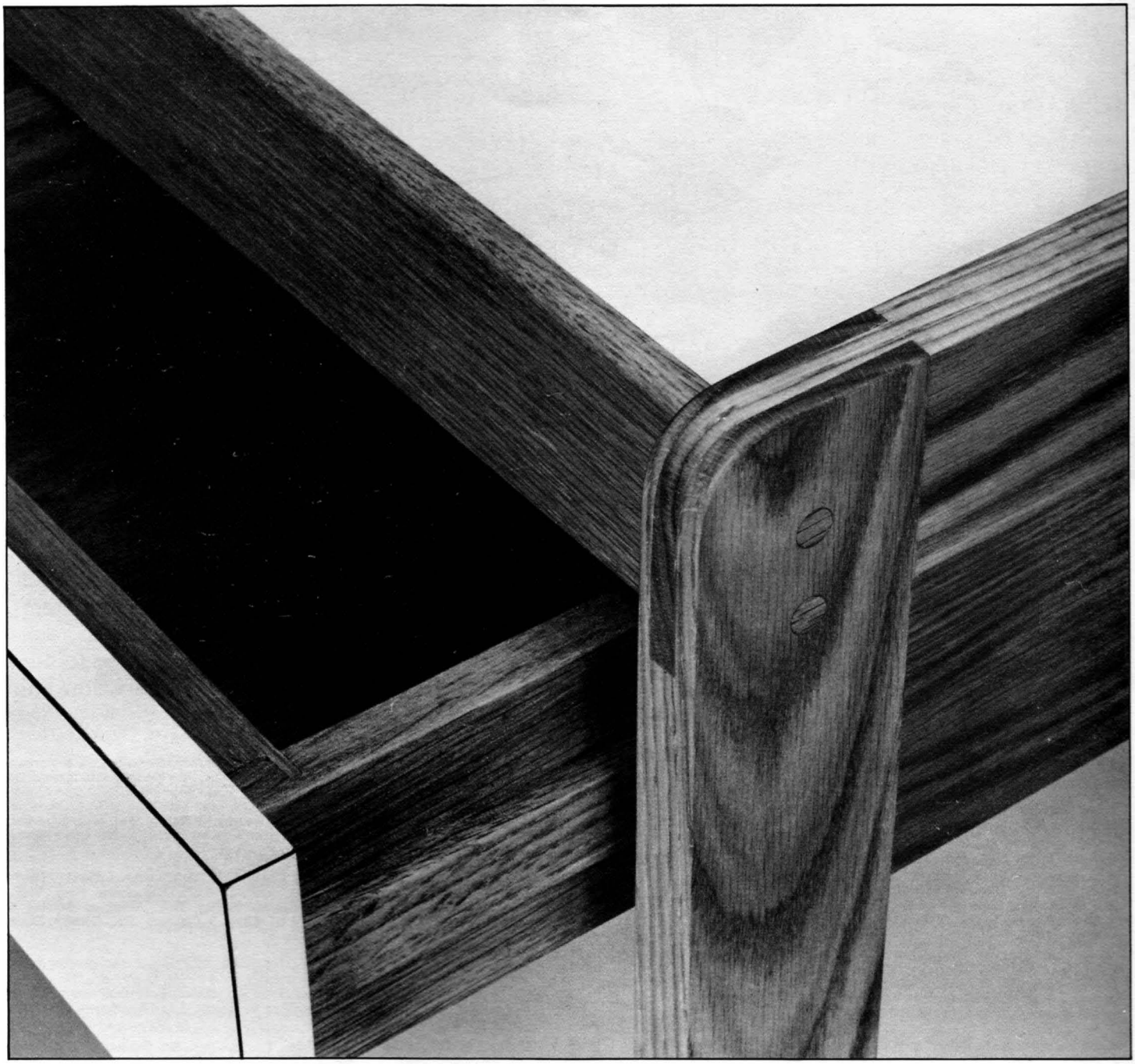
The Woodworker's Journal

Vol. 5, No. 2 March/April 1981 $2.25



Detail: Oak Desk

Included In This Issue:

Back Issues

Each issue of THE WOODWORKER'S JOURNAL is filled with fully detailed plans for all types of woodworking projects, from a roll-top desk to simple pull toys. Whether your taste is traditional or contemporary, you are sure to find interesting ideas in every issue. There are regular columns on restoring antiques and workshop income plus useful jigs and shop tips, but our main purpose has always been to provide our readers with a variety of PROJECT PLANS. Check the contents of available issues below and send your order today...supplies are limited.

Vol. 1 No. 2 Mar-Apr '77: Contemp. Coffee Table, Little Red Wagon, Shaker Bench, Fife-Rail Table Lamp, Shaker Wall Cabinet, Picture Frame, 3 Handy Kitchen Items, Bookcase Desk, Butcher's Table, Home-Made Clamp, Practical Bird Houses.

Vol. 1 No. 3 May-June '77: Colonial Plate Rack, 17th Cent. Hutch Table, Adirondack Lawn Chair, Picnic Table, 18th Cent. Blanket Chest, Shaker Candlestand, English Tea Box, Child's Swan Rocker, 3 Projects for Scrap Ends, Small Shaker Table, Toy Train, Table Saw Cove Cutting.

Vol. 1 No. 5 Sept-Oct '77: Taper Jig, Counting-House Desk, Dancing Man Folk Toy, Shaker Step-Chest, Duck Decoys, 3 Wall Decorations, Hutch Cupboard, Collector's Pier Cabinet, Box Joint Jig, Picture Frame.

Vol. 2 No. 5 Sept-Oct '78: Pine Wall Shelf, Nail Box Table Lamp, Doll Cradle, Contemp. Candle Lantern, Plant Stand, Shaker Wool Wheel Part I, Contemp. Table, Veneered Puzzle, Easy Picture Frames, Pine Gun Cabinet, Home-Built Planer for Radial Saw.

Vol. 2 No. 6 Nov-Dec '78: Stereo End Table, Contemp. Lamp, 6 Holiday Gifts, Shaker Wool Wheel Part II, Chopping Block Table, Improved Table Saw Tapering Jig, 18th Cent. Half-Round Table, Bird Feeder.

Vol. 3 No. 1 Jan-Feb '79: 18th Cent. Settle, Tenon Jigs, Pine Lap Desk, Contemp. Coffee Table, Roll-Top Desk Part I, Contemp. End Table, Plant Stand, Walnut Serving Tray, Curio Table, Candle Box, Wall Box, Tumbling Toby Toy, Colonial Spoon Rack.

Vol. 3 No. 2 Mar-Apr '79: Wood Weathervanes, Cranberry Scoop Magazine Rack, Roll-Top Desk Part II, Table Saw Jigs, Music Stand, Corner Shelves, Pine Blanket Chest, Shaker Style Bed, Magic Money Printer

Vol. 3 No. 3 May-June '79: Cherry Dressing Mirror, Medicine Cabinet, Patio Settee, Pine Dry Sink, Spanish Chest, Fishing Rod Rack, Small Utility Table, Hidden Maze Toy, Child's Wall Rack.

Vol. 3 No. 4 July-Aug '79: Sofa Table, Tea Cart, Candle Sconce, 2 Whittling Projects, Cabinetmaker's Table Lamp, Country Cupboard, Tablesaw Multi-Fence, 2 Pull Toys, Inlaid Spool Chest.

Vol. 3 No. 5 Sept-Oct '79: Shaker Table, Contemp. Tier Table, Porch Swing, Traditional Wall Clock, Wall Cabinet,Record & Tape Cabinet, Steam Bending, Bandsaw Resawing Jig, Home-Built Fence for Table and Bandsaws, Clam Digger's Basket, Crocodile Pull Toy, Galleried Wall Shelf.

Vol. 3 No. 6 Nov-Dec '79: Clothes Tree, Pine Floor Lamp, Harvest Table, 5 Holiday Gifts, 19th Cent. Washstand, Tablesaw Round Tapering Jig, Quilting Frame, Tot's Tricycle, Swedish Door Harp.

Vol. 4 No. 1 Jan-Feb '80: Doughbox End Table, Contemp. Loveseat, Mahogany Chairside Table, Corner Cupboard Part I, Small Pine Corner Cabinet, Knife Rack-Cutting Board, Apple-Shaped Mirror, Pine Tape Dispenser, Auxilliary Cut-Off Table for Tablesaw.

Vol. 4 No. 2 Mar-Apr '80: Firewood Rack & Carrier, Red Baron Triplane Toy, Pine Pie Safe with Pierced Tin Panels, Contemp. Glass Top Coffee Table and Matching End Table, 19th Cent. Pine Commode, Corner Cupboard Part II, Butcher Block Toy Box, Mahogany Corner Shelf, Jig for Wooden Trivets, Radial Arm Crosscut Table.

Vol. 4 No. 3 May-June '80: Miniature Campaign Chest, 19th Cent. Sawbuck Table, Decorative Frog, Violin Sconce, Shaker Cutlery Tray, Swinging Bracket & Planter, Club Chair & Ottoman, Oak Cottage Chair, Wooden Lock.

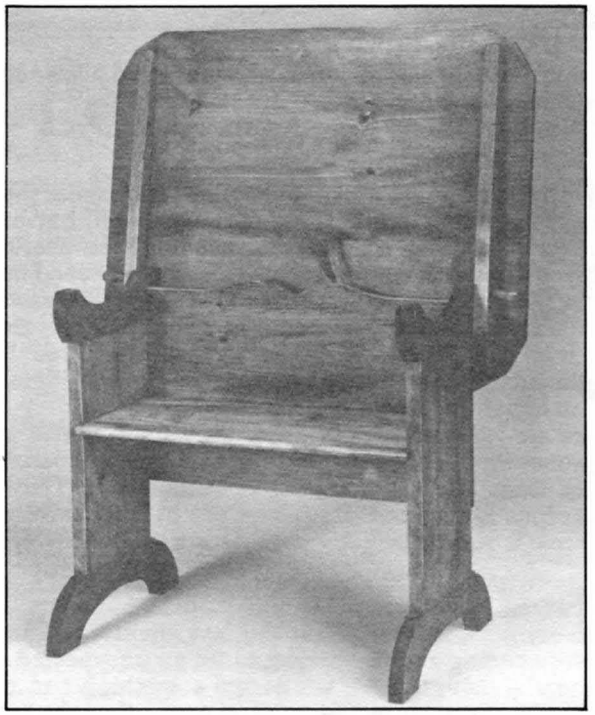
Vol. 4 No. 4 July-Aug '80: Magazine Rack, Gothic Oak Stool, Whale Cribbage Board, Doll Cradle, Nut & Bolt Toy, Basketweave Planters, Easy Wall Clock, Router Bit Box, Pine Cellarette, Lap Chessboard, Pine Wall Box.

Vol. 4, No. 5 Sept-Oct '80: Cabinetmaker's Workbench, Cobbler's Bench Cofee Table, 19th Cent. Cherry Table, Kitchen Utensils, Book Rack, Nuts & Bolts, Nutcracker, Walnut & Glass Bank, Schoolhouse Desk, Booster Seat.

Vol. 4, No. 6 Nov-Dec '80: 17th Cent. Mantle Clock, Toy Truck, Bud Vase, Grain Scoop, Letter Rack, Phone Memo Caddy, Toy Circus Wagons-Animal Puzzles, Library Stool, Quilt Rack, Ratchet Table Lamp, 18th Cent. Trestle Table.

Vol. 5, No.1 Jan-Feb '81: 18th Cent. Wall Shelves, Hand Mirror, Cutting Boards, Tic-Tac-Toe Game, 18th Cent. Vanity, Shaker Pine Cupboard, Tenon Jig, Towel Ring, Matchbox, Corner Shelves, Contemporary Cabinet, Black Forest Clock, Shop Drawing Board.

Please Note Vol. I, No. 1 through Vol. IV, No. 4 are newsprint issues for $1.50 each. From Vol. IV, No. 5 on, they are magazines for $2.25 each. CT residents only please add 7½% sales tax.



18th Cent. Chair Table. See page 26.

Editor and Publisher
James J. McQuillan

Associate Publisher
Margaret E. McQuillan

Managing Editor
Thomas G. Begnal

Contributing Editors
Donald F. Kinnaman
Paul Levine
John W. Olson

Subscription Department
Patricia A. Friberg, Manager
Jennifer Johnson

Advertising Manager
Susan Low

Art and Paste-Up
Judy Robinson

Photos by John Kane/Silver Sun Studios

The Woodworker's Journal (ISSN 0199-1892) is published bi-monthly in January, March, May, July, September and November by The Madrigal Publishing Co., Inc., P.O. Box 1629, New Milford, CT 06776. Telephone: (203)-355-2697.

Application to mail at controlled circulation rates is pending at Brookfield, CT, and additional mailing offices. Third class postage paid at Brookfield, CT.

Subscription Rates

In the United States and its possessions:
One year (6 issues) $12.00
Two years (12 issues) $22.00

Canada and other foreign:
One year - $14.00
Two years - $26.00

To Subscribe, Renew or Change Address
Write to **The Woodworker's Journal**, P.O. Box 1629, New Milford, CT 06776, including mailing label for renewals and changes. For gift subscriptions, include your own name and address as well as those of gift recipients.

Postmaster: Send Change of Address to **The Woodworker's Journal**, P.O. Box 1629, New Milford, CT 06776.

Contributions
We welcome contributions in the form of manuscripts, drawings and photographs and will be glad to consider such for possible publication. Contributors should include a stamped, self-addressed envelope of suitable size with each submission. While we cannot assume responsibility for loss or damage, all materials will be treated with care while in our possession. Payment for the use of unsolicited material will be made upon acceptance. Address all contributions to: Editor, **The Woodworker's Journal**, P.O. Box 1629, New Milford, CT 06776.

The Woodworker's Journal

VOLUME 5, NUMBER 2

MARCH/APRIL 1981

DEPARTMENTS

PROJECTS

Shoptalk

The Kid

At the age of 16 I got my first job working part-time as a helper in a small piano shop where the bulk of the business came from rebuilding, repairing and refinishing older pianos.

At that shop, I had the opportunity to watch a master craftsman at work. He was a tall lanky Swede with red hair and a quiet sense of humor who always referred to me as "the kid".

I remember him making patterns and shaping serpentine bridges from thick hard maple or lovingly working with cabinet scrapers on the spruce sounding boards of big grand pianos. He always worked with great care and in my youthful impatience, I thought he was unbearably slow. But he worked at a steady pace and always accomplished an amazing amount of work in a day.

When it came to refinishing, I was the official "stripper". OSHA would have been horrified at the conditions under which I worked with gallons of varnish remover and benzine in a poorly ventilated cellar room. Today, I can always blame my mistakes on the brain damage that must have resulted from working in that noxious fog.

Sometimes I was permitted to sand the finish between coats and the boss would always point out areas I'd missed. Finishing took many days, even weeks, as we usually alternated work on several pianos. The finishes were the best... nothing short of superb and sad to say, I never really paid attention to how it was done.

I liked the environment of that shop with its huge old cabinetmakers bench, encrusted pot of hide glue and the great array of tools. But my head then was full of fast hot rods and V-8 engines with triple intake manifolds and fine woodworking was for slow old men who mumbled a lot. Little did I realize...

Hearing Protection

We've been doing a lot of preaching lately about the need for eye protection while working in the shop, but hearing damage is another concern that shouldn't be overlooked.

If you do a lot of router work, you definitely need hearing protection. Likewise if you own one of those tablesaws with a built-in motor. Some of them are real screamers. Hearing loss is an insidious thing...it creeps upon you gradually and continued exposure to high noise levels can eventually result in impaired hearing.

There are various types of ear-plugs on the market including some with headbands, but the best type of hearing protector looks like a set of stereo headphones. They stifle hazardous sounds but still permit you to hear conversation. The cost is very reasonable considering what is involved.

Another "Sleeper"

Every once in a while, at the last minute, we find ourselves needing a minor project to fill an unexpected space. If there's enough time, we design something and build it and hope that it turns out as good as we thought it would. The results are sometimes surprising.

