both 1/4" and 1/2" diameters. Shaper cutters are 1/4", 1/2", 3/4", and 1" in. bushings. You can buy cheaper, but not better. Save up to 50% over “wholesale” prices. Tremendous selection. Catalog comes with $5.00 discount coupon. SKYGRIT TOOLS INC. $1.00. Circle No. 1372.

HARDWARE/WOOD PARTS

OUR READY TO ASSEMBLE KITS—for Queen Anne and Federal period furniture and occasional tables. 33 pages of hardware and accessories to make your own furniture. Includes our complete line of circle wrenches, screws, corner blocks, and many other essential parts. ADAMS WOOD PRODUCTS, Inc. Circle No. 1401.

TURNED WOOD PARTS—Rivets, shakers pegs, candle spindles, spindles, wheels, balls, coves, and more. High-quality, reasonable prices. Full line of wood products available. Write for our 12-page catalog. AMERICAN WOODWORX SUPPLIES. Circle No. 1405.

HARDWARE CATALOG—A 64-page catalog of the finest quality hardware and accessories available. All of British or American manufacture. Davenport & Son, 1452 Broadway, New York City. Circle No. 1406.

WALNUT VALLEY HINGE COMPANY—In business since 1882. Over 300 different styles of hinges, both traditional and modern. Walnut Valley Hinge Company, P.O. Box 1001, Walnut Valley, Kansas 66936. Circle No. 1407.

WOOD SUBSCRIPTION

1. A 1 year wood subscription (6 issues) for $10.00 (U.S. price) — a $3.00 savings off newsstand rate. Allow 6-8 weeks for first issue. Canadian price $24.00. Be sure to include payment with your order. No foreign orders accepted with this coupon; please contact Subscription Dept. directly.

FREE LITERATURE

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>61.00</td>
<td>Non-flammable water based stains and finishes. Permissible repair products, solvents and chemicals. Amity 1-2-3 finish on a variety of wood in your area. AMITY. $1.00. Circle No. 1665.</td>
</tr>
<tr>
<td>256</td>
<td>9.95</td>
<td>Silk-screen your next project. Turn a 3 square inch of wood into a $10.00 plaque with three silkscreens. Only takes a few more minutes to put finishing touches on your project. Jig plans for mass production also available. Send for the whole story. JENNINGS PRODUCTS, $1.00. Circle No. 1650.</td>
</tr>
</tbody>
</table>

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-3D, or full-scale 3-D projects, we have the perfect machine for the job. Professional woodworking for the hob- byist or the professional. Begin your hobby or full-time business by ordering our catalog and price list. MARLIN INDUSTRIES. $1.00. Circle No. 1665.

MAKE MONEY IN FURNITURE RESTORATION THE MUNTEMEN WAY—Earn $300-$1000 per day stripping, refinishing, mirror resurfacing, and/or veneering, at home or in shop, spare time or full time. We provide complete free training; no experience necessary. Free work book included. Furniture restoration. You have to see it to believe it! Video brochure available. Send for catalog. MUNTEMEN. $2.00. Circle No. 1665.

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, available in your own home or office. The Foley-Belsaw Institute system of "hands on" training provides clear, step-by-step instructions in the use of tools and materials. The course is all inclusive 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 furniture repairing by your own hands! The Foley-Belsaw Institute system of "hands on" training provides clear, step-by-step instructions in the use of tools and materials. The course is all inclusive with the course. Complete money-back guarantee. Send for details. FOLEY-BELSAW INSTITUTE. Free. Circle No. 1931.

THE CUSHION CONSUMER.—is a new concept in pneumatic drum sanding. Sizing sleeves are slid over an air bag (inflated with a hand tire pump) on a drum to mount to a center on a wood lathe. Drums are fed into the shape desired to fit a cushion. The bags are available in all sizes, and the air bag is inflated with a hand pump. VAN DYKE'S RESTORERS. $1.00. Circle No. 2077.

UNIQUE GREENHOUSE/SCREENHOUSE IDEA.—A garden in a screen room during the summer months. The concept is based on a greenhouse screen room such as the one shown in the photo. The idea is to create a garden in a screen room using a mixture of plants and flowers. The greenhouse screen room is available in various sizes and includes doors and windows. The greenhouse screen room is easy to assemble and provides a comfortable space for growing plants and flowers. The greenhouse screen room is available for purchase. VAN DYKE'S RESTORERS. $1.00. Circle No. 2077.

CARVING SUPPLIES

WOODCARVING TOOLS — Whittlers and carvers — Warren Tool Co. offers a catalog for you to whittle and carve. Hand power tools, books, stones, wood, and supplies. Create over 20 projects using your own plans and tools. WOOD CARVING TOOLS INC. $1.00. Circle No. 2185.

