SLIDING COMPOUND
MITERSAWS
Check out our top	picks on page 40

Learn to hand-cut
DOVETAILS
One easy step at a time
The Bench-Top Series

Grizzly's 12 Bench-Top Woodworking Machines

Don't be fooled by their size. Grizzly's Bench-Top tools deliver plenty of large scale power and performance to handle the toughest jobs, yet are scaled to fit in just about any workshop. Like their bigger cousins, these tools are carefully engineered to provide trouble free service and dependability. We're sure you'll find a Grizzly Bench-Top tool that's perfect for you.

12" Planer
Model G1017
- 2 H.P., 110V motor
- Dual knife cuttermill
- Capacity: 12" wide 6" thick
- Shipping weight: 90 lbs.
ONLY $99.95
F.O.B. Bellingham, WA or Williamsport, PA

15" Scroll Saw
Model G1572
- ½ H.P., 110V motor
- 2" maximum thickness
- 15" maximum depth
- Shipping weight: 40 lbs.
ONLY $109.95

Combo. Sander
1 x 42 belt, 8" disc
Model G1020
- 4 amp motor
- 4" x 36" belt
- 6" disc
- Shipping weight: 26 lbs.
ONLY $119.00

Bench Drill Press
Model G1199
- ½ H.P. motor
- 12 speeds
- Built-in light
- Table tilts 90°, swivels 360°
- M.T. 2 spindle taper
- Shipping weight: 140 lbs.
ONLY $239.95
F.O.B. Bellingham, WA or Williamsport, PA

Portable Dust Collector
Model G1153
- 1 H.P., 110/220V motor
- 450 CFM suction
- Wall mount brackets
- Shipping weight: 56 lbs.
ONLY $149.95
F.O.B. Bellingham, WA or Williamsport, PA

Oscillating Belt Sander
Model G1173
- ½ H.P., 110/220V motor
- 4" x 24" belt
- Converts to spindle sanding
- ½" x 4½" spindle
- Shipping weight: 48 lbs.
ONLY $159.95

Dovetail Jig
Model G1660
- 12" maximum width
- ½" template standard
- ½" x ½" dovetail bit required
- Shipping weight: 22 lbs.
ONLY $59.95

Universal Knife Grinder
Model G2760
- ½ H.P., 110V motor
- 120 grit wheel
- Cast iron construction
- Shipping weight: 59 lbs.
ONLY $169.95

9" Bandsaw
Model G10852
- ½ H.P., 110V motor
- ½" standard blade
- 1400 RPM
- Shipping weight: 100 lbs.
ONLY $169.95
F.O.B. Bellingham, WA or Williamsport, PA

Router Table
Model G2894
- Cast aluminum
- 18"D x 24"W x 17"H
- 11" x 11" insert
- Router bit required: ½" dovetail w/ ¼" shank
- Shipping weight: 35 lbs.
ONLY $199.95

Hollow Chisel Mortiser
Model G3183
- 1 H.P., 110V motor
- ½" chuck
- Accepts ½" or ¾" shank chisels
- 4½" head travel
- Shipping weight: 45 lbs.
ONLY $229.95

Combo. Sander
1" x 42" belt, 6" disc
Model G3105
- ½ H.P., 110/220V motor
- Tiltting belt & tables
- Cast iron body
- Shipping weight: 26 lbs.
ONLY $119.95

Best Manuals
In The Business!

Grizzly
IMPORTS, INC.

Large Stock
Of Parts!

West of the Mississippi: 1-800-541-5537
East of the Mississippi: 1-800-523-4777

Ask For Dept. # 600

Circle No. 660
Here's hoping that a whole lot of you acted on my advice last issue to build the Super-Versatile Drill-Press Jig (February 1996, page 38). If you have, you know why I was so excited about it.

But wait, there's more good news from the WOOD® magazine jig-development team. They've come up with another WOOD magazine exclusive (shown at right): the Router-Table Multi-Joint Jig. It will transform your router table into a custom milling machine that turns out stub and mitered tenons, mortises, box and finger joints, blind dovetails, and stopped cuts easily and accurately every time. Incredible!

You'll find complete step-by-step directions for how to build and use this marvelous invention on pages 50-53. And as with last-issue's drill-press jig, you can order a ready-to-assemble kit for the router-table jig if you don't have time to build one for yourself. See page 51 for information on how to order one.

Editors'-Choice insignias debut in this issue

When you read the Sliding Compound Mittersaws article on page 40, you'll notice our new Editors'-Choice insignias (pictured below) alongside the winning tools. We'll award the "Editors'-Choice" Top-Tool insignia to the product(s) that outperform all others tested for the article. The "Editors'-Choice Top Value" insignia goes to the product(s) that offer the best blend of performance and price.

These colorful insignias will make it possible for you to quickly pinpoint our top-ranked tools. We're also hoping that tool manufacturers and woodworking-supply catalogs will use them for the same reason.

When you see these insignias, you can buy with utmost confidence that the tool will perform well for you in your shop.

That's me checking out the Router-Table Multi-Joint Jig in the WOOD magazine shop.
## CONTENTS

<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>33</td>
<td>Western white pine</td>
<td>Commercial demands keep this wood pricey.</td>
</tr>
<tr>
<td>35</td>
<td>Teacher/toymaker</td>
<td>For woodworker Gus Stefureac, life began at 55.</td>
</tr>
<tr>
<td>40</td>
<td>Sliding compound mitersaws</td>
<td>Discover the big-time performers in this outstanding lineup of crosscutting machines.</td>
</tr>
<tr>
<td>54</td>
<td>Using the multijoint jig</td>
<td>Try out our new shop fixture by making tenons, mortises, and box joints. We’ll show you how.</td>
</tr>
<tr>
<td>66</td>
<td>Hand-cut dovetails</td>
<td>Learn the secrets behind laying out and cutting a cherished, centuries-old woodworking joint.</td>
</tr>
<tr>
<td>74</td>
<td>Wood+brass=class</td>
<td>Accent your turnings with bright, shining metal.</td>
</tr>
</tbody>
</table>

### Woodworking projects in this issue

<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>46</td>
<td>Mirror/shelf combo</td>
<td>Build our arched-top frame and matching shelf.</td>
</tr>
<tr>
<td>50</td>
<td>Multijoint jig</td>
<td>Add precision and versatility to your table-mounted router with this sturdy accessory.</td>
</tr>
<tr>
<td>57</td>
<td>Far East desk chime</td>
<td>Make a project that sounds as great as it looks, thanks to its hand-tuned aluminum rods.</td>
</tr>
<tr>
<td>60</td>
<td>Kids’ country cottage</td>
<td>Create a world of make-believe for children with this charming outdoor playhouse.</td>
</tr>
<tr>
<td>70</td>
<td>Bronze beauties</td>
<td>Discover a unique finishing technique while completing these Western scrollsawn designs.</td>
</tr>
</tbody>
</table>

## SHORT-SUBJECT FEATURES

| 1    | The Editor’s Angle                                                  |
| 5    | What Woodworkers Need To Know                                        |
| 8    | Talking Back                                                        |
| 10   | Great Ideas For Your Shop                                           |
| 12   | Tips From Your Shop (And Ours)                                       |
| 24   | The Business Side Of Woodworking                                    |
| 26   | Ask WOOD                                                            |
| 78   | Toolbuyer’s Update                                                  |
| 96   | Products That Perform                                               |
| 100  | Finishing Touches                                                   |

*This issue's cover wood grain: white ash*
THE NEW FREUD ANTI-KICKBACK ROUTER BIT LINE

SAFETY FIRST
Freud is the first major manufacturer dedicated to converting their full line of router bits to the anti-kickback design. Our anti-kickback design limits the cutters' bite to insure a smooth and safe cut, without holding back on speed. Unlike other so-called "anti-kickback design bits", Freud's are manufactured to meet one of the most rigid safety standards in the world: The German Industry standard, DIN 8065 and DIN 31000.

SUPERIOR FINISH
Our bits give you the smoothest, most burn-free and chatter-free cuts available. To do this, we custom designed a special computer-controlled grinder to provide the proper relief angles that eliminate the burning associated with the radial type of relief. This equipment gives each tool a mirror-finish cutting surface that stays sharper and stays sharper longer.

THICK CARBIDE TIPS
Our micrograin carbide tips are up to .094" thick. This makes them less prone to chipping and insures a long resharpening life. We use a tri-metal brazing to mount the carbide tips to the bit body; silver, copper and silver brazing absorbs heat and impact.

COMPUTER BALANCED
We computer balance all of our bits for precision cuts and vibration-free operation every time. Even our larger bits leave a chatter-free, silky-smooth finish.

FULL LINE LIFETIME GUARANTEE
How can a company prove that they truly have a superior product? By putting their money where their mouth is! We back our complete line of router bits with a LIFETIME GUARANTEE.

TOTAL QUALITY COMMITMENT
At Freud, quality is a lifestyle and not just a sales promise. Our commitment is to produce the world’s highest quality bits. By our continual investment in the best technology, you can be sure you are getting a quality product.

EXTENSIVE LINE
We have one of the most extensive lines of carbide router bits available and we’re growing daily. If you’re looking for an unusual bit, give us a call, chances are pretty good that we have it.

RATED EXCELLENT BY THE PROS
In a recent survey by Hanley-Wood, the majority of readers who were familiar with Freud ranked our products as excellent!

NEED MORE INFORMATION?
Just call one of our dealers, they are ready to answer your questions. Don’t forget to ask for one of our new 92 page router bit catalog. If you need the name of a dealer near you, give us a call.

Precisely what you need.

High Point, NC • 800-472-7307

*Does not constitute entire warranty. For a complete copy of our Freud warranty please send an addressed envelope to Freud Inc., P.O. Box 7187, High Point, NC 27261

Circle No. 1321
Pro's know the difference in value between ordinary saws and Hitachi saws

Why your compound saw should be a Hitachi ProSeries compound saw

Precision work begins with precision tools

Your quality materials and careful work deserve the precision and control which are only possible with tools engineered and manufactured to the most rigid specifications possible. That's why you should never settle for less than the Hitachi ProSeries.

For example: The Hitachi C10FC 10" compound miter saw will add the versatility of perfect miter cuts, bevel cuts, and compound cuts to your projects. With the C10FC you can create the precision joints that add beauty and value to everything you make.

Ten positive miter stops make it easy to reproduce cuts while the extended base and vise assembly give you absolute control over material positioning. Plus, standard features such as a 24-tooth thin kerf anti-kickback blade, dust collection bag, and electric brake make the compact C10FC even more of a value—and those are just a few of the benefits of a professional compound saw.

The Hitachi ProSeries includes everything you need to produce quality work, including: slide compound saws with twin rail slide systems; dual slide compound saws that can easily cross-cut a 2x12 or compound cut a 2x8; circular saws with automatic electric brake systems; jig saws with specialized grips which minimize fatigue and maximize control; reciprocating saws with full 1-3/16" strokes and powerful 6.5 AMP motors; as well as drills, sanders, planers, cordless tools, and even pneumatic tools.

Don't you deserve the ProSeries advantage?

Compare. There's no comparison.
For the Hitachi dealer nearest you, call: 1-800-546-1666
For information, call: 1-800-59-TOOLS.
COMPOUND MITERS
You've got to know the angles

Shadowbox frames look great, and the corners are easy to cut on a tablesaw. The trick in cutting those corners—a combination miter-cut and bevel-cut—comes in knowing how far to tilt the blade and how much to angle the miter gauge. Here's help.

Say you have four $\frac{3}{4} \times 2 \times 12$" pieces of stock to fashion into a square frame. Using your tablesaw, you could cut the ends of the pieces any of several ways.

One choice would be to adjust your miter gauge to 45° and set the blade tilt to 0° (vertical). The result would be simple miters that join into a flat frame like the one shown left.

An option would be to tilt the blade to 45°, set the miter gauge to 90°, and bevel-cut the ends of the pieces. Sawn this way, the pieces would join into a deep frame like the one shown left.

Or you could flare out the sides to add some flair to your frame, as in the example bottom left. Cutting these corners calls for a combination bevel-cut and miter-cut known as a compound miter. Sawn it, as shown above right, isn’t difficult. It’s determining the correct angles for blade tilt and the miter-gauge setting that proves troublesome.

That’s because the simple calculation that gives you a bevel angle or miter angle alone (180° divided by the number of sides) goes right out the shop window for compound miters. The mathematics of compound angles is far from simple.

You can just look it up
But thanks to our handy Compound-miter chart on page 6, you won’t have to do any figuring at all. You can just look up the values you need.

A compound miter results from sawing a miter with the blade tilted. You can find the bevel and miter settings you need by referring to the compound-miter chart on page 6.

First decide the Side Tilt Angle, how much you want the sides of your project to slope. Then, go to the chart column headed Side Tilt Angle, and find the tilt angle you selected. Follow the line across to the column that shows the number of sides your project will have.

Tilt your saw blade to the angle shown in the Blade° side of the column. (If your saw uses 90° for vertical rather than 0°, subtract the value shown from 90°, and tilt the blade to that angle.) Set your miter gauge to the angle shown under Miter°.

Saw and assemble scrapwood test pieces before cutting the project parts.

Continued on page 6

Photographs: King Au; John Hetherington
Illustrations: Roxanne LeMoine
Written by Larry Johnston
## Compound Miters

Continued from page 5

<table>
<thead>
<tr>
<th>SIDE-TILT ANGLE</th>
<th>FOUR SIDES</th>
<th>FIVE SIDES</th>
<th>SIX SIDES</th>
<th>EIGHT SIDES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BUTT MITER</td>
<td>BLADE MITER</td>
<td>BUTT MITER</td>
<td>BLADE MITER</td>
</tr>
<tr>
<td>5°</td>
<td>85 44³/₄ 85</td>
<td>35³/₄ 86¹/₂</td>
<td>29³/₄ 87¹/₂</td>
<td>22¹/₂ 88</td>
</tr>
<tr>
<td>10°</td>
<td>80¹/₄ 44¹/₄ 80¹/₄</td>
<td>35³/₄ 82³/₄</td>
<td>29¹/₂ 84¹/₂</td>
<td>22 86</td>
</tr>
<tr>
<td>15°</td>
<td>75¹/₂ 43¹/₄ 75¹/₂</td>
<td>34¹/₂ 79¹/₄</td>
<td>29 81³/₄</td>
<td>21¹/₂ 84</td>
</tr>
<tr>
<td>20°</td>
<td>71¹/₄ 41³/₄ 71¹/₄</td>
<td>33¹/₂ 76</td>
<td>28¹/₂ 79</td>
<td>21 82</td>
</tr>
<tr>
<td>25°</td>
<td>67 40 67</td>
<td>32¹/₂ 73</td>
<td>27¹/₂ 76¹/₂</td>
<td>20¹/₂ 80</td>
</tr>
<tr>
<td>30°</td>
<td>63¹/₂ 37³/₄ 63¹/₂</td>
<td>30¹/₂ 70</td>
<td>26 74</td>
<td>19¹/₂ 78¹/₄</td>
</tr>
<tr>
<td>35°</td>
<td>60¹/₄ 35¹/₂ 60¹/₄</td>
<td>28¹/₂ 67¹/₂</td>
<td>24¹/₂ 71³/₄</td>
<td>18¹/₂ 76³/₄</td>
</tr>
<tr>
<td>40°</td>
<td>57¹/₄ 32¹/₂ 57¹/₄</td>
<td>26³/₄ 65</td>
<td>22³/₄ 69³/₄</td>
<td>17 75</td>
</tr>
<tr>
<td>45°</td>
<td>54³/₄ 30 54³/₄</td>
<td>24¹/₂ 62³/₄</td>
<td>21 67³/₄</td>
<td>15³/₄ 73³/₄</td>
</tr>
<tr>
<td>50°</td>
<td>52¹/₂ 27 52¹/₂</td>
<td>22¹/₂ 61</td>
<td>19 66¹/₄</td>
<td>14¹/₂ 72¹/₂</td>
</tr>
<tr>
<td>55°</td>
<td>50³/₄ 24 50³/₄</td>
<td>19³/₄ 59¹/₄</td>
<td>16³/₄ 64³/₄</td>
<td>12¹/₂ 71¹/₄</td>
</tr>
<tr>
<td>60°</td>
<td>49 21 49</td>
<td>17 57³/₄</td>
<td>14¹/₂ 63¹/₂</td>
<td>11 70¹/₄</td>
</tr>
</tbody>
</table>

---

## The Joy of Sanding

**Right!** Who would believe a job as tedious and dusty as sanding could be a joy?

Thousands of Performax owners do. With their Performax drum sander... no more sawdust in their faces, no more high and low spots on their finished pieces.

Imagine the satisfaction of sanding a wide surface (up to 32") to within .010" uniform thickness across its full width. Or sanding stock as short as 2 1/4" without a carrier board or scuffed up fingers. Fantasize sanding to as smooth a surface as you wish without any elbow grease.

**16-32 Plus**

Proudly Made in the USA

PERFORMAX PRODUCTS, INC.
12257 Nicollet Ave. So. Dept. WD08
Burnsville, MN 55337
(612) 895-9922  1-800-334-4910

Circle No. 78

---

## Join the Billion Dollar Remodeling Industry!

Here's an opportunity to run your own business in this booming industry. We have the most advanced surface restoration system available. Everything from appliances, cabinets and countertops to tile, porcelain, fiberglass and metal furnishings can be recolored and refinished in both commercial and residential locations. As a Surface Doctor® franchise owner, you have a unique service to offer your customers that can save them thousands of dollars while producing like new results.

No Experience Necessary. Investment Starts At $14,900.**

For more information call: (888) 735-5055 (404) 362-2868

Internet: http://www.mobilefranchise.com/

* Home Remodeling Industry ** See prospectus for details.
THE TRADESMAN'S

CHOICE

ANOTHER WINNER FROM TRADESMAN

The newest family member of the TRADESMAN line of Contractor tools, the Model #8335 8-1/2" Slide Compound Miter Saw is receiving rave reviews. With our patented TRI-AXIS design, this unit is built to last and at an affordable price, from the home workshop to the building site. Complete with a 40-Tooth Carbide Blade, it cuts a 2" x 12" at 90°, 2" x 8" at 45° or a 2" x 6" at 60°. Linear Ball Bearings assure smooth, accurate operation. Powered by a 10 Amp Ball Bearing Motor with automatic Electric Brake, it will finish your project right the first time.

TRADESMAN - Your best choice for the Do-It-Yourself and the TRADESMAN

TRADESMAN®

The REXON Group

BENCH AND STATIONARY
POWER TOOLS

POWER TOOL SPECIALISTS, INC.
Corporate Headquarters
3 Craftsman Road East Windsor, CT
Central Region - Lenexa, KS West Region - Cerritos, CA

800-243-5114
Call for a catalog and your nearest dealer
No more skid marks on plastic laminates
I read with interest “How to Apply Plastic Laminates” in the August 1995 issue. I have a tip for eliminating the router marks when trimming the edge of a shelf or top with a router bit. Just apply a thin coat of petroleum jelly to the laminate on the edge. Then, trim with the router, and wipe off the petroleum jelly after finishing.

—Bob Merrill, Wilbraham, Mass.

Nifty way to remove contact cement
I was pleasantly surprised to see the article “How to Apply Plastic Laminates” in the August 1995 issue. I have never been satisfied with the solvents used for cleaning excess adhesive (such as plastic-laminate adhesive or contact cement) from plastic laminate, and you may be interested in a another method I’ve discovered. Before starting a laminate project, I pour out enough adhesive to make a ball ½” to ¾” in diameter. Wait until it is nearly dry, then use it as an eraser, rubbing it over the excess adhesive. The ball picks up the excess, quickly resulting in a clean surface.

—Frederick A. Jones, Rogers, Ark.

This reader stretched the plan
My wife and I are close friends with another couple. We have two sons, ages three and one, and they have a three-year-old daughter. Consequently, whenever WOOD® magazine features a project for kids, I often end up making three of them.

But when I saw the “Snow Stroller” in the November 1994 issue, I decided to make a change. I varied the design to make it a three seater, and removed the handle because I thought the extended sled would be too hard to push. Then, to finish the job, I added removable wheel sets so we could use the sled when there’s no snow. Both the kids and the neighbors enjoy it when we make our trips around the neighborhood. The kids featured in the photo are (from the front) my sons Ryan and Jonathan and their friend Victoria Wells.

—Dave Langton, Middlesex, N.J.

How to ground it
While I was researching information for a dust-collection system for a new shop, I ran across the WOOD magazine IDEA SHOP™ article in the September 1992 issue.

I’m aware of the importance of grounding plastic collection pipe against static buildup, but I have another question. Your layout used the same branch drop for the planer and the tablesaw. How was the flexible plastic connecting hose grounded?

—Randolph Mateer, Detroit

Most flexible plastic connecting hose has a spiral wire in it to keep it from collapsing. You can make this spiral wire do double duty by using it as a ground wire. If you use PVC pipe for the main ducting, you should connect the spiral wire to the ground wire that runs along the PVC pipe. Do this by pulling an inch or two of the spiral wire out of the hose before you clamp the hose to its blast gate. Then, connect the spiral wire to the main-duct ground wire.

The IDEA SHOP dust-collection system you refer to uses grounded metal ducting. So, we connected the spiral wire in the plastic hose to the metal ducting.

Some flexible plastic hose does not have an internal spiral wire. If you use it, you will need to run a single continuous grounded wire along the outside of the hose.
The Best Sleep Money Can Buy!

Frustrated With The Quality Of Your Sleep?
Do you toss and turn at night? Can't seem to find a comfortable position? Does your back ache when you awake? These are signs that your metal coil mattress or waterbed may not be supporting you properly or be right for your body. Select Comfort can help you sleep better with a revolutionary mattress that's so comfortable and supportive, it's recommended by the many doctors who use our product.

Sleep Better On Air
A Select Comfort Sleep System doesn't rely on springs or water. Instead, it supports your body on a cushion of air. Air gently contours to your body's shape and tests show it helps provide a more natural spinal alignment and better support. And that lowers the tension in the surrounding muscles. So you can sleep comfortably in any position and wake feeling great!

Select Comfort provides proper back support and contours to your body. Weight is more evenly distributed and pressure points are reduced.

Metal coil mattresses can create pressure points and provide uneven support.

You Control The Firmness
With Select Comfort, you can change the firmness depending on how your body feels each night. Go from extra-firm to extra-soft, simply at the touch of a button. In fact, the firmness adjusts independently on each side of the bed so you and your partner can get custom support without compromising comfort or quality of sleep.

Call For More Information
You owe it to yourself to learn more about this revolutionary way to a better night's sleep.

For a FREE Video and Brochure, Call 1-800-831-1211 Ext. 4998

Prices Starting At $299.99

Select Comfort
6105 Trenton Lane North, Minneapolis, MN 55442

Yes! Please rush me a FREE Video and Brochure.

Name
Address
City State Zip Phone

Ext. 4998
If you work with benchtop tools, you know how tricky it can be trying to support long pieces of stock. This project will end all those hassles. It supports your workpieces with precision because you can micro-adjust the height of the PVC roller through a 1" range by turning the height-adjustment disc (F).

To start, cut and epoxy the wheels (A) to the inside of the PVC roller, and insert the 1" dowel in the hole in the wheels. Sand the holes, if necessary, so that the dowel rotates without binding. Glue and screw together the roller carriage (B, C) with the PVC roller in place. Then dry-clamp the base (D, E). The roller carriage (B, C) should fit snugly, but not bind inside the base. If it binds, sand the edges of the roller carriage. If it fits too loosely, make paper-thin cuts off the end grain of parts D or E, whichever needs reducing.

Now, glue and screw the base together. Fasten the carriage bolt to the height-adjustment disc (F) with a lock nut and washer, and then thread the carriage bolt through the T-nut in the roller carriage. Insert the carriage into the base, and screw the base to the sub-base (G). You may need to make the sub-base out of thicker or thinner stock depending on the height of the tools you'll be using.

To get the roller dead level with your tool tabletop, position both on your bench the appropriate distance apart for the workpiece. Clamp the support to your benchtop, and lay a straightedge across the tabletop and roller. Turn the height-adjustment disc until you can't see any light underneath the straightedge on the tool tabletop.
2-HP MOTOR. CAST-IRON BODY. RAZOR-SHARP TEETH. IT'S ENOUGH TO TURN MIGHTY OAKS INTO WEEPING WILLOWS.

FOR QUICK, REPETITIVE CUTS, PUT THE POWER OF A CRAFTSMAN CONTRACTOR SERIES COMPOUND SLIDE MITER SAW TO WORK FOR YOU. IT'S BUILT RUGGED WITH A DIRECT-DRIVE MOTOR. AN ELECTRIC BRAKE THAT STOPS THE BLADE IN SECONDS.

AND WITH MITER STOPS AT 0°, 22.5° AND 45°, IT'S MORE THAN ENOUGH SAW TO MAKE ANYONE HAPPY. UNLESS,

OF COURSE, YOU HAPPEN TO BE A TREE.

CRAFTSMAN®
EXCLUSIVELY AT SEARS AND SEARS HARDWARE STORES
Trash bag and PVC frame catch dust under tablesaw

This PVC-pipe frame supports a trash bag that captures the dust falling through the bottom of your tablesaw. And it's easy to install and remove because the frame folds down.

Size the opening for the trash bag slightly larger than the opening in the bottom of your tablesaw cabinet. Make the height of the frame about 1/4" shorter than the distance from the floor to the bottom of your tablesaw cabinet. The pipe insulation will fill the slight gap between the PVC and the saw cabinet.

Assemble the frame with elbows, tees, and straight lengths of 1/2" PVC pipe. You'll need eight elbows and eight tees. Don't use any adhesive, however, where the tees join the horizontal pieces.

—Norman Ward, Buena Park, Calif.

Drop a trash bag in the opening of the frame and secure it with sections of foam pipe insulation. Bend the frame over to slide it underneath the saw, then pull the frame upright into position. The trash bag captures the sawdust, and the foam pipe insulation seals the frame snug against the bottom of the tablesaw cabinet.

Tips From Your Shop (and Ours)
WOOD® Magazine
1912 Grand Ave.
Des Moines, IA 50309-3379

We try to publish original shop tips, so send your idea to only one magazine. Also note that we cannot return your submissions. Thanks, and keep those shop tips coming.

Tom Jackson
General-Interest Editor

Print this article

Continued on page 14
Birds Will Flock to this Corian® Penthouse

NEW FROM
Better Homes and Gardens.
WOOD
Corian® Birdhouse Kit

YOUR KIT INCLUDES:
• all Corian® cut to approx. size
• all patterns, and
• step-by-step instructions.

A birdhouse built from Corian®, the easy-to-use wood alternative, will be the envy of every bird and bird-watcher.

Bird tenants love Corian® for the same reasons you do:
• Weather- and stain-resistant: Nonporous Corian® looks great after years hanging outdoors.
• Low maintenance: It's easy to clean and never needs painting.
• Scratch-resistant: If a nick or scratch ever does appear, simply sand it out.
• Colorful: Colors and patterns are uniform all the way through.
• Comfortable: The smooth surface doesn't give splinters.
• Beautiful look when completed.

Corian® is the perfect wood alternative. You can carpe it, cut it, sand it, and rout it. Because you work with Corian® like you do wood... use your regular woodworking tools to build this birdhouse. All Corian®, patterns, and instructions included. Hardware not included.

FINISHED SIZE:
8½"H x 9"W x 7"D

Retail Value $50
Yours for only $29.95

This special offer is only for the colors shown.

Please add $5.95 shipping and handling for each Corian® Birdhouse Kit ordered. NY residents also add 8% sales tax. Canadian/International orders add 35%.

Large flocks may appear once the word gets out you've hung a Corian® birdhouse. Be prepared... order three or more kits and we'll pay the shipping and handling.

Send check or money order to:
Art Specialties International, Inc.
P.O. Box 215, Dept. BH001
Depew, NY 14043

To order using VISA, MasterCard, or American Express, call 1-800-724-4008. Allow 3-5 weeks for delivery.

Better Homes and Gardens.
WOOD
Circle No. 1120

CORIAN®
Created For Life™
Swinging lumber rack stores out of the way

You can save a lot of floor space by stashing short lengths of lumber between the joists in your garage or basement. And with this rack you can swing the lumber down to eye level where it is easy to sort through and retrieve.

To build the rack, cut four 1x2 swing arms long enough to reach from the middle of the joists to the height of your chin. Next, assemble the lumber rack from 1x4 stock, and glue and nail a piece of 1/4" plywood to the bottom. Make the length about 4' and the width to equal the space between the joists.

Bolt the swing arms to the rack and the rack to the joists as shown right. Finally, attach a chain with an eye screw to both sides of the rack so that you can secure it in the upright position.

—Gerry Austin, Guelph, Ont.

"All my tools should be this good!"

The Accu-Miter® is a professional miter gauge that makes perfect angles easily. Shot-pin action assures dead-on accuracy for common angles — plus a precise protractor scale for everything in between!

Optional accessories:
- Manual clamp
- Pneumatic clamp
- 3/8" x 3/4" miter bar

We do not recommend operating without the saw blade guard, as it shown here. US Patent No. 5,038,485

JDS COMPANY

Precision Woodworking Equipment

800 Dutch Square Blvd., Suite 200, Columbia, SC 29210
1-800-382-2637 / SC 803-798-1600

$149

At last... the ultimate workbench, downdraft table & complete air filtration system

Remove the dust before it can pass your face at a rate 3 times faster than the average ceiling-mounted unit! The Dust Eliminator Workbench collects dust at its source through a downdraft grid on its surface (for sanding) and a dust intake on the side (for airborne particles created by other shop tools). A generous 30" x 54" x 3'-3/4" select and better grade hard maple work surface sits atop a powder-coated, heavy gauge steel cabinet.