The little pull toy in this issue is such an example. A real "sleeper". We thought it was a darn cute toy and fun to build but never really expected the positive reaction it generated here in the office. Some visitors paid more attention to the toy than they did to some of the so-called major projects of which we were so proud. It really is a delightful little piece and one that proves that woodworking can be fun for everybody...*young and old.*

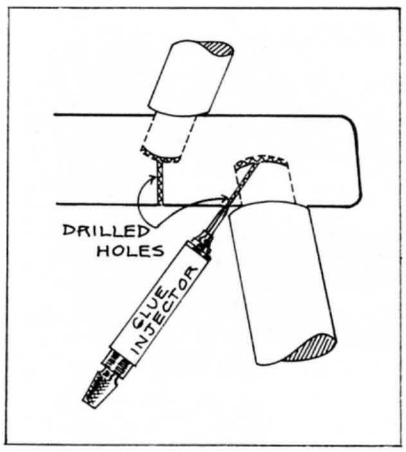
Jim Mc Quillan

Letters

Regarding the letter from Mr. G. Verity (Jan/Feb 1981 issue) and his problem with loose legs on captain's chairs...I have used the technique illustrated below to reglue dozens of chairs in the condition described-without having to take them apart.

The loosening problem usually develops when low humidity conditions cause the leg tenon to dry, and as it dries it shrinks. If the seat hole does not shrink as much, the glue joint may break, leaving the tenon to wobble in an oversized hole. To reglue, I drill a small diameter hole (see sketch) into the tenon hole, then use a glue injector to squeeze glue into the joint. A good injector is needed, and I found that the needlenose type sold by Albert Constantine & Son, Inc. works well. For best results the drilled hole must be smaller than the injector needle. Because the needle has a taper, it can be tightly inserted in the drilled hole, making it possible to apply considerable pressure. Select a glue with good gap filling properties such as wood epoxy or liquid hide. Apply pressure until the glue oozes to the surface around the joint.

F. Mooney, Andover, MA.



In the "Shoptips" section (pg. 30) of of your Jan/Feb 1981 issue, you show a technique to keep sawdust from packing against a radial arm saw stop block when making duplicate cuts. You beveled the stop block to provide a pocket for the sawdust. This is o.k. for a few cuts, but after many pieces even the pocket will fill up. I prefer to put a scrap shim under the block until it's clamped - then I remove the shim. Now the sawdust has an opening that can't fill up no matter how many cuts I make.

R.H. Merrill, Waverly, NY.

I could use a little help from you or one of your many readers. I am in need of the owners manual and parts list for two Sears Craftsman machines; a 10 inch table saw, model 113-27521, and a table model drill press, model 103-24811. The parts department at my local Sears store said that the manuals are no longer available because the machines are out of date. I will be more than glad to reimburse any reader for his or her trouble.

David H. Shibinski
2222 Niles-Buchanan Rd.
Niles, MI 49120

Would you please advise where I can find a source for glass or plastic eyes for wild bird carvings?

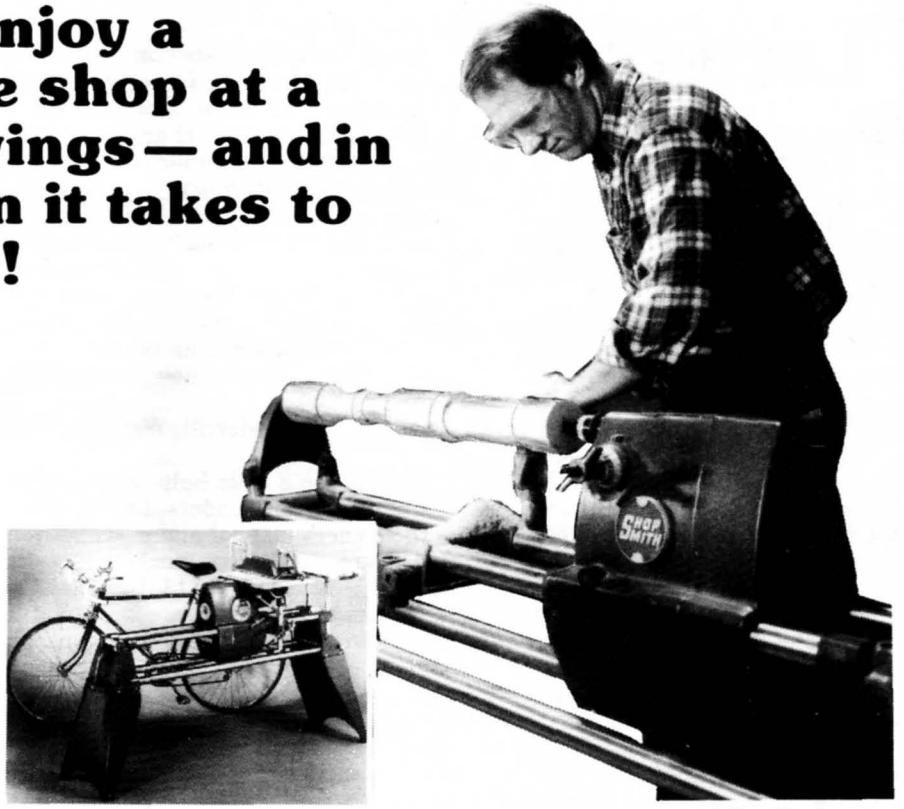
F. Loner, Marietta, GA.

Glass eyes can be purchased from Bay Country Woodcrafts, U.S. Route 13, Oak Hill, VA 23416. They measure 8 mm in diameter and are available in four colors; amber, red, yellow and clear. Also, most taxidermists will carry them, so check your telephone directory yellow pages for one near you. Finally, most of the outdoor magazines such as Outdoor Life *and* Sports Afield *have taxidermists as advertisers. Try checking these ads as several of them also sell supplies via mail-order.*

Now you can enjoy a complete home shop at a substantial savings — and in less space than it takes to store a bicycle!

You can have all the tools you need to turn out top-quality woodworking projects in a complete home workshop like those you've dreamed of owning. And you can have it within your budget . . . and your limited work space.

To learn how, simply mail the coupon below. You'll discover how you can be prepared for all those money-saving, moneymaking projects like doing your own home repair and remodeling jobs, even building furniture and cabinets. Shopsmith has made it easier and more affordable than you'd ever imagine.



You Need Pro Equipment To Let You Do Pro Work

You can't do jobs like these without the proper tools. You know that's true if you ever tried to build anything more complicated than a birdhouse. You need more than a couple of handheld power tools to achieve the kind of results you can be proud of.

You should have a table saw, vertical drill press, horizontal boring machine, lathe and disc sander. But now you don't have to spend several thousand dollars to get the capabilities of all these machines. And you don't need a lot of space, either. All you need is a Shopsmith MARK V.

The MARK V gives you all five of the most needed power tools in a single, powerful, precise machine that requires about the same space it would take to store an ordinary bicycle.

The Better Alternative

More than 250,000 people like yourself have chosen this Shopsmith multi-purpose tool as the best possible solution to budget and space problems. And it's easy to see why — the time-tested MARK V includes all five major power tools in one free-standing unit.

The easy-to-learn, easy-to-use Shopsmith woodworking system features a 10" table saw, 16½" vertical drill press, horizontal boring machine, 34" lathe and 12" disc sander. A rugged 13.5 amp motor that develops more than 2 hp provides all the power you'll need for even the toughest jobs. And, thanks to the exclusive speed dial, you can change speeds without ever shutting off the motor.

Switching tool operations couldn't be easier. After only about an hour's practice, you'll be moving from one function to another in 30 to 90 seconds.

Simple to Learn to Use

Shopsmith provides all the home training aids — comprehensive study guide and textbook — you'll need to learn to use the equipment and become a better woodworker. Whether you're a beginner or an experienced craftsman, you can master the MARK V quickly.

Actually, the MARK V is the heart of the Shopsmith woodworking system. You can add Special Purpose Tools — bandsaw, belt sander, jointer and jigsaw — and accessories that allow you to do shaping, molding, mortising, routing and dadoing. The one motor powers all operations . . . and you do it all with precision and accuracy that will satisfy even the most demanding expert!

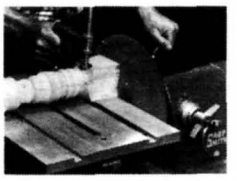
That's why thousands of people with unlimited budgets and more than enough space still choose the Shopsmith MARK V!

Find out why it should be your choice, too. We'll send you all the facts and also tell you how you can actually put the MARK V through its paces, in the privacy of your home, for a full month without ever risking a cent! Mail the coupon now for everything you need to know.

The Shopsmith MARK V — the tool to start with . . . the system you grow with!

The Mark V is a lathe of exceptional capacity (above) and a 10" table saw (right) with a 3¼" depth-of-cut and a 48" ripping capacity.

It's a 12" disc sander that will do things that other sanders won't do...like finishing edges to precise dimensions.



It's a horizontal boring machine that makes perfect doweling really easy! The Mark V's exclusive feed stop assures identical hole depths.

It's a 16½" variable-speed drill press with built-in jigging features that make boring screw pockets and even round stock a "snap"!

Shopsmith Inc.
The Home Workshop Company
Dept. 350Z, 750 Center Drive
Vandalia, Ohio 45377

☐ YES! Please mail me your **FREE** Information Kit on the Shopsmith **MARK V**, and facts about Shopsmith's exclusive 30-day Money Back Guarantee. I understand there is no obligation.

Name _____

Address _____

City _____

State _____ Zip _____

Letters (cont'd)

In your Jan/Feb 1981 issue, you answered T. Elzey's query concerning the availability of Edwin Wyatt's book "Puzzles in Wood". I am sure that Mr. Elzey and many other of your readers would be interested to know that Stewart T. Coffin publishes booklets on puzzlecraft which include a bibliography of puzzle literature, puzzle patents, topological and dissection-type puzzles, the design of polyhedral puzzles, also woodworking techniques wherein Mr. Coffin describes how his puzzles are made. Mr. Coffin also sells many unusual puzzles in wood which he has designed. For further information write to: Stewart T. Coffin, 79 Old Sudbury Road, Lincoln, MA 01773.

J.E. Lemire, Auburn, MA.

I have been in the business of making and repairing clocks for many years. I thought you might like to learn of another source of clock suppliers to add to the list you included in the last issue. The company is the S. LaRose Co., 234 Commerce Place, Greensboro, NC 27420.

R.D. Hogan, Neosho Rapids, KS.

Where can I purchase a 3-wing cutter like the one shown in the "Shop Tips" section (page 30) of your Jan/Feb 1981 issue?

N. Stravorko, Apollo Beach, FL.

Rudolph Bass, Inc., 45 Halladay St., Jersey City, NJ 07304 sells 3-wing cutters along with the ¼" shank arbor and ball bearing pilot. Other sources include North American Products Corp., 120 Interstate North Parkway E., Suite 226, Atlanta, GA 30339, and Charles G. Schmidt Co., 301 West Grand Ave., Montvale, NJ 07645.

I am in need of a source for musical movements for music boxes.

D. Wickizer, Jr., Shelbyville, IN

Musical movemements are sold by Albert Constantine & Son, Inc., 2050 Eastchester Road, Bronx, NY 10461, and The Woodworker's Store, 21801 Industrial Blvd., Rogers, MN 55374.

Regarding Mr. King's search for plastic liners for wooden canister sets, they are available from Theta Industrial Products, Inc., 1926-B University Ave., St. Paul, MN 55104

F. Mucchi, Chicago, IL

Workshop Income

by Paul Levine

Most woodworkers will be surprised to learn that woodworking magazines *(The Woodworker's Journal* included) will pay for project plans submitted by readers. Although their staffs are responsible for the bulk of the project ideas, magazines are always looking for reader contributions to supplement the staff work. It's a good moneymaking opportunity, yet one that far too few woodworkers take advantage of.

The rate of payment varies with each magazine, but as a general rule those with higher circulations pay more. For further information on payment rates, it's worth reviewing the book "1980 Writer's Market", published by Writer's Digest Books. You can also get payment information by writing directly to the magazine, attention the editor.

Submitting a project is not as difficult as you might think. You don't have to be a talented artist or skilled writer, but there are a few ground rules that you'll need to know if you want to increase your chances of getting accepted. The 7 most important rules are listed here.

1. Study the magazines. It's the best way to get a feel for the type of projects they offer, their photo quality, and the detail that's expected in the instructional write-up.

2. Make sure the plans are your own design. No magazine wants to publish plans that are an exact copy of a project previously published by another magazine.

3. You must provide a drawing of the project, including all necessary dimensions. This doesn't mean they expect the work of a professional draftsman, in fact it can be a free-hand sketch, but it must be clear, complete, and reasonably neat. If an editor can't figure out your sketch, or doesn't see important dimensions, it's almost sure to get rejected - no matter how good the project may be.

4. Provide a write-up that explains, from beginning to end how you made the piece. Include finishing instructions. Describe in detail any special techniques you used that will make the project easier for the reader. The write-up length usually depends on the complexity of the project; obviously a roll-top desk requires a much longer write-up than a cutting board. Keep in mind that it should be typewritten - double spaced, with pages numbered.

5. This is the one that most woodworker's have trouble with. You'll have to provide at least one high quality black and white photo. High quality means it must be clear, sharp, and free from distracting background. Many times a project has merit, but if the photograph is of poor quality, it often ends up in the rejection pile. If you can't take good photos it may be worthwhile to have a professional photographer take the shot.

6. Before sending the material along, make sure you have a photocopy of everything. Magazines are careful with submissions, but on occasion they get lost or damaged. Back up the photo with stiff cardboard and note on the envelope "Photo, Do Not Bend" in bold letters. Along with the photo make sure the submission includes the write-up and drawings. It' s also a good idea to include a very brief covering letter. You should include a return envelope of adequate size, with sufficient return postage. This makes it faster and easier for your material to be returned if it is not accepted. Most magazines will respond within 4-5 weeks.

7. Don't be discouraged if your material is returned with a rejection slip. Perhaps the magazine is currently well-stocked with similar projects, or it may not fit their needs at that time. If you feel the submission has been well put together, with a good write-up, photo, and sketches, then by all means send it along to another magazine. If you feel it can use some improvement, make the changes before sending it out again.

Restoring Antiques

by John Olson

A Finishing Tip

Occasionally, when either finishing antiques or working with new wood, the craftsman is faced with the problem of what to do with wood surfaces that have streaks or patches which are lighter or darker than the wood itself. This can occur for any one of several reasons. Sometimes antiques are patched with pieces of wood that don't quite match the color of the original. Other times gouges or deep scratches are filled, and the filler doesn't match. New wood will often have a radical contrast between a dark heartwood and lighter sapwood. Also, resin canals tend to show up rather dark against light colored softwoods. In just about all cases though, these contrasting wood colors can be closely matched by properly applying colors in oil.

Generally, these colors are not hard to find. In building supply stores and paint stores they are sold in tubes as paint colorant, and are available in a variety of tones. You can also use artist's oil colors. These also come in tubes, and are available in an even greater variety of tones but are quite a bit more expensive than paint colorant. Any store that carries art supplies will have them.

Matching wood tones using colors in oil is not as difficult as might appear at first glance. Begin with a color whose pigment is close to the color tone of the wood you wish to match. You would be well advised to begin with scraps and do considerable experimenting. Application is made with a soft rag or a pad of very fine steel wool. Apply as little as possible in the beginning and only as heavy a coat as is necessary to approach the general tone of the piece being matched. At this stage the color will more than likely be a close (but not exact) color match depending on the wood species and the color in oil being used. Rub in the direction of the wood grain so as to preserve texture. If textures don't match, by all means use the steel wool and extend your rubbing beyond the immediate area being matched. At the same time diminish the amount of color so as to gradually blend both color and texture. You can vary the color as necessary by adding very small amounts of other colors. Considerable experimenting may be necessary to reach a reasonable match. Add modifying colors in very minute amounts. A very small amount of red or yellow can change a color tone completely. To darken add a bit of black or even dark green. Lighten with white or yellow. Earthy tones such as yellow ocher, umber and sienna seem to match wood color tones best.