CLAMPS

MERLE ADJUSTABLE CORNER CLAMP.—Quick & easy to use. Fully adjustable from 2" to 6" x 6" in. Perfect for clamping picture frames, cabinets, or anything that requires 30° or more corner clamping. MERLE. $3.00. Circle No. 1978. Use with all types of aluminum or steel construction, a true industrial quality tool. Send today for information. MCLS LTD. Free. Circle No. 2250.

CLOCKS

BUILD AROUND CLOCKS.—Now build beautiful heir- loom quality clocks right in your own home. Choose from magnificent chiming grandfather clocks to charming mini clocks. 32-page catalog also offers a selection of music boxes, music movements, traditional barometers, and a huge variety of quartz movements and parts for custom clock building. Satisfaction guaranteed. THE AMERICAN CLOCKMAKER. $1.00. Circle No. 2295.

KLOK'S FREE 75-PAGE COLOR CATALOG—It's packed with the largest selection of beautiful wood clock kits for all skill levels, a huge selection of quartz and mech- anical movements, and parts for all wood working, wood parts, wood movements, tools and much more for the craftsperson. KLOK'S: Free. Circle No. 2295.
FINISHING TOUCHES

BASEBALL’S BIG STICKS
Meet the manager, Bob Lemon. Then, some of the lineup’s starters: Estel Crabtree, Al Burch, Howard Maple. The coaching staff includes Ty “The Georgia Peach” Cobb.

What baseball team is this? It belongs to Jack Connelly of Webster, New York, who came up with it when he started daydreaming about woodworking and baseball. To make this team, a player needs major league experience and a name that relates to wood or trees. That’s why Bill Greenwood holds down second base and Ted “The Splendid Splinter” Williams patrols left field. Jack, who is a retired industrial arts teacher, even found the perfect owner for the team—Branch Rickey, of course.


TIMBER TOWNS
Francis Holmes, director of the Shade Tree Laboratories in Amherst, Massachusetts, has a tree trivia hobby, too. He collects town names associated with trees, and has pinned down more than 2,000. Some are named for specific trees, such as Black Oak, Arkansas. Others, though, classify somewhat indirectly—Edgewood, Georgia, for instance. Holmes also includes names like Boston, derived from the Dutch word bos, or forest.

HARDWOOD HELP
Want to know how to best care for your new kitchen cabinets? Or, how to tell quality furniture construction? Dial the Hardwood HELPLINE, 1-800-373-WOOD, and get an expert answer to your question, usually within 48 hours.

The Hardwood Manufacturers Association (HMA), with offices in Pittsburgh, established the toll-free information service to assist consumers with questions about selecting hardwood products and caring for them through the years. According to Susan Regan, HMA executive vice president, calls are answered by a voice-mail system 24 hours a day, and staffers check the lines twice a day. “Urgent calls receive almost immediate attention,” she says. You can also request Hardwood HELPLINE 1-800-373-WOOD HMA brochures.

INTARSIA’S GURU GOES VIDEO
After Judy Gale Roberts, right, appeared as our cover story two years ago (see “She Paints With Wood,” WOOD® magazine, August 1988) and introduced intarsia to our readers, she was flooded with fan mail and pattern requests. In fact, Judy and workmate Jerry Booher started a newsletter to regularly inform a growing number of intarsia disciples of new pattern offerings and tips on wood mosaics.

Well, Judy and Jerry have taken the next logical step in servicing intarsia followers. They’ve produced a 90-minute video in their Lufkin, Texas, studio that— for $29.95 plus $3 postage—leads intarsia beginners from selecting rough stock to hanging the project, with lots of commentary. For details and an order blank, write: Judy Gale Roberts Intarsia, P.O. Box 1925, Lufkin, TX 75902.
The All-American Value Team

- STAPLING MACHINES
- GLUE GUNS
- RIVET TOOLS
- STAPLES
- GLUE STIX
- RIVETS

For the professional or do-it-yourselfer ARROW makes the job easier, go faster and—less expensive. Whether you're building the new, repairing the old or pursuing a hobby in arts and crafts, ARROW has the right tool.

See the complete assortment of ARROW quality fastening products, available at all leading Hardware, Home Center, and Discount Department Stores.

In U.S.A.: Arrow Fastener Company, Inc., 271 Mayhill Street, Saddle Brook, New Jersey 07662
In Canada: Jardel Distributors, Inc., 8605 Metropolitan Blvd. East, Montreal H1P 1X9 Quebec
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.