- 201 power cord
- 34" working height
- Easy access to filters

$889.00 + S&H (payment plan available)

WoodMARK

Call toll-free 1-800-845-4400

Call toll-free 1-800-845-4400

Circle No. 1295
THE DELTA Q-3.
LIKE A FORMULA RACE CAR WITH A BLADE.

We're talking pleasure here. Precision. Power. Wait 'til you get your hands on this high-performance machine. It just gets better and better around every turn. The Delta Q-3 18" Variable Speed Scroll Saw. A scroller's dream machine.

Its Quickset™ II Blade Changing System is the second generation of a Delta exclusive. The fastest in the industry. No wrenches, no aggravation, no wasted time while threading or changing blades. You'll find it on no other saw.

The arched, graphite composite arm eliminates vibration. So smooth and quiet you can listen to the sweet sound of your blade cutting wood, instead of your saw breaking the sound barrier. And at the very tip of that graphite arm you'll find the control switches. Right under your nose, instead of having to fumble around below the table.

As you'd expect, the cast iron table tilts to allow bevel cutting. But what you might not expect is the fact that the adjustable steel stand also tilts forward to give you a better view of the job, and just the right angle for comfortable operation.

This one's ready to test drive right now at your Delta dealer. If you're ready to cut circles around the rest, call us for the dealer nearest you. Delta International Machinery Corp., 800-438-2486. In Canada, 519-836-2840.

Delta is proud to nationally fund these two PBS programs for woodworkers. The New Yankee Workshop hosted by Norm Abram and The American Woodshop with Scott Phillips.
Position this toggle-clamp jig almost anywhere

Screw a toggle clamp to a long 1x6, and you can use it practically anywhere you can securely clamp the board. To clamp something in the middle of a panel or bench, for example, simply position your toggle clamp jig where needed, clamp the 1x6 to the edge of your workpiece or bench, and apply pressure to the workpiece with the toggle clamp.

—Chris Strazzeri, Delray Beach, Fla.

Yet another use for those empty milk jugs

Recycling programs today cart away most of our empty plastic milk jugs, but you may want to hang onto a few to take advantage of this tip. Cut a large opening in the front of the jug, and put solvent in the bottom to clean brushes. When your hands get slippery from paint or solvent, the jug with its handle proves easier to carry around and empty than a large metal coffee can.

—John Regan, Gorham, Maine

Stop block saves wear and tear on radial-arm saw table

You often don’t notice until it’s too late. After repeatedly raising and lowering the blade of your radial-arm saw, you’ve cut a deep kerf in the top of the table and practically ruined it. Solution?

Before you chew up your table, lower the blade to the correct depth, about 1/8" below the surface of the table. Then, tape a wooden block like the one shown in the drawing right to the column of your radial-arm saw. Now, whenever you raise and lower the blade, the block will prevent the blade from digging deeper than you want into the table.

—From the WOOD® magazine shop

Continued on page 18
“Almost Delta.” That’s like saying your next project will turn out almost right. Or that you’ll be satisfied with “not too bad for the money.”

Now before you tear into your next piece of walnut or oak with something less than Delta, remember this: A professional would tell you to buy the best band saw or table saw or jointer you can afford. Probably even tell you to buy the Delta, same as he did. Because you can’t afford not to.

But here’s what we’d suggest: Go out and shop any of the tools you see here. Run some stock across our Deluxe 6” Jointer. Compare our Contractor Saw or 14” Band Saw straight up with the competition. Look, really look at the details. Then ask yourself how you’d like to invest your money.

There’s a big difference, you know. The Delta Difference is what separates precision from “close.” Nine spokes on our precision-balanced band saw wheels instead of six. Or an extra capacitor on the table saw motor to boost running power. Precision-ground cast iron tables for a lot more accuracy. You get a smoother feel and a lot more pleasure all the way around. A lot more for every dollar you spend.

The Delta Difference reaches beyond your saw or planer or drill press — to the most complete line of accessories in the business. You’ll find Genuine Delta Parts and Accessories everywhere. Beyond that, you’ll find Delta, the company. Standing behind every tool we make with service and support to keep your tool performing like the day you bought it.

Before you hand your money to someone who’s trying to prove their worth, make sure you shop the one who’s proved it for 75 years, now. Call for the name of your nearest Delta dealer.

Delta International Machinery Corp.,
800-438-2486. In Canada,
519-836-2840.

Delta is proud to nationally fund these two PBS programs for woodworkers: The New Yankee Workshop hosted by Norm Abram and The American Woodshop with Scott Phillips.
**TIPS FROM YOUR SHOP (AND OURS)**

Continued from page 16

**Stock box steadies forest-found treasures for ripping**

Have you ever found a beautiful chunk of burl or crotch wood in the forest, but didn't know how to cut it? Build this box to hold your found wood steady for ripping on the bandsaw.

Size the box so it clears the guide blocks on the bandsaw. Cut the sides, bottom, and top from 3/4" plywood. Install 3/8" T-nuts in the top as shown, and glue and screw the plywood pieces together. Then, glue and screw a guide to the bottom of the box that fits the miter slot as shown.

Cut four wooden knobs with a hole saw, and drill 3/8" holes, 5/8" deep centered in the knobs. Glue the threaded rods into the holes with epoxy. Put your found wood in the box with the portion you want to cut sticking out. Run the threaded rods through the T-nuts in the top to secure the found wood, and push the box past the blade. Use a blade that's at least 1/2" wide with no more than three teeth per inch.

—Kenneth Ray, Los Osos, Calif.

Continued on page 20

---

**Choose A Job You Love, And Never Work Another Day In Your Life.**

—Confucius—

"I've always wanted to be my own boss. Now I have that. Plus, I'm doing what I really like to do. It is very satisfying to restore a customer's cherished piece of furniture to its original beauty."

Mark Boyer
Furniture Medic, Michigan

Your investment starts at $12,900*

---

**Econ-Abrasives**

WE MAKE ABRASIVE BELTS ANY SIZE, ANY GRIT!

<table>
<thead>
<tr>
<th>Standard Abrasive Sheets</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CABINET PAPER</td>
<td></td>
</tr>
<tr>
<td>50/pk</td>
<td></td>
</tr>
<tr>
<td>100/pk</td>
<td></td>
</tr>
<tr>
<td>60D</td>
<td>$16.70</td>
</tr>
<tr>
<td>80D</td>
<td>15.60</td>
</tr>
<tr>
<td>100 thru 150C</td>
<td>14.50</td>
</tr>
<tr>
<td>FINISHING PAPER</td>
<td></td>
</tr>
<tr>
<td>80A</td>
<td>$11.15</td>
</tr>
<tr>
<td>100 thru 280A</td>
<td>10.00</td>
</tr>
<tr>
<td>NO LOAD PAPER (white)</td>
<td></td>
</tr>
<tr>
<td>100 thru 400A</td>
<td>$12.25</td>
</tr>
<tr>
<td>&quot;C&quot; = 100 SHEETS</td>
<td></td>
</tr>
<tr>
<td>Velcro® Vacuum Discs</td>
<td></td>
</tr>
<tr>
<td>8 Hole pattern for Bosch sanders</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ABRASIVE BELTS</th>
<th>Belts are resin bond cloth with a bi-directional splice, specify grits.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1X30</td>
<td>$.81 ea</td>
</tr>
<tr>
<td>1X42</td>
<td>.81 ea</td>
</tr>
<tr>
<td>1X44</td>
<td>.81 ea</td>
</tr>
<tr>
<td>1X2X16</td>
<td>.85 ea</td>
</tr>
<tr>
<td>1X21</td>
<td>.86 ea</td>
</tr>
<tr>
<td>2X31/4</td>
<td>1.06 ea</td>
</tr>
<tr>
<td>3X18</td>
<td>.90 ea</td>
</tr>
<tr>
<td>3X23/4</td>
<td>.93 ea</td>
</tr>
<tr>
<td>3X24</td>
<td>.93 ea</td>
</tr>
<tr>
<td>3X27</td>
<td>.93 ea</td>
</tr>
<tr>
<td>3X36</td>
<td>1.10 ea</td>
</tr>
<tr>
<td>6X28</td>
<td>1.35 ea</td>
</tr>
<tr>
<td>6X48</td>
<td>3.50 ea</td>
</tr>
<tr>
<td>6X98</td>
<td>6.24 ea</td>
</tr>
</tbody>
</table>

OTHER SIZES ON REQUEST

**HEAVY DUTY SPRING CLAMPS**
Clamps come w/PVC tips and grips.

<table>
<thead>
<tr>
<th>Size</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>4&quot;</td>
<td>$1.75 ea</td>
</tr>
<tr>
<td>6&quot;</td>
<td>2.25</td>
</tr>
<tr>
<td>8&quot;</td>
<td>3.50</td>
</tr>
</tbody>
</table>

**JUMBO ROUTER PAD (24" x 36")**
It will not allow small blocks of wood to slip out under router or sanding applications. ROUTER PAD ONLY $8.95 ea.

**JUMBO BELT CLEANING STICK**
ONLY $8.80

---

*See Prospectus for Details.

---

**Econ-Abrasives**

P. O. Box W865021
Plano, TX 75086
(214) 377-9779

**TOLL-FREE ORDERING LINE (800) 367-4101**

Circle No. 1229
ATTENTION HOMEOWNERS!

- **Differential Steering**
  pivots 360°
  in its own length.

- **Powerful 8.5 HP IC**
  Briggs & Stratton engine
  with electric start option.

- **Wide Turf Tires**
  give excellent traction,
  won’t mar lawn.

- **No Discharge Chute**
  enables you to trim right up
  next to objects on either side
  of the deck.

- **Mulching Deck**
  makes clippings disappear
  without bagging.

- **Extra-wide 33” deck**
  covers ground fast — the same as
  used on big riding mowers.

---

**BREAKTHROUGH TECHNOLOGY CUTS MOWING TIME IN HALF!**

The **TROY-BILT® WIDE-CUT Mower** finishes the job in half the time ordinary walk-behind & riding mowers take!

The unique TROY-BILT® WIDE-CUT Mower is a revolutionary HIGH-SPEED way to mow, finishing your lawn in half the time...and giving it a beautiful, high-quality cut, too!

**Professional-style technology... at a homeowner price!**

Engineered after the mowers lawn cutting professionals use — but priced for homeowners — it has technological breakthroughs that get the job done fast: extra-wide cut, more horsepower than most conventional mowers, multiple speeds, no-rake/no-bag mulching, instant height adjustment, superb maneuverability...all backed by an exclusive 7-Year Warranty! For a free copy of the warranty, write to the address below.

**FREE CATALOG! CALL TOLL-FREE:**

1-800-767-4500
Dept. 5022

TROY-BILT Mfg. Co.
Dept. AS022
102nd St. and 9th Ave.
Troy, N.Y. 12180

**YES! Please rush me**
**facts on the TROY-BILT®**
**WIDE-CUT Mower...including specs,**
**FREE Catalog, TROY-BILT® EASY PAY PLAN**
**Details, and your current offer!**

Name ____________________________
Address __________________________
City ______________________________
State/Zip __________________________

**FREE CATALOG!**

Available in Canada
©1996 Garden Way Inc.
The Dremel MultiPro™ Tool.
At 30,000 rpm, nothing works faster.

The Dremel MultiPro tool is the fastest high-speed rotary tool. It's extremely versatile. With up to 30,000 rpm it has the speed you need to effortlessly power through hundreds of jobs. You just guide the tool, the speed does all the work. 150 available accessories let you sand wood, shape plastic, polish brass, grind metal, and more. Look for our book with 175+ Uses in specially marked MultiPro tool packages at hardware, home center and hobby stores. Or for a free copy, write: Dremel, Dept. W, P.O. Box 1468, Racine, WI 53406-1468.

---

**TIPS FROM YOUR SHOP (AND OURS)**

Continued from page 18

Add an extra piece of stock to steady drill guide

Drill guides that attach to the shaft of a portable electric drill sometimes wobble when you're trying to drill a hole into the end or edge of a thin board. Here's a quick solution.

With a handscrew clamp, secure a flat, square piece of scrap stock flush with the edge or end of your workpiece, as shown below. Position the clamp flush with the top of the workpiece and the scrap stock. The clamp and scrap stock provide extra surface area to stabilize the drill guide, and that enables you to drill straight holes with confidence.

—Clement S. Barlow, Brielle, N.J.

---

2x4 clamped to stock with a handscrew clamp

Drill guide

Stock to be drilled

Workbench

Continued on page 22
Hardboard template ends inaccurate fence settings

When making cuts with a portable circular saw, setting the distance from the straightedge to the edge of the baseplate often takes time and multiple measurements. To simplify this procedure, rip a hardboard template as wide as the distance from the edge of the baseplate to the inside edge of the sawblade. Then, crosscut the hardboard to the length of the saw's baseplate.

To use the template, place one edge on the cut mark of the workpiece, slide the straightedge for your circular saw snug to the other edge, and clamp. Repeat this procedure at the other cut mark. You also can make these templates for your jigsaw or a router and straight bit.

—Dave Borey, Simi Valley, Calif.
**Brew up a solution for vacuum-hose connections**

Looking for a better way to hook up sections of 4" flexible dust-collection hose? The solution is percolating in your pantry!

The next time you empty a one-pound can of coffee, cut the bottom off and use the can as a coupler. The rolled steel edges of the can prove much stronger than the crimped hose connectors sold in stores. Attach the hose leading to the duct collector with a screw-type hose clamp, and if you want a quick-change fitting, connect the hose leading to the tool with a 4" spring clamp.

— Earl Flech, North Canton, Ohio

---

**A FEW MORE TIPS FROM OUR WOODWORKING PROS**

- To prevent a brad from splitting your wood, snip the head off one and use it to drill a pilot hole. See how we did this to hold the mirror in its frame on page 49.
- Do you have a project with an arched top, but don't know how to make the arch? Check out the method we used to assemble a rectangular frame and cut the arch on page 48.
- You can use a router and straightedge to rout decorative patterns in plywood just like we did on the playhouse roof. Find out how to employ this technique on page 62.
Do you want your woodworking to start paying for itself? Turn your specialty into profit by joining forces with professional woodshops in your area.

When J. Richard Whiteside retired as a Presbyterian minister in 1987, he decided to expand his woodworking hobby by selling some of his handiwork. His first steps were into the shops of some local professional woodworkers. Those chats with the pros led to some contract work from them, including refinishing and chair repair. And that work was the beginning of Dick Whiteside's Wood Shop in West Chester, Pennsylvania, where Dick works at his own pace in a business situation he describes as somewhere between hobby and active post-retirement. "Now, I use other shops more than the other way around," he comments. "Because I don't do wood turnings, I have others do them."

How to talk shop with the pros
Dick Whiteside's approach represents one good way you can make the transition from hobbyist to professional. Here are two more angles that will help you work yourself into a paying position that gives you the chance to build your skills and reputation:

- **Sell complementary products.** Cabinetmakers, for example, may want jewelry boxes or other "smalls" to complement their product line. This is particularly true if the cabinetmaker has a showroom, store, or catalog. Chairmakers, for instance, can find a good market this way because many cabinetmakers prefer not to make chairs. Yet, people would buy them if they had them to display and sell.

- **Offer your services.** You might serve as a standby subcontractor when the woodshop has more work than it can handle. Or, you might offer expertise the woodshop doesn't have, such as finishing, turning, or carving.

  Established woodshops benefit from working with independent woodworkers. That's because finding good entry-level or skilled employees is a major problem for many professional shops. Besides, subcontractors don't increase the shop's overhead, benefits, and payroll costs.

Tips on building the right relationship
Finding a subcontractual relationship with an established woodworker may be easier than you think, and usually easier than developing your own consumer business. Simply call the woodworking pros in your area to tell them what you have to offer. Then, arrange a follow-up visit to show them your work.

After working with other shops for awhile, you may be ready to launch your own enterprise. Don't burn any bridges, though. You may want future referrals from the shops you did work for.

Making a friendly break later is easier if at the very beginning you discussed what both sides could expect from each other. Some professionals don't mind letting their customers know about their subcontractors; others jealously guard such information.

As a subcontractor, you can avoid hard feelings of your own by checking around to make sure that you're getting a fair market price for your work. Keep in mind that the retail markup is usually 100 percent over wholesale, and that you'll only get a fraction of what the woodshop actually charges its customers.

Working for other woodworkers won't net you as much money as striking out entirely on your own. Still, what you gain in woodworking experience and marketing power can make working with woodshops a good deal.

Written by Jack Neff, a Batavia, Ohio, business writer and author of the book *Make Your Woodworking Pay For Itself.*

Illustration: Jim Stevenson
ENLON is now in its 4th year of serving you with innovative new products and improvements. ENLON's quality far surpasses the other brand names that look like ENLON's, such as the ENLON 10" H.D. Table Saw #EN3202, Oscillating Spindle Sander #EN3407 and much more. Don't be fooled by look-alike low quality products from other companies.

10" TILTING ARBOR SUPER HEAVY-DUTY TABLE SAW MODEL#EN3202

This industrial quality Table Saw features a heavy-duty cast-iron table top, 3 H.P., 220V, 15 AMPS, three belt drive to transmit maximum power to the blade, Enlon's exclusive self-aligning 36" rip fence system, heavy-duty steel stand with chip exhaust opening, magnetic safety switch and much much more.

*EN3202
LOW PRICE: $795.00

(Optional Hand Crank Adjustment Kit on Outfeed and Infeed Table also available)

6" X47" HEAVY-DUTY JOINTER
*EN3101
LOW PRICE: $370.00

(4" Jointer also available)

*EN3102 (1/2 H.P., 220V)
LOW PRICE: $650.00

*EN3106 (2 H.P.)
LOW PRICE: $695.00

8" X65" SUPER HEAVY DUTY JOINTER

6" X30" FLOOR STAND EDGE SANDER
*EN3406
LOW PRICE: $495.00

(Bench Top Model also available)

1 1/2 H.P. SHAPER
*EN3302
LOW PRICE: $420.00

(1 or 3 H.P. also available)

3 H.P. HEAVY DUTY SHAPER
*EN3303
LOW PRICE: $740.00

(1 or 3 H.P., 220V)

2 H.P. DUST COLLECTOR
*EN3201
LOW PRICE: $370.00

20" INDUSTRIAL BAND SAW
*EN3506
LOW PRICE: $1,095.00

(Many Great Features)

NEW!
Sure, you can flat-plane with a jointer
I am thinking of purchasing a jointer for my shop. Never having owned one of these machines before, I am wondering if I could run boards facedown through the machine to remove the saw marks left from resawing?

—Paul F. Blum, Lyons, N.Y.

You can flat-plane the face of a piece of wood on a jointer, Paul, provided the board is narrower than the jointer cutterhead. To do this safely, you will need two pushblocks to guide the board across the jointer knives. Here's how it's done:
1. Place the board you want to flatten face side down on the infeed table. Adjust the machine to take a light cut (¼" or less). Start the machine.
2. Slowly feed the board into the spinning cutterhead with pushblocks. Place the lead pushblock on top of the board, 2" to 3" back from the leading edge of the board. Place the second pushblock on the trailing end of the board (see drawing below).
3. Maintain downward pressure on the leading pushblock as the board passes over the jointer cutterhead. This holds the planed portion of the board flat to the outfeed table. Use your second or trailing pushblock to move the board forward (see drawing below).

We recommend that you use a thickness planer for cleaning up the rough faces if the resawn boards are ¾" or less in thickness. Place these resawn pieces on a ¾"-thick backing board to provide support as they pass through the planer. Secure the wood to the backing board with double-sided tape.

What size of jointer should I buy?
I am considering purchasing a jointer. Some woodworker friends have told me that after using a 6" jointer, they would prefer an 8"-wide machine. What are the advantages of each?
—John Mullins, Rhoadesville, Va.

John, we use an 8" jointer in our shop here at WOOD magazine, so that tells you the preference of our project builders. The greater width of the 8" jointer allows it to flat-plane wider boards than the smaller machines. And these larger jointers have longer infeed and outfeed tables, allowing for easier and more accurate edge-jointing of a long board. Add to this the larger motor and the greater weight of the 8" machines, and you generally have a more powerful and smoother-running tool than their smaller 6" cousins.

However, these machines do have some drawbacks. They cost substantially more than the 6" jointers, and most of the 8" jointers need to be run on 220-volt current.

If you have limited room in your shop, you will appreciate the smaller size of the 6" jointer. And it's easier to move because of its lighter weight. Properly tuned and adjusted, these smaller jointers will cut a gluing edge that rivals those of the 8" jointers. And although the boards that will be flat-planed need to be less than 6" in width, that's the maximum width of board we recommend edge-gluing into a panel.

Continued on page 28
Craftsmen everywhere are using the low-cost Woodmaster to bring in welcome extra cash and to save on all their lumber needs. You can, too!

With the big 18-inch Woodmaster or the standard 12-inch model, you can quickly convert low-cost, rough lumber into valuable finished stock. You can turn out perfect picture frame moldings, crown, bed and base moldings, tongue & groove, door and window trim...all popular patterns...any custom design.

You can do custom work for friends, neighbors, lumberyards, picture framers, home remodelers, hobby shops and businesses.

Because it takes just seconds to convert a $2 rough board into $10 worth of finished trim, you can see why so many Woodmaster owners enjoy substantial extra incomes!

**Variable Speed Makes The Difference!**

Just a twist of the dial gives you perfect control for planing, sanding or sawing...from 0 to 1,000 cuts per inch. Creates mirror-smooth molding with no sanding required!

Here’s what Woodmaster owner L. C. Griffin of Los Angeles writes: “The shop test article in *Wood Magazine* that said they loved your Variable Feed Rate is what sold me. They were right.”

Call or write today for free facts on how you can try this American-Made tool in your own shop for one full month. Easy terms.

**Tools of the Trade**

Any woodworker knows that using the right tools for a project makes all the difference. That’s why the Titebond® Family of Wood Glues has been the choice of professionals for more than 35 years. Recognized as the premier name in wood glues, Titebond has five specially-formulated glues for your next woodworking project.

- **Titebond II Premium Wood Glue—Weatherproof**
  - Ideal for outdoor projects—passes Type II water-resistance
- **Titebond Original Wood Glue—Stronger than wood**
  - Strong initial tack—heat resistant and sands easily
- **Titebond Dark Wood Glue—For darker woods**
  - Offers all the benefits of Original Titebond
- **Titebond Liquid Hide Glue—Slow set**
  - Use to create “crackling” or antiquing effect
- **Titebond Wood Molding Glue—No runs, no drips**
  - Thicker formula—sets fast, yet allows realignment of pieces

To find out which glue will work best for your next project or to find out where you can purchase Titebond in your area, call our Technical Service Team at 1-800-347-GLUE.
The New Grizzly G1023Z

Our new Model G1023Z preserves the Grizzly tradition of quality and value, but with some exciting new extras, all standard!

This new saw comes with the best aftermarket fence available. The Magna-Set™ Fence is the latest, most accurate fence you can find, with unprecedented repeatability. The patent-pending Magna-Set™ Fence locks simultaneously at both ends without shifting and won't flex like the T-square designs.

Here are some other features that are offered as standard equipment:

- Front rail-mounted magnetic switch for easy access
- 4' dust port and clean-out
- New saw guard
- Beveled table edge
- Motor Cover
- T-slot miter
- 3 H.P. 220V motor
- Triple V-belt drive
- Shipping weight: approx. 425 lbs.

Grizzly Imports – Purveyors of Fine Machinery!

CALL FOR INFORMATION: WEST OF THE MISSISSIPPI 1-800-541-5537, EAST OF THE MISSISSIPPI 1-800-523-4777

Circle No. 850

ASK WOOD

Continued from page 26

A sure cure for broken rocker spindles

My antique child's rocker came out of an auto accident with the four upright back spindles broken off at the top and bottom where they enter the seat and back rest. Short of turning new spindles, what can I do to repair this rocker?

—James F. Frye, Hendersonville, N.C.

Jim, we suggest you graft new ends onto the spindles, retaining as much of the original wood as possible. Here's how to do it:

1 Trim off the broken ends with a handsaw, making the cut at an angle for maximum glueing surface (see drawing Step 1). Sand this cut on a flat surface for the best joint fit.

2 From the same type of wood as the spindle, make an oversized, square extension with an angled face matching the angle you cut on the spindle (see drawing Step 2). Fasten this extension to the spindle with wood glue. Use two wire brads to lock the extension in place while clamping, and remove the brads after the glue dries.

3 Drill a dowel hole (equal to ½ the diameter of the spindle tenon) lengthwise through the extension and into the spindle. Glue a matching-sized dowel (kerfed along its length) into place to strengthen the joint, and allow the glue to dry.

4 Cut the extension to length, and shape it to match the original spindle, using a carving knife and rasps. Sand the joint and extension, and finish to match the original color of the spindle.

Continued on page 30
Simply the Best

For over 100 years, craftsmen have found Bessey clamps to be simply the best. Don’t settle for less — use original Bessey clamps, available at local dealers across North America.

American Clamping Corporation
P.O. Box 399, Batavia, N.Y. 14021
1-800-828-1004 Fax 716-344-4025

American Clamping (Canada) Inc.
P.O. Box 490, Cambridge, Ont. N1R 5V5
1-800-265-8612 Fax 519-621-3442

HEGNER

Precision Scroll Saws and more...

- No sanding
- Quick blade changes
- Smooth & quiet performance
- Easy financing now available

FREE '96 CATALOG

Advanced Machinery
P.O. Box 312, Dept. 694
New Castle, DE 19720
Call for FREE catalog
800-322-2226

HEGNER... the better scroll saw

Circle No. 3

WILKE MACHINERY COMPANY

MACHINERY • POWER TOOLS

BRIDGWOOD®

BW-200P PLANER

Heavy Duty, Professional Machine fully assembled, adjusted and test run. Ready to go to work for you!

$3,395.00
$2,595.00

FREE CATALOG AVAILABLE AT YOUR FAVORITE DISTRIBUTOR

BUY RIGHT THE FIRST TIME, BUY...

TO ORDER, PHONE TOLL FREE: 1-800-235-2100

TO RECEIVE A CATALOG FAST, SEND $2.00 TO:

WILKE MACHINERY COMPANY
3230 Susquehanna Trl, York, PA 17402
FOR TECHNICAL SERVICE CALL: 1-717-764-5000

VISIT OUR SHOWROOM: One block east of I-83 and 11. Hours: Monday through Thursday 8 am - 5 pm, Friday 8 am - 7 pm, Saturday 9 am - noon.

Circle No. 96
How to dowel a curved joint
I am building a bench backrest that has a curved top rail. I want to use a doweling jig to drill the dowel holes for the back slats, but I can't figure out how to align the jig on the curved surface. Do you have any suggestions?

—Louie Rebideaux, Sparks, Nev.

Louie, to use dowels to reinforce an angled or curved joint, we suggest that you first cut the backrest top rail with flat steps at the location of each slat. This will allow you to set the doweling jig perpendicular to the bottom of the rail. Drill the dowel holes ½ to ¾" deeper than normal. Then, cut the top rail to its final shape after drilling the holes.

Next, cut the back slats approximately 1" longer than needed. Drill extra-deep dowel holes in the ends of the back slats before cutting the joint angles or curves to match the top rail. Dry-fit the slats to the backrest top, holding them in place with dowels. Then measure, mark, and cut the bottom of the slats to length. Drill and dowel the slat bottoms to the bottom rail. As always, dry-fit and clamp the entire bench back to check the joint fit, and make any necessary joint adjustments before gluing.

New TRIMMER ON WHEELS!
Rolls "light as a feather" on two BIG WHEELS!
TRIMS far easier, better, more precisely than hand-held trimmers. Plus MOWS everything from whole lawns (even wet!) to tough waist-high growth with ease! Rocks, roots, stumps, etc., do it no harm because the "DR" has no steel blade to bend or dull. Perfect for ALL mowing and trimming around smaller properties, vacation homes, etc., or for finishing mowing/trimming after riding mowers on larger parcels. A delight for anyone to use!

Powerful Thinking
Powerful thoughts bring powerful results. Watch our free demonstration video on the Robland X31 combination machine and you will see the powerful thought process that has gone into the design of this Belgian success story. Every woodworker's dream, combine:

- 12" Jointer/Planer
- 10" table saw
- 3, 3HP motors (German)
- Cast iron sliding table system
- 50" rip capacity
- 20 seconds to change functions
- Mortiser
- Shaper

Put the power in your hands today. Call (800) 234-1976, for your free demonstration video.