I find that it is often desirable to thin your colors. Turpentine is preferable but mineral spirits can be used in a pinch. Thinning will give the transparency that is needed to blend the edges of your job into the surrounding background. If your job is a large one, mix larger quantities after first experiments to determine relative amounts. A great deal of time and expensive material can be lost if you try to jump in without doing some preliminary testing. You can use anything handy for a palette and a little experience will give you a feeling about how much oil will be needed. Bear in mind that a little bit goes a long way.

This method of matching wood tones is very effective for many applications - and is a good one to learn. With some practice and experience it can become a very worthwhile addition to your growing list of "tricks of the trade".

The Beginning Woodworker

The Minimal Workshop

The big problem facing most people who want to get started in woodworking is the initial expense of outfitting a shop. The acquisition of essential hand tools such as a hammer, crosscut handsaw, square, chisels and oilstone is not too difficult if the purchases are spread over a period of weeks. Additional tools and accessories, such as special drill bits, are purchased only as needed for a specific job or as the budget permits.

Apart from the hand tools, you'll need a solid bench on which to hold the work. The logical first project of an aspiring woodworker should be a simple yet sturdy workbench equipped with a woodworker's vise. There are many plans available for such benches including one given in this column in the Jan/Feb 1977 issue.

Consider a bench constructed of easily obtainable framing lumber, which is the same lumber used for home construction and available in standard sizes at all lumberyards. Later on, when you build or buy a really good cabinetmaker's bench, you'll always use the original bench for messy jobs such as gluing, staining and finishing.

The big obstacle that prevents most beginners from attempting more advanced projects is the lack of a stationary table or radial arm saw. While waiting to save enough money for the purchase of such a machine, many people confine their efforts to very simple projects using soft pine in standard widths and joined with nailed or screwed butt joints.

Given today's economic conditions, a table saw represents a fairly stiff outlay of cash and for many, the hope of owning one may become increasingly remote. Yet, it's a shame to confine your work to simple projects when you are itching to get involved in more sophisticated work.

If you are hung up in this situation there are two ways to break free. One way is to do everything with handtools as it was done two hundred years ago. From a purist's viewpoint this is an admirable approach but ripping and planing boards and cutting grooves, rabbets and other joinery demands plenty of time, skill, patience and no small amount of physical effort. Many woodworkers are not tempermentally suited to this approach though, and prefer to use machinery for normally tedious operations such as long ripping cuts or the ploughing of a lot of grooves.

The second solution is to make use of relatively inexpensive *portable* power tools to ease the tedious jobs and maximize accuracy. When you consider that a portable circular saw and router will perform all the basic operations of a tablesaw at half the cost, the situation brightens a bit.

These two common power tools will enable you to perform all the operations necessary to build fine furniture, or most anything else you'd care to make with wood. Best of all, when the day comes and you are able to obtain the stationary machinery, the portables will still be constantly useful.

The big problem confronting the woodworker at the start of each project is how to rip boards to a specific width. If extensive ripping must be done, the handsaw can really wear your arm out. Then too, the sawed edges will be rough and need to be smoothed with a hand plane.

A portable circular saw will handle long ripping jobs accurately and easily. It will also do all your crosscuts, bevels and miters. Actually, you can use it for cutting dadoes, grooves and rabbets also, so with this one tool a world of projects is available to you. However, the router is a better tool for grooving and rabbeting and in addition can perform many operations not possible with the saw.

Both of these tools can be purchased for a total outlay of about one hundred and fifty dollars which is about one half the price you could expect to pay for an average new table or radial arm saw.

There are a lot of these portable power tools on the market today and some not at all suitable for cabinet work so let's discuss in turn the characteristics of both the circular saw and the router and see how they can be used to advantage.

The portable circular saw is the contractor's delight. When it comes to crosscutting lumber to length it can be superb. Early models were big and cumbersome but had the power to easily cut 2 inch framing lumber. As the market expanded to include the general public, manufacturers started making smaller and less powerful saws in a so-called "Homeowners Quality". These machines, of limited horsepower, and taking 5½ inch dia. blades are, in many cases, simply not adequate for most work with hardwoods.

Power, along with a sharp blade, assures ease of operation and this in turn increases the safety factor. Fig. 1 shows a typical circular saw with the usual controls for depth and angle of cut.

The best choice for the home shop is a saw of about 2 horsepower that will take a 7¼ inch dia. blade. This should be rated as "Mechanic's Quality" and can range in price from fifty to seventy

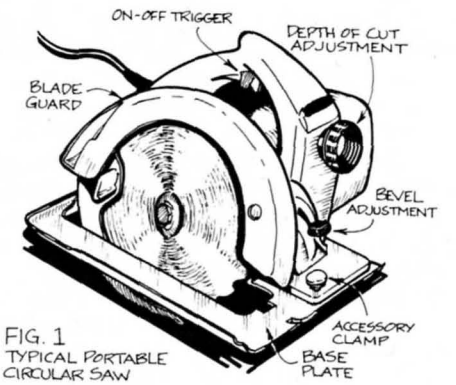


FIG. 1
TYPICAL PORTABLE CIRCULAR SAW

five dollars.

It's best to make trial cuts before making a decision to buy but if this is not possible you should at least pick up the saw and heft it. Some are heavier and more cumbersome than others of the same power rating.

When you purchase a saw make sure that you also get an edge ripping guide which will be very convenient for ripping boards to width (Fig. 2). These guides are often calibrated in inches but have a tendency to be inaccurate for our purposes, so don't rely on them unless you check them first.

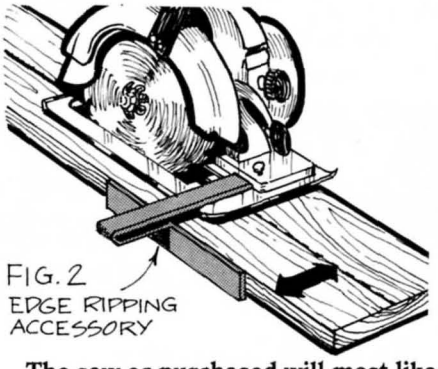


FIG. 2
EDGE RIPPING ACCESSORY

The saw as purchased will most likely come equipped with a combination blade. These blades with their big, alternately set teeth, plow a wide kerf and are good for rough ripping and crosscutting but they leave an edge that is generally too rough for cabinet work. Therefore, you'll need an additional blade of the hollow ground planer type which can be used for bringing the stock to finish dimensions without the need for hand planing or sanding.

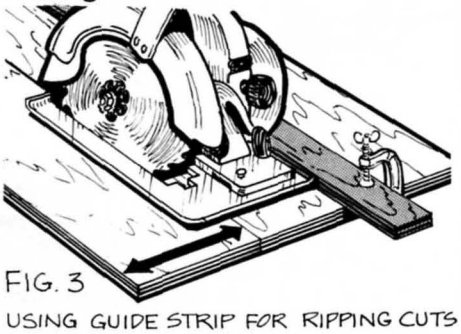


FIG. 3
USING GUIDE STRIP FOR RIPPING CUTS

The accessory edge ripping guide is of use when ripping narrower widths from a wide board. When it's necessary to cut wide strips from a plywood

panel the edge ripping guide may have to be extended too far to be of practical use. In such cases a long straight board is clamped to the workpiece and acts as a guide fence for the baseplate of the saw (Fig. 3).

The distance from the edge of the baseplate to the edge of the saw cut is established by a test cut. This distance determines where the edge of your guide is clamped along the workpiece. It's important to remember that different styles of saw blades will cause this dimension to vary as some blades cut a wider kerf than others.

A good straight edge can be made by cutting a strip from along the edge of a panel of ½" plywood and using one original factory-cut edge as the guide for the baseplate. Always clamp the strip to the workpiece, and check beforehand that the clamps will not interfere with the motor housing of the saw.

When making long ripping cuts take care to keep the baseplate in full contact with the edge of the guide. Remember also that the blade cuts upward on these portable saws; therefore the most splintering will occur on the side facing up.

Ripping long lengths can be a bit awkward especially with sawhorses. A couple of scrap blocks tacked to the beam of each horse will provide blade clearance so you can make a full length cut without stopping to shift the horse. (Fig. 4).

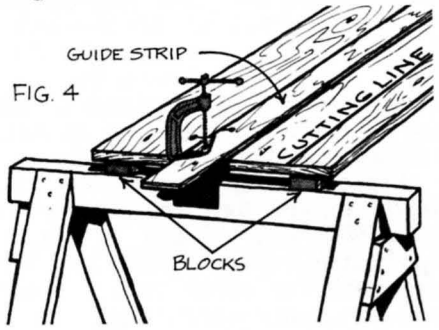


FIG. 4

Crosscuts to bring a workpiece to finish length are easily accomplished especially if some sort of jig is used to assure square cuts. The jig shown in Fig. 5 is handy as it aligns with your scribed cutting line and assures a square cut. When making the jig, screw a 12" x 18" piece of ⅛" hardwood to a piece of ½" x 7" x 18" plywood. Then, using a framing square as a guide, screw a ½" x 2½" x 12" tee to the underside.

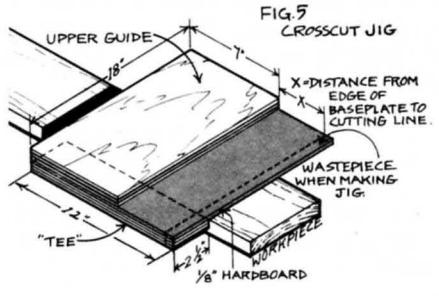


FIG. 5
CROSSCUT JIG

Clamp the jig overhanging the edge of the workbench and run the saw with a planer blade along the upper guide. The blade will cut off a strip of excess ⅛" hardboard and part of tee. The jig can now be used by aligning the edge of the ⅛" hardboard on the cutting line, holding or clamping in place and running the saw baseplate along the upper guide.

Remember that if you make this jig with a planer blade and later use it with a combination blade, another small strip will be removed from the hardboard and the jig will be inaccurate when again using the planer blade.

Cross or rip bevels are done by tilting the saw to the angle desired. Whether or not the machine has a tilt scale it's best to check the accuracy of the cut done in scrap stock. For this purpose a protractor made for use with these saws is a handy device (Fig. 6).

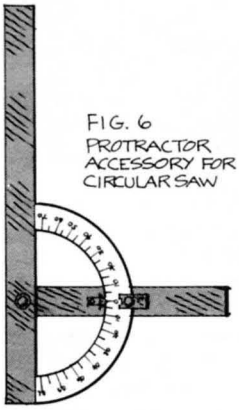


FIG. 6
PROTRACTOR ACCESSORY FOR CIRCULAR SAW

The use of the crosscut jig when making beveled cuts is not recommended as the jig will probaly be rendered inaccurate for future crosscuts. Instead use a plywood guide strip clamped to the work as described for ripping cuts. Here again, a test cut should be made in scrap to determine the exact distance between the guiding edge of the baseplate and the cutting line of the tilted blade. Face miters are cut by clamping a guide strip to the workpiece at the desired angle and distance from the cut line (Fig. 7).

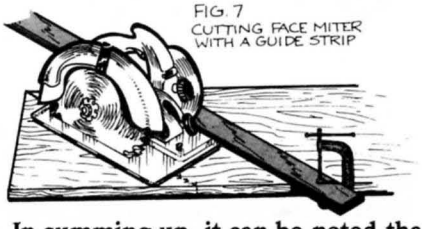


FIG. 7
CUTTING FACE MITER WITH A GUIDE STRIP

In summing up, it can be noted that the portable circular saw will handle all the ordinary rippping and crosscutting needed to bring your stock to the required final dimensions. Granted it lacks the convenience and ease of setup of the table or radial arm saws but it will help you get started with a minimum of expense. After you've finally acquired the stationary machinery, the saw will still prove very useful in the

(Cont'd on next page)

shop for cutting large plywood panels to manageable size and for trimming the ends of wide glued up table tops and the like. Outside of the shop it will handle a wide variety of carpentry jobs.

Now that you have cut the stock to final dimensions, the next step is to cut the various grooves, dadoes, rabbets, mortises, tenons or whatever else needed to join the parts together. A good deal of this work can be done with the circular saw but the router will do a better job with fewer set up problems.

Routers vary considerably in price and size but otherwise they are all pretty similar (Fig. 8). Basically they consist of an electric motor with a chuck or gripping device at one end of the shaft. This is enclosed in a protective housing having a circular base upon which the machine rides.

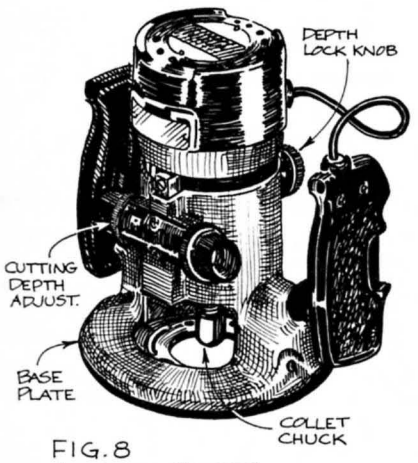


FIG. 8
A TYPICAL ROUTER

The speed at which the router motor turns a cutting bit is very high, ranging from about 15,000 to 35,000 rpms. This high speed is responsible for cuts that are very clean and smooth so long as the machine isn't forced into a tough cut. The speed also produces a high-pitched shriek that may prove a bit disconcerting for those who have never used the router.

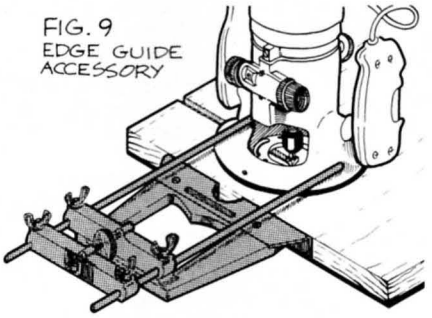
Because of the very high rpms involved, it is imperative that you use only those cutting bits designed specifically for routers. Also, it is obviously important to be very sure that the bit is mounted securely in the chuck.

Routers on today's market range from about 1/3 to 1½ horsepower. As a general rule, the more you pay, the more power you get. As with the portable circular saw, a machine in the higher power range will give better service. A one horsepower router can cut a groove in one pass that might take a smaller router two or more passes to complete. Power makes for cleaner, faster work and the safety factor is also increased.

With this information in mind, you should not consider a router of less than ¾ horsepower. A smaller router will do the job eventually but you will almost certainly wish for a more powerful machine as you gain experience.

Again, avoid the "Homeowner's Quality" machines and purchase one of "Mechanic's" or "Industrial" quality. Seventy-five dollars should buy you a good router and if you take advantage of a sale you may be able to do considerably better in the price.

You'll also need an accessory guide (Fig. 9) to assist in making straight and curved cuts and of course, a selection of cutting bits, a few of which are shown in Fig. 10.



The router is a very versatile machine and a large number of accessories and specialized bits are available for it. With your new router you should receive an operator's manual that shows in considerable detail the various operations that can be performed. Routers can even be mounted upside down in a table and used as a shaper.

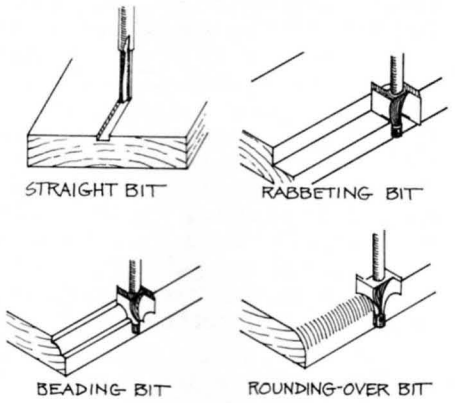


FIG. 10 ROUTER BITS

For the beginner outfitting his or her first shop without stationary machines, we should consider the router for the basic operations of grooving and rabbeting as it is difficult to perform these operations with a limited selection of hand tools.

As you probably already know, a dado is a square groove cut across the grain while similar cuts made with the grain are generally called grooves.