LAGUNA TOOLS
2265 Laguna Canyon Rd., Laguna Beach, CA 92651 • FAX (714) 497-1346

Circle No. 815
### CARBIDE TIPPED ROUTER BITS

**1/4" SHANK**

<table>
<thead>
<tr>
<th>Size</th>
<th>Item #</th>
<th>Price/Set</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4&quot; Shank</td>
<td>#1361</td>
<td>$69.95</td>
</tr>
<tr>
<td>1/2&quot; Shank</td>
<td>#1362</td>
<td>$79.95</td>
</tr>
<tr>
<td>1/4&quot; Shaper</td>
<td>#1363</td>
<td>$99.95</td>
</tr>
</tbody>
</table>

**FREE SHIPPING IN CONTIGUOUS USA**

**ROUND OVER BITS**

<table>
<thead>
<tr>
<th>Item #</th>
<th>Diameter</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1314</td>
<td>1/8&quot;</td>
<td>1/8&quot; Radius</td>
<td>$11.00</td>
</tr>
<tr>
<td>1315</td>
<td>3/32&quot;</td>
<td>3/32&quot; Radius</td>
<td>$11.00</td>
</tr>
<tr>
<td>1316</td>
<td>1/16&quot;</td>
<td>1/16&quot; Radius</td>
<td>$11.00</td>
</tr>
<tr>
<td>1318</td>
<td>1/32&quot;</td>
<td>1/32&quot; Radius</td>
<td>$11.00</td>
</tr>
</tbody>
</table>

**FLUSH TRIM BITS**

<table>
<thead>
<tr>
<th>Item #</th>
<th>Diameter</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1337</td>
<td>3/32&quot;</td>
<td>3/32&quot; Diameter</td>
<td>$5.50</td>
</tr>
<tr>
<td>1338</td>
<td>1/32&quot;</td>
<td>1/32&quot; Diameter</td>
<td>$5.50</td>
</tr>
</tbody>
</table>

**BULL NOSE BITS**

<table>
<thead>
<tr>
<th>Item #</th>
<th>Diameter</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1330</td>
<td>1/2&quot;</td>
<td>1/2&quot; Diameter, 1&quot; Cutting Length</td>
<td>$16.00</td>
</tr>
<tr>
<td>1331</td>
<td>3/4&quot;</td>
<td>3/4&quot; Diameter, 1&quot; Cutting Length</td>
<td>$21.00</td>
</tr>
</tbody>
</table>

**PATTERN/FLUSH TRIM**

<table>
<thead>
<tr>
<th>Item #</th>
<th>Diameter</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1340</td>
<td>1/2&quot;</td>
<td>1/2&quot; Diameter, 1&quot; Cutting Length</td>
<td>$15.00</td>
</tr>
<tr>
<td>1341</td>
<td>3/4&quot;</td>
<td>3/4&quot; Diameter, 1&quot; Cutting Length</td>
<td>$17.00</td>
</tr>
</tbody>
</table>

**Ogee Raised Panel Bit**

<table>
<thead>
<tr>
<th>Item #</th>
<th>Diameter</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1333</td>
<td>2&quot; Large Diameter</td>
<td>$29.95</td>
</tr>
</tbody>
</table>

**QUANTITY DISCOUNT!**

When ordering three or more bits deduct $1.00 each!

<table>
<thead>
<tr>
<th>Item #</th>
<th>Diameter</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1404</td>
<td>1&quot; Large Diameter, 3/8&quot; Cutting Length</td>
<td>$14.00</td>
<td></td>
</tr>
<tr>
<td>1405</td>
<td>1 1/2&quot; Large Diameter, 5/8&quot; Cutting Length</td>
<td>$16.00</td>
<td></td>
</tr>
<tr>
<td>1406</td>
<td>1 3/8&quot; Large Diameter, 1&quot; Cutting Length</td>
<td>$22.00</td>
<td></td>
</tr>
</tbody>
</table>

**TECHNICAL HELP & EXPERT ADVICE • CUSTOMER SERVICE BEFORE & AFTER SALE • FREE 40 PAGE CATALOG**

---

**RABBITING BITS**

<table>
<thead>
<tr>
<th>Item #</th>
<th>Diameter</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1411</td>
<td>3/8&quot;</td>
<td>3/8&quot; Depth, 1/2&quot; Height, 1 1/2&quot; Diameter</td>
<td>$15.00</td>
</tr>
</tbody>
</table>

**The Amazing CAN-DO Clamp**

Great for Framing, Drilling, Doweling, & More
- Clamps on two sides for 90° clamping
- Swivels for clamping boards of unequal thickness
- Oboiled holes for quick, easy mounting
- Sliding T-Handle for maximum pressure
- Rock Solid Aluminum construction

**Router Speed Control**

**Controls The Speed Of Your Router**
- Gets the best results with the wood and bit you are using!
- Works with all routers 3-1/4" HP or less - 120V 15 Amp
- Full horsepower and torque at all speeds
- Gives your router a feature only available on routers costing hundreds of dollars

**25 PIECE BRAD POINT DRILL BIT SET**

**22 PC TAPERED DRILL BIT SET**
For exceptional thread "bits". Includes sizes 6, 8, 10, 12, seven matching counterboring heads with adjustable stop collars, & Allen key.

**BISCUIT JOINING SET**

5/32" Slot Cutter, 1/4" Shank & 250 #20 Biscuits

---

To Order By MasterCard, VISA, Discover, or American Express
CALL TOLL-FREE, 7 DAY - 24 HOUR ORDER SERVICE
Or Send Check To: MLCS, Ltd., P.O. Box 4053 DC, Rydal, PA 19046

1-800-533-9298

Circle No. 1251, 1350, 2250
WESTERN
WHITE PINE

The West’s mountain-climbing conifer

If ever a tree loved to live in the mountains, it’s the western white pine. You’ll find it getting along quite happily in the high country of California, Idaho, Montana, Oregon, Washington, and British Columbia.

Given western white pine’s preference for altitude, it may seem strange that this species ranks among the most important timber trees of North America. The tree’s size and wood quality make the extra logging effort worthwhile. Even Scottish explorer and botanist David Douglas, who discovered the western white pine on the slopes of Washington’s Mt. St. Helens back in 1825, thought it important to send some seeds to his homeland. Today, the products of those seeds grow majestically in the highlands of Scotland and Ireland.

Commercially, western white pine commands one of the highest prices of all softwoods. It’s in continued demand for window and door frames, molding, and high-quality veneer for plywood.

Wood identification
Western white pine (Pinus monticola) thrives in the deep porous soils of north-facing mountain slopes where the snow gets deep and the growing season stays short. That’s why northern Idaho produces about two-thirds of the U.S. supply. In the industry, it’s even called Idaho white pine.

Despite the rigors of climate, specimens reach 175’ in height with diameters of 8’ at breast height. The silvery-gray trunks of mature forest trees usually have no branches for half or more of their height.

Unlike its eastern cousin, which has a crown of widely spreading branches, western white pine has a short-branched, narrow, yet symmetrical crown. But, like eastern white pine, the pale, bluish-green needles of western white pine grow in bunches of five. Slender, slightly curved cones grow to a length of about 12”.

Under each scale of the cone lie two tiny seeds. In September and October the cones ripen and open to shed them.

The straw-colored wood of Western white pine weighs 26 pounds per cubic foot air-dry, and in strength and hardness compares with Douglas fir. Straight grain and even texture means that it works easily. The choicest western white pine boards come from Idaho and carry the grade stamp IWP, for Idaho White Pine.

Uses in woodworking
Besides millwork, you can use western white pine for indoor furniture, cabinets, and shelving units, as well as light construction. For carving, it is somewhat harder than eastern white pine, but holds detail equally well. You also can turn the wood.

Availability
You should find the better grades of western white pine (Choice & Better, and Quality) in the board section of home centers and lumberyards. Boards should have the stamp mark MC-15, meaning that they have been kiln-dried to 15 percent moisture content or less. Expect to pay $2 or more per board foot. As plywood, you’ll pay $50 for a premium ¾” sheet.

Continued
western white pine
(Pinus monticola)

The boards you buy may carry the additional "1WP" grade-stamp imprint. If so, you'll have some of the best pine available, with very few knots. But western mills don't kiln-dry softwoods to a low moisture content of 8 percent that you typically find in hardwoods. By industry standards, your pine may have as much as 12-15 percent moisture, which is okay if you let the wood acclimate in your home for a week or so to stabilize it before using. Then, you'll want to keep the following tips in mind when working western white pine.

**Machining methods**
Although pines are considered softwoods, some species are harder than others. And that's the case with western white pine. The wood rates as 30 percent harder than eastern white pine, and although you can successfully work it with hand or power tools, be sure you keep all tool cutting edges sharp.

- Unlike many other species of pine, western white pine boards have little pitch in them to build up on your saw blade. Still, it does occur, so avoid the burning and blade wander that accompanies gum buildup by using a Teflon-coated blade or occasionally cleaning the blade with steel wool dampened with acetone.
- This wood doesn't splinter easily, but a backing board helps reduce the chance when routing across the grain.
- Due to the hardness of western white pine, you'll want to drill pilot holes for screws.
- The better grades of western white pine will only have small, tight knots known as "pin knots." They won't fall out, but to prevent bleed-through, you should seal them with shellac before applying a clear or painted finish.
- If you plan to stain the wood, first put on a sealer coat of wood conditioner or diluted shellac (cut 50 percent with denatured alcohol) to prevent unevenness of the stain color.

**Carving comments**
- The hardness of western white pine doesn't vary from earlywood to latewood as with other pines or firs. This even texture means the wood will take detail without chipping or splintering.
- For sculptural carvings, pin knots may add character since the wood is otherwise featureless. But be sure to seal them.

**Turning tips**
- Thick stock blanks of western white pine may contain pitch pockets deep inside. If the pockets haven't dried, droplets of pitch can appear on a freshly turned surface. Just scrape them off after they harden, then finish the wood.

### SHOP-TESTED TECHNIQUES THAT ALWAYS WORK

- Smooth cross-cutting requires at least a 40-tooth blade.
- Avoid using common twist drills in woodworking. They tend to wander in the wood and cause breakout. Use brad-point bits and a backing board under the workpiece to reduce tearout.
- Drill pilot holes for screws.
- Rout with sharp, preferably carbide-tipped, bits and take shallow passes to avoid burning.
- Carving softwoods generally means using fairly steep gouge bevels—20° or more—and taking deeper cuts.

## WESTERN WHITE PINE AT A GLANCE

<table>
<thead>
<tr>
<th>Cost</th>
<th>$</th>
<th>$</th>
<th>$</th>
<th>$</th>
</tr>
</thead>
<tbody>
<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>
</tbody>
</table>

Look-alike: Eastern white pine

Compiled with woodworkers Rick Marple and Jerry Neene  Illustrations: Steve Schindler

WOOD MAGAZINE  APRIL 1996
Carrying on a tradition in wood

"Some retirees seem so empty. I think they miss a purpose in life—golf, travel, and TV just aren't enough," says Gus Stefurac, shrugging his laborer-like shoulders. That's why before Gus retired from IBM, where he had been an electronics technician for 35 years, he was determined that his woodworking hobby would become a business.

Now, 10 years later at age 65, Gus' biological gas tank never runs empty. He approaches every day with the vigor and vitality of someone a fraction of his age. If he's never been busier, he's never been happier either. Gus Stefurac may call Raleigh, North Carolina, home. But in his golden years, the woodworking world is definitely his oyster.

Continued
Depression-era Detroit was Gus' childhood stomping ground. There was only money for essentials: food, clothes, and housing. But Gus doesn't remember the 1930s as bad times. On the contrary, those days were his introduction to woodworking.

"We made all of our own toys from scrap 2x4s and whatever else we could find," he says. "To an orange crate or apple box we'd nail a pair of sidewalk skates fastened to 2x4s for a pushcart. That hand-made creativity seems to be missing with kids today."

The thought brings Gus to his favorite topic, wooden toys. "Kids have been brought up with battery-operated toys and electronic games, and parents are really getting fed up with it, at least many of them are," says the craftsman. "That's why when I make a wooden toy based on something from the past, they think it's revolutionary because they haven't seen anything like it."

**Simple toys make perfect playthings**

"Quality Woodcrafters," the business that Gus founded in his retirement, has a double-garage-sized woodworking shop as its base. The leased space is in a light-industrial park a few minutes drive from Gus' Raleigh home. In his peak working season—the four months before Christmas—he's often there until the morning's wee hours.

Brushing off sawdust from a stool, Gus sits down and starts explaining the popularity of his wooden toys. "My customers like them mostly because they're simple. Kids, and parents, appreciate the ease of playing with them. Like finger tops. You should see the amazement on the children's faces when they see that little stick going around and around and around. They play to see whose top can go the longest."

Around Raleigh, antique-shop owners, used-book-store proprietors, and flea-market vendors alike know Gus by name. They know that he's always on the prowl for surviving toys of yesteryear or books about them. "I do a lot of research and shopping for examples of old wooden toys on which to base designs," says Gus.

Yet, according to the toymaker, just being old isn't enough for a toy or game to qualify for revival. Gus has a stipulation. "Every toy that I make requires some manipulative skill. I don't make things that you just look at," he says. "The child either has to take them apart or assemble them. It's also a rule of thumb that anything with movement always stimulates a child's interest."

The best-selling item in Gus' line is a functional item, but it has learning ways as a toy. And he didn't seek it out, it came to him. He calls it, simply enough, the puzzle footstool.

"It was over 10 years ago. I was doing a craft show on the Mall in
safely saw and create satisfying projects with one.

“There’s really nothing new in the woodworking world today,” notes Gus. “For instance, I adhere my patterns to the stock with the same flour-and-water paste that was used 100 years ago! And that paste you can run right through the sander. But if the paste sits a couple of days, though, bacteria growth begins. Adding a dash of baking soda retards that.”

Just as Gus borrows from the past, he may be a part of the future. He sees toys that he made two decades ago at flea markets around Raleigh. That gives Gus a good feeling. “In life, we’re here for awhile, we work, and we die,” he reflects. “But with these toys, a part of me may live forever.”

At the height of their popularity in the late 1800s, scrollsaws came in a variety of models from a dozen or more manufacturers. The “donkey” behind Gus was once used to clamp and hold thin stock for hand-fretsawing.

Washington, D.C.,” says Gus. “A lady came up to me about this footstool she had bought when her son was small. It had his name cut out in the top, like a puzzle. She wanted another one, but had lost track of the company. If I saw it, could I make one? Well, she ended up inviting me to dinner that night with her husband. I saw the stool, and I’ve been making them ever since.”

Gus explains just why the item has remained so popular. “I make them out of 2”-thick yellow poplar. They’re real sturdy, but unique because they’re manipulative. The way I cut the letters out, the child has to put them in the right way, so even two-year-olds learn to spell their name. Then I paint all the letters in primary colors so they learn them, too. I’ve found that the puzzle stools are so popular that once a child in a family gets one, all the other kids eventually get one as well. They become a tradition. Why, one lady customer of mine has purchased 20 stools from me in the last decade or so.”

**Scrolling along for business and pleasure**

Gus’ woodworking started when his two children (now grown) were toddlers. Store-bought toys were costly for a family just starting out, so Gus made them in his basement workshop on a scroll-saw. Before long, he was making toys and selling them to his neighbors, but never on the scale he works today.

Scrollsaws take prominence in Gus’ woodworking shop these days. He has three of them always at the ready. And they’re all made by Hegner, a company he frequently demonstrates for. Next in importance is the commercial-type stroke sander that smooths the surface of his toys. But even as quickly as Gus has learned to cut out, sand, paint, and assemble his products, he still occasionally calls for help.

“There’s a big cottage industry in the North Carolina mountains,” he explains. “Businesses farm out work for people to do in their homes—everything from quilts to furniture. So I’ve developed that here in Raleigh. I may have as many as five people at peak times painting or assembling toys in their homes. After all, I only have two hands. Of course, I have all the outside work done to my quality level.

“I don’t really work hard, I’m just having fun,” adds Gus with a chuckle. “In fact, I sometimes think of myself as Gippetto, the toymaker in Walt Disney’s Pinnochio, and wouldn’t be surprised if one of my toys talks to me some day.”

WOOD MAGAZINE  APRIL 1996
Once each year, a North Carolina junior high helps children get elbow deep in traditional crafts.

Pack hundreds of exuberant young teenagers into a vintage gymnasium and stuffy tents on a steamy spring day and you'd expect bedlam, right? Yet, when the Fine Arts Festival comes to North Carolina's Rockingham Junior High School early each April, there's nothing of the kind. The unique two-week program creates nothing but intense interest and high-level participation.

"This program really grew out of frustration about 23 years ago," explains Dr. John Langley, principal. "There were 1,100 children who had absolutely no cultural arts being taught in the classroom. So it began as a raising of awareness for both parents and students. We started from scratch, and over the years it has grown into two weeks of spring festival and a week of storytelling in the fall. The whole idea is to let these children see crafts—if we can't see beauty we're destined to be barbarians. But if we can see beauty, we won't sell people drugs, we won't take people's property, we won't take their lives. We believe that the arts are an integral part of living."

During those special two weeks each spring, the arts do come to life in little Rockingham (population 10,000). The first week brings handcrafts. More than three dozen craftsmen and craftswomen from all over the southeast show up to provide the daily hands-on instruction, and—get this—they do it for free! The students select their participation: pottery, stained glass, woodworking, basket weaving, doll making, quilting, painting, blacksmithing, and more. Then, for four half-days (they spend either mornings or afternoons in regular classes), they work on their projects under the eyes of the crafters. With the turnover between classroom and crafts, everyone gets a hands-on experience. The second week is devoted to appreciation of the performing arts, from modern dance to Shakespeare.

**Time-out for teaching**

For 10 years, Gus Stefureac (page 35) has taught scrollsawing at Rockingham's spring festival. Like the other artisans, he could instead be working in his shop creating an inventory to sell. Instead, his enthusiasm for helping kids make something with their hands brings him back. Because of his contagious interest, the enthusiasm is returned.

Says Beth Cagle, 13, an 8th grader: "This is my second time working with Gus, because I collect carousels. I like painting them the best. And the way Gus teaches, he shows you how to do it, then he lets you do it."

A newcomer to Gus' class is Tiffany Covington, 14, a 9th grader. She's new to woodworking, too. "I want to make a carousel because I think they're pretty. I've never run a machine before," she says."

**The drill press is a new experience for Tiffany Covington, Naopie Dora, Shannon Hawkins, and Terkingness Covington.**
but running the saw will be fun. The years before I carved a duck and did a clay sculpture."

Lyle Wheeler, a chairmaker from Millers Creek, North Carolina, has been coming to Rockingham for eight years. "It's the first thing I do every spring," he says. "I like to teach students of this age. You can grasp their attention."

During the week, Lyle will teach eager students how to make a "post-legged" footstool. "They'll be using mortise-and-tenon, greenwood construction," he explains. "We'll be quartering the red oak logs and rivving them, then shaping them on the shaving horse." (See photo right.)

A famed caricature artist among carvers, Tom Wolf of West Jefferson, North Carolina (shown opposite page), has made the seasonal trip for 18 years. He recalls how the classes started: "It was a little craft show at first, and Dr. Langley assigned us students as go-fers. First thing I did was set 'em down and give 'em a knife so they'd be still, you know, so the idea came up to teach.

"In my carving classes, though, I don't mix boys and girls. With handling a sharp knife and all, they don't need other distractions. But I like it, and I'll keep coming back as long as my health and God allow."

Max Woody (shown below), a Marion, North Carolina woodturner specializing in rocking chairs, agrees with the event's purpose. "The children find out that they have talent. If you can get them interested in something like this, it could change the direction of their whole lives. I'm a year behind on orders, but I just love this. And Doc Langley has got a real concern that these children get a real learning experience."

**Give them a reason, and they will come**

How do you get 40 craftspeople to spend a week of their time teaching kids without pay? One answer: guarantees. Dr. Langley makes sure that no one will lose money by offering accommodations and paying travel expenses from funds raised by business donations and activities such as car washes. Then, all meals are taken care of, beginning with a free opening-night barbecue. And every evening there's a retail craft show open to the public. According to Dr. Langley, the crafters won't lose any money, and they might even make some.

Another answer lies in the experience itself. Max Woody sums it up best: "It makes it easy to go to sleep at night if you help these children. This program is an investment in young people."

---

While Max Woody turns a chair leg, students Tim Criscoe, Brian Smith, and Chad Highy learn to weave rush seats on mountain-style stools.

---

**Why not get something going where you live?**

For more information on Rockingham Junior High's crafts program and how they do it, write with a SASE to: Dr. John W. Langley, Principal, Rockingham J.H.S., P.O. Box 1658, Rockingham, NC 28379.

Written by Peter J. Stefano
Photographs: Steve Uzzell
SLIDING COMPOUND

Sliding compound mitersaws have burst onto the woodworking scene in a big way recently. In just the past year, two major manufacturers—Bosch and Milwaukee—have entered the market. Meanwhile, the other players in this product category have either updated their existing machines or introduced new models.
MITTERSAWS  Super handy no matter how you cut it

What separates “sliders” from other mitersaws

Today’s sliding compound mitersaws descended from the basic mitersaw, which first appeared on the market in the late 60s. Like their ancestors, today’s sliding saws have a motorized head with a blade, handle, and guard that arcs down into a workpiece to make a cut. But that’s where the family resemblance ends. After plunging the blade into the workpiece, you can complete cuts on workpieces up to 12” wide by holding the head down and pushing it away from you. To accomplish this nifty trick, the head slides forward and back on rod(s).

The rods are connected to the saw’s base via a “knuckle” assembly that enables the head to tilt up to 45°. This bevel-cutting talent, combined with the ability of the head, rod(s), and knuckle to rotate left or right for miter cuts, enables you to make quick, easy, and accurate compound cuts.

Cutting capacity: one of your first considerations

All of the tested machines will crosscut a 2x12 at a 0° miter and a 2x8 at a 45° miter. However, if you need to crosscut 4x stock, or large moldings stood on edge, you’ll need to narrow your search to the machines with 10″ or 12″ blades. The chart at the end of this article lists cutting capacities.

Let’s take a look at the sliding mechanisms

As you can see in the chart, the machines in our tests have six different slide types. They differed in the number and configuration of the rods (sometimes referred to as tubes or rails). In our tests each sliding mechanism worked smoothly and supported the head rigidly throughout its travel.

Although we’ve heard from woodworkers who perceive that the single-tube Makitas would have more flex, we didn’t find this to be the case. What little flex we found in any of the machines originated in the aluminum castings that support the rods or head, or in the fit of the sliding-mechanism components. To their credit, the Makita models had the smoothest slide of the tested models. And, the multiple-rod models require you to align the rods with each other—something that’s not necessary with the Makitas.

We slightly favor the machines with top-mounted rods because the bottom-mounted rods accumulate more sawdust. Shop debris should not cause damage to the bearings that slide along the rods if you maintain the felt or rubber “wipers” that seal the bearings.

How easily you can change blades counts, too

All of the tested machines have effective blade guards for your safety, and spindle locks that hold the blade stationary while you loosen its blade bolt. But, we found that some spindle locks were easier to activate, and some guards interfered less with blade changing. Also affecting blade-changing ease (which is rated in the chart) are: available room to maneuver the blade during removal so as not to chip its teeth, the need for only one wrench, and on-tool wrench storage.

Portability: vital for on-the-go woodworkers

If you intend to frequently move your sliding compound mitersaw, pay close attention to the “portability” and “weight” columns of the chart. We found that we could wrestle most of the tested models from place to place without too much difficulty, but the Makita LS1211 posed a bit of a challenge because of its weight (51 pounds) and bulkiness. The Delta Sawbuck weighs in at 78 pounds, but has wheels on its foldaway legs to ease transportation. Still, getting it up stairs or through doorways is a job for two people. The Delta Sidekick weighs 55 pounds, but its foldaway legs and work extensions proved so handy for job-site work that we can overlook its weight.

Two of the easiest saws to move were the Hitachis because of their top-mounted handles for one-handed, well-balanced carrying.

Continued
SLIDING MITERSAWS

Points to consider about mitering mechanisms

For a mitering mechanism to work effectively, it must possess three qualities. It should have an accurate, easy-to-read miter scale, solid-feeling detent stops at popular miter settings, and a locking mechanism that’s secure and easy to use. (A detent stop is a spot along the miter scale that the turntable automatically stops at as you rotate it.)

The tested machines had cast-in miter scales such as the one shown in photo A, or attached tape or sheet-metal scales, like the one in photo B. We found both types accurate, but the tape or sheet-metal scales had finer markings and were easier to read. We especially liked the miter scales on the Delta Sawbuck and Sidekick. We could easily make fine miter adjustments because these scales form much larger arcs than those on other models.

To help you quickly set common miter angles, all of the tested units have detent stops at 0°, 15°, 22.5°, and 45°. The Sears unit includes a stop at 30°, and the Hitachis and Makitas have stops at 31.6° and 35.3° for cutting crown moldings. We prefer the detents with a “heavy feel” that lock positively at the preset angles without any wiggle room. The Makita LS1011 and Delta Sawbuck were tops in this regard.

After you adjust the machine to the correct miter setting, you should lock it firmly in place. All of the machines provide a means of doing this, but some were more convenient than others. Most of the tested machines have locking knobs at the front of the table as shown in photo C. These proved easy to use, as was the spring-loaded lever on the front of the Delta Sidekick. The Makita LS1011, Ryobi, and Tradesman models have a threaded knob located on the back of the fence like the one in photo D. These proved inconvenient and time consuming to operate.

Bevel scales and locks: not a highlight of these tools

Chances are you won’t be using the beveling mechanism nearly as much as the mitering mechanism. And it’s a good thing, because nearly all of the bevel scales and locks proved hard to use. That’s because most of them are located in the back of the saw. This means you can’t conveniently see the scale, and you have to reach clear around to the back of the machine to operate the lock. However, there were a few notable exceptions.

The Delta Sawbuck has its bevel lock conveniently located right up front. Its bevel scale is also located up front. And, you can easily read the bevel scale on the Makita LS1211 because it’s located on the front side of the bevel knuckle.

The bevel locks on the Hitachi saws, although located on the back of the machines, were the best of the lot. That’s because the Hitachis have a locking lever with a left-hand thread (the other locking levers have right-hand threads). This means the lever unlocks in the same direction that the head tilts, making it easier to access and operate the lever at 0° or 45° bevels.
More points to consider

- **Power**
  The motor amperage of the tested machines varied from 9.5 to 15 amps. All of the machines had enough power to complete any cut we tried, but the Delta Sidekick, Ryobi, Tradesman, and Sears saws slowed down in heavy cuts more noticeably than the other tested units. Keep this in mind if seconds count as you work to complete a project.

- **Blade quality**
  Before buying any saw, seriously consider the quality of the blade that comes with the machine. Any saw will produce cuts only as good as the blade mounted in it. If the machine comes with a blade that rates “fair” or “poor” in the chart, count on replacing it with a high-quality blade costing at least $45. Only the blades that we rated “excellent” are suitable for high-quality woodworking.

- **Handles and switches**
  In the chart we give each of the tested saws a grade in this area. While all of the handles and switches worked, we found that some were more comfortable, particularly during long work sessions. The grades reflect the effort required to grip the handle, swing the head down and keep it there during a cut, and the location of the on/off switches and safety interlocks (the buttons you need to depress before operating the on/off switch).
  Most of the tested saws have safety interlocks located on the left side of the handle. This proves handy for right-handed operators, but somewhat awkward for lefties. Hitachi solves this by placing the safety interlock on the top center of the handle. We found this convenient when operating the saw with a left or right hand.

- **Noise**
  All of these machines have noisy universal motors, so while none of them were quiet in operation, some were more offensive to our ears than others. The Hitachi C10FS was the quietest machine, thanks to its belt drive and relatively slow blade speed—3,800 rpm. All of the other machines were over 4,000 rpm.

- **Fence height**
  Although we’ve heard much said about the importance of a high fence on mitersaws, we found this to be somewhat of a non-issue. All of the fences were high enough for most tasks, and the compound feature of these saws makes it possible to lay wide crown moldings flat when cutting them. If you prefer to lean the crown molding against the fence, all of the saws except for the Delta Sidekick provide some means of attaching higher auxiliary wooden faces to the fences. Such auxiliary faces can also be used to narrow the gap between the two fence sides.

- **Dust collection**
  None of the tested machines does a good job of collecting dust. At best, only about 50 percent of the dust winds up in the dust bag, and lots of fine dust becomes airborne. You can help this situation by hooking up a shop-vacuum in place of the dust bag. This way you will capture about 75 percent of the dust, and greatly reduce the amount of airborne dust.

- **Electronic features make a difference in performance**
  First the good news. All of the tested machines have electric brakes that quickly stop the blade after you let go of the on/off switch. But, only the Hitachi C10FS has soft start and electronic speed control. In our tests we developed an appreciation for both of these features.
  The soft start, belt-driven C10FS takes just a second to come up to full speed. This eliminates the upward “kick” that the other machines display as their blades come up to full speed almost instantaneously.
  The electronic speed control consists of a circuit that senses motor load and compensates for heavy cuts by supplying more power to the motor. This helps the blade maintain constant speed in thick or dense woods.

*Continued*
Our recommendations

Unlike most of our tool tests, we had a hard time picking a "winner" from among the tested machines. All of them work well, and which model you select depends entirely upon your budget and requirements for cutting capacity and versatility.

Among the machines priced around $400, the Sears Craftsman or Tradesman models performed...
best. The Craftsman model was a little more convenient to use, and costs $50 more.

If you care to spend around $500, both the Delta Sidekick and Makita LS1011 have 10" blades that give you cutting capacity that the lower-priced machines can't match. The Sidekick costs a little less, and it's built-in stand and work extension will prove handy if you intend to move it from place to place. The Makita comes with a much better blade, and its bevel-locking mechanism requires less force for solid locking.

For the ultimate in cutting capacity and versatility, buy either the Hitachi C10FS or Makita LS1211. Both saws bevel left and right, but the Hitachi offers soft-start, and maintains more-consistent speed under load. If the 10" blade on the Hitachi has all the cutting capacity you'll ever need, we recommend this saw. But, if you need the extra cutting depth, or 60° miter-cutting ability of the Makita, the extra $50 for this machine will be money well spent.

Written by Bill Krier
Photograph by John Hadigentino; William Hopkins

---

### TAKE A CLOSE LOOK AT TODAY'S SLIDING COMPOUND MITERSAWS

<table>
<thead>
<tr>
<th>Model</th>
<th>Mitsubishi LS1011</th>
<th>Delta Sidekick 2255</th>
<th>Makita LS1011</th>
<th>Hitachi C10FS</th>
<th>Hitachi LS1211</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price</td>
<td>$499</td>
<td>$499</td>
<td>$549</td>
<td>$599</td>
<td>$599</td>
</tr>
<tr>
<td>Blade</td>
<td>10&quot;</td>
<td>10&quot;</td>
<td>10&quot;</td>
<td>10&quot;</td>
<td>10&quot;</td>
</tr>
<tr>
<td>Bevel</td>
<td>Left and right</td>
<td>Left and right</td>
<td>Left and right</td>
<td>Left and right</td>
<td>Left and right</td>
</tr>
<tr>
<td>Depth</td>
<td>6&quot;</td>
<td>6&quot;</td>
<td>6&quot;</td>
<td>6&quot;</td>
<td>6&quot;</td>
</tr>
<tr>
<td>Height</td>
<td>3&quot;</td>
<td>3&quot;</td>
<td>3&quot;</td>
<td>3&quot;</td>
<td>3&quot;</td>
</tr>
<tr>
<td>Weight</td>
<td>45 lbs</td>
<td>45 lbs</td>
<td>45 lbs</td>
<td>45 lbs</td>
<td>45 lbs</td>
</tr>
</tbody>
</table>

### Ratings

- **E**: Excellent
- **G**: Good
- **F**: Fair
- **P**: Poor

5. **E**: Excellent - Rating based on location, visibility, reading ease, and number of pre-marked common angles or settings.
6. **G**: Good - Rating based on quality of workmanship and the effort required to lock it securely.
7. **F**: Fair - Auxiliary sawing fences, crown-cutting kit, dust-collection hose, and the amount of effort required to lock it securely.
8. **P**: Poor - Sawing fences, crown-cutting kit, dust-collection hose, and the amount of effort required to lock it securely.

---

WOOD MAGAZINE  APRIL 1996
Looking for a way to dress up a drab wall or grace an entry? Look no further. This stylish twosome does that elegantly. Simple construction, curved lines, and decorative rabbets team for a fresh look that’s suitable for both traditional and contemporary interiors.

Start with the arched-top mirror frame
1. Cut the mirror-frame arched top blank (A), bottom rail (B), and stile blanks (C) to the sizes listed in the Bill of Materials. We used bocote (also called cordia), a nonendangered tropical wood from Central America. See the Buying Guide for our source, or use a wood to match or complement the woodwork found in your home.
2. Using the Mirror Frame drawing for reference, clamp (no glue) the pieces together in the configuration shown. Then, use a square to mark the dowel-hole centerlines at each joint where dimensioned. Next, mark the
arc on the clamped-together frame where shown on the drawing. (To make the lines easier to see, we placed masking tape on the wood and marked on it.)

3 Remove the clamps, and use a doweling jig to drill \( \frac{1}{4} \)" dowel holes \( \frac{11}{16} \)" deep where marked on pieces A, B, and C.

### Bill of Materials

<table>
<thead>
<tr>
<th>Part</th>
<th>Finished Size</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>T</td>
<td>W</td>
</tr>
<tr>
<td><strong>MIRROR FRAME</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>arched top blank</td>
<td>( \frac{3}{4} )&quot;</td>
</tr>
<tr>
<td>B</td>
<td>bottom rail</td>
<td>( \frac{3}{4} )&quot;</td>
</tr>
<tr>
<td>C</td>
<td>sills blanks</td>
<td>( \frac{3}{4} )&quot;</td>
</tr>
<tr>
<td>D</td>
<td>backing</td>
<td>( \frac{3}{4} )&quot;</td>
</tr>
<tr>
<td><strong>SHELF ASSEMBLY</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>shelf blank</td>
<td>( \frac{3}{4} )&quot;</td>
</tr>
<tr>
<td>F</td>
<td>uprights</td>
<td>( \frac{3}{4} )&quot;</td>
</tr>
<tr>
<td>G</td>
<td>supports</td>
<td>( \frac{3}{4} )&quot;</td>
</tr>
</tbody>
</table>

**Materials Key:**
- B: Boacote, PL-plywood.
- PL-plywood (Plywood laminae by Weyerhaeuser).
- Supplies: 9-\(\frac{1}{4}\)" dowel pins \( \frac{11}{2} \)" long, 6-\(\frac{5}{8}\) flathead wood screws, 8-\(\frac{11}{2}\) flathead wood screws, single-strength mirror (cut to fit), 17-\(\frac{3}{4}\)" brads, clear finish.

**Buying Guide**
- **Hardwood kit:** All the individual pieces shown on the Cutting Diagram cut slightly oversized in length and width from the thicknesses listed in the Bill of Materials. Available in boacote, quilted maple, and domestic species. Kit no. W872, $49.95 ppd. Heritage Building Specialties, 205 North Cascade, Fergus Falls, MN 56537. Or call 800/524-4164 to order.

**Keyhole hangers:** Part no. 48-891, $7 for 12 pair (minimum order). Constantines, 2050 Eastchester Road, Bronx, NY 10461, or call 800/223-8087.
**MIRROR/SHELF COMBO**

4 Using the previously marked bottom arc line, bandsaw just outside the line along the bottom edge of the arch top (A). Don't cut the top line to shape yet. Sand to the line on the bottom curved edge to remove the saw marks.

5 As shown in the photo at right, glue, dowel, and clamp the frame (A, B, C) together, using a framing square to check for square.

6 After the glue has dried, remove the clamps, cut the top arc to shape, and sand the frame, especially at the joints and along the top bandsawed edge.

7 Using a 3/8" rabbeting bit, rout a 3/8" decorative rabbet 3/8" deep along the inside and outside front edges of the mirror frame. See the Exploded View drawing for reference.

8 Using the same router and bit, deepen the cut, and rout a 3/8"-deep rabbet along the back inside edge of the frame to house the mirror and backing. See the

---

Glue, dowel, and clamp the frame pieces. Later, remove the clamps and cut the arched frame top to shape.
Frame Section View detail for reference. Next, chisel the bottom rabbeted corners square.
9 Measure the opening, and cut the arch-topped mirror backing (D) to shape from \( \frac{1}{8} \)" plywood or hardboard. As dimensioned on the Mirror Frame drawing, the arc across the top of the backing is a \( 29\frac{1}{8} \)" radius. Now, using the mirror backing (D) as a template, take it to a glass shop, and have them cut a piece of mirror \( \frac{1}{8} \)" smaller in width and length than the template.

**Note:** If the arc on your backing differs from the opening—find out by reversing the backing in the rabbeted opening—sand the top of the backing until it fits both ways in the opening.

**The shelf and supports come next**
1 Cut the shelf blank (E), shelf-support uprights (F), and shelf supports (G) to the sizes listed in the Bill of Materials.
2 Using the full-sized half pattern for reference, lay out the outline on the shelf blank (E), and bandsaw it to shape.
3 Transfer the full-sized patterns, and bandsaw and sand the uprights and shelf-support pieces to shape.
4 Drill a pair of countersunk mounting holes through the back of each upright (F) where shown on the full-sized pattern.
5 Cut a \( \frac{3}{4} \)" dado \( \frac{1}{4} \)" deep across each upright where shown.
6 Rout a \( \frac{1}{6} \)" rabbet \( \frac{1}{6} \)" deep along the top edge of the shelf (E) and the front edge of the uprights (F). See the Exploded View drawing for reference.
7 Form the mortises for the keyhole hangers on the back side of each mirror-frame stile (C) and each shelf upright (F) as described in the Forming the Mortises drawing at left.
8 Finish-sand the shelf, uprights, and supports (E-G). It’s easier to sand the pieces now than after they’ve been assembled.
9 Glue and screw the shelf supports to the uprights so the top end of each G is flush with the bottom edge of the dado in each F. Wipe off excess glue with a damp cloth. Then, with the keyhole hangers in place, glue and screw the shelf to the uprights.

**Final clean-up and assembly**
1 Finish-sand the mirror frame and shelf assembly as needed.
2 Apply the finish (we used Defl aerosol lacquer, sanding between coats with 320-grit sandpaper).
3 Install the mirror with \#17 x \( \frac{3}{4} \)" brads where shown in the Frame Section View detail accompanying the Exploded View drawing. (To prevent splitting the wood, we snipped the head off one of the brads, chucked it into our portable drill, and used the brad as a bit to drill angled pilot holes for the brads.)

Written by Marlen Kemmet
Project Design: Todd Anderson, Shakopee, Minn.
Photographs: King Au
Illustrations: Roxanne LeMoine; Lorna Johnson
Router-table multi-joint jig
Tough joinery just got a whole lot easier

Imagine machining stub and mitered tenons, mortises, and box joints easily and accurately every time. With this hardworking jig and your table-mounted router, now you can. The fence guides the whole operation while the plunge and horizontal sliding fixtures move the workpiece up and down and across the router bit. See the following article for numerous ways to put this handy jig to work in your shop. For even greater ease and accuracy in positioning the workpiece, consider adding an Incra Jig to the back side of the fence.

WOOD EXCLUSIVE

DEPTH STOP

CLAMP MOUNT

PLUNGE FIXTURE HOLD-UP

HORIZONTAL SLIDING FIXTURE

INCRA JIG

PLUNGE FIXTURE

RIGHT-ANGLE FIXTURE

MITER-CLAMP MOUNT

ROUTER

FENCE

HOLD-DOWN (TOGGLE) CLAMP
The fence plays an all-important supporting role
1 Cut the fence upright (A) to the size listed in the Bill of Materials from ¾" plywood. (See the Buying Guide for our source of plywood and hardware kits.)
2 Glue three pieces of ¾ x 2½ x 29" plywood face-to-face with the edges and ends flush. Later, trim the block to 2" wide by 28" long to form the fence support (B).
3 To form the guides (C, D), cut three pieces of solid stock to ½ x 1 x 28". Cut or rout a ¼" rabbot ¼" deep along one edge of each strip. You'll use two of the guides (C) for the fence now; set the third piece aside for use later.
4 Keeping the top and bottom edges of the upright (A) flush with the outside edges of the guides (C) where shown on the Fence drawing, clamp the guides to the upright. Now, drill countersunk mounting holes through each C and into A, and screw the guides to the upright.
5 With the bottom edges flush, glue and clamp the support (B) to the back side of the upright (A).
6 If you plan on attaching the router jig to an Incra Jig (which we recommend), drill a pair of countersunk mounting holes through the upright (A) and support (B) where shown on the Fence drawing. Using a hacksaw, cut two ¾ x 3½ flathead machine screws to 3½" long. Later, you'll use these to secure the router jig to the Incra Jig.

Add the horizontal sliding fixture
1 Cut the slide (D) to size from ½" solid stock. The width of the slide should be just a hair under the distance between the shoulders of the rabbbets cut in the guides (C) attached to the fence upright (A).
2 Cut or rout a ¼" rabbot ¼" deep along the edges of the slide (D). Check the fit of the slide between the guides (C). The slide must move back and forth easily without slop for precision machining later. If there is too much play, cut and rabbot another slide.
3 Mark and drill four countersunk mounting holes through the back side of the slide (D). See the Horizontal Sliding Fixture drawing for locations.

---

**Bill of Materials**

<table>
<thead>
<tr>
<th>Part</th>
<th>Finished Size</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>FENCE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A upright</td>
<td>¾&quot;</td>
<td>5&quot;</td>
</tr>
<tr>
<td>B support</td>
<td>1¼&quot;</td>
<td>2&quot;</td>
</tr>
<tr>
<td>C guides</td>
<td>¾&quot;</td>
<td>1&quot;</td>
</tr>
</tbody>
</table>

**HORIZONTAL SLIDING JIG**

<table>
<thead>
<tr>
<th>Part</th>
<th>Finished Size</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>D slide</td>
<td>¾&quot;</td>
<td>3½&quot;</td>
</tr>
<tr>
<td>E clamping plate</td>
<td>¾&quot;</td>
<td>10&quot;</td>
</tr>
<tr>
<td>F hold-up</td>
<td>¾&quot;</td>
<td>1&quot;</td>
</tr>
</tbody>
</table>

**PLUNGE FIXTURE**

<table>
<thead>
<tr>
<th>Part</th>
<th>Finished Size</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>G clamp mount</td>
<td>¾&quot;</td>
<td>5&quot;</td>
</tr>
<tr>
<td>H clamping plate</td>
<td>¾&quot;</td>
<td>10&quot;</td>
</tr>
<tr>
<td>I guides</td>
<td>¾&quot;</td>
<td>1&quot;</td>
</tr>
<tr>
<td>J handle</td>
<td>¾&quot;</td>
<td>1¼&quot;</td>
</tr>
</tbody>
</table>

**RIGHT-ANGLE FIXTURE**

<table>
<thead>
<tr>
<th>Part</th>
<th>Finished Size</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>K clamping plate</td>
<td>¾&quot;</td>
<td>10&quot;</td>
</tr>
<tr>
<td>L clamping-plate mount</td>
<td>¾&quot;</td>
<td>8&quot;</td>
</tr>
<tr>
<td>M brace</td>
<td>¾&quot;</td>
<td>6&quot;</td>
</tr>
</tbody>
</table>

**MITER CLAMP MOUNT**

<table>
<thead>
<tr>
<th>Part</th>
<th>Finished Size</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>N mount</td>
<td>¾&quot;</td>
<td>8½&quot;</td>
</tr>
</tbody>
</table>

**INCRA JIG MOUNT**

<table>
<thead>
<tr>
<th>Part</th>
<th>Finished Size</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>O mount</td>
<td>¾&quot;</td>
<td>8&quot;</td>
</tr>
</tbody>
</table>

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

**Materials Key:**
BP—Baltic-birch plywood, B-birch, LP—laminated plywood.

**Supplies:** 20—#8 x 1" flathead wood screws, 8—#8 x 1¼" flathead wood screws, 2—#8 x ¾" round-head wood screws with flat washers, 8—#12 x ¾" panhead sheet metal screws, 4—½ x 1¼" panhead machine screws with flat washers, ¼" wing nut, ¼" nut, and ¼" flat washer, 26—½" T-nuts, 2—½ x 3½ flathead machine screws.

**Buying Guide:** Hardware kit. All the pieces listed in the supplies above plus two 2"-reach hold-down (luggage) clamps, and one ½" plastic knob with a matching piece of threaded rod 4" long, plus screws, washers, and nuts listed in the Supplies. WOOD KIT RJ1, $45 plus $4.75 shipping. Add $30 for two additional clamps and $39.85 for an Incra Jig. Schiabbaug and Sons Woodworking, 720 14th Street, Kalona, IA 52247 or call 800/346-0663.

**Ready-to-assemble kit:** All the pieces listed in the hardware kit above, plus all the Baltic-birch plywood pieces listed in the Bill of Materials cut to size and shape with predrilled holes. WOOD KIT RJ2, $175 plus shipping (call for shipping charges) Schiabbaug and Sons Woodworking, address and phone above.
Multi-joint jig

4 Cut the clamping plate (E) to size. Cut a 1/4" rabbet along opposing edges. Each rabbet must leave a 1/4" lip as noted on the drawing below. Since some 3/4" plywood is not exactly 3/4" thick, machine the first cut a bit shy of a 1/2" depth and measure the remaining lip. Increase the depth as necessary until a 1/4" lip is left.

5 Mark the centerpoints for the nine 5/64" holes on the back side of the clamping plate (E) where shown on the WOOD PATTERNS insert in the center of the magazine. For securing the clamp mounts (G, L, N) to the clamping plates (E, H, K), keep the holes exactly 3/16" apart. To house the base of the 1/4-20 T-nuts, use a Forstner bit to drill a 3/4" counterbore 3/16" deep centered over each marked centerpoint on the back side of the plate. Drill a 5/64" hole centered inside each counterbore (the Forstner bit leaves a slight depression that you can center your bit over). Use a backing board to minimize chip-out.

6 Tap a 1/4-20 T-nut into each 3/4" counterbore on the back side of the clamping plate (E).

7 Clamp the slide (D) to the clamping plate (E) where dimensioned on the WOOD PATTERNS insert. Using the previously drilled holes in the slide as guides, drill pilot holes, and drive the screws to secure the slide to the clamping plate pieces together. Verify that the sliding assembly (D/E) slides freely when slid in place between the fence guides (C). If the fit is too tight, use pieces of paper between parts D and E to act as spacers. Again, you’ll want a smooth sliding action with slop.

8 To make the hold-up (F), transfer the full-sized Front and Side View patterns from the WOOD PATTERNS insert to a piece of solid stock measuring 3/4 x 1 x 10". Drill the mounting holes, and then cut the hold-up to shape.

9 Screw the hold-up (F) to the clamping plate (E) where shown on the WOOD PATTERNS insert.

Here’s how to make the plunge fixture

1 Cut the clamp mount (G) and clamping plate (H) to size.
2 Mark the three 5/64" slots and the locations for the two hold-down clamps on the clamp mount (G) where located on the WOOD PATTERNS insert. Position the hold-down clamps against the marked locations, and transfer the mounting hole locations from the hold-downs to the clamp mount.
3 Drill blade start holes, and scroll saw the three slots to shape. Drill the mounting holes for the hold-downs.
4 Mark and drill the T-nut holes in the clamping plate (H), using the same process you used to drill the holes in the horizontal-sliding-fixure clamping plate (E). Tap the T-nuts in place.
5 Crosscut the plunge-fixture guides (I) from the third piece of guide stock you cut earlier for parts C. Clamp (no glue) the guides to the back side of the clamping plate (H). Fit the plate/guide assembly (H, I) onto the horizontal sliding fixture. Adjust the location of the guides (I) if necessary for a good fit onto the rabbets on the ends of clamping plate (E). Drill mounting holes, and screw the guides (I) to the clamping plate (H).

6 Transfer the full-sized handle pattern (J) from the WOOD PATTERNS insert to 3/4" solid stock. Cut the handle to shape. Drill the mounting holes where marked. Rout a 5/64" round-over along the top and bottom edges of the handle where marked on the pattern. Remove the paper pattern. Screw the handle to the top edge of the clamp plate (H).

7 Slide the plunge fixture (H, I, J) onto the horizontal sliding fixture (D, E, F). Verify that the hold-up (F) slides by the handle when the hold-up is held back slightly. The hold-up should support the plunge fixture above the tabletop.

Add the right-angle fixture and the miter-clamp mount

1 Using the Right-Angle Fixture drawing on the opposite page and the WOOD PATTERNS insert for reference, cut the clamping plate (K), clamp-plate mount (L), and brace (M) to shape.
2 Drill the countersunk mounting holes and T-nut counterbores, and screw the assembly together.
3 Cut the miter-clamp mount (N) to shape. Mark the centerpoints for the three ¼" holes used for securing the mount to parts H and E later. Drill the holes.
4 Position the hold-down clamps on the mount (N), and mark the mounting hole centerpoints. Drill the holes, and screw the hold-down clamps in place.
5 If you’ll be using the Incra Jig, cut the Incra Jig mount (O) from ¾" plywood. Cut it 8" wide by the same length as your router table. Secure the jig to the mount (O) and to the fence support (B).
6 Remove all of the hardware (except the T-nuts) from the assemblies. Sand each smooth and add the finish. (We sprayed on a couple coats of lacquer.)
How to use the multi-joint jig

Setting up for three different in-line operations

To configure the jig for in-line operations (those routing operations in which the face of the workpiece travels parallel to the fence), place the horizontal-sliding fixture into the rabbeted guides on the fence. Then, slide the plunge fixture down over the horizontal fixture until the bottom edge of the plunge fixture sits flush with the surface of the router-table surface.

Although the horizontal fixture can be used alone for most in-line operations, we use the plunge fixture to make multiple passes when a full-depth cut may strain the router. Multiple passes also lessen your chances of burning a bit.

Next, attach the clamp mount to the plunge fixture with two \( \frac{3}{4} \times 1 \frac{3}{4} \) panhead machine screws. Leave the bottom of the clamp mount about 1" above the surface of the table to prevent it from being chewed up by the router bit.

1. End-grain grooves
Clamp the workpiece with its end flush with the table surface. Then, slide the fence over until the router bit is centered on the thickness of the workpiece. (As a general rule for mortises, use a router bit with a diameter that measures one-third the thickness of the workpiece.)

Now, clamp both ends of the fence to the table. Adjust the height of the bit to get the correct depth for the groove. Raise the plunge fixture and set the depth stop so that the bit will cut half the depth of the groove. Then turn the router on, and push the fixture and workpiece across the bit. Repeat with the workpiece positioned for a full-depth cut.

Three plunge cuts you can make

To get started in plunging operations, set up your jig the same way you did for in-line operations. You'll also need a pair of stops for the fence. We used small wooden handscrews.

The tapered hold up enables you to secure the plunge fixture in the up position. To release, simply push out with your thumb.

I. Vertical plunge mortise
Attach the clamp mount to the plunge fixture in the upright position as shown in the photo right, and clamp the workpiece to the plunge fixture. The bottom of the plunge fixture and the end of the workpiece should sit flush on the surface of the table. Adjust the height of the router bit to equal the depth of the mortise.

Next, raise the plunge fixture up so that the end of the workpiece is just above the tip of the router bit. Adjust the fence so that the bit is centered in the thickness of the workpiece. Clamp small handscrews or stops on the right and left sides of the fence to control the length of the mortise. Pull the plunge fixture up until the tapered hold-up clicks into place. Set the depth stop so that you cut one-third of the depth of the mortise.

Now, slide the plunge fixture against the right stop. Turn the router on, and disengage the hold-up by pushing it out with your right thumb. Lower the plunge fixture and workpiece onto the bit until the depth stop hits the top of the horizontal-sliding fixture. Then slide the plunge fixture to the left until it butts against the stop.
2. Stub tenons
To make a stub tenon, follow the instructions for making an end-grain groove, only move the fence back so that the router bit cuts the outside face of the workpiece as shown. Unclamp the workpiece, turn it around, and make another pass to cut the other face. (Use multiple passes at different depths if necessary.) You also can cut a setback on the tenon by following the directions listed under the setup for right-angle operations on page 56.

3. Mitered grooves and tenons
To make a 45° mitered version of the previous two cuts, simply remove the clamp mount and attach the miter-clamp mount to the plunge fixture. Then, follow the same procedures.

Raise the plunge fixture until it engages the hold-up. Reset the depth stop so that your next plunge cut will equal two-thirds of the depth of the mortise. Now, repeat the plunging operation. On the third or final plunge, reset the depth stop so that the plunge fixture and the end of the workpiece come down flush with the surface of the router table.

Continued
Three plunge cuts Continued from previous page

2. Horizontal plunge mortise
To make this cut, follow the same procedures as you did for making a vertical plunge mortise. But attach the clamp mount and the workpiece in the horizontal position as shown. To make the loose tenon that joins the two mortises, cut a piece of stock as wide as the mortise is long and as thick as the mortise is wide. Then, round-over the corners with a router and a round-over bit to match the profile of the mortise. You can make these loose tenons in long pieces and then crosscut them to the size you need for the individual joints.

3. Miter plunge mortise
Again, follow the same set-up procedures for making a vertical plunge mortise, only this time attach the miter-clamp mount. Be sure not to rout the mortise so deep that the bit penetrates the edge of the workpiece near the outside edge of the miter joint.

Make these two joints with the right-angle fixture
For right-angle operations (those operations where the face of the workpiece travels perpendicular to the router table fence) you need to mount the right-angle fixture to the horizontal sliding fixture. Use a pair of 3/8 x 1 1/4" panhead machine screws to mount the right-angle fixture to the horizontal fixture. Then, attach the clamp mount to the front face of the right-angle fixture, again using two 3/8 x 1 1/4" panhead machine screws.

1. Tenon setbacks
Place the workpiece against the front face of the right-angle fixture, and slide the clamp mount over until the workpiece is trapped between the clamp mount and the face of the horizontal sliding fixture. Secure the workpiece with the toggle clamps.

Now, raise the router bit to the length of the tenon and position the fence so that the bit will remove the correct amount of material from the edge of the tenon cheek. Turn the router on and push the fixtures and workpiece across the bit. Repeat on the other edge of the workpiece.

Continued on page 88
FAR EAST

DESK CHIME

Soothing sounds in exotic surroundings

Inspired by torii, traditional ceremonial arches of Japan, this intriguing tabletop chime lends an oriental air to any room. And thanks to rods tuned by chime maker Jacob Sokoloff, you can fill that room with soothing musical sounds whenever you wish.

Note: Throughout, we refer to nominal hole sizes for dowels. Please measure the actual diameter of your dowels before drilling the 1", 1/2", 3/8", or 1/4" holes. Adjust the hole sizes to fit your dowels.

Begin with the base and top
1 Rip and crosscut the base (A), lintel (B), and cap (C) to the dimensions shown in the Bill of Materials. We used wenge (see the Buying Guide), but you could use any dark-colored stock.
2 Lay out the 1" holes in the base (A), following the Base Front View and End View drawings. (Find these and other drawings in the WOOD PATTERNS™ insert in the middle of the magazine.) Note that the holes are not centered from side to side. Refer to the Lintel Bottom View drawing, and mark the centers for the 1" and 3/4" holes on the lintel (B).
3 Chuck a 1" Forstner bit into your drill press, and bore the holes in both parts. Change to a 3/4" brad-point bit to drill the two smaller holes in the lintel.
4 Tilt your tablesaw blade to 15°. Bevel both edges and both ends of the base (A) and the ends of the lintel (B). Cut the bevels to place the holes on the smaller face of each piece. Tilt the blade to 20°, and bevel the cap (C) ends.

5 Lay out the curve for the cap's top surface, shown on the Cap Front View drawing. To do this easily, stand the part on one edge. Place a strip of masking tape on the edge that faces up; this will make it easier to draw a visible cutting line on the dark wood. At the middle of the tapered edge, make a mark 3/4" from the top. With a flexible plastic or metal ruler, draw a curve from each end to the mark. Bandsaw the curve, and sand it with a drum sander.

6 Place the cap on your benchtop, the curved side facing down. Center the lintel on the bottom of the cap, the lintel's holes facing up. Glue and clamp the lintel.

Construct the columns
1 Forming the columns and the crossbars calls for cutting and drilling dowel rod. A V-block simplifies these operations, so make one now if you don't already have one lying around the shop. Refer to the Cutting the V-Block draw-

Continued
FAR EAST DESK CHIME

1. Marking and Cutting:
   1. Cut the two columns (D) and the crossbar (E) to the lengths shown in the Bill of Materials. A bandsaw works well for sawing the dowel rods.
   2. Cut the two columns (D) and the crossbar (E) to the lengths shown in the Bill of Materials. A bandsaw works well for sawing the dowel rods.
   3. Mark the positions for the 1/4", 3/8", and 1/2" holes on each column where shown on the Column Front View drawing. (You won't drill the 1/4" holes until later, but it's convenient to mark their centers now.)
   4. Crossbar extends 1 1/8" past column on both ends.

2. Construction:
   1. Set the V-block on your drill press table. Chuck a 1/4" or smaller bit into the drill press. As you lower the bit (the drill press not running), move the block until...

3. Bill of Materials:

<table>
<thead>
<tr>
<th>Part</th>
<th>Finished Size</th>
<th>Matl. Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>A base</td>
<td>1/4&quot; x 2 1/4&quot; x 12 1/4&quot;</td>
<td>W 1</td>
</tr>
<tr>
<td>B lintel</td>
<td>3/4&quot; x 1&quot; x 12 1/4&quot;</td>
<td>W 1</td>
</tr>
<tr>
<td>C cap</td>
<td>1/4&quot; x 1 1/4&quot; x 14 1/4&quot;</td>
<td>W 1</td>
</tr>
<tr>
<td>D column</td>
<td>1&quot; dia. x 10 1/4&quot;</td>
<td>BD 2</td>
</tr>
<tr>
<td>E crossbar</td>
<td>1/4&quot; dia. x 1&quot;</td>
<td>BD 1</td>
</tr>
<tr>
<td>F upright</td>
<td>1/4&quot; dia. x 1 1/4&quot;</td>
<td>BD 2</td>
</tr>
<tr>
<td>G pin</td>
<td>1/4&quot; dia. x 1 1/4&quot;</td>
<td>BD 2</td>
</tr>
<tr>
<td>H mallet rest</td>
<td>1/4&quot; dia. x 1&quot;</td>
<td>BD 1</td>
</tr>
<tr>
<td>J mallet head</td>
<td>1/4&quot; dia. x 1/4&quot;</td>
<td>BB 1</td>
</tr>
</tbody>
</table>

Materials Key: W—wenge, BD—birch dowel, BB—birch ball

Supplies: woodworker’s glue, 20-lb. monofilament fishing line, finishing materials.