The most common method of guiding a router for straight dado cuts is with the use of a clamped-on guide strip identical to the one used for ripping with the circular saw. The guide strip should have a smooth edge with no bumps or hollows as the router will follow this edge and duplicate it.

Use a straight cutting bit for dadoes and when possible match the bit to the width of dado needed. If you own just a ⅜" dia. bit, a ¾ inch dado will have to be cut in two passes shifting the guide strip as necessary. Direction of feed is from left to right and you can either push the router or pull it so long as the router base is kept snug against the guide strip.

When completing a cross-grain dado, the bit has a tendency to splinter out the wood at the end of the cut. Prevent this by backing up the workpiece with a scrap block. It helps also to keep the rate of feed slow and the depth of cut reasonable.

Grooves can be done using a plywood guide strip in the same manner as shown for ripping with the circular saw in Fig. 3, or by using the accessory guide fastened to the router base (Fig. 9). If a groove or dado stops short of the far edge it is called stopped or half-blind. If it starts and stops short of both edges it is usually called a blind cut. These stopped cuts are easy to make by clamping a block to the work so when the router base contacts it, the bit will have stopped at the desired point. To start a blind cut, use a stop block to locate the starting hole, then proceed with the cut.

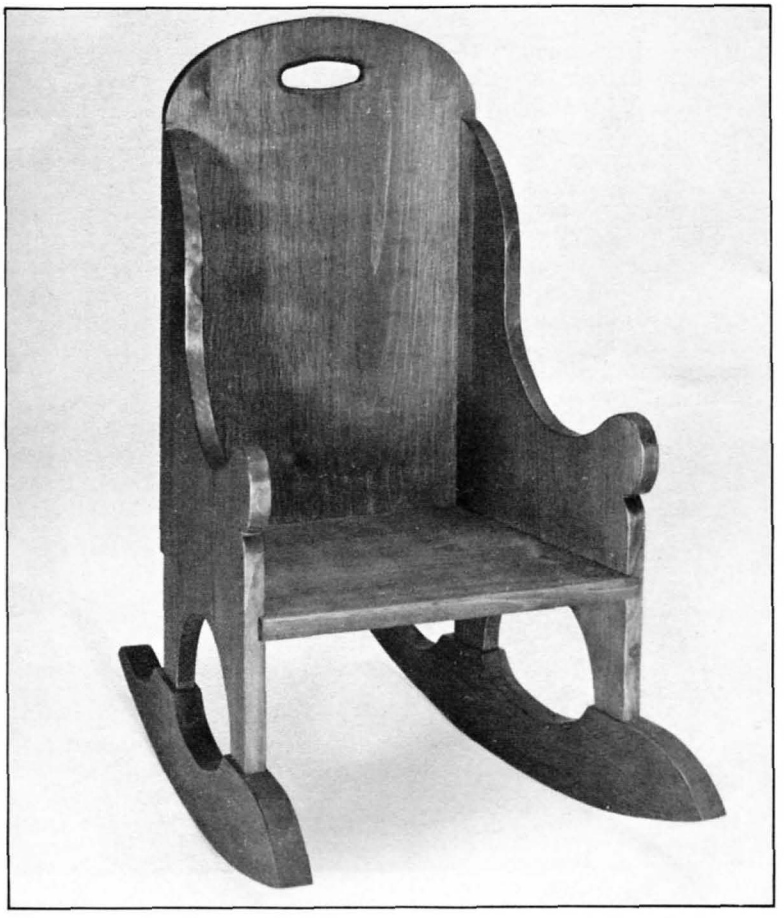
Rabbet cuts are made in the same way as grooves and dadoes except that they are run along the edge of the workpiece so that only one side and a bottom is cut. The accessory guide can be used as long as there is sufficient bearing surface for the guide to ride on. Otherwise, rabbeting can be done with a clamped-on guide strip.

A good starter set of router bits would include four straight bits in sizes ¼", ⅜", ½" and ¾". High-speed steel bits are considerably less expensive than carbide-tipped bits and will get you into woodworking without denting the pocketbook too much.

Later , as you discover all the operations a router can perform, you will no doubt want to invest in molding, chamfering, rounding-over bits and perhaps even a dovetail cutter and template set. The router is a machine that will always be valuable in your shop no matter how much equipment you later buy.

In summing up then, a fairly modest initial investment for a good portable circular saw, router and a few accessories is all it takes to greatly upgrade the type of woodworking projects you will be able to handle.

"The Complete Book of Power Tools", by R.J. DeCristoforo will show how the use of these portable tools can be vastly expanded to include operations far beyond the scope of this article, particularly with respect to the router.



Child's Rocker

Worn out small fry will find this rocker a cozy place to rest tired legs...at least for a few minutes. The design is based on a composite of several early 18th century rockers, and the result is a piece that's solidly constructed yet reasonably easy to build. It's dimensioned to fit a child of about kindergarten age, so if you have a younger or older child, you may want to revise the dimensions a bit. Pine is used for all parts.

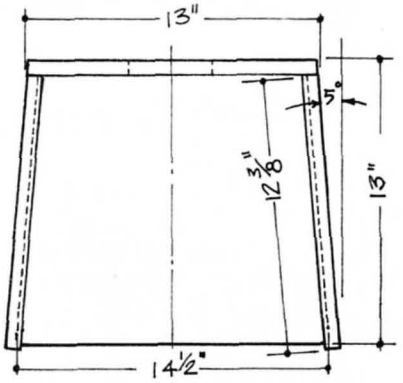
Start by cutting the sides to size (4/4 x 12⅜ x 22¼). It will probably be necessary to edge join 2 or more boards to get the 12⅜" width. Using the detail as a guide, lay out and cut the tenons as shown, then lay out and cut the ¼" deep x ¾" wide seat dado. Bevel the back edge to the angle shown, then lay out and cut all remaining curves.

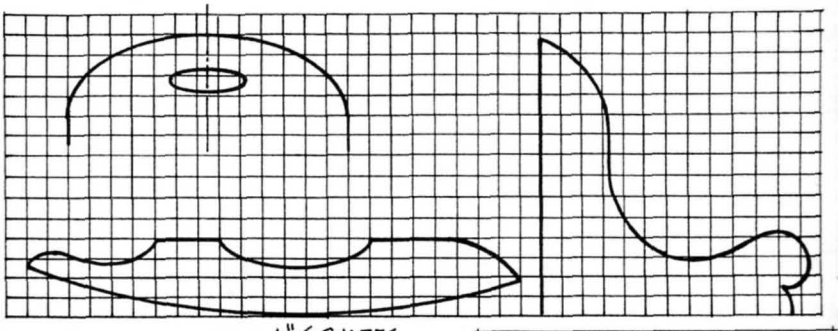
The back is cut to 4/4 x 13 x 20 and again edge gluing will probably be needed. Cut hand hole and top curve as shown. The rocker is cut from 5/4 x 4 x 23 stock. Lay out and cut mortises, then cut curved shapes as shown. Next the seat is made from 4/4 x 12¼ x 14½ stock. Cut to the angle shown to fit against side dadoes.

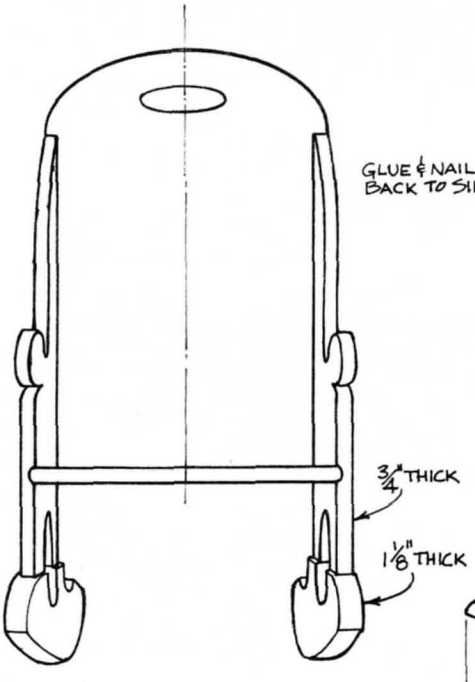
Before assembly give all parts a complete sanding. Use special care on the curved edges, making sure to remove all rough spots.

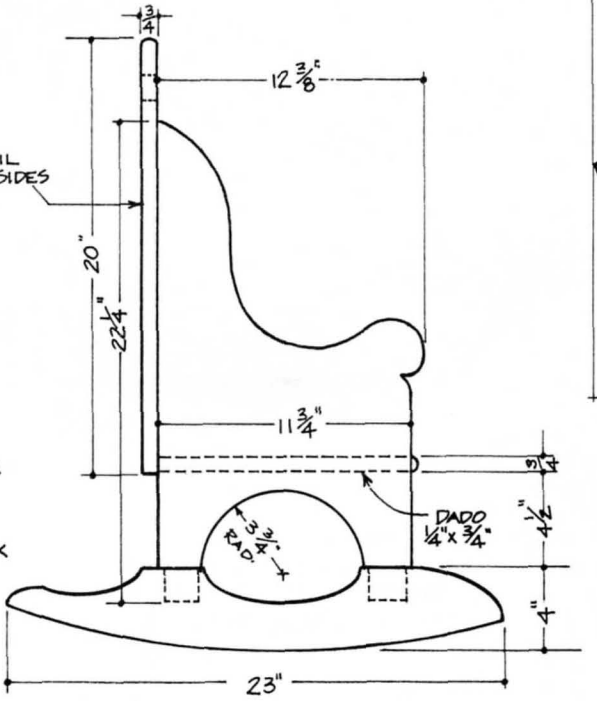
Assemble the side tenons to rocker mortises. Secure in place with ¼" dia. dowel pins. The seat is secured to the sides with glue and wood screws, countersunk and covered with wood plugs. Attach back with glue and countersunk finishing nails.

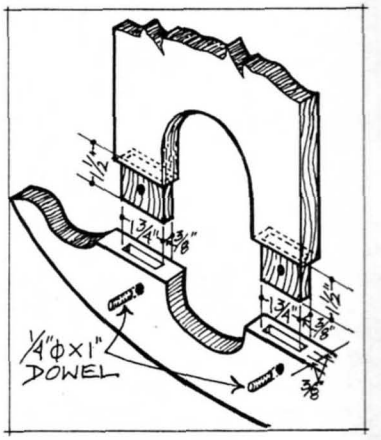
Give all surfaces a final sanding, making sure to remove any glue squeeze-out. Stain to suit, then apply two coats of polyurethane varnish. Allow to dry, then rub down with 0000 steel wool.









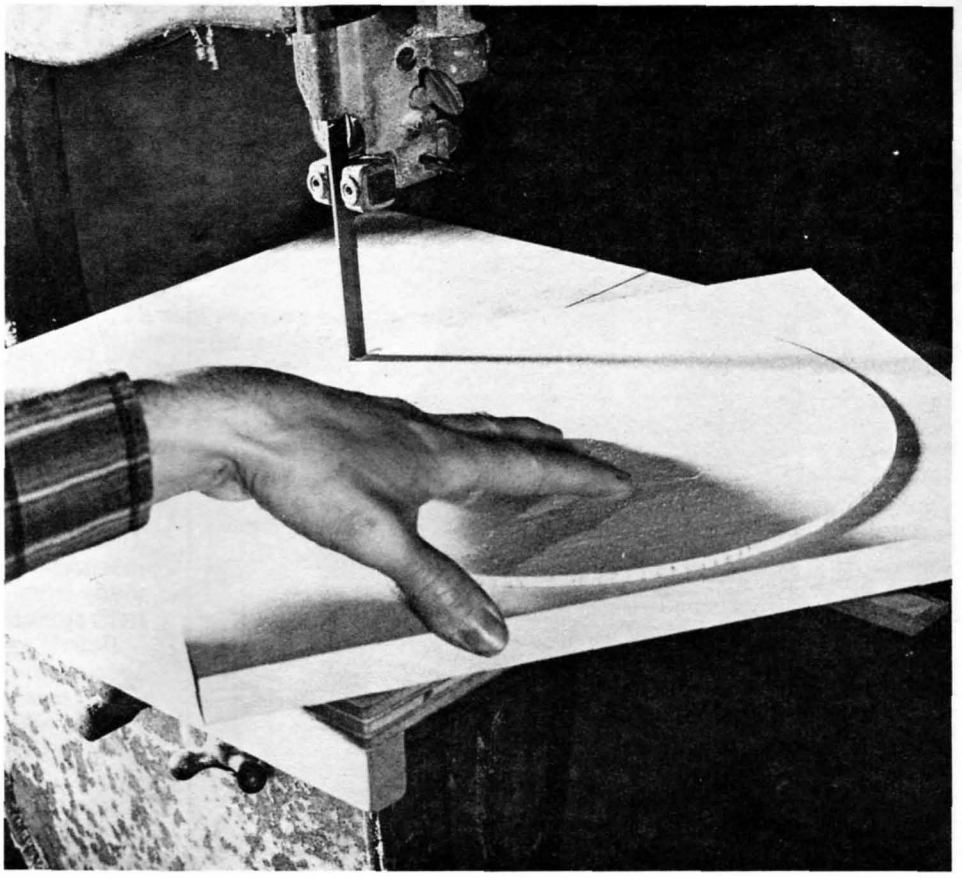


Child's Rocker
Bill of Materials
(All Dimensions Actual)

Description	Size	No. Req'd
Side	¾ x 12⅜ x 22¼	2
Back	¾ x 13 x 20	1
Rocker	1⅛ x 4 x 23	2
Seat	¾ x 12¼ x 14½	1

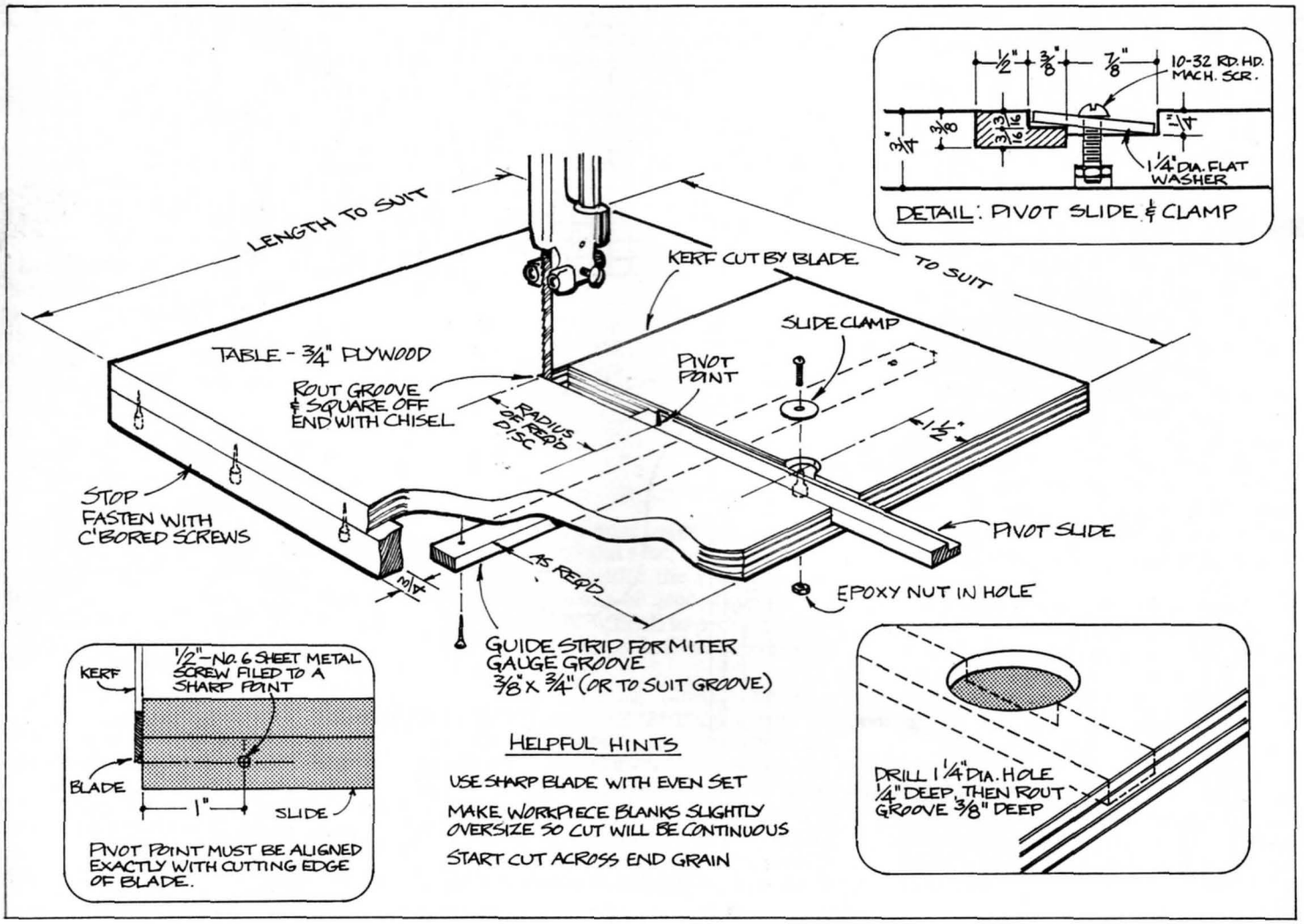
Cutting circles on a bandsaw is easy with a jig like this. Here's how it works. With jig removed from saw table, set pivot slide to desired radius. Tighten slide clamp to lock slide in place. Cut a square workpiece blank (slightly larger than circle diameter) and fix blank center on pivot point. Start saw, then place jig guide strip in saw table miter slot and feed jig until stop hits saw table. This starts the cut. Hold or clamp jig in place, then rotate blank to cut circle. If you don't want pivot point to damage workpiece, first fix workpiece to scrap stock with double face (carpet) tape, then fix scrap stock to pivot point.