Buying Guide:

Chime rods. Set of eight hand-tuned, powder-coated aluminum chimes. $14.50 ppa. in U.S. Jacob’s Authentic Musical Windchimes, 10615 Bloomingdale Ave., Los Alamitos, CA 90720, or call 800/827-5840 to order.

Lumber package. Wenge, birch dowel stock, and a birch ball for one chime frame; item no. W371; $16.95 ppa. in U.S. Heritage Building Specialties, 295 North Cascade, Fergus Falls, MN 56537, or call 800/524-4184.
the point of the bit falls right into the bottom of the V-groove, as shown right. Clamp the V-block into place at each end. When drilling, secure the dowel rod in the groove with another clamp.

5 Chuck a 3/8" brad-point bit into the drill press. Drill the 3/8" hole 3/4" deep in each column. Change to a 1/4" bit, and drill a pilot hole through each column at the point marked for the 1/4" hole. Then, drill the 1/4" hole about two-thirds of the way through one column. Rotate the column 180°, and drill in from the other end of the pilot hole to complete the job. Do the same on the other column. This procedure will prevent drill chip-out on the columns.

6 Switch to a 1/4" bit, and drill the two 1/4"-deep holes in the crossbar. Rotate the crossbar 90°, and drill the eight 1/4" holes.

Make a few final pieces

1 Cut parts F and G to the lengths shown in the Bill of Materials. We felt more comfortable cutting these short pieces of 1/4" dowel by hand with a dovetail saw; a coping saw would work, too.

2 Starting with a 6"- or 8"-long piece of 3/8" dowel rod for convenience, make the two mallet rests (H). Sand or file a semicircular groove like the one shown in the Mallet Rest Side View drawing 3/8" from each end. Then, cut each rest to length, again using a handsaw for safety.

3 Cut the mallet handle (I) to the length shown. For the head of the mallet drill a 1/4" hole 1/4" deep into a 3/4"-diameter hardwood ball. Here's a simple jig for drilling the ball: Remove the V-block from your drill-press table. Clamp a piece of scrapwood (another piece of 2x4 would be fine) to the table. Drill about 1/2" deep into the scrapwood with a 1/4" bit. Change to a 3/4" bit, then set the ball into the hole and grip it with a small handscrew or C-clamp while you drill the hole.

4 Finish-sand all parts. Sand chamfers on both ends of the crossbar (E) and the pins (G) and on the notched end of the mallet rests (H). Chamfer one end of the mallet handle.

Now, assemble the chime

1 Dry-assemble the base and columns. Slide the crossbar into place, and insert the uprights (F) into the holes in the crossbar. Dry-assemble the lintel and cap unit, positioning the crossbar so the uprights fit into the lintel holes.

2 Drill the 1/4" holes for the pins (G) through the column-crossbar joints. (These are the holes you marked earlier, but didn’t drill.) To drill them, lay the assembly on your drill-press table, placing a piece of 3/4"-thick scrapwood about 9x9" beneath the columns for support. Drill a pilot hole, then drill the 1/4" holes from both sides to prevent chip-out.

3 Insert the pins (G) into the holes. They’ll probably fit snugly enough that they won’t need glue.

4 Remove the base from the assembly. Put glue into the holes, and reinsert the columns. Similarly, glue the lintel and cap assembly into place. As you install it, capture the uprights (F) between the crossbar and the lintel. Clamp with bar clamps.

5 Glue the mallet rests (H) into the holes in the columns. Turn them to align the notches so you can lay the mallet in them.

6 Apply a clear finish to the completed chime frame and the mallet. (We used tung oil.)

7 Install the chime rods on the crossbar, following the Chime String detail. Thread one end of a 4' length of 20-lb. monofilament fishing line through the first chime hole, through the shortest chime rod, then back through the hole. Pull it through so the end of the line is flush with the back of the hole and the chime rod hangs about 1/4" below the crossbar. Secure the line with a drop of cyanoacrylate adhesive in the hole. Hang all eight chimes with the continuous length of fishing line, then snip off the excess after gluing it into the last hole.

Project Design: Jan Hale Svec
Photograph: King Au; John Hatcher
Illustrations: Kim Downing; Lorna Johnson
Make-believe will abound in this playhouse

KIDS' COUNTRY

Even if you don't make your children or grandchildren anything else this year, surprise them with this winner of a project. We guarantee that they'll spend hundreds of hours in it and cherish every minute. They'll think you're pretty special, too.

Note: The walls and roof panels disassemble easily when it's time to store away the cottage.

Start with the plywood front, back, and ends
1 Using the dimensions on the WOOD PATTERNS™ insert in the center of the magazine and the layout on the Cutting Diagram, mark the outlines for the front and back (A) on ¾" plywood. Mark the door and window openings. (For interior use, we recommend birch or fir plywood; for outdoor use you'll need exterior-grade plywood. Use the best grade available. The time you save not having to fill, sand, and repaint the voids of a less-expensive plywood will make up for the extra expense.)

2 Using a straightedge and a circular saw, cut the front and back panels to size.

3 To form the openings, use a jigsaw fitted with a plywood-cutting blade. Cut the front-door opening to shape, creating the front door (B). Next, cut the window openings to shape. (To avoid drilling blade-start holes when forming the window openings, we made plunge cuts with our jigsaw. To do this, tip the saw as shown in Photo A. Start the saw (if you have a variable-speed jigsaw, start with...
a medium to high speed and the blade set for straight reciprocation rather than the orbital motion). With the front end of the saw's bottom plate firmly against the plywood, lower the reciprocating blade into the plywood at the marked line as shown in Photo B. Keeping the front end of the plate firmly against the plywood, continue lowering the saw until the plate is in full contact with the plywood. Make the cut. Cut carefully, and save the cutouts: you'll use them for the windows (C).

4 Using the dimensions on the WOOD PATTERNS insert, lay out the outline, notch, and window opening, and cut each end (D) to size. Again, save the cutout from each end panel for the windows.

5 Carefully mark the panel openings on one of the four window cutouts (C), and cut the four openings in each window to size. Use a drum sander to sand the rounded corners. Now, using this window as a template, mark the openings on the three remaining windows. Cut and sand the openings in the windows to shape.

6 Mark the openings on the door, and cut them to shape.

7 Rout ½" round-overs along the outside face of the window openings on the door (B) where shown on the Front drawing. Switch bits, and rout ¼" round-overs along the outside face of window-pane openings where shown on the End drawing.

8 Buy a wooden door knob (we used a 1½"-diameter knob), and drill a mounting hole through the door for adding the knob later.

Cut the trim, door panel, and window panel next

1 From ¼" solid stock (we recommend cedar or redwood), cut the window trim (E, F) and door-side trim (G) to size.

2 Using a waterproof glue (we used Titebond II), glue and clamp the solid-wood trim around the window openings.

3 Using the WOOD PATTERNS insert for reference, miter-cut the door-top trim (H) to size. Then, mark a 9" and 11" radius on each piece where shown on the drawing. Cut the pieces to shape, and check that the inside radius on the door-top trim is flush with the door opening. Sand the trim to match. Glue and clamp the door trim pieces (G, H) in place.

4 Cut the door bottom panel (I) to the size listed in the Bill of Materials from ¼" plywood. Drill mounting holes, and screw the panel to the back side of the door.

Now, let's add the battens, shutters, and cleats

1 Cut the corner battens (J, K) to size. As shown on the Front and End drawings, miter-cut the top ends of the battens to match the roofline on the ends (D).

2 Glue and clamp the corner battens (J) to the front and back panels (A), using a scrap piece of ¾" plywood and a piece of scrap batten material to gauge the overhang. See the Cleat detail accompanying the Exploded View drawing for reference. Also make certain that the beveled top tip of the batten is flush with the top edge of the front panel.

3 Glue and clamp the corner battens (K) to the end panels (D). Make certain the mitered top end of the batten is flush with the top edge of the end panel and that the edge of the batten is flush with the outside edge of the end panel.

4 To rout the numerous grooves in the shutters, start by cutting a shutter blank to 22x30" as shown on the Cutting Diagram. Mark a series of lines 1" apart across the front face of the 30"-wide blank. Fit your router with a ¼" round-nose bit. Using a straightedge, rout ½"-deep grooves across the front of the shutter blank. For reference, see Photo C for how we used this same setup to rout the shingle facsimiles on the roof panels. Cut the four shutters (L) to size from the large routed blank.

5 Rip ¾" square stock for the roof cleats (M) and corner cleats (N). Miter-cut the top end of the roof cleats (M) to match the notch at the top center of the end panel.

6 Rout a ½" round-over along what will be the inside corner of each cleat (M, N). See the Exploded View and accompanying Cleat detail for reference.

7 Drill countersunk holes for #8 flathead wood screws through the cleats for securing them to the mating panels. Glue and screw the cleats to the end panels.
A roof to keep the rain out
1 From 3/4" plywood, cut the two roof panels (O) to size. As shown on the WOOD PATTERNS™ insert, lay out the shingle grooves where dimensioned.
2 Chuck a 1/4" round-nose bit in a hand-held router, and adjust it to cut 1/8" deep. Measure from the edge of the router base to the center of the bit, and cut a piece of plywood to this width. Using the plywood strip as a gauge to space a straightedge parallel with each marked line, rout a series of grooves the length of each roof panel (O).
3 Using the straightedge perpendicular to the top and bottom edges of the roof panel, rout the 3 3/4"-long grooves between the long grooves to form the individual shingles as shown in Photo C.
4 Bevel-rip the top edge of each roof panel (O) at 24°.
5 Cut the roof-end blanks (P) to the size listed in the Bill of Materials. Transfer the full-sized roof-end pattern to one of the blanks. Cut the roof end to shape, and use it as a template to mark the other three pieces.

Using a straightedge to guide your router, rout the shingle facsimile lines in the roof panels. We used a 1/4" round-nose bit for this procedure.

**Bill of Materials**

<table>
<thead>
<tr>
<th>Part</th>
<th>Finished Size</th>
<th>Mat. Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>T</td>
<td>W</td>
</tr>
<tr>
<td>FRONT, BACK, AND ENDS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A front &amp; back</td>
<td>3/4&quot;</td>
<td>48&quot;</td>
</tr>
<tr>
<td>B door</td>
<td>3/4&quot;</td>
<td>17 1/4&quot;</td>
</tr>
<tr>
<td>C windows</td>
<td>3/4&quot;</td>
<td>9 1/4&quot;</td>
</tr>
<tr>
<td>D ends</td>
<td>3/4&quot;</td>
<td>48&quot;</td>
</tr>
<tr>
<td>WINDOW AND DOOR TRIM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E window sides</td>
<td>3/4&quot;</td>
<td>2&quot;</td>
</tr>
<tr>
<td>F window side &amp; btm</td>
<td>3/4&quot;</td>
<td>2&quot;</td>
</tr>
<tr>
<td>G door sides</td>
<td>3/4&quot;</td>
<td>2&quot;</td>
</tr>
<tr>
<td>H arched door tops</td>
<td>3/4&quot;</td>
<td>4 5/8&quot;</td>
</tr>
<tr>
<td>I door panel</td>
<td>3/4&quot;</td>
<td>13 1/4&quot;</td>
</tr>
<tr>
<td>BATTENS, SHUTTERS, AND CLEATS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>J front battens</td>
<td>3/4&quot;</td>
<td>2 5/8&quot;</td>
</tr>
<tr>
<td>K end battens</td>
<td>3/4&quot;</td>
<td>1 7/8&quot;</td>
</tr>
<tr>
<td>L shutters</td>
<td>3/4&quot;</td>
<td>2&quot;</td>
</tr>
<tr>
<td>M roof cleats</td>
<td>3/4&quot;</td>
<td>9&quot;</td>
</tr>
<tr>
<td>N wall cleats</td>
<td>3/4&quot;</td>
<td>9&quot;</td>
</tr>
<tr>
<td>ROOF AND CATCH SUPPORTS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>O roof panels</td>
<td>3/4&quot;</td>
<td>30&quot;</td>
</tr>
<tr>
<td>P roof and blanks</td>
<td>3/4&quot;</td>
<td>4&quot;</td>
</tr>
<tr>
<td>Q eaves &amp; ridgeboards</td>
<td>3/4&quot;</td>
<td>2 1/4&quot;</td>
</tr>
<tr>
<td>R catch</td>
<td>3/4&quot;</td>
<td>9/4&quot;</td>
</tr>
</tbody>
</table>

Materials Key: PL—plywood, C—cedar.

Supplies: 1 1/8" diameter wooden knob, 10 ornamental cabinet hinges (Stanley #1475), 10 magnetic catches and strike plates, 1/4" acrylic for window and door, 6x1/4" flathead wood screws, #8x1 1/4" flathead wood screws, #8x1 1/2" flathead wood screws, #8x2 1/2" flathead wood screws, 3/4"-20 hexagonal bolts with washers and nuts, 3/4"-1 1/4" self-adhesive foam weatherstrip, wood putty, acrylic caulk, primer, exterior latex paints.
6 Cut the eaves and ridgeboards (Q) to size. Bevel-rip one edge of each piece to match the slope of the roof (24°).
7 Clamp the two ridgeboards (Q) together face-to-face. Drill three 
1/4" holes through both ridgeboards where shown on the Roof detail accompanying the Exploded View drawing. Later, you'll fit bolts through these holes to pull the roof sections tightly together.
8 Clamp the roof ends (P) and ridgeboard and eaves (Q) to the bottom side of the roof panels (O). Check the fit, and trim if necessary. Now, glue and screw each roof section together in the configuration shown on the Exploded View drawing.

Final assembly and painting come next
1 With the aid of a helper, clamp and then screw the ends (D) to the front and back (A). To save time, don't drive all the screws now; do just enough to hold the pieces together to check the fit. A cordless screwdriver comes in handy for assembling and disassembling the pieces.
2 Drill mounting holes, and hinge the door to the left-hand door trim piece (G). Hinge the windows (C) to window trim pieces (E).
3 Cut 10 catch supports (R) to size, and use a pair at each window and a pair at the door to mount the magnetic catches. See the WOOD PATTERNSTM for location and the Magnetic Catch detail below for reference.
4 Check the fit of the two roof sections on the walls, and verify that the three 1/4" holes align for inserting the 1/4" bolts later. See The Roof detail accompanying the Exploded View for reference.
5 Use an exterior wood putty to fill the screw heads and voids in the plywood. (Inspect the roof carefully; we exposed a couple of voids when routing the shingles.)
Due to the size of the voids in the roof, we used acrylic caulk to seal them rather than the wood putty.

6 Remove the catches, strike plates, and hinges from the assemblies. Prime all the wood pieces (we used a latex primer). The edges of the plywood and the end grain on the solid stock should have at least two coats of primer, sanded lightly with 220-grit sandpaper between coats. Don’t forget to prime the routed edges at the window openings.

7 Using an exterior paint compatible with the primer, paint the house to match the one shown in the opening photograph, or paint it to match the color of your house. (We used an exterior semigloss latex for the walls, both inside and out. Then, we used an exterior gloss for the door, windows, trim, shutters, door knob, and roof.)

8 Screw the shutters in place.

9 Using a fine toothed-blade, cut 1/32" acrylic for the doors and windows. See the WOOD PATTERNs insert for size and shape. Drill mounting holes, and secure the acrylic in place with #6 x 1/2" flathead wood screws. Be careful not to over-tighten the screws; too much pressure can cause the acrylic to crack.

10 Reattach the door and windows. Adhere the weather strip to one edge of an assembled roof section where shown on the Roof detail accompanying Exploded View drawing.

11 With the aide of a helper, reassemble the cottage front, back, and ends. Check for square. Position the roof sections in place. Then, use three 1/4" bolts and nuts to pull the roof-sections/ridgeboards tightly together. Secure the roof sections to the cleats (M) with #8 wood screws.

Written by Marlen Kemmer
Project Design: James R. Downing
Photographs: King Au
Illustrations: Kim Downing; Lorna Johnson
We don't often cut dovetails by hand in the WOOD® magazine shop, mainly because of a lack of time. So when it came time to research this article, we turned to a local friend and furniture maker, Jack Settle. From 1978 to 1991, Jack ran a turn-of-the-century "Carpenter's Shop" at Living History Farms in Des Moines, Iowa and taught thousands of school-age kids how to cut dovetails by hand. According to Jack, learning these time-honored dovetail techniques is simple, and improvement only requires patience and a little practice.

"When making a box, most students' first dovetail joint is usually pretty rough. The second one gets better, the third is acceptable, and the fourth is downright decent," says Jack.

In most cases, you already own the tools you need to cut dovetails: a marking gauge, carving knife, dovetail saw, coping saw, bevel gauge, square, and a few chisels of various widths. So round up your tools, and let's get going.

**HOW TO LAY OUT DOVETAIL JOINTS**

**Step A**
Mark a line $\frac{1}{2}$" in from each edge. Then, divide remainder into equal segments.

**Step B**
Mark lines $\frac{1}{8}$" from the pin centerlines. This results in a $\frac{1}{4}$" pin socket—the minimum size you can cut without risking joint failure.
PREPARE THE WORKPIECES

1 Organize the pieces
Start by accurately thicknessing and dimensioning the stock. Then, lay out your pieces to match grain and color around all four sides. To keep the pieces in the proper sequence, Jack uses a simple numbering system. With masking tape he labels the first piece 1, the second piece 2, the third 3, and the fourth 4. Put the tape on the outside face of each piece with the numbers right-side up. Now, as you work make sure each piece touches a piece with the matching number. The "12" piece always sits next to the "23" piece, the "23" piece goes next to the "34", and so on.

2 Determine joint spacing
When you make hand-cut dovetails, the size and spacing of the tails is left up to your personal preference. In general, you should use the guidelines shown in HOW TO LAY OUT DOVETAIL JOINTS below.

But one of the big advantages you enjoy with hand-cut dovetails is that you can create unequally spaced tails, and tails of different widths. By contrast, most machine-made dovetails limit you to the regimented look of equally spaced, equally sized dovetails. So don't hesitate to draw a few experimental layouts on paper first.

SCRIBE AND CUT THE TAILPIECE

3 Scribe the tail tops
When your spacing and layout are finalized, clamp the stock in a bench vise. Jack uses a knife and a small square to score the cut lines over the pencil marks for the tail tops. The knife cuts a shallow groove that your chisel can easily drop into for final paring later.

4 Scribe the tails on the face
Set your sliding bevel gauge to the angle setting given in Step C of HOW TO LAY OUT DOVETAIL JOINTS. Then, score the face with the knife using the markings from the previous step as starting points. Jack usually lets his knife marks run slightly past the bottom of the joint to give the piece a handmade look. Repeat on the opposite face.

Step C
Determine the bevel angle by setting your sliding bevel to a slope of 7° for hardwoods and 9° for softwood.

Step D
Mark an "X" between the 1/8" lines to remind you that these are waste areas. Then, score the lines with a knife. Finish laying out the tails by scoring the bevel angle on the face of the workpiece.

Step E
Depth of dovetail equals thickness of mating workpiece.

Continued
DOVETAILS
SCRIBE AND CUT THE TAILPIECE

5 Scribe the bottom of the joint
First, set your marking gauge to the exact thickness of the mating piece. Then, transfer this measurement to the area to be cut on the outside face of the workpiece by scribing a line across the waste area—the space the pins will occupy. Again, Jack lets these lines run slightly long for the hand-crafted effect. On the inside face, Jack scribes the line all the way across as a reminder of which face is which.

6 Level the workpiece
Before cutting, level the top of the workpiece in the vise. As you cut more joints, the level top gives you a constant reference point from which to gauge the correct angle of the saw.

7 Cut the sides of the tails
Place your dovetail saw on the waste side of the knife mark and saw down at the correct angle. Leave enough material, about \( \frac{1}{2} \)", to pare away later with a chisel. Saw down to within about \( \frac{1}{2} \)" of the bottom of the joint. Now, repeat this same cut next to all the scribed lines.

8 Remove waste with a coping saw
With a coping saw, cut along the horizontal line at the bottom of the joint to remove the waste. Saw to within \( \frac{1}{2} \)" of the mark made by the marking gauge.

9 Chisel out the bottom
Lay the workpiece flat on the bench, and place the chisel in the groove made by the marking gauge. Tap the chisel to cleanly pare the bottom of the pin socket. Cut just past the middle of the thickness of the workpiece. Flip the piece over and repeat. The goal is to work toward the middle so that the bottom of the joint is either flat or concave by about \( \frac{1}{8} \)" in the middle.

10 Clean up the sides
Reclamp the workpiece in the vise and place the chisel blade in the groove made by the knife. Use gentle pressure to pare towards the middle. Turn the board around and repeat. Again, try to create a flat or slightly concave side. To clean up the intersection of the side and bottom of the joint, switch back to a coping saw and use its fine-toothed blade like a miniature file.
NOW, FASHION THE PINS

11 Clamp, then scribe the layout of the pins
This is the most critical step in the entire process, and the final fit of the joint depends on your accuracy here. Clamp the adjoining pin stock in the vise and line up the top edge of the pin stock's inside face with the bottom of the tails. Clamp the two pieces together with a miter clamp. Then, mark the tops of the pins with a knife using the sides of the tails as a template. Don’t lean the knife or wander away from the guiding side of the tail.

Now, remove the miter clamp, place your square on the top of the pin stock, and scribe the length of the pins on the face of the stock using the knife. (Once again, you can scribe these lines slightly long for the hand-crafted look.) Set your marking gauge to the thickness of the tail stock, and use it to scribe the bottom of the pins across the grain. Mark the waste areas with a pencil, and repeat the procedure on the opposite face.

12 Cut out the pins
With the workpiece firmly clamped and leveled in the vise, cut out the sides of the pins with the dovetail saw. Then, cut out the bottom of the joint with the coping saw. (But be sure to angle the coping saw so you don’t accidentally cut into the wider section of the wedge-shaped pins). As in cutting out the tails, leave about \( \frac{1}{2}\) to pare away later with a chisel.

13 Clean up the pins
Lay the workpiece on the bench, and pare away the waste material at the bottom of the pins with a chisel. Cut toward and not much beyond the middle of the joint. Repeat on the opposite side. Now, clamp the workpiece in the vise, and pare the sides of the pins, again working toward the middle. Repeat from the opposite side. If needed, clean up the intersection of the side and bottom of the joint with the coping saw.

14 Dry-assemble the pieces
With the pin stock in the vise, tap the tails down between the pins. Use a wooden or non-marring mallet and go easy. If you encounter resistance, tap the joint apart and look for shiny or burnished spots where the joint may have been too tight. Remove these by paring with a chisel or light sanding. Ideally, the joint will fit with a few easy taps of the mallet. If the pins or tails stand slightly above the mating surface, you can level those later by sanding, scraping, or planing. Now, disassemble the joint.

15 Glue and clamp the completed joint
To put clamping pressure directly on top of the tails, cut two clamping blocks from \( \frac{3}{4}\)" scrap. Cut openings in the blocks that are slightly wider than the pins. Apply glue to the mating surfaces, position the blocks, and clamp.

Written by Tom Jackson
Photographs: John Hetherington
Illustrations: Kim Downing, Lorna Johnson
For a finish that looks ages old, you can’t beat verdigris, the natural deposits that color weathered brass, bronze, and copper. These two scrollsawn projects wear that distinctive finish, but they sure aren’t metal, and we didn’t wait on nature, either.

Though they look like antique bronze, the Western Welcome Plaque and the Bucking Bronco Pencil Tray are both scrollsawn wood. The secret? It’s a two-part finish that puts the patina of weathered metal on wood—or any other paintable surface. The water-based products, widely available from art-supply and craft-supply dealers (or see the Buying Guide for a mail-order source), go on easily and dry to a durable indoor or outdoor finish.

We’ll start with the instructions for building the Western Welcome Plaque and the Bucking Bronco Pencil Tray. Build either one, or both of them. Then, turn to pages 72-73 to learn about applying the antiqued metallic finish to your project.

1 Cut a piece of walnut ½ x 9 x 11". Rout a ¼" cove around one face, using a table-mounted router and a piloted cove bit. Rout a keyhole hanging slot on the back. Finish-sand the board. Later, you’ll mount the scrollsawn sign on it.

2 Photocopy the full-sized pattern in the WOOD PATTERNS™ insert in the middle of the magazine. Adhere the copy to ¼ x 8 x 10" stock. Either Baltic birch plywood or solid stock such as basswood or poplar would be suitable.

3 Drill ⅛" blade start holes where shown. Thread a #4 scrollsaw blade (.035 x .015", 15-18 teeth per inch) through the hole in the horse’s mane.

4 Saw along the inside line of the mane, leaving the shaded part of the pattern. Similarly cut out the inside portions of the tail, the trees, and the horse’s body. Then, cut out the section between the horse’s front and hind legs.

To cut a sharp inside corner, such as the one shown at 1 in the Cutting Sharp Turns drawing, saw into the corner from two directions. Make the first cut from the blade start hole into the corner, shown by the lower arrow. Back
These wooden cutouts have the antique-metal look

Bucking Bronco Pencil Tray

the blade out to the start hole, then make an arcing cut through the waste area, shown by the curved arrow, returning to the cutting line just beyond Point 2.

To create a sharp point at 2 and begin cutting the next corner, 3, saw in from the cutout area along the lower dashed line. Complete the corner by backing the blade out to the start and making the cut shown by the dashed loop.

Continue cutting the remaining points and corners in the same fashion. The arrow at the top of the tree shows another path you can follow when cutting sharp outside points.

Insert the blade through the start hole in the letter O, and cut the center out of the letter. Starting from the hole near the W, cut out the individual letters and set them aside.

Cut out the rectangular area surrounding the letters at the bottom of the plaque. In the upper part of the plaque, insert the blade through the hole in the corner beneath the left hand tree.

Cut around the tree's outside pattern line. Keep an eye on the inside edge as you work; this will help you maintain consistent width for the tree outline. Continue around the horse and the other tree, then cut along the inside edge of the frame.

Cut the sun out of the waste piece. Set it aside until later.

Glue the large cutout onto another \( \frac{3}{4} \times 8 \times 10'' \) piece of stock. Sandwich the glue-up between two pieces of \( \frac{3}{4} \times 8 \times 10'' \) scrapwood (particleboard or plywood would work fine), and clamp.

After the glue dries, saw around the outside pattern line. Glue the letters and the sun into place, referring to the pattern.

After the glue dries, finish the sign to resemble old, weathered metal, following the finishing instructions on pages 72-73.

1. Photocopy the pattern from the WOOD PATTERNS insert in the middle of the magazine. Trace the outer line onto a \( \frac{1}{2} \times 5 \times 8^{1/2}'' \) piece of walnut, and saw around it to create the backboard.

2. Install a piloted \( \frac{1}{4}'' \) round-over bit in your table-mounted router. Shape the backboard's front and back edges between the two stop points shown on the pattern.

3. Cut a piece of walnut measuring \( \frac{3}{4} \times 3 \times 8^{1/2}'' \) for the base. Refer to the Exploded View drawing, then lay out the rounded corners and the through mortise on the top face. Sand the corners round with a disc or belt sander.

4. Drill a \( \frac{1}{4}'' \) blade start hole near one corner inside the mortise. Thread a heavy scroll saw blade through the hole, and saw the mortise. A #11 (.062\times.024''), 9½-12½ teeth per inch) blade would be a good choice. A wide blade makes sawing straight lines in thick stock easier.

5. Install a piloted \( \frac{1}{4}'' \) round-over bit in your table-mounted router. Rout both ends and both edges on both sides of the base.

6. Change the router bit to a \( \frac{1}{2}'' \) core-box bit, and position a fence \( \frac{3}{8}'' \) from it. Cut the pencil groove in the base \( \frac{1}{4}'' \) deep, taking two or three shallow passes to reach the final depth.

7. Finish-sand the base and the backboard. Set the parts aside.

8. Using spray adhesive or rubber cement, attach the bronco-buster pattern copy to a \( \frac{1}{4} \times 4 \times 6^{1/2}'' \) piece of Baltic birch plywood. (You could use solid stock instead, if you wish.) Center the pattern on the wood, and trim away the edges.

9. Drill \( \frac{1}{8}'' \) blade start holes where shown. Thread a \#4 blade

SEE THE WOOD PATTERNS INSERT FOR FULL-SIZED PATTERNS OF BOTH PROJECTS

Continued on next page
BRONZE BEAUTIES
(.035×.015", 15-18 teeth per inch) through the hole in the smallest area between the horse and fence. Then, complete the rest of the inside cuts, working from the small ones up through the largest. (See Step 4 of the Western Welcome Plaque instructions for some tips on cutting the sharp corners.)

Saw along the inside stopped lines as you come to them. Be careful not to cut past the end of any line; when you reach the end, either back the blade out the kerf to the starting point or spin the workpiece around and saw out of the kerf.

10 Scrollsaw around the outside pattern line to complete the cutout. Now, see right for instructions on how to give the cowpoke silhouette the look of an antique metal casting.

Giving wood
To make wood look like antique metal, you first apply a metallic coating to the wood. Then you treat that coating with a reactant solution to create verdigris, the distinctive carbonates that color old brass, copper, and bronze. To do this we used Gilded Gold metallic surfacer and Patina Green antiquing solution from Modern Options Inc. of San Francisco. We bought the products from an art-supply store.

The company also markets a coppertone base coat (Copper Topper) and Patina Blue antiquing solution. (The photos below show the metallic coatings and the patinas.) The materials come in 8-oz. or 16-oz. bottles. Or, you can buy a Patina Green Antiquing Set, which contains 2 oz. each of Copper Topper and Patina Green.