Our jig is sized for a Delta (16″x 16″) saw, but the basic design is adaptable to any model. As you're building jig, make sure pivot point is directly in line with front of sawblade (see detail) when stopblock is against saw table; otherwise blade won't track properly. Cut jig base to size, then attach stop and guidestrip. Feed base into blade until stop hits saw table. This cuts kerf and establishes front of blade. Drill 1¼″ clamp hole, then cut pivot slide groove with router. Stop groove just short of blade kerf and square up end with chisel.

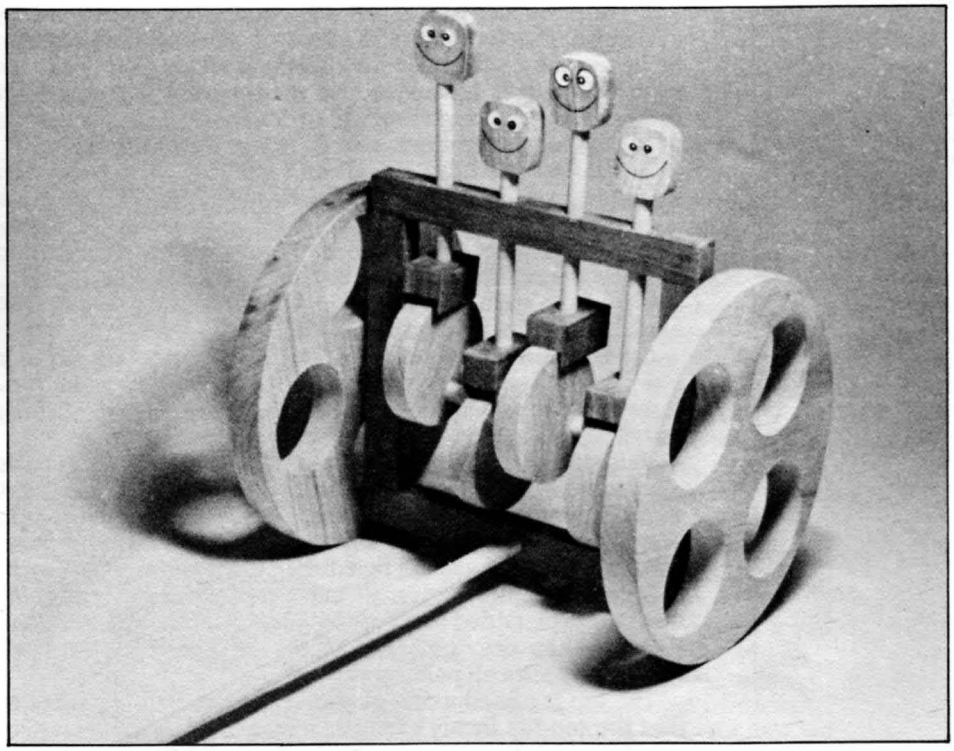


Band Saw Circle Cutting Jig

by Mike Graetz



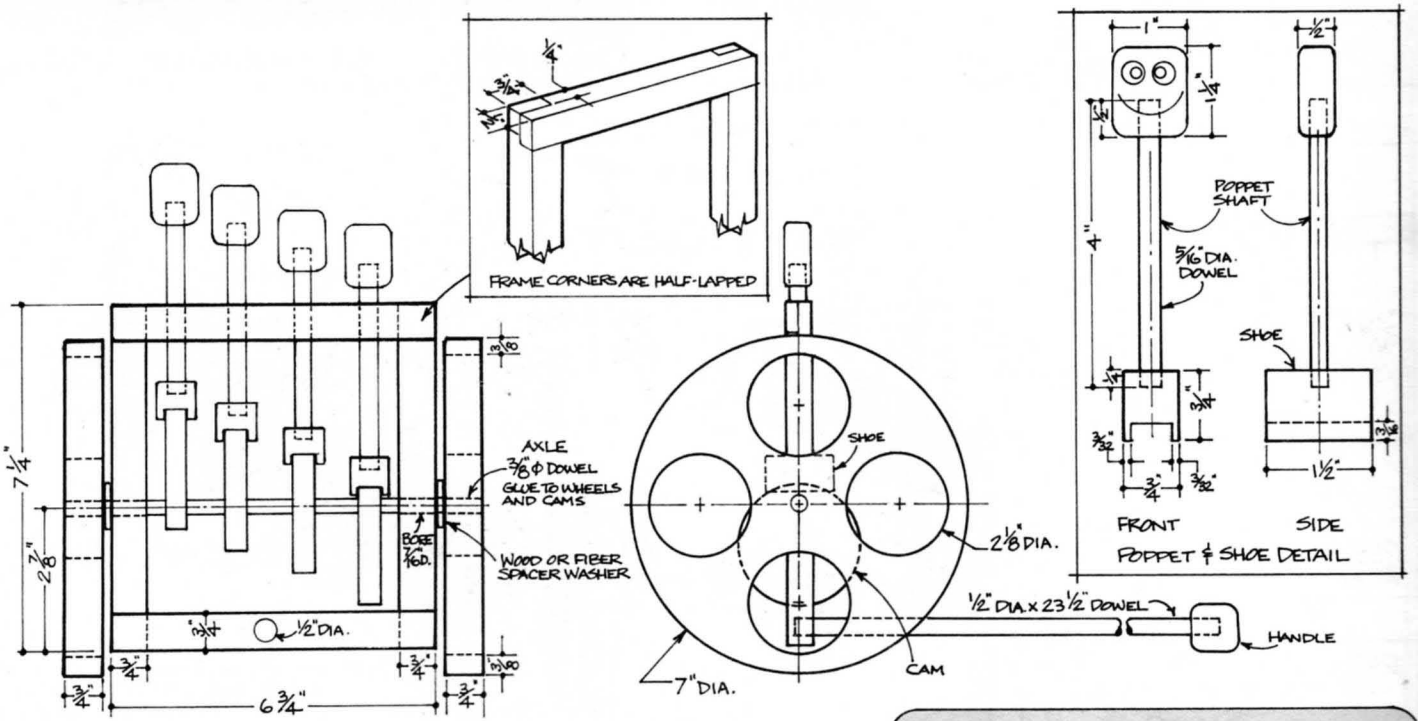
Push-Pull Toy

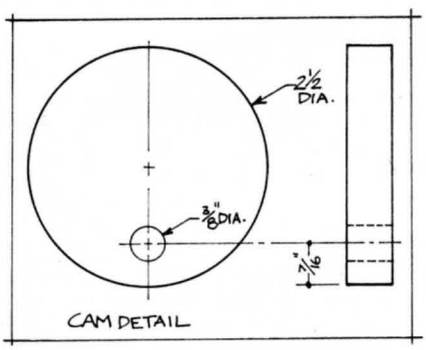


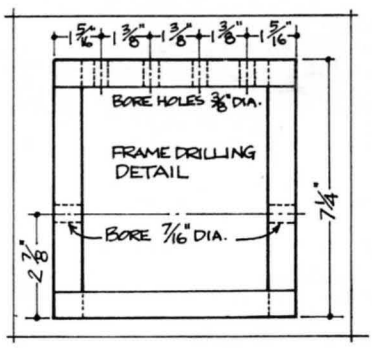
Children will love the action of this toy. As it's pushed or pulled, the cam action makes the four funny faced poppets move up and down. Kids can be pretty tough on a toy like this, so hardwood is best. We used walnut for the frame and shoes, and butternut for all other parts. The contrasting color tones add an interesting look.

Make the two wheels from 9" square blanks. Mark the location of the four 2⅛" dia. cut-outs, then use an expansion bit to drill the holes. Now cut the blank to a 7" dia. Splitting is likely to occur if the cut-out holes are drilled after the wheel is cut to the 7" dia.

Build the frame next. For added strength the end should be half-lapped as shown. Assemble with glue, then clamp securely and check for squareness. The four cams are simply ½" stock cut to 2½" dia. The poppet head, shaft, shoe, and all other parts are made as shown. Sand well before final assembly. The push-pull rod and handle are added last.



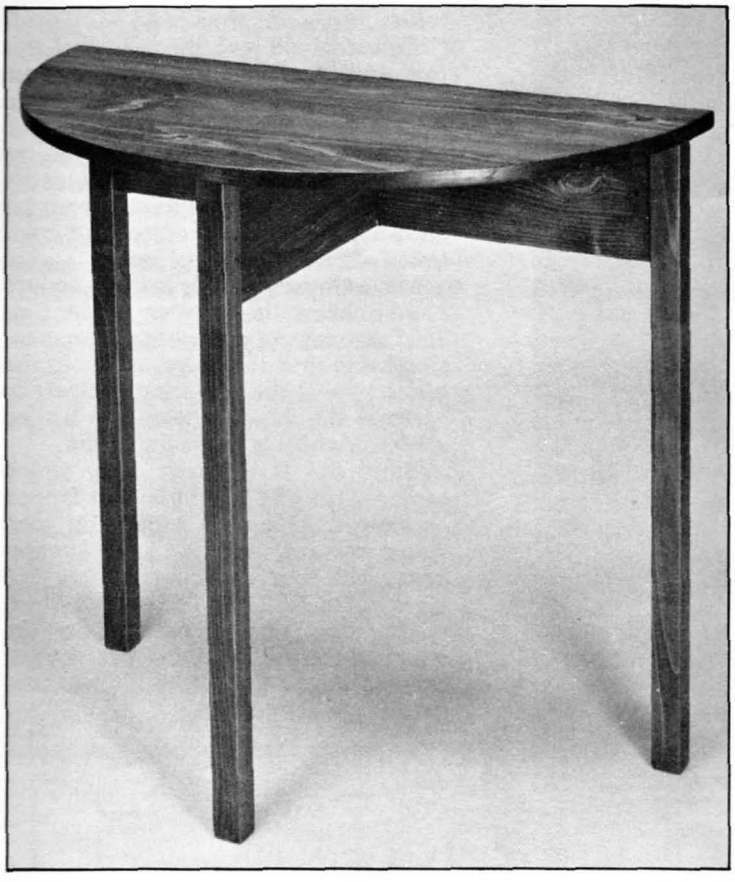




BILL OF MATERIALS

PART	SIZE IN INCHES	NO. REQ'D
WHEEL	¾ x 7" DIA.	2
FRAME SIDE	½ x ¾ x 7¼	2
FRAME TOP & BOTTOM	½ x ¾ x 6¾	2
CAM	½ x 2½" DIA.	4
AXLE	⅜" DIA. x 8½	1
POPPET HEAD	½ x 1 x 1¼	4
POPPET SHAFT	5/16" DIA. x 4	4
SHOE	¾ x ¾ x 1½	4
PUSH-PULL ROD	½" DIA. x 23½	1
HANDLE	¾ x ¾ x 2½	1

Half-Round Table



We based the design of this lovely pine table on an authentic colonial piece. It's been simplified somewhat by substituting dowel joints in place of mortises and tenons; however, more advanced woodworkers will probably choose to use the latter technique. No matter what way it's built though, the resulting table will be a very charming example of colonial style furniture.

Begin with the legs. If you can't get 1¼" stock, they can be made by face gluing two pieces of 1" (¾" actual) x 5 x 27½ stock. Use enough clamps to insure good surface contact. After drying, rip the piece to 1¼" widths. This results in a leg measuring 1¼" x 1½". To get a 1¼" square leg, rip ⅛" from each side of the 1½" wide surface. Now, trim each leg to a finish length of 27¼".

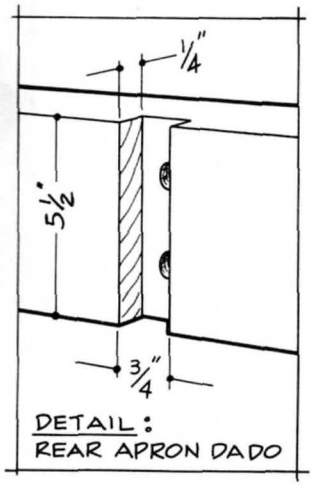
Cut the front apron (¾ x 5½ x 11¾) and rear apron (¾ x 5½ x 25½) to size, then add the rear apron dado as shown. Now the legs and aprons can be drilled for ⅜" x 1½" long dowel pins.

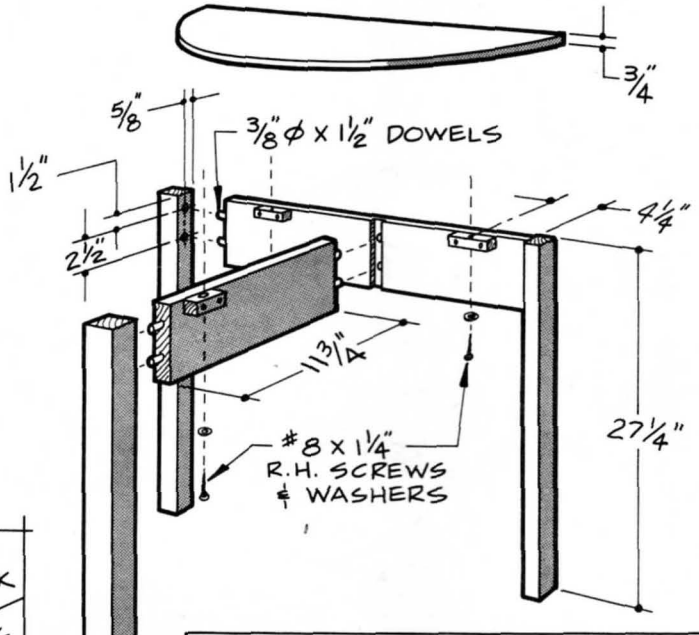
The top is made by edge joining enough stock to get the needed width. Lay out the 15" radius, then cut to shape. A quick compass can be built using a thin strip of wood. On one end a brad serves as a pivot point. Measure 15" from the brad and drill a small hole for a pencil point.

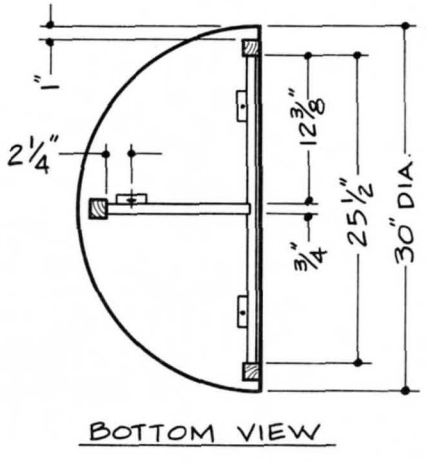
Before assembly, give all parts a complete sanding. At this point, we added a coat of Minwax Special Walnut wood finish. When dry, glue and clamp all dowel joints, then check to be sure all parts are square.

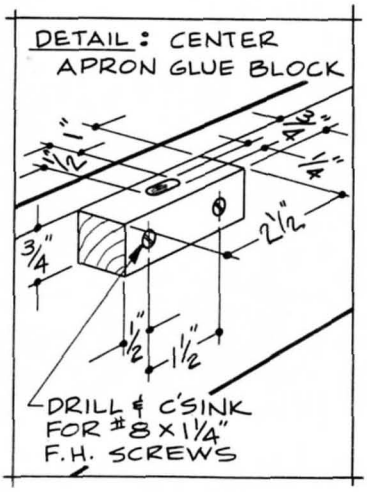
The top is joined using glue blocks as shown. To be sure that the top fits firmly to the aprons & legs, we actually located the blocks about 1/16" below the top edge of the aprons.

Finish with 2 coats of Minwax Antique Oil Finish, then final rub with 0000 steel wool.



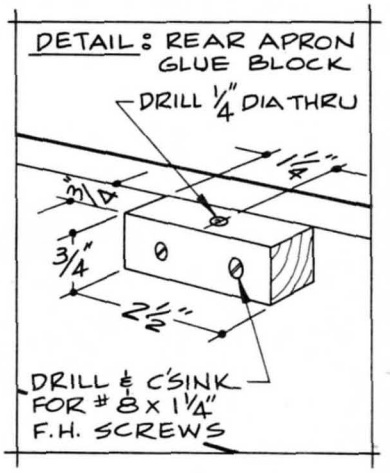




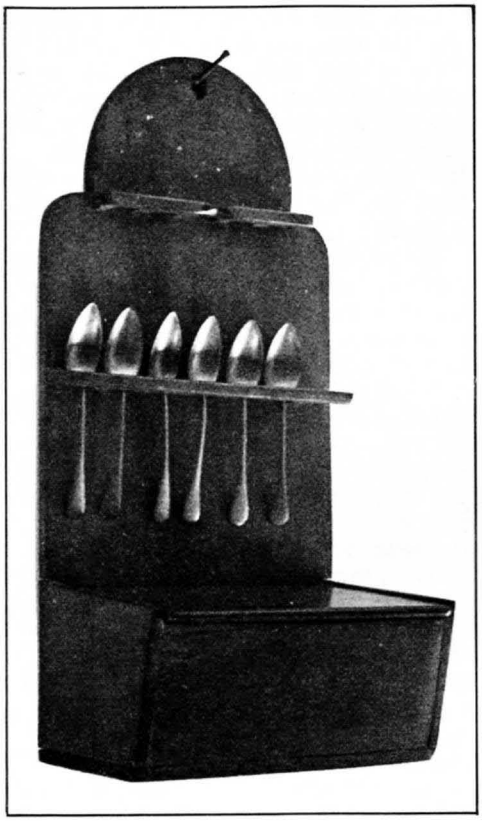


Half-Round Table
Bill of Materials
(All Dimensions Actual)

Description	Size	No. Req'd
Leg	1¼ x 1¼ x 27¼	3
Front Apron	¾ x 5½ x 11¾	1
Back Apron	¾ x 5½ x 25½	1
Top	¾ x 15 x 30	1
Glue Block	See Detail	3



The Gift Shop



Spoon Rack

by Paul Levine

This beautiful, clean statement in wood hangs in a small warm kitchen. The room is well lit, with two large windows overlooking a garden. To add to the cozy feeling, a large fireplace dominates the adjacent wall.

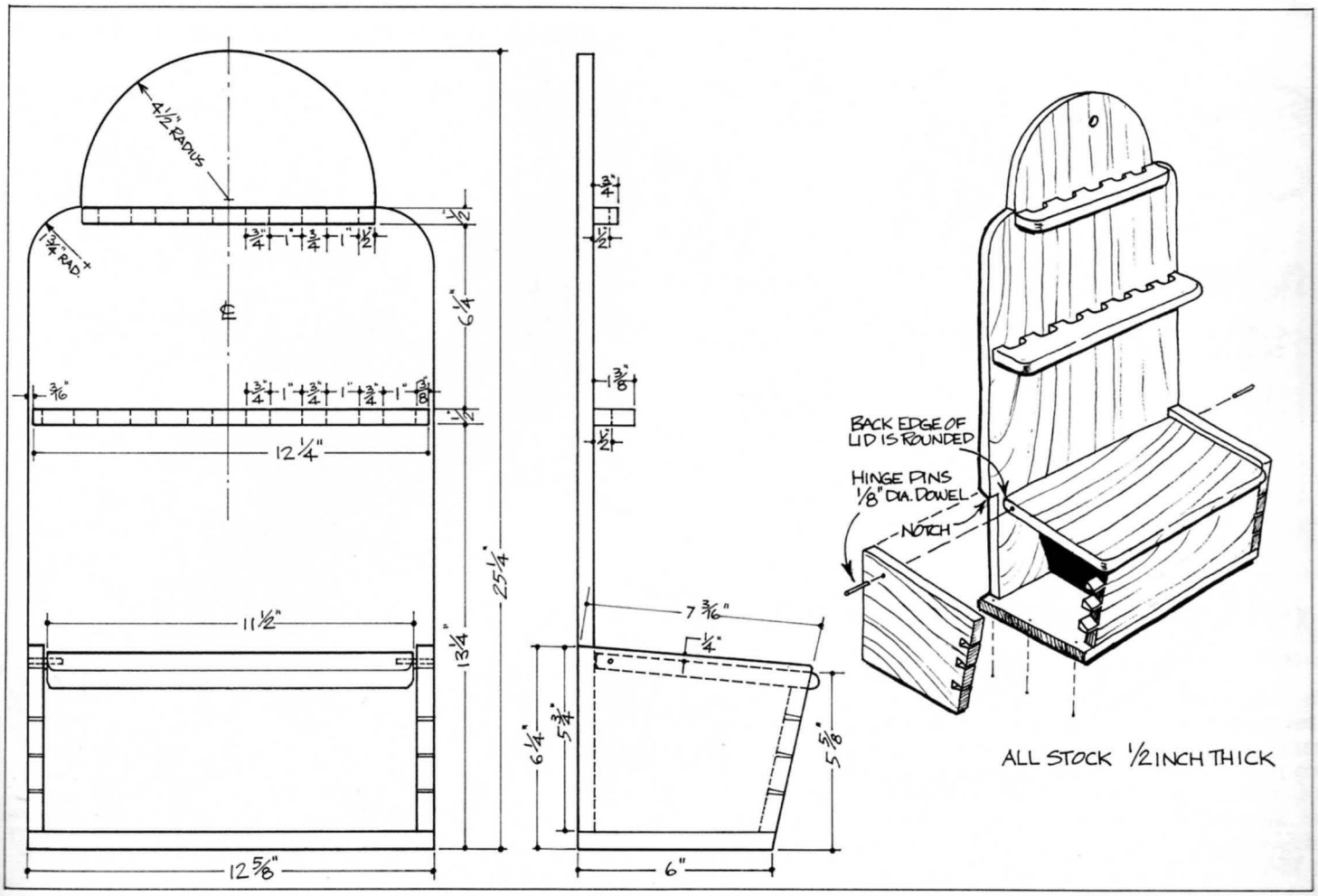
From this description it is hard to imagine that upon walking out into the garden one discovers that this house is sandwiched between two skyscrapers. This is the Abigail Adams Smith Museum, located at 421 East 61st Street in New York City. Now restored to a tranquil home setting and filled with American furniture, this warm house and the warm people who care for it invite you into another time.

With its simple elegant lines, the spoon rack graces this setting as it did when first made in the early 1800's. To make a replica of this antique for your very own, use ½" pine and cut all pieces to shape, remembering that the back, sides, and front are cut full width or depth to allow for jointing.

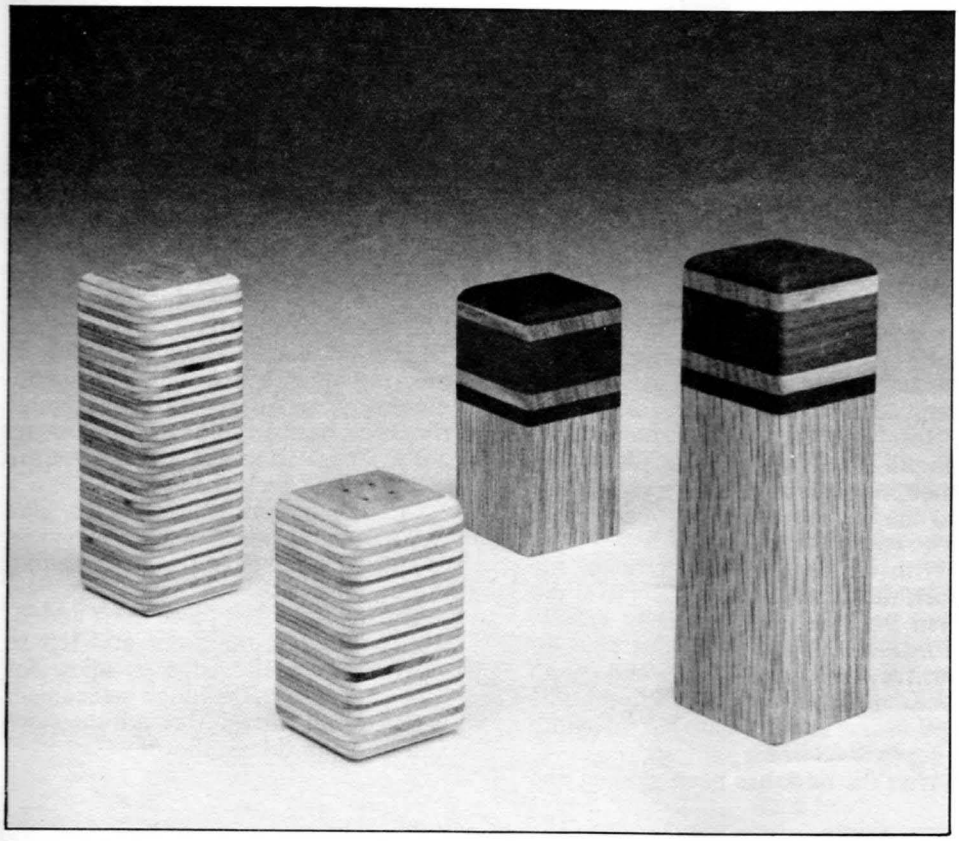
After the back has been shaped and bored for the hanging hole, notch it to receive the sides. These will later be nailed into the back. Lay out and cut dovetails at the front corners. If you have never made this joint, this is a good place to learn because pine is soft and easy to work. The front is shorter than the sides by the thickness of the lid. Although the front slopes inward to the bottom, the dovetail joint is made as though the joint were to remain vertical. After sanding, assemble the front, back and sides with glue and nails. Check to see that the sides are square to the back and let dry.

Cut the bottom to size, then glue and nail into place. The spoon holders can also be applied at this time, nailing through the back.

The lid is the last piece to be added. It's rounded at the front and left to protrude over the edge to allow for ease of opening. The hinge mechanism is two dowels driven through the sides and into the lid as shown.



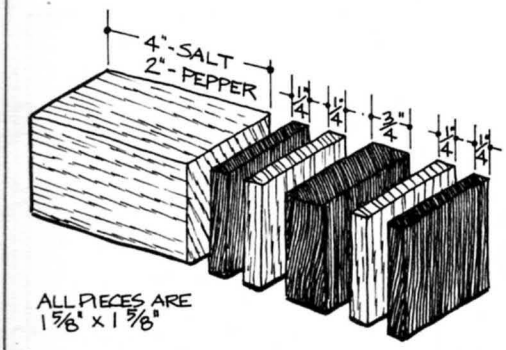
Salt & Pepper Shakers



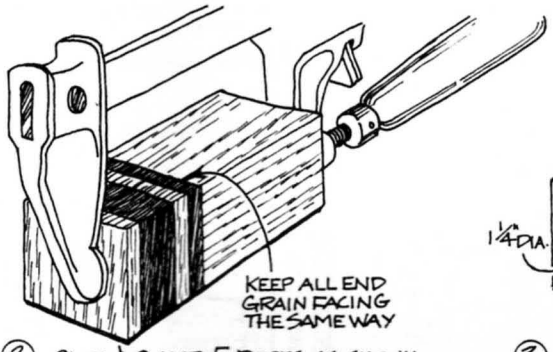
Both these sets of salt and pepper shakers offer a rather distinctive look. They're not difficult to make and should prove ideal for sale to the craft fair and gift shop markets. One set is made from laminated oak and walnut, the other from birch plywood. A cork plug in the bottom serves as the stopper.

Steps one through five detail the method used to make the oak and walnut shakers. Note that the 1⅝" square base block is cut 2" long for pepper and 4" long for salt. After cutting the ¼" and ¾" thick laminates as shown, apply glue and clamp securely (step 2). Be sure that the end grain faces the same way, and keep in mind that the top walnut laminate is not added until step 4.

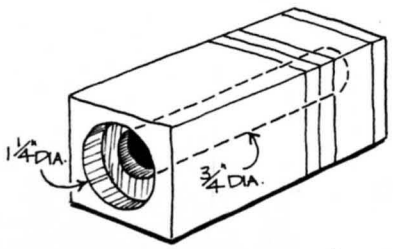
Layers of ¾" birch plywood make up the other set. Glue and clamp 1⅝" squares, 6 for salt, 4 for pepper. Drill a 1¼" dia. x ½" deep counterbore for the bottom, then use a forstner bit to center bore a ¾" dia. hole to a depth just ¼" from the top. After sanding, apply an oil finish to outside surfaces only.



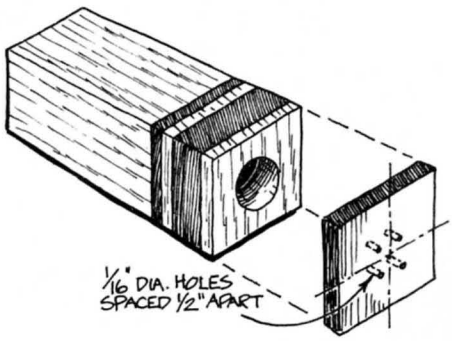
① CUT SIX PIECES FROM CONTRASTING WOODS SUCH AS OAK & WALNUT



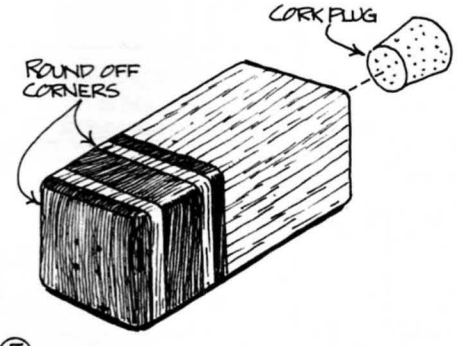
② GLUE & CLAMP 5 PIECES AS SHOWN (TOP PIECE IS ADDED LATER)



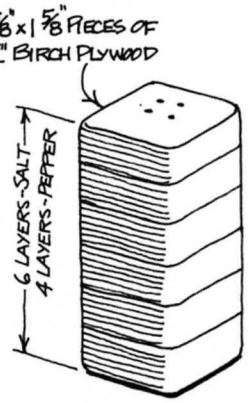
③ COUNTERBORE BOTTOM ½" DEEP, THEN CENTERBORE COMPLETELY THROUGH WITH ¾" BIT



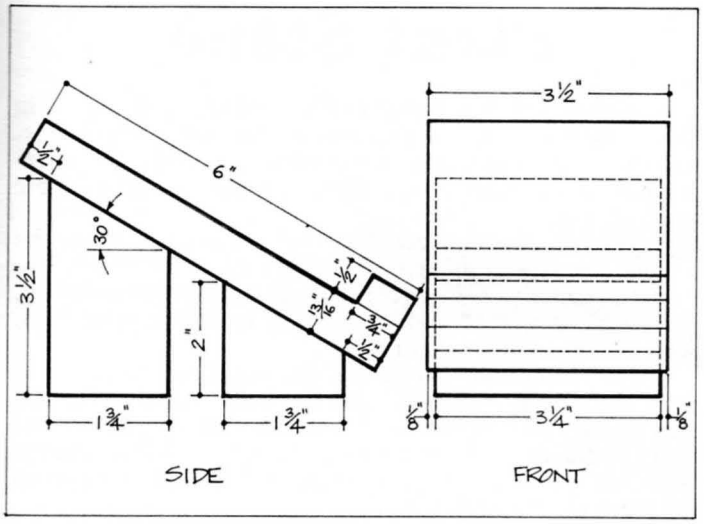
④ GLUE AND CLAMP TOP PIECE. DRILL SMALL HOLES THROUGH TOP INTO CENTRAL BORE



⑤ BELT SAND ALL SURFACES FLUSH. FINISH SAND AND APPLY OIL FINISH



GLUE & CLAMP 4 OR 6 PIECES TOGETHER. COUNTERBORE BOTTOM THEN USE A ½" DIA. FORSTNER BIT TO CENTERBORE TO WITHIN ¼" OF ENTIRE LENGTH.