You can apply either the blue (top) or green patina solution over either the gold (left) or copper base coat.

Before you patinate your project, practice on scrapwood with the materials and techniques. Since the patina solution must be painted on to the metallic coating while it's still tacky, you have limited time—perhaps five minutes or so—to brush it on. Work in small areas on larger pieces. Familiarity with the process will help you determine what size area you can cover comfortably.

Raccoon River Scrollworks will send patterns for the 5/4×16" scene above free to readers who order a catalog from the Buying Guide on the opposite page.
Here's the 6-step process

1. Sand the surface and edges of the scrollsawn piece, if necessary. Prime the wood. Do not paint the back where you'll be gluing the cutout to the backboard.

2. After the primer dries, apply the metallic coating. Shake the bottle well to bring the metallic particles into suspension, then pour a small amount of the coating into a container for brush application.

   A foam brush as shown above gives a smooth, even coat. Flow the metallic paint onto the surface, brushing in one direction as far as possible. Turn to a small bristle brush to paint the edges and corners. The foam brush can't reach. (If a really smooth finish, you could spray on the metallic coating with an airbrush.)

   Allow this first coat to dry for an hour, unless the finished piece will go outdoors. In that case, let it cure for 24 hours.

3. Apply the second metallic coat. Brush crosswise to the first coat to minimize brush marks.

4. Let the second coat dry until it's tacky to the touch, but not wet enough to fingerprint. Then, apply the patina solution. Pour a quantity into a plastic container (it's a corrosive solution, so don't use a metal pan). Put on a light coat with a disposable brush such as the one shown above right, a foam brush, or a sponge.

   You may not see immediate results. Within a few minutes, however, the surface will begin to discolor. In less than half an hour, you should see a true verdigris.

   If the patina solution dries without producing a patina or if the patina is splotchy, the metallic paint may have been too dry when you applied the solution. To fix it, wipe off the surface, put on another coat of metallic paint, and apply the patina solution again.

5. To deepen the patina, brush on additional thin coats of patina solution. Allow each coat to dry before putting on another.

6. You can apply a clear topcoat or sealer to protect the patina, if you wish. Allow the final coat of patina solution to cure for four days before applying any sealer. A matte finish will look more natural than a shiny one.

Mount the antiqued cutout

1. Position the antiqued cutout on the plaque or backboard, as appropriate. Make small alignment marks with a sharp awl. You also could mark the location with bits of masking tape.

2. Apply a clear finish to the unpainted wood parts. Leave some unfinished mounting pads for mounting the cutouts.

3. Apply woodworker's glue sparingly to the back of the cutout, then clamp it to the plaque or backboard. Place pads under the clamp jaws to protect the patination. If you spray the project with an overall finish, wait until the patina has cured completely.

Buying Guide

Patination supplies. Copper and gold metallic base coatings, about $14 each for 8 ounces; green and blue patina solutions, about $9 for 8 ounces; 2-oz. patina antiquing set, copper and green, about $9; all plus 15% shipping ($3.75 minimum) and sales tax (where applicable). Dick Blick Art Materials, P.O. Box 1267, Galesburg, IL 61402, or call 800/447-8192 for credit card orders; 800/723-2787 for customer service.

Scroll saw patterns. Catalog of patterns, $2 (refunded with first order), includes one free pattern (shown on opposite page, bottom). Raccoon River Scrollworks, Box 2416, Des Moines, IA 50311.

Project Design: Bill Zun, Raccoon River Scrollworks Photographs: King Au; John Hetherington Illustrations: Roxanne LeMoine; Lorna Johnson
Combining brass with wood sends you down new creative avenues in turning. From functional knobs, pulls, and finials to purely ornamental spindle turnings (make them small enough and they serve nicely as necklace pendants or earrings), a bit of brass enhances any turning.

Shaping brass won’t tax your turning skills, either. Using files, shaping the metal is almost easier than turning the wood.

**GETTING STARTED**

**First, gather up your tools**

Though alike in principle, woodturning and metal turning differ markedly in both tools and techniques. But decorative coves, beads, and tapers don’t need to meet machine-shop standards of precision. On brass, you can create those contours readily with a woodworking lathe, employing files instead of cutting tools.

The basic file shapes you’ll need, shown above right, include mill, round, half-round, and square. Files 10–12” long are convenient, but shorter ones work just as well. You could substitute a triangular file for the square one.

Either bastard or second-cut files will suffice. The less-coarse second-cut files remove metal a little less aggressively and leave a smoother surface than bastard files—advantages when working on small parts. Whether you choose single-cut or double-cut files makes little difference.

Keep a file card handy while you work. This file card isn’t a piece of paper, though; it’s a stiff, coarse wire brush (shown at the bottom of the photo). Use it to clean soft brass filings out of the file teeth.

**Tips on buying brass**

Hobby shops, home centers, hardware stores, and auto-supply stores sell various forms of brass suitable for woodturning. You’ll find brass rod stock in a variety of sizes. Hobby shops that cater to model railroaders or airplane modelers usually stock several standard diameters up to ¼". Uncoated brazing rod, often sold by auto-supply dealers or hardware stores, works great, too.

Some home centers and hardware stores sell larger-diameter brass rod stock, threaded brass rod, and brass bolts. Be sure, though, that you buy solid brass, not brass-plated steel.

You’ll strike a motherlode of brass in the plumbing-supply aisle. Flare nuts, unions, couplings, and other fittings come in various sizes and adapt to many uses. (See the photos on page 76 for one project.) Short lengths of brass pipe, called nipples, add even more choices.

**Get a grip on the brass**

Here are two methods for chucking that work for most situations: **Brass on wood.** In many instances, you’ll turn, or partially turn, a wooden part first, then put a brass piece into a hole drilled in the workpiece or onto a tenon formed on the turning.

That’s the approach that works best for turning the lid shown in the inset photo above left. First, center the wooden blank for the lid on a wasteslot attached to a 3” faceplate. Rough-turn the lid. (See “Small treasures,” WOOD® magazine, issue 83, November 1995, for turning instructions and templates for the vessel and lid.)
Drill a ¾" hole into the center of the lid (don't drill all the way through the blank), then epoxy-glue a piece of brass rod about 1" long into the hole (the rod needs to extend ½" above the finished surface of the lid). To align the rod along the turning axis, rotate the turning by hand, measuring carefully between the end of the rod and the tool rest. You also can use the tailstock center as an alignment aid.

Wood on brass. Projects such as the pull in the photo opposite page call for a different tactic. To construct the blank for such items, drill a hole the diameter of your brass part into or through the wooden component. (Brass also looks great with vegetable ivory—tagua nut. See "Tagua turning," WOOD magazine, issue 54, September 1992, for more information on turning tagua nuts.)

Insert the brass piece into the hole and epoxy it into place, leaving adequate length to grip in a ½" Jacobs three-jaw chuck (a drill chuck). The brass part, which becomes a feature of the turning, then also serves as the mandrel for turning the wooden piece.

Grip the brass part in a drill chuck mounted on your lathe's headstock spindle. If you don't have a drill chuck for your lathe, attach a wasteblock to your 3-4" faceplate. Drill a hole in the block about 1" deep to accept the rod. Epoxy glue the rod into the hole, and align it along the lathe axis as explained above.

The blank must run true
If you chuck a long, slender rod this way, it may whip around at the free end when you start the lathe. If so, try a slower lathe speed, insert the brass deeper into the chuck to place the heavy wooden part nearer the chuck, or shorten the free end of the rod, project design permitting.

If a lower speed doesn't help and you can't chuck the brass rod deeper or shorten it, make a tailstock bearing to help the turning run true. To make one easily, mount an 8" length of 1" dowel between centers. Using a spindle gouge, turn a taper on one end of the dowel to match the one on your tail center.

Insert the tapered dowel into your tailstock, then slide the tailstock up until the dowel end contacts the point of the drive center mounted on the headstock. Tighten the tailstock so the point makes an impression in the end of the dowel. Slide the tailstock back, then drill straight into the dowel at the marked point, using a bit slightly larger than the diameter of the brass rod (perhaps ½" larger). Remount the workpiece, inserting the free end of the rod into the drilled hole.

TECHNIQUES FOR "TURNING"
Now, slide the toolrest out of the way. You won't need it for file-forming the brass. Run your lathe at about 1,000 rpm.

Hold the file with both hands—one on or near the handle, one at or near the end. Move the file across the brass at an angle to the lathe's axis whenever possible; this minimizes ridges. A light touch is all you need; pressing too heavily may force the workpiece off center or even bend it.

The file cuts on the forward stroke, so lift it from the work at the end of the stroke. On curved surfaces, push the file across the work and roll it at the same time for a smooth contour. You'll quickly develop a feel for it—the motions come almost naturally. The illustrations above right show how to form basic shapes.

Cut V-grooves with the edge of a half-round file, as shown. To soften the transition into the groove, roll the file into it as indicated by the arrow in the Bead drawing.

Form the bead itself by cutting two V-grooves spaced the length of the bead apart. Then, round over the bead as shown.

Hollow out coves with a round file. The angle of the file to the axis of the work establishes the length and radius of the cove. Make parting cuts with the edge of a half-round or triangular file.

Make it shine
Polish the brass before removing it from the lathe. Remove file marks with progressively finer sandpaper grits from 220 to 600.

Then, dip a corner of a rag into automotive polishing compound, and apply it to the spinning turning. Buff it with a clean rag. Protect the polished metal with a coat of lacquer.
TURNING A DRAWER PULL

In just a few minutes, you can fashion a nifty pull like the one shown left in Photo 1 from a brass fitting and a piece of wood. Here’s how.

1. We made the pull shown left from a 3/8” brass hex nipple and a piece of stock 3/4 x 3/4 x 3/4”. Other fittings that would work include the 3/4” flare union or 3/4” compression union shown behind the pull in the opening photo.

2. Grip the brass fitting in a 1/2” drill chuck mounted on your lathe’s spindle, and file the threads off of one end. You could mount the finished pull by epoxying this tenon into a hole, so make it a standard diameter.

3. Turn the fitting around, and chuck it by the filed end. Drill a hole in the piece of wood to fit snugly over the threads on the brass part. Put epoxy in the hole, then screw the wood onto the brass fitting.

4. Turn the wooden part to shape. Your normal woodturning tools and techniques will serve for this part of the operation. The soft brass won’t hurt your turning tools if you accidentally hit it.

5. File-form the brass, employing the techniques explained in the article. As you work, remember that the fitting has a hole through it. Don’t file it down too far, or you’re likely to break through and ruin the piece.

6. Sand and finish the wooden part of the pull. Then sand the brass, and polish it with automotive rubbing compound or metal-polishing compound. A cotton swab makes a handy applicator for the small pull’s contours.

Photographs: King Au; John Hetherington   Illustrations: Roxanne LeMoine
10% to 20% OFF SPRING COMBO SALE
Sale prices good thru 4/30/96.

FREE OFFER

FREE $45 IN SHARPENING COUPONS
GOOD ON ALL FORREST OR OTHER MAKES OF CARBIDE BLADES OR DADO SETS. Coupons expire 12/31/97. Must mention WOOD magazine for discounts, coupons & bonus with purchase.

BUY 1 BLADE OR DADO AT 10% OFF SALE PRICE, OR BUY 2ND BLADE AT 20% OFF (EQUAL OR LESSER VALUE) 15% OFF DADO AS SECOND CHOICE.

WOODWORKER II
ALL PURPOSE RIP & CROSSCUT
12"X40"X1" $163 $129 $116 $103
10"X40"X1/8" or 3/32" $156 $119 $107 $95
8-1/4"X40"X3/32" $152 $99 $88 $78
8"X40"X3/32" $150 $99 $88 $78
OTHER SIZES AVAILABLE

THE ONE BLADE THAT LEAVES A SMOOTH-AS-SANDRED SURFACE!

BUY OUR BEST SELLER 10" X 40T FOR ONLY $119 PLUS 10% - 20% OFF FOR COMBO SALE!

NEW DELUXE DADO-KING!
AS LOW AS $194.95!!

CHOPMASTER FOR SLIDING COMPOUNDS & MITER SAWS
New spec, 5th Reg. Fits & flats, runs out less than .002 for perfect tight, smooth, splinter-free mitre joints.

NEW SIZES AVAILABLE
LIST SALE
Sawo 10-1/2"X40T X5/8" $199 $89
Sawo 12-1/2"X40T X5/8" $253 $179
Sawo 12-1/2"X40T X5/8" $269 $209
Sawo 12-1/2"X40T X5/8" $253 $179
Sawo 12-1/2"X40T X5/8" $269 $209

TAKE EXTRA 10% OFF ON COMBO SALE!

DURALINE HI-A/T FOR TABLE & RADIUS SAW ALL FLAT FACE
5/8 Holes. Boring up to 1-1/4". $75 extra. Larger holes - time basis. Shipping $4.50.

SIZES AVAILABLE
LIST SALE
7-1/4"X60"X3/32" $149 $129
9-1/4"X60"X3/32" $212 $189
10-1/4"X60"X3/32" $277 $249
12-1/4"X60"X3/32" $399 $349

SPECIAL COMBO SALE
EXTRA 10% - 20% OFF

DURABLE CARBIDE IS THE HARDEST OF CARBIDE FOR 7" AND LARGER AVAILABLE
6" 5/8" Bore $220 $192 $170 $150

WE RECOMMEND OUR FACTORY SHARPENING for some local sharpening center problems with MICRO-CHIPPED EDGES reducing blade life & cutting quality.

FOR SPECIFIC PRICES & BONUS MENTION WOOD MAGAZINE.

PHONE TOLL FREE! (800) 733-7111
(In NJ: 201-473-5236) FAX: 201-471-3333

FOSSIL TOOLS - 50% OFF ALL MACHINES AT 50% OFF!
We have over 15,000 items in stock! Call today for your FREE catalog!

Circle No. 1322

FORREST MANUFACTURING COMPANY, INC. • 461 RIVER ROAD, CLIFTON, NJ 07014 • FAX (201) 471-3333

Quality is why we’re different!

FORREST
(800) 733-7111 or (201) 473-5236

BUSINESS OPEN ACCOUNTS AVAILABLE

Circle No. 1322
Grizzly weighs in with a hefty oscillating spindle sander

The market for oscillating spindle sanders has boomed in the last year, and this new entry from Grizzly proves there's still room for another heavyweight. At 300 pounds, this floor-standing model gives you a production-grade oscillating spindle sander at an affordable price.

The Grizzly G1071 closely resembles the Enlon EN3407 oscillating spindle sander tested in the September 1994 issue of WOOD® magazine. Powered by a 1-hp, 110/220-volt induction motor, the Grizzly can handle just about any edge-sanding chore you throw at it. And the drive unit is totally enclosed in an oil bath for a lifetime of service.

The 25\% square cast-iron table provides plenty of support for large workpieces, and it tilts 45° forward and 20° back. The three table inserts included with the machine do not fit as flush with the tabletop as I'd like to see, but this slight irregularity did not affect my sanding performance or quality.

This machine also includes 10 spindles that range in size from \( \frac{1}{4} \)" to 4" in diameter. The five larger spindles on the machine I tested, those with rubber drums, were not perfectly round and tended to thump against the workpiece. They still sanded well, but the vibration was bothersome.

—Tested by Bob McFarlin

In the January 1995 article on pocket-hole joinery, we chose the Kreg jig as the preferred tool. Since that time, the company has added a few improvements that make this jig even better.

For starters, the new jig includes a pair of chip-extraction holes located on the back side of the vertical surface. These ports ease the drilling by providing an escape route for chips and prevent overheating of the drill bit. If you already own an older model Kreg Jig, the company may be able to retrofit yours with the holes for less than $20. Call the number below for information.

The company also introduced an accessory extension plate for $8.95 that allows you to reposition the toggle clamp so you can clamp stock up to 3" thick—compared to a clamping capacity of 1½" without the plate. And finally, you can now buy cobalt-steel drill bits to use with the jig for $34.95. Heavy users will appreciate the fact that these bits are harder and longer lasting than high-speed steel, but less expensive than tungsten carbide.

—Tested by Tom Jackson
Craftsman’s Most Powerful Vac... Wet or Dry

With six peak horsepower, Craftsman’s new wet/dry vac is the most powerful, detachable blower vac on the consumer market.

It’s at home in your workshop, kitchen, garage... even in the yard, thanks to the detachable blower that cleans up leaves and yard debris with a 200 MPH blowing velocity.

To complement its power, we developed a sturdy vac caddy supported by oversized wheels to resist vac tipping. There’s an extra-long 20-foot cord and convenient onboard accessory storage so tools are always right at hand. The large 16-gallon capacity, built-in drain and reusable filter make cleanup a breeze. Accessories include two extension wands, four nozzles, blowing diffuser and blower adapter.

Check out this new detachable blower vac with 6 peak horsepower at your Sears store, or for convenience, call the “Sears Shop at Home” service, 1-800-377-7414.
WOODWORKER'S MARKETPLACE

AMAZING SCROLLSAW FRETWORK PATTERNS
Easy to advanced designs

FREE catalog
1-800-470-9090

WILDWOOD DESIGNS
P.O. Box 676-WD
Richland Center
WI 53581

ONE-MAN SAWMILL
Turns Your Timber Into CASH!

30-Day Free Trial!
Call NOW for FREE FACTS!
1-800-942-4406 ext. SW33
TIMBERKING, INC. Dept. SW33
1431 N. TOPPING, KANSAS CITY, MO 64120

STEVE WALL LUMBER CO.
Quality Hardwoods and Woodworking machinery For The Craftsmen
and Educational Institutions

STEELMASTER
STEEL
BLDG.

A MUST FOR ALL CRAFTSMEN!
Cordless, precision craft & hobby tool model KD-1
This precision reciprocating power tool saws,
files and sand wood or metal...comes
with 11 accessories and a charger.
Featured in November 1992
ISSUE OF "WOOD" MAGAZINE

STEVE H. WALL LUMBER CO.
BOX 287
MAYODAN, N.C. 27027
910-427-0357
1-800-639-0382
FAX 910-427-7588

STEEL INVESTMENTS COMPANY
WOODWORKING DIVISION
145 W. Hickcrest Ave. San Bernardino, CA 92408
Tel: (909) 865-1799 Fax: (909) 865-1799

Save on Select Models
25-35, 36-48
40-62, 50-120
STEEL
BLDG.

LOG RUN SPECIALS
100 bd. ft. Bundle
4/4 Cherry $120
4/4 Walnut $140
Add $20 for $525
Motor Freight Only
FOB Mayodan

Circle No. 475
Circle No. 830
Circle No. 125
Circle No. 2030
Woodworker's Marketplace is a section of advertisers offering products by mail. Please contact the advertisers directly or use the number below each ad to request information through the Woodworker's Resource section.

---

**RIP AW**

**The Portable Sawmill.**

The "affordable portable" one man band sawmill. Weighs only 43 lbs. Cuts 20" diameter logs into lumber. Minimum 1/8" to maximum 31/2" thickness. 14' x 9" throat capacity. Write or call for free brochure. Videos also available.

Better Built CORPORATION
(508) 697-5636
845 Woburn St., Suite 3, Dept. W34, Warrington, MA 01887

---

**FREE-Catalog!**

Featuring specialty hardware, hardwoods, wood parts, tools, kitchen accessories and many items you simply won't find anywhere else!

Recker Companies, Inc.

---

**DO-IT-YOURSELFERS!**

You can build your very own Classic Concept Quilt Rack in your shop. Full scale plans and instructions for only $20 including shipping and handling.

Send order with check or money order to:
Charles McLendon
2401 Dexter Avenue
Silver Spring, MD 20902-4922
Please allow 3-4 weeks for delivery

---

**FREE CherryTree Woodcrafting Catalog!**

Hundreds of hard to find Wood Parts, Clock Movements, Plans, Toys, Tools, Whirligigs, Paints, Brushes and more, at affordable prices with guaranteed quality & Fast delivery!

NAME:
ADDRESS:
CITY:
STATE:_________ ZIP:_________

Mail to:
Cherry Tree • Box 369-WM
Belmont, OH 43718
or call TOLL FREE
1-800-848-4363 ext. WM

---

**Pen Turning Materials**

- Wide Selection
- Tropical woods: S. American, African and Tasmanian
- Stabilized and dyed woods: spalted, burl, and figured hardwoods
- Largest Dymondwood pen stock dealer in the U.S.
- Dymondwood pen blanks as low as .55 each.
- Pen Mechanisms/Kits/HUT Finishes
- Sherline Minutie Machinist Lathe: excellent for pen turner who needs higher production than on conventional lathes
- Wholesale Diagonal Cut Dymondwood, Ph 1-713-261-5512 or Accessories/High Quality/Service
- HUT Products For Wood
13831 Hopper Road • Sturgeon MO 65284
For orders or free wood turning pen supply catalog
CALL: 1-800-547-5461

---

Circle No. 315
Circle No. 230
Circle No. 101
Circle No. 1420
Dunham Hardwoods
Specializing in Red Oak
- Kiln Dried Exotics & Domesticos
- 22 Species in various thicknesses and grades
- Example: 4'x6' Clear selected for color 4/4 Red Oak surfaced & straight lined one edge
- $2.55/bd. ft. (100' orders) $2.75/bd. ft. (20' orders)
- Finishes, wood pegs, buttons, hardwood dowels, etc.
- Shipped UPS or common carrier

Call or Write For Free Information
Phone: 712-843-5320 3385 130th St.
FAX: 712-843-2142 Dunlap, IA 51529

Circle No. 530

NEW! HIGH-SPEED EMBOSsing MACHINE

Tripled Value of Ordinary Molding!

Woodmaster's new embossing machine can be the start of your own high-profit millwork business...or a welcome addition to your existing operation.

Embossed molding sells for $1 to $6 per lineal foot. You can produce this millwork at 26 feet per minute! Choose from hundreds of patterns including picture frames.

Call or write today for free facts:
1-800-821-6651 ext. AC6
Woodmaster Tools, Inc., Dept. AC6
1431 N. Topping Kansas City, MO 64120

Circle No. 1250

Put some Uncommon tools to work for you and achieve Uncommon results!

Our tools are uncommon, and unmatched, in quality, variety and value. Over 60 pages of woodworking tools provide you with the largest selection of router tables and accessories available in the U.S., as well as, many other unique and useful tools. More than a catalog, it's also a wealth of information that will enlighten and inform anyone who works with wood.

Call Today!
800-344-6657

WOODHAVEN
523 W. Kimberly
Davenport, IA 52806-7126

Circle No. 1290

Wood Moisture Meter

Professionals and hobbyists can choose from 3 different Mini-Ligno moisture meters:
- Versatile
- Affordable
- Sturdy!

Over 100,000 units sold.

Also introducing New Mini-Ligno XL

For brochure contact:
Lignomat USA, Ltd. PO Box 30145
502/257-8887 800/227-2105 Portland, OR 97230

Circle No. 1910

Supergrit SANDPAPER

HOLD & LOOP
4½" 8 Hole $10.00/50
5½" 5 or 8 Hole $12.50/50
6½" 6 Hole $17.50/50
5½" Solid "E" $15.00/50
6½" Solid "E" $18.00/50
12" Solid "E" $12.00/50

BLUE ZIRCONIA
Best in the World

DISCS BELTS
5¼ P.S.A. 55¢ 1" x 42" $1.75
6¼ P.S.A. 406 6" x 48" $5.50

RED HILL CORP.
P.O. Box 4234
GETTYSBURG, PA 17325
800-822-4003

Circle No. 1267

SPIRAL STAIRS
Coast to Coast Delivery

FREE ENCLOSED TREAD ENDS
$220.00 VALUE

Save 30 % to 50%
Stock & Custom Stairs
Strong Steel Frame
Oak or Brass options
3½" to 7" Diameter
Easy to Install

FREE BROCHURE
Call or Write -

SALTER INDUSTRIES
PO BOX 183 EAGLEVILLE PA 19408
610-631-1350 FAX 610-631-9384

Circle No. 1995

Big Kids Playhouse
180 sq. ft. $12.95

Creativecraft Plans - P.O. Box 36336
Dept. 51 - Indianapolis, IN 46236
1-800-576-9174

add $4.00 S/H

Circle No. 330, 331
Be a Home Inspector
Earnings of up to $900 per day possible!

Train at home in your spare time...no previous experience needed!

Home inspection is one of the hottest career fields of this decade. Over 60% of all homes sold today are inspected for structural and mechanical defects. Banks, mortgage companies and potential home owners want to know about a house before they invest their money. According to ASHI Home Inspectors throughout the country are charging up to $300 per job, and many are performing three or more inspections per day. And there's plenty of opportunity for you to earn this kind of money, because the demand for Home Inspectors exceeds the supply. Once you've gained some experience and established your reputation as a top-notch Home Inspector, it's possible for you to start earning up to $900 a day!

Only ICS gives you training this practical, this complete. Our unique "Quick-Learn" method enables you to start making money while still training!

You get real-world instruction in all the important areas of home inspection. When you finish your training you'll be a skilled professional, confident in your abilities to deliver thorough "top to bottom" inspections. Step-by-step lessons show you how to inspect basements...crawl spaces...heating and cooling systems...electrical systems...plumbing...interior structure...attics...doors and windows...garages...exterior structure...grounds...appliances and much more. You're also taught about checking for pests, radon gas and other health hazards.

We give you special tools and test instruments to use during your training and later on the job. These include wire gauges, circuit analyzer, pocket caliper, punch/awl, screwdriver set, high-powered professional flashlight, inspection mirror, binoculars and more. Unlike many home inspection courses, we go beyond the mere technical aspects and teach you how to prepare special forms and reports that document your inspections. You'll be able to provide your customers with clear, detailed reports on your conclusions and recommendations about the property. You'll be amazed at how quickly the word spreads that you are an expert inspector who can be relied upon to deliver top-quality home inspections. Your business will grow by the day as more and more people request your services.

Whether you want a full- or part-time job or want to start your own Home Inspection business, ICS training is the fastest way to get started in this high-paying field.

With ICS you train at home, during the hours you choose: Keep your present job while you train for a better one. Everything is explained in plain English. And our tuition is the lowest of any Home Inspection correspondence course.

ICS training is nationally accredited.
ICS is a member of the Distance Education and Training Council in Washington, D.C. whose accrediting commission is listed by the U.S. Department of Education as a nationally recognized accrediting agency.

Call Now or Send for FREE information!
We'll send you full information and color literature ABSOLUTELY FREE. Everything you'll need to know about our revolutionary Home Inspection Course is explained in complete detail...including all the facts on the opportunities waiting for you in this high-paying career field.

MAIL THIS COUPON TODAY FOR FREE FACTS! OR CALL TOLL FREE! 1-800-595-5505 Ext. 9820
Call Anytime—24 hours a day, 7 days a week.

ICS LEARNING SYSTEMS
School of Property Management
Dept. ABDS26S, 925 Oak Street, Scranton, PA 18515

Yes! I want to receive FREE FACTS about how I can train to be a Home Inspector!

Or choose another great ICS course. There's no obligation and no salesman will visit. CHECK ONE COURSE ONLY!

☐ 34 Real Estate Appraiser
☐ 14 Air Conditioning/Refrigeration
☐ 01 Computer Programming
☐ 26 Electrician
☐ 27 HVAC Repair
☐ 87 IV&C/VCR Repair
☐ 85 Drafting
☐ 43 Computer Fundamentals
☐ 04 Auto Mechanics
☐ 53 Desktop Publishing & Design
☐ 45 Gas Repair
☐ 25 Gutter Repair
☐ 61 Accounting (ASB Degree)

Name __________________________________________ Age __________
Address ________________________________________ Apt. # __________
City ____________________________________________ State __________ Zip __________
Phone __________________________
How to use the multi-joint jig  Continued from page 56

2. Box joints
Teamed with an accurate positioning device such as the Incra Jig, our right-angle fixture will cut box joints easily. Set up the right-angle fixture and workpiece the same as for routing tenon setbacks. Now, after routing the first recess, move the fence back a distance equal to twice the diameter of the router bit, and rout the next recess. Continue until you reach the opposite edge of the workpiece. Rout the mating workpiece in the same manner, but remember to offset the first recess so that you end up with interlocking pins and recesses. If you need help calculating the layout of your box joints, see the technique we used on page 77 of the August 1992 issue.

Written by Marien Kemmet and Tom Jackson  Photographs: John Hetherington  Illustrations: Roxanne LeMoine

The New Grizzly G1022Z

We are proud to offer this "Top of the Line" version of our standard G1022 10" Table Saw, with all the extras of saws costing a lot more. An exceptional value, the G1022Z comes complete with motor, fence, two cast iron extension wings, sturdy stand, blade guard, two blade inserts (one for the regular blade and one for the dado set), and miter gauge.

- Belt driven from the rear mounted motor to the arbor
- All ball bearing mechanism
- Quick-lock fence locks both front and back when lever is pushed down
- Sturdy, precision-ground cast iron table and extensions
- Self-tensioning belt drive
- Heavy-duty rip fence with micro-adjustment knob
- Extra long, 1 1/2" diameter tubes can take on extremely large jobs
- Extra cast iron extension wings can be added with above tubes
- 1 1/2 H.P. Single Phase, 110/220V motor (prewired to 110V)
- Shipping weight approx. 270 lbs.

NEW Saw Guard
NEW Fence
Beveled Table Edge
NEW Stand

INTRODUCTORY PRICE
ONLY
$425.00!