Calculator Stand

by Alan C. Sandler

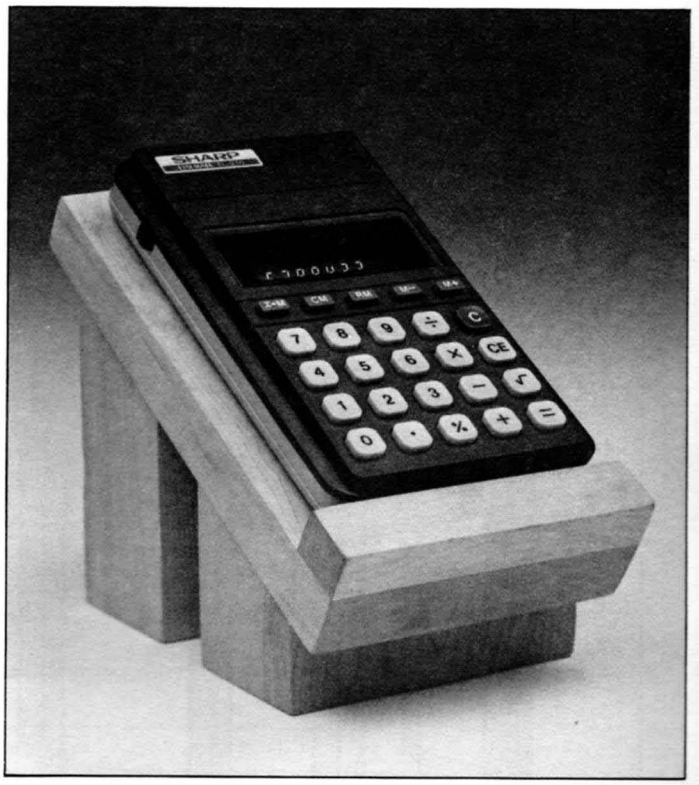
Here's a pleasant alternative to the usual plastic type calculator stands. Many find this is a useful desktop accessory because it makes it easier to read and operate the calculator. The contemporary style has a lot of appeal, and solid hardwood construction adds weight and sturdiness. We used maple for ours, but just about any hardwood will be suitable.

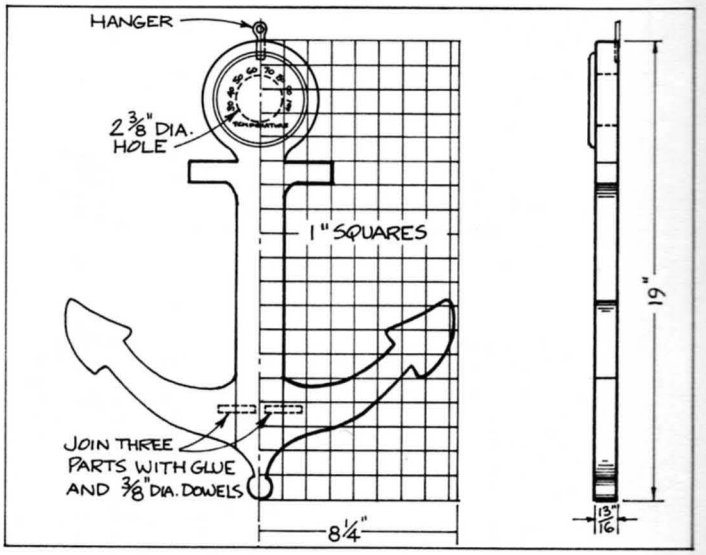
The top is made from a piece of stock measuring 1" (13/16 actual) x 3½" x 6". This is sized for our calculator which measures 3" x 5", however if yours is considerably larger or smaller, you'll want to adjust the dimensions to suit. The ½ x 13/16 x 3½ lip can be made by ripping 4/4 stock to a width of ½".

The two posts are made from 8/4 (1¾ actual) stock cut to the dimensions shown. Before assembly give all parts a complete sanding. Use 220 grit paper for final sanding.

Referring to the sketch, glue posts to top as shown. With a joint that's difficult to clamp, such as this, it's a good idea to use glue that has good "tack" qualities. Aliphatic resin (Titebond) or hide glues are good choices.

Final sand to remove sharp edges, then finish with 2 coats tung oil.

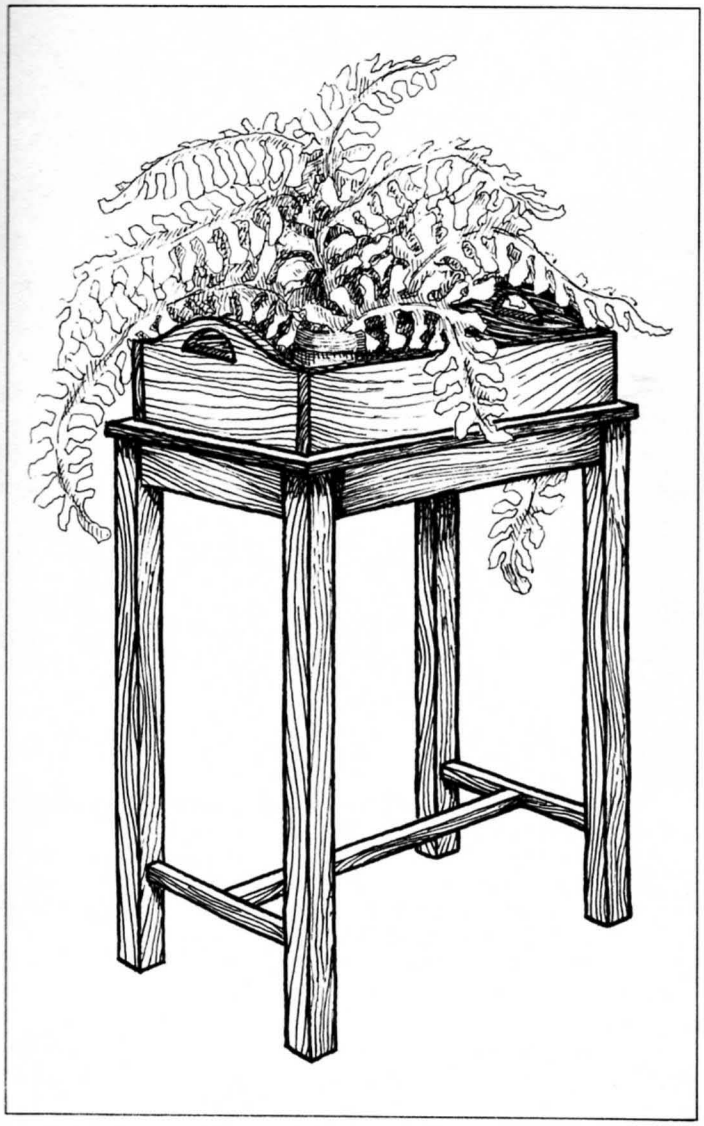




Anchor Thermometer

by Roger E. Schroeder

An excellent project for about any scrap from pine to walnut, this anchor weather station will hold a thermometer or any other round weather instrument. Made of 4/4 cherry wood and finished with a walnut stain and tung oil, it comprises three pieces of wood, two arms and a center, held together with ⅜ inch dowels and glue. A 2⅜ inch dia. hole is made for the reduced back of the thermometer which is force-fitted, and a hanger is mortised into the back of the anchor. Both the 4" dia. thermometer and hanger are available from Armor Products, Box 290, Deer Park, NY 11729. A catalog costs $1.00.



Plant Stand

Just about any houseplant can be beautifully displayed in this attractive stand. It features a removable upper box, making it easier to transport the plants for such jobs as repotting or watering. Pine, maple, or oak are all suitable wood choices.

Begin with the legs (A). The 1½″ thickness can best be obtained by face gluing two pieces of 1 x 8 x 23½ stock. Use enough clamps to insure good surface contact. After drying, rip the piece to 1½″ widths to result in 1½″ square legs. Also trim to a finish length of 23″.

Cut the front and rear aprons (B) and side aprons (C) to size. The side stretcher (D) and the main stretcher (E) can also be cut and notched as shown. Now lay out, mark, and drill ⅜″ dia. dowel holes for parts A, B, C, and D as shown. Note that aprons (B) & (C) are inset ⅛″ while lower aprons (D) are centered on the leg.

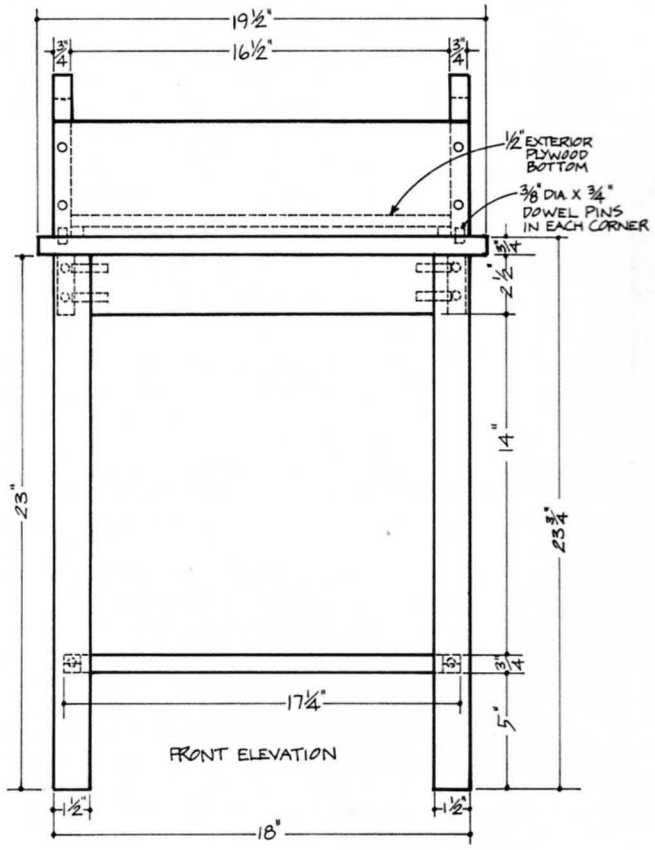
The 12″ wide top (F) will probably require edge joining narrower stock in order to gain enough width. Glue and clamp the boards overnight, then cut to a finish length of 19½″.

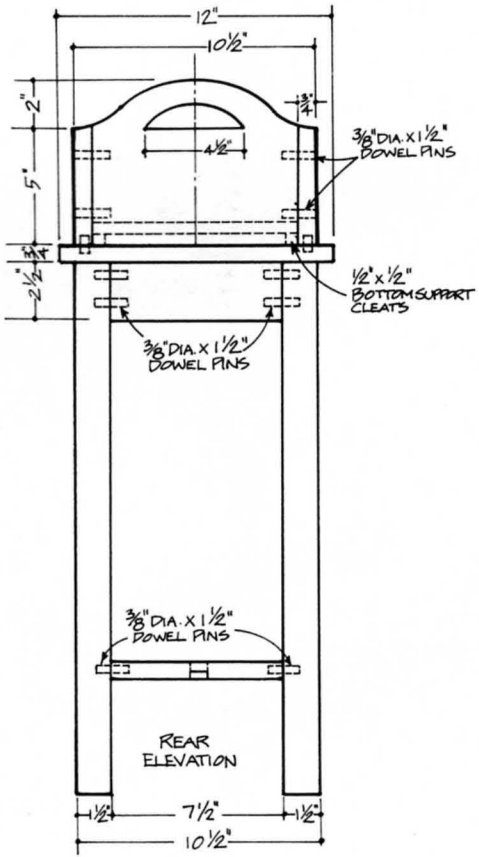
Cut parts G, H, and I as per the Bill of Materials. Use freehand to trace the simple handle curve on part H, then use a band or saber saw to cut to shape.

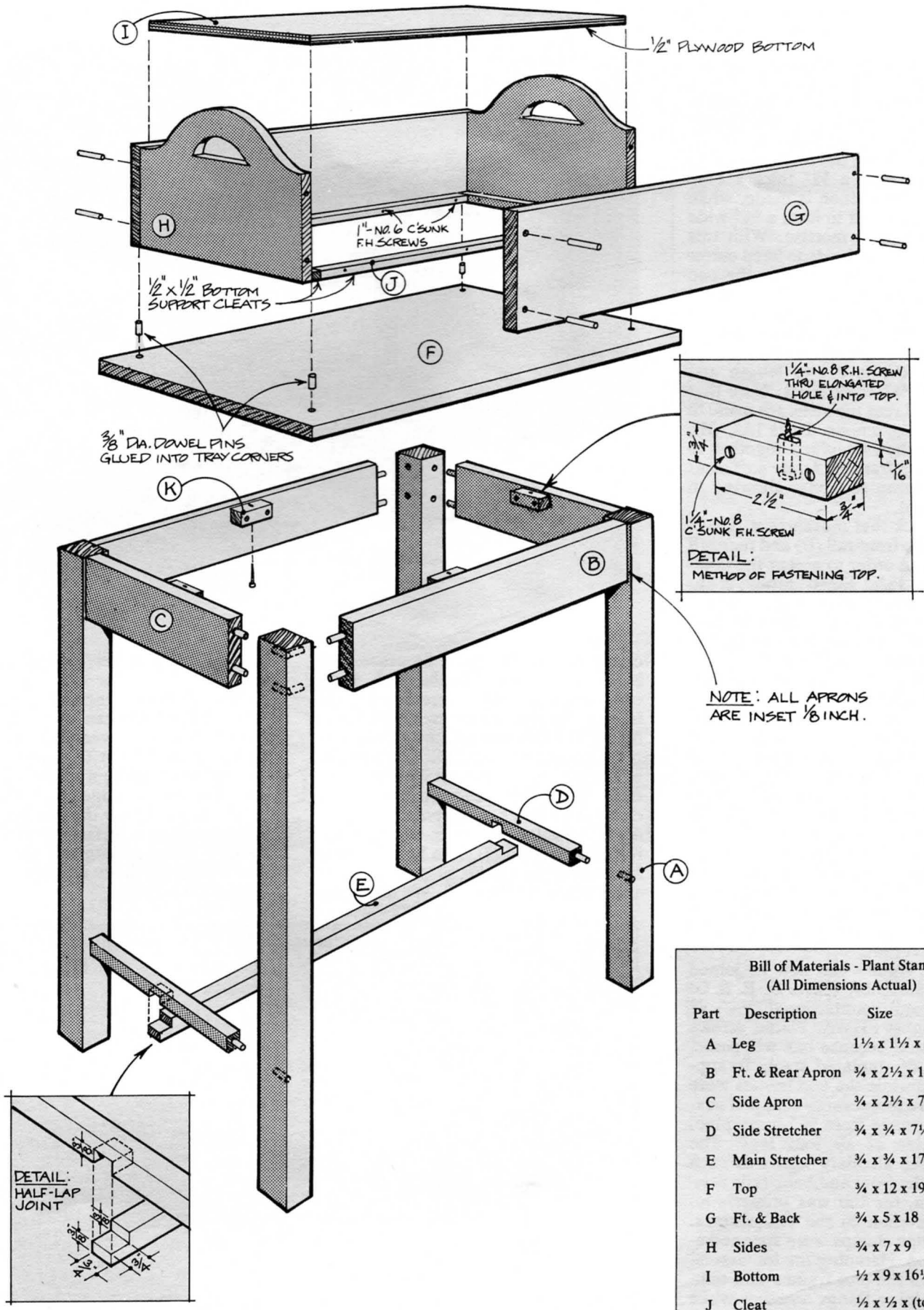
Give all parts a complete sanding, then dry fit parts B, C, & D to A. If the fit up looks good, glue and securely clamp the joints, making sure everything is square. Part E can now be glued to D as shown.