Grizzly Imports – Purveyors of Fine Machinery!

CALL FOR INFORMATION: WEST OF THE MISSISSIPPI 1-800-541-5537, EAST OF THE MISSISSIPPI 1-800-523-4777

F.O.B. BELLEWILLIAMSPORT, PA
or WILLIAMSPORT, PA

89695658

Circle No. 880
Enter WOOD® magazine’s 8th Annual Build-A-Toy® Contest to benefit Toys for Tots

All entries from the 1996 Build-A-Toy contest will be sold at a public auction in November 1996, and the funds raised donated to the U.S. Marine Corps Reserve’s Toys for Tots program to purchase new toys for needy children at Christmas. All Build-A-Toy contest entrants receive a colorful, “I Crafted a Toy for Joy” sticker.

Toys will be judged on Originality, Durability, Craftsmanship, Kid Appeal, Safety, and Finish. Deadline for entries is September 1, 1996. Judging will take place in mid-September and winners will be notified by mail mid-October. Names of winners will be published in WOOD magazine’s September 1997 issue.

For complete rules and an entry form, see the October 1995 issue of WOOD or write to: Build-A-Toy Rules, WOOD magazine, 1912 Grand Avenue, Des Moines, Iowa 50309-3379

1996 Build-A-Toy Contest Prizes

<table>
<thead>
<tr>
<th>Junior Craftsman</th>
<th>Home Hobbyist</th>
<th>Professional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grand Prize</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$1,500</td>
<td>$2,000</td>
<td>$2,000</td>
</tr>
<tr>
<td>3M Scotch-Brite® Sanding Discs</td>
<td>3M™ Sanding &amp; Fiber Glass Insulation Respirator</td>
<td>3M™ Aluminum Oxide Sanding Discs</td>
</tr>
<tr>
<td>First Prize</td>
<td>First Prize</td>
<td>First Prize</td>
</tr>
<tr>
<td>$1,000</td>
<td>Grizzly LN 128 20°</td>
<td></td>
</tr>
<tr>
<td>3M Sanding Discs</td>
<td>Jumbo, planer,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>and bandsaw</td>
<td></td>
</tr>
<tr>
<td>Second Prize</td>
<td>Second Prize</td>
<td></td>
</tr>
<tr>
<td>$750</td>
<td>$1,000</td>
<td></td>
</tr>
<tr>
<td>Dremel tools</td>
<td>Bosch tools</td>
<td></td>
</tr>
<tr>
<td>Third Prize</td>
<td>Third Prize</td>
<td></td>
</tr>
<tr>
<td>$500</td>
<td>$500</td>
<td></td>
</tr>
<tr>
<td>Meisel Hardware merchandise</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Best Toy Entry

3,000 in Delta tools (original design only, all divisions)

1996 CONTEST RULES

1. Toys must fit in a box no larger than 2' x 2' x 2'.
2. The primary material should be wood but may incorporate other materials.
3. Please follow Consumer Product Safety Commission guidelines; nontoxic wood finishes only; no parts smaller than 1 ½ inches on any toy; no sharp corners or points; pull strings larger than ½" should not have beads or other attachments that could present a choking hazard.
4. Entries must be received by September 1, 1996. Entries must be postmarked by September 1, 1996. All entries will be judged by an independent panel of judges.
5. Entries must be submitted on or about October 15, 1996. Entries are subject to the rules and regulations of the contest.

DRAWING RULES

1. NO PURCHASE OR CONTEST ENTRY NECESSARY.
2. To enter, fill out the Official Entry Form or place this information on a 9" x 12" postcard. Up to 25 entries per person allowed. Persons who enter the contest are automatically entered, one entry per toy up to 25 toys.
3. Entries must be received by September 1, 1996. Entries must be postmarked by September 1, 1996. All entries will be judged by an independent panel of judges.
4. Winners will be notified on or about October 15, 1996.
5. Winners will be notified by mail and prize delivery will be made by DHL Express.

Citizens (All designs, all divisions eligible)

Best Use of Wood: $575 Rockler compound miter saw
Best Model: $250 in Formby’s finishing supplies
Best Clear Finish: $250 in Formby’s finishing supplies
Best Painted, Dyed Finish: $200 in Red Devil paints
Best Educational Toy: $250 in Craft Supplies merchandise
Best Action Toy: $250 in Woodworker’s Store merchandise
Best Pulp Toy: $250 in Hockit merchandise

Special Awards

Best Toy from a Woodworking Club (one toy per club): $250 in Leichtung merchandise, $200 in American Tool clamps, $200 in Red Devil paints

Best Entry/Shop Class (no limit on number of toys per class entry): $250 in Delta tools, $1,000 in 3M supplies, $500 in Red Devil paints, $200 in American Tool clamps

Over $23,000 in tools and supplies to win!
WOODWORKER'S RESOURCE

Woolen you get useful ideas and product information by mail. Use the coupon in this section to order your choice of literature listed below. Each company mails the catalogs or information directly to you.

POWER TOOLS

ABBEY TOOLS—The much-requested, long-awaited, you-better-hold-on-to-this-one-because-who-knows-when-who'll-print-another-tool catalog, is here. Packed with 1000's of top brand name power tools and related accessories, the lowest possible prices. Whether you are a beginning woodworker or an old pro you'll find just the tool you need. Remember—if you can plug it in, we've got it! ABBEY TOOLS.

SCROLL SAW, CRAFT & WOODWORKING CATALOG—Our '96 catalog features the 7 models of HEGNER Precision Scroll Saws, the consistent cut in just minutes. Models start at $199.00 and include speed regulator, tool kit in attractive plastic case. Also included. 94 page catalog, HEGNER. Free. Circle No. 7.

ADVANCED MACHINERY, Inc. Free. Circle No. 3.

WILLIAM ALDEN CO.—The catalog everyone is talking about today! Don't miss your chance to get the lowest prices. Includes scroll saws, bandsaws, lathes, planers, shapers, etc. Send for free catalog. CP TOOLS INC. Free. Circle No. 15.

HARBOR FREIGHT TOOLS CATALOG—The finest professional quality tools and equipment at the lowest prices. GUARANTEED! Our NEW woodworking catalog has been expanded to contain hundreds of additional brand name woodworking tools & supplies. See why millions of woodworking professionals and Do-It-Yourselfers select Harbor Freight Tools for over 27 years. HARBOR FREIGHT TOOLS. Free. Circle No. 46.

INTERNATIONAL TOOL CORPORATION CATALOG—Features the finest tools & accessories at the absolute lowest prices anywhere! Whether you're a home woodworker or an industrial user, you will find an incredible selection featuring Porter-Cable, Bosch, Skil, Freud, Delta, Powermatic, Milwaukee, Makita and many, many more. We offer same day shipping, the most knowledgeable sales staff and free shipping on most UPS orders in the contiguous U.S. INTERNATIONAL TOOL CORP. Free. Circle No. 49.

TOOL CATALOGS---THE FINISHED LINE FASTER—with a Performax drum sander. Don't spend hours with a hand-held belt sander. Sand ultra-wide stock smoothly and economically from 8" to 93/4". Select the model that fits your budget and your needs. New metal abrasive fasteners keep sandpaper tight without re-wrapping. PERFORMANCE TOOLS INC. $1.00. Circle No. 29.

WOODWORKING TOOLS & ACCESSORIES—100% Made in USA. The NEW 1994-1995 RBA catalog features the all new HAWK Precision ULTRA Scroll Saws, "44-1/4" and "51-1/4" Universal Woodcutting Planer System, and 28" Variable Speed Drum Sander, 36" Drum Sander, the all NEW Panelmaster II Raised Panel Door Machine. Request your FREE copy today. Many new patterns and much more. When you buy from RBA, you're saving big money by buying factory-direct from one of America's premiere woodworking tool manufacturers. We stand behind every piece of equipment we manufacture with our exclusive 30-Day, Money Back Guarantee and 5-Year Warranty. Send today for yourFREE catalog. RBAINDUSTRIES, INC. Free. Circle No. 84.

MINI POWER TOOL CATALOG—Designed for easy reference, Ryobi's "shirt pocket" Power Tool Catalog includes our complete line of power tools, categorized by type: bench top, cordless, hand-held and stationary models. It features individual tool photographs with specifications and clear descriptions that offer specific user benefits, 100% of the tools in full color. Send for catalog, RYOBI. Free. Circle No. 86.

THE ADVANTAGE—That's what you've got from other woodworkers when you are using SECO power tools: a choice of top tools, categorized by type: cordless, bench top, stationary and hand-held, wide belt sanders, dust collectors, power feeders, and lots... lots... lots... more. Write today for a catalog of this woodworker's choice. Se habla espanol. Dealer inquiries welcome. Send for catalog, SECO INVESTMENT CO. Free. Circle No. 91.

TOOLS ON SALE!!!—A division of Seven Corners Ace Hardware, Inc. offers a catalog of over 400 pages of the most popular brands of power tools available anywhere, all at discounted prices. Included are saws, planners, routers, drills and more from manufacturers such as Milwaukee, Delta, Rockwell, DeWalt, STANLEY, RYOBI and many, many more. Now introducing a full range of Werner brand ladders. Tools on Sale!!! division of SEVEN CORNERS ACE HARDWARE, INC. Free. Circle No. 4.

PORTABLE SAW MILLS—Convert logs into valuable lumber—Wood-Mizer Products manufactures a line of portablesaw mills that allows the novice as well as the experienced sawyer to safely confit standing logs into lumber with the use of our SolarDyne™ or Yavo-Kin™ to dry your lumber, you could increase the value of every board you produce. We manufacture a line of the most progressive woodworking equipment on the market today. Product videos available. Send for our 3-page catalog. WOOD-MIZER PRODUCTS. $2.00. Circle No. 94.

WILKE MACHINERY CATALOG—40 pages of quality wood and metalworking tools, machines, tools, accessories, books and videos. Bridgeport planners, bandsaws, lathes, jointers, wide belt sanders and more. General, Porter-Cable, Delta and other famous brands. SEPTEMBER MACHINERY CO. $3.00. Circle No. 86.

TORMIEK—Made in Sweden, it is an advanced water cooled grinding system for all types of edge tools. The system is manufactured 100% correctly and safely, easy to use, universal, with excellent quality. Order today! TORMIEK. Free. Circle No. 101.

HAND TOOLS

TOOLS THAT MAKE IT EASY!—Turning tools, carving tools, planers, scrapers, carving bits, squares, saws, stones, maltes, jigs—every tool you can think of and then some, in Constantine's 120-page full color catalog, CONSTANTINE'S. Free. Circle No. 125.

ELECTRIC RECIPROCATING TOOL—Cordless tool for hobbyists, model and prototype makers. It saws, files, sand, shapes in applications unusual to rotary tools—on flat surfaces, in the middle of the workshop, corners. Comes with accessories, including propitiatory tools. Accepts knife files with rounded handles and blades with 1/4" shanks. KD ENGINEERING, INC. Free. Circle No. 125.

STAINS/FINISHES

PERFECT PEN POLISH—NEW Developed for pens but great for any small lathe turned object. Pen Turning Manual, even if you've never known from wood selection to marketing. A complete line of pen making supplies—many styles of handles, unusual pen turning materials such as dyed stabilized burrs and spalted woods. Send for catalog of wood turning and pen supplies. HUT PRODUCTS FOR WOOD. $1.00. Circle No. 292.

PLANS

PATTERNS! PATTERNS! PATTERNS!—Huge assortments of popular shop-tested designs! OVER 1500 top-quality FULL SIZE PATTERNS are grouped into sets of 10 and delivered under 795. Plans include also included easy-to-follow instructions, sketches, material lists, painting & finishing info. Plus tips & tech-niques! Beginner or pro can find ideas for 100's of unique projects for fun and profit. Fast service, satisfaction guaranteed! Illustrated catalog PLUS sample pattern. ACCENTS IN PINE. $2.00. Circle No. 310.

WOODWORKERS PLANS AND SUPPLIES—Wood projects are simplified with the high quality plans, shop hardware and other supplies offered by Armor Products. Over 100 plans are available for making toys, desks, clocks, pool tables, lamps, chests, and other furniture. Moveable homes, ornamental, doors, workshops, barns, shop hardware and furnishings are also available. ARMOR PRODUCTS. $1.00. Circle No. 315.

THE CADILLAC CAR CATALOG—You've never seen anything like this—promised! Our catalog has over 2,000 plans and patterns from over 50 companies. The selection seems endless and the quality is out of this world. We are proud to offer so many unusual & unique plans and patterns. Many of these plans have been in our customer's request. We also have a new line of "Nothing But..." catalogs featuring ten different related subjects. The second of our series will be "Nothing But Birdhouses And Feeders" (see next listing for details). Catalog. CREATIVECRAFT PLANS. $4.00. Circle No. 330.

CREATIVECRAFT PLANS—Offers you our newest catalog in the "Nothing But" series. What is the "Nothing But" series all about? Every catalog features different but a particular subject, e.g., nothing but Christmas, nothing but bird houses and feeders, nothing but lawn & garden, nothing but birds and flowers and many, many more. Don't miss the boat, order your catalog of plans & patterns today. CREATIVECRAFT PLANS. $2.00. Circle No. 331.

FULL SIZE FURNITURE PLANS CATALOG—illustrates and describes over 200 plans for making furniture of quality found in museums and fine furniture stores. Plans include roll top desks, cradles, dining tables, chairs, buffets, china cabinets, pool tables, children's furniture, rocking horse, spinning wheels, and more. Bill of materials exploded drawings assist the woodworker. FURNITURE DESIGNS, INC. $3.00. Circle No. 345.

NEW EXQUISITE BIRD HOUSE—Now available, as well as our other popular bird feeder and stand. Two creative designs to add a touch of charm and whimsy to your garden. Welcome the birds in your neighborhood this spring. Send for information. GOOSE POND MILL. $2.00. Circle No. 365.

INTRODUCING—A family-oriented company dedicated to returning quality, and good old fashioned fun to what a toy should be. We offer patterns, complete kits, or fully assembled toys made from popular, basswood and New England hardwoods. Assemble one your self or let us do it for you. We offer an extensive line of parts including gun barrels, drag swivels, dropping wheels and more. THE LITTLE OL TOY MAKER. $2.00. Circle No. 397.

PROJECT PLANS—Full-size patterns for over 850 easy-to-build woodworking projects. Nation’s leading source for scroll saw projects; toy plans, yard ornaments, wood furniture, etc. Over 3000 hard-to-find specialty items. Send for big new 100-page full-color catalog. MEISSEL HARDWARE SPECIALTIES 100. $2.00. Circle No. 407.

WOOD TOY PATTERNS—Patterns for all ages including children's patterns and executive toys. New catalog has many new patterns to choose from including parts and complete kits. Send for new catalog today. TOYS AND JOYS. $1.00. Circle No. 465.

TO ORDER THESE BOOKLETS, USE COUPON ON PAGE 92

WOOD MAGAZINE APRIL 1996
SCROLLSAW FREWORK PATTERNS—Available from 12 suppliers. For a full catalog of 500+ patterns, available in 300 patterns for the scroll saw enthusiast. Also clock movements, four books of plywood, hardwoods, saw-blades, and other hobbyists are welcome. Catalog. WILDWOOD DESIGNS, INC. Free. Circle No. 475.

LUMBER

QUALITY EXOTIC LUMBER/TURNING WOODS—We offer a comprehensive selection of fine quality exotic woods. Also available are Mechanix for making wooden barrel parts (also poker table tops). Catalog. FRANKLIN & MASON, INC. Free. Circle No. 476.

ONE STOP WOODSHOP—Domestic and exotic hardwood plywood and lumber, marine plywood, over 30 species in stock—all under one roof. Custom cutting services to your exact specifications. Send for catalog. BOULDER HARDWOODS, INC. Free. Circle No. 516.

LUMBER & VENEERS—The finest selection in the USA! Constantine’s 120-page catalog features imported and domestic hardwoods. Turning squares, carving blocks, magnificent veneers in over 80 different species. Everything from Ash to Zebrawood—walnut, rosewood, Gaboon ebony, cocobolo, padouk, maple, holly, purpleheart, bubinga, oak, cherry, poplar, mahogany and more. CONSTANTINE’S. Free. Circle No. 516.

DUNHAM HARDWARES—Specializing in oak and other quality hardwoods. Send for a complete listing of species, prices, thicknesses and grades. All lumber is kiln-dried and graded according to AASHO rules. We have species of hardwoods and can ship small orders UPS to large orders, common carrier. Quality, price and service are the reasons of our game. DUNHAM HARDWOODS. Free. Circle No. 536.

ATTENTION WOOD WORKERS—If you want to spend more time in your workshop and less time shopping for wood, PROJECT-PAK is for you! Our catalog contains 50 PROJECT-PAKs of projects originally built in WOOD Magazine. Send today and enjoy hassle free woodworking. CATALOG, HERITAGE BUILDING SPECIALTIES. $1.00, Circle No. 550.

EXOTIC IMPORTED AND DOMESTIC HARD WOOD—For orders of more than 1000 square feet. From the finest exotic hardwoods to the most difficult products, we are here to meet your needs. Custom cutting and thin stock manufactured. Satisfaction Guaranteed. Send for catalog. WOODWORKERS SOURCE. $1.00. Circle No. 568.

VEHICLES

JOINTECH CABINET MAKER’S SYSTEM VIDEO—Watch Dr. Roger Cliffe and Dave Morgan demonstrate this patented system for performing every operation in furniture and cabinet making. See how easy it is to make, raised panel doors, plus techniques in making dovetails, box joints, drawer construction and even an introduction to building cabinets. All the operations you would normally require to use a shaper, router and a joiner can now be accomplished with the JOINTECH cabinet maker’s system. JOINTECH, INC. $5.00. Circle No. 660.

LAGUNA TOOLS VIDEO—Learn why most European workshops are using a central machine center rather than separate machines. 80 min. video presentation of “The Intelligent One Man Shop.” The Robb’s “5-11” is shown for video. LAGUNA TOOLS. $6.00. Circle No. 615.

GENERAL WOODWORKING CATALOGS

WOODWORKING SUPPLIES—Blocks, pigs, cups, hardware, band saw blades, abrasives, toy parts, glue, clock parts, miniatures, balls, dots, spirals, arrows, beads, picture frames, cup hooks, tins, nails, screw eyes, game pieces, novelty items; and much more. BENNY’S WOODWORKS. $1.00. Circle No. 910.


GRIZZLY IMPORTS, INC.—1985 is our 12th year of providing woodworkers with a selection of machines, tools and accessories at prices you can afford. Send for our free 1995 catalog today and celebrate with tremendous savings on all your woodworking needs. GRIZZLY IMPORTS INC. Free. Circle No. 950.

KREG TOOL CO.—Specializes in pocket hole tools, supplies and how-to videos for pocket hole joinery, including THE KREG JIG. Catalog also includes hinges, drawer assembly rules and clear descriptions that offer specific uses and benefits. Also Listed. Send for catalog. KRYBO. Circle No. 925.

WOODBORING CATALOG—256-page full-color catalog of top quality woodworking machines and supplies. The Sears Catalog & World’s catalog! Catalog includes complete line of power tools, categorized by type: bench top, cordless, hand-held and stationary models. It features individual tool photos, specifications and clear descriptions of tools that offer specific uses and benefits. Also Listed. Send for catalog. KRYBO. Circle No. 925.

WOODBORING CATALOG—256-page full-color catalog of top quality woodworking machines and supplies. See the American made tools! Total Shop is bringing home production. Many tools now made in the U.S.A. Dust collectors, table saws, lathes, drills, routers you name it we have it! Catalog free! TOTAL SHOP. Free. Circle No. 940.

THE WOODWORKER’S STORE CATALOG—New! The Woodworker’s Store 1996 catalog with over 150 new items. You’ll see a new selection of row lumber, exotic hardwoods and exotic hardwoods, veneers, wood parts, speciality hardware, kitchen accessories, finishing supplies, tools, books, and plans. Many exclusive items and hard to find items! Guaranteed Catalog to order your FREE catalog! 1-800-495-9736 THE WOODWORKER’S STORE. Free. Circle No. 965.

KITS

OUR QUEEN ANNE FURNITURE KITS—Are ready to assemble and finish. They include dining room chairs, a variety of occasional tables, and a personal desk. All is made in solid cherry, oak, walnut, and mahogany. Each kit includes: Queen Anne legs for every project. Complete information in our brochure packet. ADAMS WOOD PRODUCTS. Free. Circle No. 1002.

ATTENTION WOOD WORKERS—If you want to spend more time working in your workshop and less time shopping for wood, PROJECT-PAK is for you! Our catalog contains 50 PROJECT-PAKs of projects originally built in WOOD Magazine. Send today and enjoy hassle free woodworking. CATALOG, HERITAGE BUILDING SPECIALTIES. $1.00, Circle No. 1040.

INTRODUCING A FAMILY-OWNED COMPANY DEDICATED TO QUALITY. Featuring a complete line of quality tooling, including many hard to find items. Authentic Woodturning Supply. Free. Circle No. 1060.


BUCKBOARD BENCH KIT—Kit includes: steel springs that give your bench the comfort of a horse drawn carriage, rear rails, hardware, and full-size instructions. New matching treat table kit. THE ROUDEHOUSE CO. Free. Circle No. 1085.

PUBLICATIONS

HOW TO WORK WITH CORIAN® IN THE HOME WORKSHOP—You can see it in the ads on these pages! CORIAN comes to life in the hands of a craftsman. Now, get a "how to" book. More information is available. Send $2.00. Circle No. 1085.

EDUCATION—ECON-ABRASIVES—Offers a complete line of sandpapers and woodworking related accessories. We also form abrasive belts in any size and in any grit. Catalog. ECON-ABRASIVES, Free. Circle No. 1229.

EASY DOES IT—With HTC’s power tool accessories, discover easy to make projects and increase the productivity of your workshop. HTC PRODUCTS, INC. Free. Circle No. 1245.

WOOD MOISTURE METER—Avoid moisture defects such as checking, warping, splitting and delamination. The pin-type moisture meter “Mini-Lino” can read surface or core moisture in any thickness of lumber, from veneer through heavy timbers. A flat surface is not necessary. The Mini-Lino can also check the external electrode for depth readings. Catalog describes complete line of moisture meters. LIGNOMAT USA, LTD. Free. Circle No. 1250.

ROUTER SPEED CONTROL—Reduces speed electronically and automatically eliminates the possibility of burning the work or the bit you are using. Speed adjustable from full speed to 0 RPM. Easy to use. See today for information. MILCOS LTD. Free. Circle No. 1250.

LUMBER DRYING—Dry your own lumber using our equipment and your insulated chamber. Dehumidification systems from 300 BF to 45,000 BF. Easy to operate equipment offers high quality kiln dried lumber for projects requiring lasting made-in-the-USA units can pay for themselves in one month! Send for free catalog. NYLLE STANDARD DRYERS, INC. Free. Circle No. 1260.

SUPERGRIT® SANDING/REFINISHING CATALOG—Cleans, flushes, refinishes; eliminates sanding scratches, silicone carbide zirconia, disc, plain, PSA, Hook & loop vacuum, sheets (cabinet, courier, emery, non-loading, waterproof), rolls (cloth or hook & loop), bags, turning & lathe supplies, dust masks, dust pads, tack cloths, tape. RED HILL CORP. Free. Circle No. 1287.

“WOOD-FRIENDLY” LBS6 MOISTURE METER—Uses advanced electromagnetic wave technology to accurately measure wood moisture content 10% to 35% at a depth of 1”. No probes to “abuse” wood and leave ugly holes. Check out boards from top to bottom in just seconds before you buy and avoid the headaches of splitting, warpage, delaminating and failed glue joints. The Wagner LBS6’s convenient pocket size, easy-to-read analog meter, and low price make it a must for anyone working with wood. Literature. WAGNER ELECTRONIC PRODUCTS, INC. Free. Circle No. 1287.

UNCOMMON WOODWORKING TOOLS—American made quality router tables and fences, dovetail jigs, unique router biscuit joinery system, mortise machines, pin router, books, videos, commercial grade drill bits and others. Wagner LBS6’s convenient pocket size, easy-to-read analog meter, and low price make it a must for anyone working with wood. Literature. WAGNER ELECTRONIC PRODUCTS, INC. Free. Circle No. 1287.

KEEP YOUR SHOP AND LUGGAGE CLEAN—Enjoy the benefits of a large yet mobile workbench. The Dust Collector takes off the table and The Workbench is storage before it becomes airborne. For dust created by other tools, common sense tells us that wood, even as dust, has weight and is affected by gravity making it more difficult to be blown away by the workbench’s head. This is why it is much more efficient to collect dust particles at waist level. The workbench top is made of select and better grades of hard maple, the finish is choice of wood craftsmen. WOODMARK. $1.00. Circle No. 1335.

TO ORDER THESE BOOKLETS, USE COUPON ON PAGE 92
BITS, BLADES, CUTTING TOOLS

ASK FOR CMT'S CATALOG AND WE'LL GIVE YOU $10—CMT Tools will send you our free, fully-color illustrated catalog and will give you $10.00 discount on your first order! CMT bits feature anti-kickback design, non-stick coatings and micrograin carbide cutting edges. Our catalog is packed with accessories, project ideas and safety tips—it's one catalog you'll want to keep! CMT TOOLS, INC. Free. Circle No. 1310.


SUPER-SHARP, EXTRA-DURABLE, CARBIDE-TIPPED CIRCULAR SAW BLADES—Get a smooth-as-sanded surface with all our purpose 40-tooth Woodworker Blade. You will be able to rip and crosscut 1-2 in. thick hardwoods and softwoods with an unbeatable finish. You will also be able to cross-cut oak and birch ply-veneers with no bottom splinters. Send today for our information pack. FORREST MFG. CO., INC. Free. Circle No. 1322.

PRODUCTION QUALITY CARBIDE TIPPED ROUTER BITS—Large discounts. New expanded catalog featuring a huge selection of Carbide Tipped Router Bits. Raised Panel Door Sets, Shaper Cutters, Solid Carbide Bits, The Router Speed Control, plus our unique line of clamps, tools and supplies. Save 50% to 70%. Value, quality, and prompt service guaranteed! MLCS LTD. Free. Circle No. 1350.

MORE TOOLS, paint supplies, stencils, stamps and much more Wholesale prices available. Catalog CHERRY TREE TOYS, Free. Circle No. 1420.

INCOME OPPORTUNITIES

SECURE FUTURE IN FURNITURE RESTORATION WITH MINUTEMAN—Earn $200-$1,000 per day stripping, repairing, refinishing mirror refinisher, wood furniture, 1930 or older, in or out of part or full-time. W we provide complete training; no experience necessary. FREE workshop teaches you latest in furniture restoration. Featuring Amity, the first complete line of water-based furniture renovation products. Catalog MINUTEMAN. Free. Circle No. 1661.

MISCELLANEOUS

UNDERBED STORAGE DRESSER—Top quality, solid wood, ready-to-assemble kits provide convenient space-saving storage. Can have 3-16 drawers. Start at $198.00. FREE freight for limited time. Send for FREE pp-14 page catalog. ANDERSON MFG. CO. Free. Circle No. 1795.


LOOKING FOR PIERCED TIN? COME TO THE SOURCE!—To 70+ page color highlighted catalog introduces you to a treasure of pierced metal panels about 1200 pieces and more for your woodworking projects. Available in a wide variety of sizes, styles and thicknesses. Send $5.00 for catalog. Wholesale price only. Catalogue includes furniture plans you can order, tins, kits, and allied metal piercing tools and MORE. COUNTRY ARTS. $5.00. Circle No. 1910.


GET THE BACK SUPPORT YOU NEED—and the comfort you want with the Select Comfort Air Sleep System, the only mattress with adjustable firmness—from feather soft to super hard—at the touch of a button. This is the revolutionary air support mattress that lets you change the sleeping comfort level—while sleeping in the same bed. Get the best night's sleep possible! Try it in the comfort of your own home with our 90 night risk free trial. SELECT COMFORT. Free. Circle No. 2010.

STEELMASTER BUILDERS—Are available in unlimited sizes for your wood shop projects. From 10’ to 100’ wide and any length imaginable. Whether you need a barn shop... an industrial shop... equipment storage building... whatever your requirements, you'll find a Steelmaster that's just the right size for the job. Our buildings are so easy to construct, most owners opt to construct their buildings themselves which adds up to even bigger savings. Send for information. STEELMASTER BUILDERS. Free. Circle No. 2030.

IF YOU ARE INTERESTED IN RESTORING ANTIQUES—this 288-page catalog packed with unusual, hard-to-find items is just for you. Included are hundreds of essential items for antique restoration including top quality brass reproduction hardware, urns and vases, legs, hardware, all at wholesale prices. Send for this informative catalog. VAN DYKE'S RESTORERS. $1.00. Circle No. 2077.

WHOLESALE GLASS BROKERS—High quality glass shipped to your door directly from the finest manufacturers. Table lamps, sconces, stained glass, frosted glass, beveled glass, cut crystal, custom shapes; tinted glass, and much more! One-stop glass source. Idea catalog. WHOLESALE GLASS BROKERS. Free. Circle No. 2078.

LEGAL IVORY—Virtually identical to animal ivory. Tagua is the nut from a tropical palm tree. Ideal for jewelry, knobs, small turnings, Inlay, or scrimshaw. Available in 3 sizes. Send for information. WOODWORKER'S SOURCE. Free. Circle No. 2090.

CARVING SUPPLIES

WOOD CARVING MACHINES AND ACCESSORIES—Make all types of wood carving easy, fun and profitable. The machines do the work. Whether for sign making, inlay, relief carving, gun stocks or furniture, you have the proper machines for the job. Professional woodcarving for the hobbyist and superior quality for the professional. Begin your hobby or business today by ordering our catalog and price list. MARLINS INDUSTRIES. $1.00. Circle No. 2150.

CLAMPS

MERLE ADJUSTABLE CORNER CLAMP—Quick & easy to use. It forces your work into square. Fully adjustable from 2” x 2” to 6” x 6” in. Perfect for clamping picture frames, cabinets, or anything that requires 90° corner clamping. The Merle Clamp is cast aluminum & steel construction, a true industrial quality tool. Send today for information. MLCS LTD. Free. Circle No. 2250.

FASTENING PRODUCTS

SQUARE DRIVE SCREWS—Thousands agree—once you try them you will never want to use anything else! The square drive recess virtually eliminates work-consuming drill bit "sawing", the deep throat, and outer shell split in expansive powders, and they are heat treated for strength. Sizes from #4 x 1/4" to #12 x 4", with stainless steel, solid brass, brass plated, and zinc plated available. Quantity discounts. Send for literature. McFEELY'S. $1.00. Circle No. 2450.

SHOWS & SEMINARS

THE WOODWORKING SHOWS® MACHINERY, TOOLS AND SUPPLIES—Hundreds of products for the woodworker demonstrated at discount prices at every "Woodworking Show". In-depth seminars and free workshops on a variety of woodworking topics. Shows are scheduled in 27 cities. Send for free brochure. THE WOODWORKING SHOWS. Free. Circle No. 2900.
The amazing walk-behind brush cutter!

The DR® FIELD and BRUSH MOWER

CLEARS & MAINTAINS meadows, pastures, woodlots, wooded and rough non-lawn areas with ease. CUTS tall grass, weeds, brambles, tough brush and saplings up to 1" thick. CHOPS/MULCHES most everything it cuts. Leaves NO TANGLE of brush to pick up like hand-held brushcutters and sicklebar mowers. Perfect for low-maintenance wildflower meadows, European-style woodlots, walking paths, or any area you only want to mow once a month or once a season!

- Self-Propelled
- Moves up to 1/2 acre per hour!

TOLL FREE
845-3993

PLEASE mail this coupon TODAY for complete FREE DETAILS of the DR® FIELD and BRUSH MOWER including prices, specifications, and "Off-Season" Savings now in effect. There is no obligation.

Name
Address
City State Zip
To: COUNTRY HOME PRODUCTS®, Dept. 10594
Perry Road, Box 39, Charlotte, VT 05445

How did I carve this?
With CMT's exclusive 3D Router Carver™

Let's face it, there's no way I can tell the story of this revolutionary tool in this tiny space. For more details call for our free video or order the 3D Carver video for a complete step-by-step demonstration.

3DC-9999 3D Carver Video
Sale: $10.00

Shipping and Handling $5.00
Call toll-free 24-hours:
1-800-531-5559
Toll-free FAX: 1-800-870-7702
813-891-6160, FAX: 813-891-6259
(At Canada call 1-800-877-7006)
CMT TOOLS®, 310 Myers Boulevard, Oldsmar, FL 34677

Circle No. 1510

Get Back To Nature.
Peel off paint & varnish as easy as peeling an orange.

Citristrip is the only stripper with a pleasant orange scent and a powerful No Methylene Chloride formula. It also stays wet and active over 24 hours, so you can strip away multiple layers and complete your entire project in one easy step. For more info 1-800-899-0401.

Circle No. 1310

America's Finest Scroll Saw

The rbindustries Hawk Ultra scroll saws are the finest and the most advanced saws in the woodworking industry. Why? Because we listened to our customers and geared the Hawk Ultras to fit their woodworking needs. With having sold over 40,000+ scroll saws to date, the best is just getting better!

- Make Money
- Save Time
- Safe Operation
- A+ Customer Support

RBI's Hawk 220VS Scroll Saw was picked for WOOD magazine New, Improved Workshop.

WOOD® Magazine Issue: Aug, 1995
5-Year Warranty
30 Day Money Back Guarantee

Call 1-800-487-2623 for a FREE Catalog Today!

A Tool For Generations

Circle No. 84
BUSINESS OPPORTUNITIES
MAKE YOUR DREAM COME TRUE, earn $75,000 yearly repairing cracks in windshields and plate glass, not replacing them. Call 1-800-888-8080 (US/Canada); T/A Glass Mechanic, 4655 N.W. 120th Avenue, H. Lauderdale, FL 33317.
SELL YOUR WOOD PROJECTS! Internet catalog can showcase your accomplishments. Request Send for $1 for details. Your Woodworkers Showcase, 3N60 Shagbark, West Chicago, IL 60185-1391 or E-mail: jerry@rfreretreat.com
CLOCK MAKING SUPPLIES
THE CLOCKMAKERS SOURCE! Over 250 items wholesale! New low prices. Order today! Call 1-800-564-5555 (CA only) or 1-800-564-5556 (all other states).
FINISHING/RESTORATION
LATEX GLOVES FOR FINISHING, extra thick, powder-free, 250 gloves/box, specify size 4-10. $7.95-25.00, S&H. Emergency Service Products, PO Box 16444, Augusta, GA 30912-9046, 1-800-908-8533.
SPRAY-ON SUIT, Free brochure with sample. New mini roller, Donner Products, Inc, 4707 Main St., Brooksville, FL 34601, 1-800-564-5556.
HARDWOODS/LUMBER
THINWOODS 1/4"x1/4" thickness. Perfect for scroll sawing, crafts, boxes, musical instruments and more. Ash to Zebrawood. Free Brochure Call 1-800/564-3465 or write to: 317 Nebraska Ave., Columbus, MO 65601.
INSTRUCTION/EDUCATION
BECOME A LOCKSMITH, Home study program. Professional key machine included. Career awareness literature, Locks, Atlanta, Georgia, 1-800-362-9079 Dept. A.
PLANS/KITS/PATTERNS
AMERICAN FURNITURE DESIGN CO. offers furniture plans from America's leading designers and craftsmen. The plans are $34.98 each. Send $2 to 10621 South是怎样 Ave., Gardena, CA 90249.
BEAUTIFUL BEACH COTTAGE DOGHOUSE! Brand new design with front porch. Fully insulated. Plans, material list and construction guide only $11.95 + $3.00 S&H. Habitat Earthbox, Dept. A, Box 1034, Perkins, OK 74059.
PATTERN CUTTER CATALOGUE, for R&B, Woodworker, Biswsaw, Sears, Powermatic, Planers, Details, Shaper heads, 1-800/564-2755. Send $2.50, refundable with order.
LOG CABIN DOLLHOUSE PLANS, Beautifully detailed. Requires wooden, 16"x12"x16". $34.95. Box 70886, Nashville, TN 37207.
BUILD 700 TOOLS, Machines, Accessories for Wood/Metal Shops. Catalog $1.00. Wood-Met WOOD, 3314 Shute Tower, P.O. Box 20904, Dallas, TX 75226.
SCROLL SAW PATTERNS/BOOKS! All levels and interests, Great gift idea. Send $1.00, Nelson Designs, Box 422-W, Dublin, New Hampshire 03235.
INTARSIA PATTERNS - 16 designs. For brochure send $2.00 to: SAWDUST & X-STITCH, Dept. WD, PO Box 203, Topeka, KS 66601-024.
MAKE "ASTONISHING" BALANCING TOYS! Woden "performing" animals...people! Thrilling realistic details...free! Send today! Pleasure Crafts, W217-2145, Manhattan, KS 66504.
SHOP SAFETY
SHOWS/SPECIAL EVENTS
WOOD PARTS/SUPPLIES
REPRODUCTION HARDWARE: Door, locks, hinges, handles, etc. Please catalog. 90¢. WOODS 4020, 2117-2145, Manhattan, KS 66504.
ATTENTION CLASSIFIED ADVERTISERS!
Now you can reach over 1,100,000 responsive woodworkers and do-it-yourselfers in the new WOOD Classified Mart section.
The next closing date is February 19, 1996 for the May/June 1996 issue.
For rates and information, Call: 1-800/424-3000 or Fax: 312/464-5012 or write WOODS Classified Mart 500 North Michigan Avenue, Suite 2010 Chicago, IL 60611

More than six inches!
Isn't that every woodworker's dream? Our team of Euopean Bandsaw gives you almost twice the resaw capacity of our competitors, the innovations that go beyond your wildest dreams; dynamically balanced cast iron wheels, heavy duty cast iron tables and huge, well actually large, blade capacities and professional guides. Our Bandsaw comes in a size and budget to fit your needs. Call (800) 234-1976 today for your free demonstration video.
PS - For those of you that size is an issue, our Bandsaw range from 13" to 36" models.
LAGUNA TOOLS
2265 Laguna Canyon Rd., Laguna Beach, CA 92651 • FAX (714) 497-1346

Circle No. 615

One-Man Cabinet Shop
The Ultimate Precision Woodworking System
- V/Ir MicroAdjustability
- Quick Action Cam Clamp
- New! Extended Stop
- Over 150,000 INCRA Jigs sold and counting!
- FIVE Sliding Scale/Template Channels
- Right Angle Fixture
- Machine Shop Accuracy - Accurate to with 0.002" over full 15" or 24" range, and perfectly repeatable
- Three-Point Tracking - For silky smooth carriage movement
- Visit us at next year's woodworking convention, ask for our free brochure:
(212) 484-5579
Taylor Design Group, Inc
PO Box 610665
Dallas, TX 75381
FAX: (214) 423-4277
Discover the World’s Most Creative and Satisfying Hobby... Build a Historic Wooden Ship Model!

Even if you’ve never built a model before, you can experience the pleasure and pride of accomplishment wooden ship modeling offers. You can build the two-masted schooner pictured here—a true-to-scale replica, decked out with gleaming brass fittings, delicate rigging—like a shipwright of a hundred years ago. The result? An authentically detailed, museum quality wooden ship model you’ll display with pride...a valuable keepsake to be treasured for generations.

**The Secret’s In Our Kit**
We designed our kit especially for the first time modeler. We include all the materials you need to build the model as shown. The solid basswood hull is pre-carved; all you do is a little shaping and light sanding. You’ll get wood parts for the cabin and companionways, ready-to-use wooden blocks and dead-eyes, solid brass and finely cast metal fittings and three diameters of rigging line. We even give you copper plating to cover the hull! Hardwood display base and launching ways complete the kit. Three sheets of plans and 16 page step-by-step instruction book show you the way to a magnificent model. (Expect to spend 50 to 75 pleasure-filled hours completing it.)

**SPECIAL INTRODUCTORY OFFER WITH FREE BOOK AND CATALOG!**
We want to introduce you to this fascinating hobby now! Our regular catalog price for the Phantom is $44.99. But for a limited time only, it's yours for just $34.99! And, if you order now, we’ll also send you The Neophyte Shipmodeler’s Jackstay, a richly illustrated 60 page beginner’s guide to ship modeling. Selling for $7.99, it’s yours absolutely free! You’ll also receive a 92 page color catalog showing over 90 ship model kits, hundreds of miniature tools and reference books.

**Save On A Tool Set!**
All the tools you need to build the Phantom! Hobby knife, 10 cutting and carving blades, sandpaper assortment, tweezers, three miniature files, block threader and jeweler’s pin vise with fine diameter drills—26 pieces in all! Retail Value Over $22.00 Now Only $14.99

**Model Finishing Set**
Includes all the finishing materials you need! 1 oz. bottle of white glue, six 1/2 oz. bottles of Floquil Model Paints (dull black, bulwarks white, bulwarks red, bright oil, glaze and thinner), plus three high quality sable paint brushes. Retail Value Over $15.00 Now Only $11.99

**OUR UNCONVENTIONAL GUARANTEES:**
1. If less than delighted, you may return your purchase in original condition within 30 days.
2. Should you break or lose a part during construction, we will replace it free of charge.

**Credit Card Holders Call Toll Free 800-222-3876**
Mon-Fri 9-5 ET. Or FAX 717-839-2090 Anytime!

---

The Phantom was built for the Port of New York Pilots in 1868. She was lost during the great blizzard of ’88, going ashore at Sandy Hook, NJ. Two years earlier, on March 14, 1866, she rescued 852 people from the sinking British liner S.S. Oregon off the Long Island coast. The plans in our kit are a faithful adaptation of the originals.

Phantom by Model Shipways Kit No. MS2027B
Length 13 1/2”/Height 13 3/4”/Scale 1/8” = 1 ft.
Water-based contact cement ends hassles

Solvent-based contact cement suffers from two drawbacks: the odor is overpowering and the stuff never flows out easily. That’s why I was pleased to discover water-based Lockweld H2O Contact Adhesive.

Like solvent-based contact cement, you apply Lockweld to both surfaces, wait until these become tack dry, and then press the pieces together. In my tests, the Lockweld spread easily and evenly. I found I could cover the workpieces in the same amount of time it would take to roll on a coat of paint.

To test the bonding strength, I glued up a few scrap pieces—laminated to particleboard and particleboard to particleboard—and tried to pry them apart. The Lockweld held as firmly as any solvent-based product I’ve tried.

The Lockweld product costs almost double what you’ll pay for solvent-based contact cement. But given the spreadability, minimal odor, and soap-and-water cleanup, I think it’s well worth the extra money.

Try your hand at turning these two new materials

If you’re looking for a new challenge in turning, listen up. The catalog company Craft Supplies recently began selling two unusual turning materials—Busy Blocks and Talc—that will broaden your turning horizons.

Produced from flooring off-cuts, Busy Blocks turning squares (at right in photo) consist of up to 15 different species of wood including padauk, wenge, red and white oak, Honduras rosewood, and others. Pieces of various thicknesses are laminated and cut into different-sized blocks.

In turning a small square, I found that sharp tools are mandatory since pieces of end grain are exposed on all sides of the block. I stayed with gouges and avoided using my scrapers. After I’d turned the rough shape of my project, I noticed a bit of waviness on the surface of the workpiece—probably due to the irregular pattern of end grain next to face grain. I evened this out easily, however, by power-sanding the block for a few minutes.

The smaller sizes of Busy Blocks offer the best value for the money. A 1½x8x8" piece sells for about $23. The largest size, 3x12x12", goes for about $90. Once finished, these blocks make eye-catching bowls or vases and add a distinctive look to your collection of turnings.

Talc, Craft Supplies’ other novel material (at left in the photo), turned out to be surprisingly easy to work with. I was expecting some rough turning, as heavy and dense as it felt when I first put it on my lathe, but I found it no more difficult to turn than a piece of softwood.

First, I attached it to my faceplate with 5-minute epoxy. I started turning the shape with a scraper, but switched to a gouge soon afterward for more aggressive material removal. To avoid chatter, I used the slowest speed on my lathe, 350 rpm. After turning the shape with the gouge, I switched to 120-grit and then 320-grit sandpaper. For the final finish, I polished the bowl with a #0000 synthetic steel-wool pad (also known as non-woven pads) and then buffed it with beeswax.

The varied colors and “grain” patterns in the Talc block offer as much visual appeal as highly figured woods. The company sells four types of Talc. Each shows a different range of color and pattern. A small vase like the one shown requires about eight pounds of Talc, and costs run between $2 and $3 per pound.

Product Scorecard

<table>
<thead>
<tr>
<th>Product</th>
<th>Performance</th>
<th>Price</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Busy Blocks</td>
<td>★★★★★</td>
<td>$42.60 per gallon</td>
<td>See text</td>
</tr>
<tr>
<td>Talc</td>
<td>★★★★★</td>
<td>See text</td>
<td>★★★★★</td>
</tr>
</tbody>
</table>

Craft Supplies, P.O. Box 50300, 1287 E 1120 S., Provo, UT 84605-0300. Call 800/551-8876.

Contd on page 98
**Free Shipping!**
For all items shown below!

**Low Price Guarantee:** We'll beat any competitor's price on any identical item—*even if it's an advertised special.*

**Central Machinery**
- **FREE ACCESSORIES:** Stand, 6" belt, 9" disc, open-end wrench, hex key

**Combination 6" Belt & 9" Disc Sander**
- 1 hp, 110v, 6 amps, 3450 RPM, all ball bearing motor, overall height: 40", table tilt: 0° to 90°, table surface: 6-1/2" x 12-3/4", two position work table for disc or belt use: disc speed: 1720 RPM, belt: 6" x 48" L, belt speed: 1280 FPM, wt: 121 lbs.
- **LIMIT 1**
- **ITEM 06852-5VRA**
- **$149.99**

**Canvas Tool Bag**
- Handy 15" size. Made with heavy duty canvas and hard bottom. Features heavy duty zipper top with two internal pockets and one external pocket with a snap down flap.
- **LIMIT 1**
- **ITEM 32282-1VRA**
- **$5.99**

**Stanley Powerlock Tape Measure**
- 25 foot, 1" blade remains rigid for 7 feet.
- Yellow insert coated steel blade with Truezero hook.
- **ITEM 09066-4VRA**
- **$9.95**

**Central Machinery**
- **1/3 HP MOTOR**

**5 Speed Bench Drill Press**
- 620 to 3100 RPM
- 2" stroke, 8-1/4" swing
- 1/4" max. distance spindle to table
- 22-1/2" high, 47 lbs.
- **ITEM 05901-7VRA**
- **$49.99**

**28 PC. High Speed Steel Drill Bit Set**
- 1/16" thru 1/2" by 64ths
- M-2 high speed steel
- Jobber length, straight shank
- Includes metal index
- **ITEM 00096-1VRA**
- **$8.99**

**Industrial Dust Collector**
- Work in a dust-free atmosphere with this quality dust collector. It develops over ten times the suction of most shop vacuums. Heavy duty ball bearing castors. Have sold separately.
- 3/4 HP, 110v, 5.6" cfm
- 1 horse inlet, 550 CWM
- 21 gallon capacity, Shipping weight: 62 lbs.
- **ITEM 30667-6VRA**
- **$139.99**

**10" Saw Blade**
- 40 tooth carbide tips
- 5/8" Arbor
- **ITEM 000529-3VRA**
- **$8.99**

**16 Gauge Industrial Air Nailer/Brad Driver**
- The high capacity, universal magazine and low recoil make this heavy duty nailer ideal for industrial uses.
- **Includes:** 3 & 4mm hex wrenches, oil, safety goggles, and molded case with capacity: 100-16 gauge brad nails 3/4" to 2" long. Operating pressure: 60-100 PSI, Air inlet: 1/4" NPT
- **ITEM 32669-5VRA**
- **$129.95**

**15 PC. Tungsten Carbide Tipped Router Bit Set**
- With long life tungsten carbide tips and the most used routing shapes. Ground to ultra close tolerances for the best finish available. Includes case.
- 1/4" shanks includes: 1-1/4" rabbeting, 1-3/8" core, 1-1/2" chamfer, 1-1/4" radius, 1-1/2" rounding over, 1-1/2" flush trimming, 1-3/16" 45° chamfer, 1/2" dovetail, 3/4" straight, 1/2" straight, 3/8" x 3/4" grove, 1/4" combination panel, 3/8" straight, 1/2" mortising, 1/4" self-piloting flush trim, 3/8" self-piloting dovetail panel
- **ITEM 31608-9VRA**
- **$39.99**

**Precision 10" Bench Top Cutting System**
- Get big saw capacity and performance from a bench top, adjustable sliding mitre provides smooth control for pinpoint accuracy. Advanced tip fence design ensures perfect alignment.
- **ITEM 50450-3VRA**
- **$299.99**

**Pittsburgh**
- **2 PC. 3/4" Heavy Duty Pipe Clamp Set**
- Pipe not included.
- **ITEM 31255-4VRA**
- **$2.93**

**12-1/2" Roller and Bracket Set**
- Double your table saw capacity! Make your own roller table.
- **ITEM 30026-6VRA**
- **$4.49**

**13.2V 3/8" Cordless Drill Kit With keyed chuck**
- Indicator on drill body notifies operator of low battery charge.
- **ITEM 33114-4VRA**
- **$49.95**

**13.2V Battery**
- **ITEM 33214-4VRA**
- **$25.99**

**Includes Stand**
- **ITEM 33221-1VRA**
- **$9.99**

**Central Machinery**
- **1/3 HP Motor**

**10" Saw Blade**
- 5 speed bench drill press
- Maximum depth of cut: 8" at 3/4" at 45°, 2-1/2" Miter: 0° to 45°, 60°, 13°, 4500 RPM, Shipping weight: 40 lbs.
- **ITEM 32648-3VRA**
- **$79.99**

**Central Machinery**
- **Contractor Series**

**16 Gauge Industrial Air Nailer/Brad Driver**
- Heavy duty, universal magazine and low recoil make this heavy duty nailer ideal for industrial uses.
- **Includes:** 3 & 4mm hex wrenches, oil, safety goggles, and molded case with capacity: 100-16 gauge brad nails 3/4" to 2" long. Operating pressure: 60-100 PSI, Air inlet: 1/4" NPT
- **ITEM 32669-5VRA**
- **$129.95**

**6" Industrial Rabbeting Jointer**
- **ITEM 30225-5VRA**
- **$199.99**

**Replacement Blade**
- **ITEM 33271-1VRA**
- **$9.99**

*Within the 48 States / $2.95 handling on all orders*

Call to Order or Ask for Free Catalog:
Order 24 Hours a Day / 7 Days a Week
Most Phone Orders Shipped in 48 Hours

**FAX TOLL FREE: 1-800-905-5220 1-800-423-2567**

Circle No. 46
Quick-action adjustable clamps hold with 300 pounds of pressure

Clamping a workpiece to a drill-press table can prove difficult and awkward. But lose control of a workpiece just once, and you’ll realize how much you need to clamp any workpiece you put on a drill press.

The MapleTek Leverclamp has everything I could ask of a drill-press clamp. It gives you 300 pounds of holding pressure, 4" of height capacity, and single-handed lever operation. When you mount it in the company’s T-slot channel called Clamptrax, you can move the Leverclamp on and off the table in seconds.

The clamps are made of solid steel except for the maple tips which prevent marring of the workpiece. If you need more padding, you can replace the maple tips with a softer wood such as pine. To adjust the holding pressure, you turn an allen screw at the top of the clamp.

There’s no reason to restrict the use of these clamps to your drill press, however. You can bolt the clamps directly to your bench if you want a fixed-position clamp. If you change clamping setups frequently, I’d recommend the Clamptrax T-slot system to get the most convenience and speed out of this well-designed system. —Tested by Bob McFarlin

**PRODUCT SCORECARD**

<table>
<thead>
<tr>
<th></th>
<th>MapleTek Leverclamp</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Performance</strong></td>
<td>★★★★★</td>
</tr>
<tr>
<td>Price</td>
<td>$44.95 per clamp, $13 for a 16&quot; piece of Clamptrax</td>
</tr>
<tr>
<td><strong>Value</strong></td>
<td>★★★★</td>
</tr>
</tbody>
</table>

MapleTek Engineering, 1016 Morse Avenue, #5, Sunnyvale, CA 94089. Call 800/425-2677.

---

**Total Shop 90177**

- **Years of Experience**: 9
- **Filter Size (Sq Ft)**: 26
- **Filter Depth (Inches)**: 18
- **Filter Efficiency**: 95%
- **Filter Life (Approx Months)**: 12
- **Filter Cost**: $29
- **Air Tight Fan Box**: Yes
- **UL Approved Filter Unit**: Yes
- **18 Ga. Welded Construction**: Yes
- **Air Direction Tube**: Yes
- **Weight**: 60
- **Unit Size**: 12x24x37
- **Lifetime Warranty**: Yes
- **Money Back Guarantee**: Yes

**JDS AirTech 2000**

- **Years of Experience**: 11/2
- **Filter Size (Sq Ft)**: 14
- **Filter Depth (Inches)**: 12
- **Filter Efficiency**: 65%
- **Filter Life (Approx Months)**: 8
- **Filter Cost**: $35
- **Air Tight Fan Box**: No
- **UL Approved Filter Unit**: No
- **18 Ga. Welded Construction**: No
- **Air Direction Tube**: Yes
- **Weight**: 43
- **Unit Size**: 12x24x28
- **Lifetime Warranty**: No
- **Money Back Guarantee**: No

**Hartville Tool**

- **Years of Experience**: 1
- **Filter Size (Sq Ft)**: 15
- **Filter Depth (Inches)**: 8
- **Filter Efficiency**: ?
- **Filter Life (Approx Months)**: 6
- **Filter Cost**: $36
- **Air Tight Fan Box**: No
- **UL Approved Filter Unit**: No
- **18 Ga. Welded Construction**: No
- **Air Direction Tube**: No
- **Weight**: 30
- **Unit Size**: 12x24x20
- **Lifetime Warranty**: No
- **Money Back Guarantee**: No

**Penn State 460**

- **Years of Experience**: 2
- **Filter Size (Sq Ft)**: 20
- **Filter Depth (Inches)**: 18
- **Filter Efficiency**: 45%
- **Filter Life (Approx Months)**: 12
- **Filter Cost**: $35
- **Air Tight Fan Box**: No
- **UL Approved Filter Unit**: No
- **18 Ga. Welded Construction**: No
- **Air Direction Tube**: No
- **Weight**: 40
- **Unit Size**: 12x24x30
- **Lifetime Warranty**: No
- **Money Back Guarantee**: No

*All figures are from company personnel or company literature.*
A wee canoe that's a classic, too!

After years of home building, remodeling, and custom cabinetmaking, Canadian Paul Smithers decided to turn his skills to boatbuilding. "I had a 1,100 square-foot shop set up for cabinets, but the market was drying up," he says. "I grew up around boats, so I finally decided to build one to see what it was like."

That was over three years ago. Now operating as Marsh Muckers Boatworks in Ashton, Ontario, Paul skillfully turns out mahogany kayaks, small rowing tenders, car-top boats, and cedar-strip canoes trimmed with exotic woods. His unique "Peeper" canoe, shown right, was designed for those who struggle to portage a large, heavier craft. At 30 pounds, it holds two people.

Paul's wife, Jean, brought his work to our attention after reading the article "Classic Canoe Craftsmanship" in the September 1995 issue of WOOD® magazine. "Your readers north of the border might like to know about a Canadian craftsman who builds classics, too," she advised. Thanks, Jean!

Lightning can be choosy

"Beware the oak, it draws the stroke," was but one of many adages in English folklore describing lightning's dazzling preference for striking certain types of tree. Another one was, "Avoid the ash, it courts the flash." So over the years, a number of studies have attempted to authenticate these old sayings. Here are just some of the studies' documented findings:

- America, 1898: oak, 48 strikes; pine, 33; spruce, 5; beech, 1.
- Germany, 1920: oak, 56 strikes; ash, 20; pine, 4; beech, 0.

One conclusion experts have drawn from this information is that lightning tends to hit rough-barked trees, such as oak, elm, or ash, rather than smooth-barked ones, such as beech, birch, or maple. Our honest advice: Don't stand under any tree, no matter the species, during stormy weather.

Shrine to the hand-hewn

Amid the pines that shroud western Michigan's Pere Marquette River near Baldwin stands a monument to one man's craftsmanship. The Shrine of the Pines, a Lake County park, showcases the amazing woodworking skill of a hunting/fishing guide and woodman who created with only his hands and crude tools.

Raymond Overholzer walked the Michigan woods in the 1920s. He retrieved from them remains of the logging era—a rooted stump, a twisted branch, a forgotten log. His stock was always found wood. "Ray never cut down a tree," the museum guides will tell you. "He just used leftovers."

From those scraps of a once-great pine forest Overholzer fashioned a rocking chair of roots so perfectly balanced that it rocks 55 times with a single push; a table made from a 700-pound stump, with inlays; a 12-gun rack that turns on 39 wooden roller bearings, and more. And he did all this (over a period of 30 years) without power tools, nails, screws, or even sandpaper!

The country craftsman skillfully fitted the joints of his projects and glued them, smoothed the wood with crushed glass glued to old conveyer belting from a nearby sawmill, then finished them by polishing with raw deer hide. By 1940 he had accumulated so many handcrafted pieces that he built a huge lodge to house them. That's where you'll find his work today, because prior to his death in 1952, Overholzer had turned the lodge into a museum. You can visit it from 10 a.m. to 6 p.m., May 15 through October 15. For more information, call 616/745-7892.

Illustration: Jim Stevenson
Photographs: Jean Smithers; Kurt P. Kahl
For Wood Carvers, It's A Powerful Turn-On

The Ryobi Detail Carver gives you hand-carved results with power tool speed. You get two speeds – high for fast stock removal, low for precision control – plus five different chisel profiles and a carrying case.

All for under $70! So turn on the Ryobi Detail Carver. It'll return the favor.

RYOBI
Exceed Your Expectations™

AT BETTER HOME CENTERS AND HARDWARE STORES • CALL 1-800-525-2579 FOR INFORMATION • TWO-YEAR WARRANTY • MADE IN USA

© 1995 Ryobi America Corp.
HURRY! Rebate ends February 28!

"CALLING ALL WOODWORKERS!"

JET rebates up to $100

when you buy our most popular woodworking tools, backed by JET's impressive 2-year warranty.

See your local JET dealer today!

Offer effective through Feb. 28, 1996.

For the name of your local JET dealer, or to order your free video showing molding and planing, call 1-800-274-6848.

Auburn, WA