The top is joined with four glue blocks (K), see detail. Note that the blocks are slotted to allow for movement of the top. The upper box, parts G and H, are joined with glue and dowel pins as shown. The ½ x ½ bottom support cleats are glued and screwed in place to support the plywood bottom. The plywood is not fastened, but instead drops in place to facilitate easy removal and cleaning. Dowel pins are glued to the top (F) as shown. These then fit into (but are not glued to) corresponding holes in part G.

Final sand all parts, rounding off any sharp edges. Stain to suit, apply 2 coats polyurethane, then rub down with 0000 steel wool.



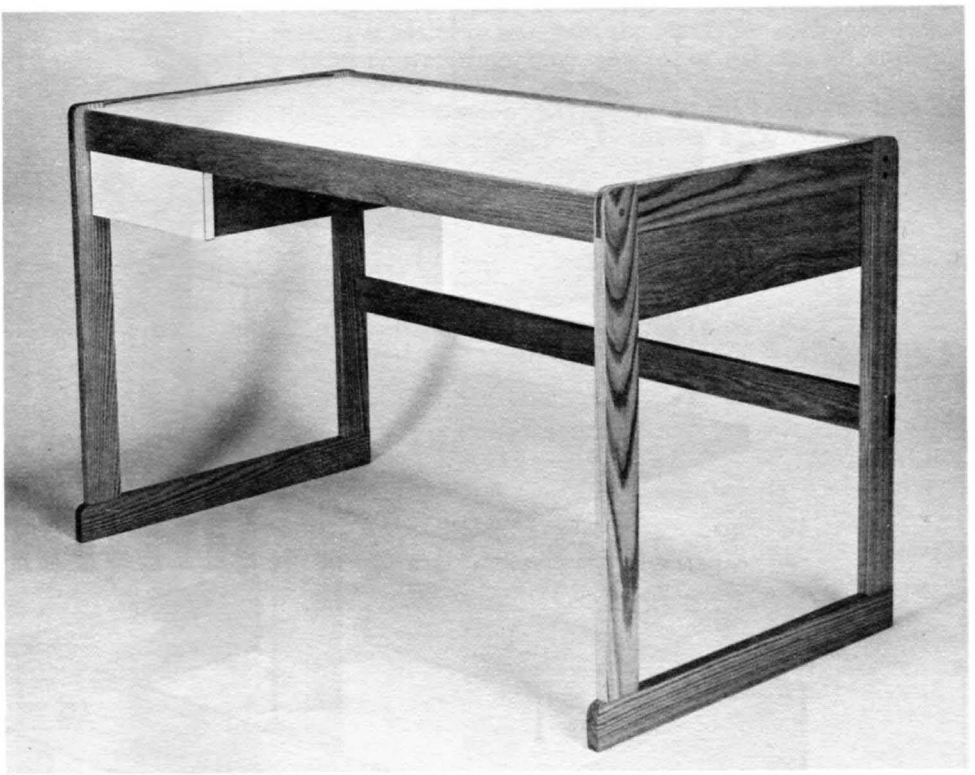




Bill of Materials - Plant Stand
(All Dimensions Actual)

Part	Description	Size	No. Req'd.
A	Leg	1½ x 1½ x 23	4
B	Ft. & Rear Apron	¾ x 2½ x 15	2
C	Side Apron	¾ x 2½ x 7½	2
D	Side Stretcher	¾ x ¾ x 7½	2
E	Main Stretcher	¾ x ¾ x 17¼	1
F	Top	¾ x 12 x 19½	1
G	Ft. & Back	¾ x 5 x 18	2
H	Sides	¾ x 7 x 9	2
I	Bottom	½ x 9 x 16½	1
J	Cleat	½ x ½ x (to suit)	4
K	Glue Block	See Detail	4

Oak Writing Desk



Those with a flair for contemporary styling will like this project. It's a beautifully proportioned desk featuring a large (24″ x 48″) writing surface and two large pull-out drawers.

Begin by cutting the four legs (A) to size. On one end, a ⅜″ thick x 1½″ wide x 2½″ long tenon is made, while the other end is cut to form a ⅜″ wide x 2½″ deep open mortise. With this completed, set up the dado head cutter to cut the ¾″ x 2½″ notch in the two back legs. Now the end rail tenons (B) can be cut to fit the leg mortises. To look best, this joint must have a good tight fit, so use special care here.

The foot (C) is cut to length and width from ¾″ thick stock. Note that the front and rear mortises are made to accept the leg tenons. Parts (A), (B), and (C) can now be glued together to form the side frames. Apply sufficient glue and clamp securely, allowing to dry overnight.

Using stock that measures a full 1″ thick, cut the front rail (D) and rear rail (E) to size. In order to accept the laminated top, a ⅝″ x 13/16″ rabbet is applied to part (D), and a ⅝″ x 1 3/16″ rabbet is applied to part (E). It's best to cut the rail width slightly oversize so that later, after the top is added, you'll be able to lightly plane the rails perfectly flush with the top.

The top (G) consists of ¾″ Baraboard® laminated on top with 1/16″ Formica®, horizontal grade, #949 white. Particle board is also a good core material, but we preferred Baraboard because of its lighter weight. After the top has been laminated (with contact cement) and trimmed, it can be glued and clamped to the front rail (D) and rear rail (E). Lightly plane the rails flush with the Formica top, then round off the front edge with a router and ¼″ rounding-over bit.

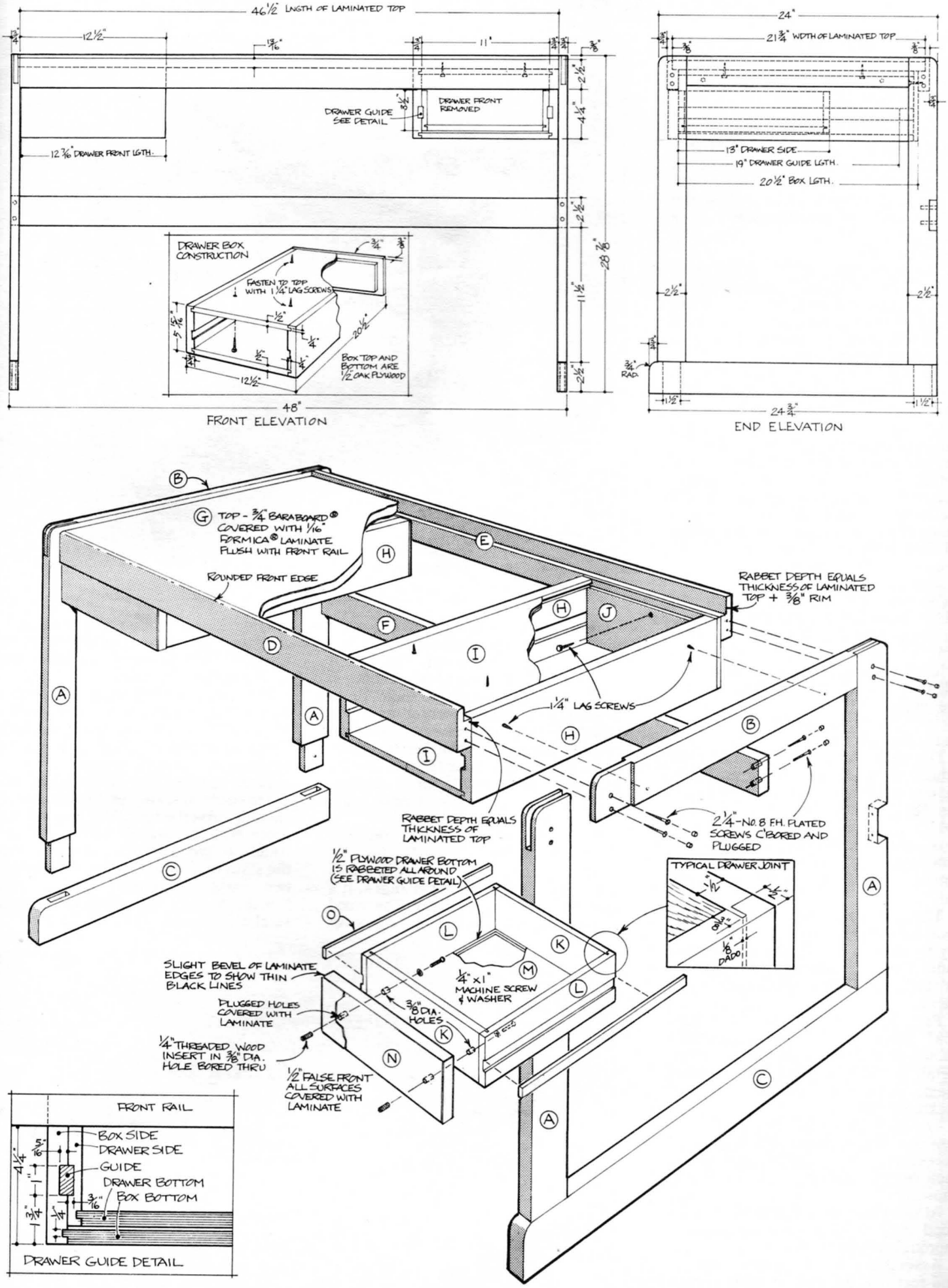
The side frames can now be joined to the top assembly (parts D, E, & G) with glue and counterbored 2¼″ #8 plated (bright) FHWS. Plated screws are suggested because oak will sometimes corrode unplated steel. To support the top while the end frames were attached, we temporarily clamped auxiliary legs (made from ¾″ scrap pine) to the inside of all four legs. The length of the auxiliary legs was such that when the front and back rails rested on them, the top was properly located in relation to the end frames. Two 5 ft. pipe clamps were spanned across the top, clamping the top assembly between the end frames and temporarily holding things together while the screws were drilled and secured. The stretcher (F) was also attached at this point.

The box components, parts (H), (I), and (J) can now be cut. To facilitate clamping, the box must be assembled before it is screwed to the desk, however, once the box is assembled there is not enough room to make pilot holes. For this reason, the pilot holes must be located and drilled before the box is put together. Start with box side (H). With the desk upside down, clamp (H) in its proper location and drill pilot holes as shown. Do the same for parts (I) and (J). The box can now be assembled (make sure its square) and screwed to the desk. We chose lag screws so a socket wrench could be used.

The drawers, including the false drawer front (N) can now be cut and assembled. The oversized holes (⅜″) in the drawer front (K) allow for considerable adjustment of the false front (N). The bottom edge of (N) should be 1/16″ to ⅛″ below the box bottom (I). This provides a surface for the fingers to grip when pulling out the drawer. For a final finish we applied two coats Watco Danish Oil.

Oak Writing Desk — Bill of Materials — (All Dimensions Actual)

Part	Description	Size	No. Req'd.
A	Leg	¾ x 2½ x 28⅞	4
B	End Rails	¾ x 2½ x 24	2
C	Foot	¾ x 2½ x 24¾	2
D	Front Rail	1 x 2½ x 46½	1
E	Rear Rail	1 x 2⅞ x 46½	1
F	Stretcher	¾ x 2½ x 48	1
G	Top	¾ x 21¾ x 46½	1
H	Box Side	¾ x 5 15/16 x 20⅛	4
I	Box Top and Bottom	½ x 11½ x 20⅛	4
J	Box Back	¾ x 5 15/16 x 12½	2
K	Drawer Front and Back	½ x 3⅜ x 10¾	4
L	Drawer Sides	½ x 3⅜ x 13	4
M	Drawer Bottom	½ x 10½ x 12½	2
N	False Front	½ x 4⅜ x 12½	2
O	Drawer Guides	½ x 1 x 19	4


46½" LNGTH OF LAMINATED TOP
12½"
13/16"
11"
DRAWER GUIDE SEE DETAIL
DRAWER FRONT REMOVED
12 3/16" DRAWER FRONT LGTH.
DRAWER BOX CONSTRUCTION
FASTEN TO TOP WITH 1¼" LAG SCREWS
Box TOP AND BOTTOM ARE ½" OAK PLYWOOD
48"
FRONT ELEVATION
24"
21¾" WDTH OF LAMINATED TOP
13" DRAWER SIDE
19" DRAWER GUIDE LGTH.
20½" Box LGTH.
24¾"
END ELEVATION
G TOP - ¾" BARABOARD® COVERED WITH 1/16" FORMICA® LAMINATE FLUSH WITH FRONT RAIL
ROUNDED FRONT EDGE
RABBET DEPTH EQUALS THICKNESS OF LAMINATED TOP + ⅜" RIM
1¼" LAG SCREWS
RABBET DEPTH EQUALS THICKNESS OF LAMINATED TOP
2¼"-No. 8 FH. PLATED SCREWS C'BORED AND PLUGGED
½" PLYWOOD DRAWER BOTTOM IS RABBETED ALL AROUND (SEE DRAWER GUIDE DETAIL)
TYPICAL DRAWER JOINT
SLIGHT BEVEL OF LAMINATE EDGES TO SHOW THIN BLACK LINES
¼" x 1" MACHINE SCREW & WASHER
PLUGGED HOLES COVERED WITH LAMINATE
¾" DIA. HOLES
¼" THREADED WOOD INSERT IN ⅜" DIA. HOLE BORED THRU
½" FALSE FRONT ALL SURFACES COVERED WITH LAMINATE
FRONT RAIL
BOX SIDE
DRAWER SIDE
GUIDE
DRAWER BOTTOM
BOX BOTTOM
DRAWER GUIDE DETAIL

18th Century Chair Table

By and large, houses in colonial America were rather small, oftentimes just one or two tiny rooms. With small houses and small rooms, space was at a premium, so colonists had to be very practical when choosing furniture. The chair table is a good example of that practicality. It served two functions. At mealtime it was used as a table, right in the middle of a room. When the meal was over, it was opened as a chair and pushed out of the way against a wall.

The advantages of the chair table can still be enjoyed by many of us today. Anyone with a space problem can put it to use, particularly those with small homes or apartments. It truly is a timeless furniture style.

The sides (A) can be made first. If you can't get 10½" wide stock you'll have to edge-join two or more boards to get the needed width. Cut to width and length (including tenons), then lay out and mark tenons as shown in the details. Use the dado head in conjunction with a table or radial saw to cut the tenon cheeks. A back saw and sharp chisel will finish the job. Make all cuts with care. Also cut the ¼" deep x ¾" wide seat dado.

Arm rests (C) and feet (B) can be made next. Cut to overall length and width, then lay out mortise location. To cut mortises, drill a series of adjacent ¾" diameter x 1 9/16" deep holes. This removes most of the material. What's left can be cleaned up with the chisel. After mortises are completed, the curved profiles (as shown on the grid pattern) can be cut.

The back (D) is made from 1" (¾" actual) stock. As with the legs, you'll have to edge-join several boards to get the 16½" width. Note that it has a 1⅛" x 3½" notch at both upper corners, allowing the back to fit around arm rests (C). After completing both notches, the curved profile can be cut out.

The seat (E) can be cut next. If your local lumberyard carries 1" x 12" stock try to select a board that has a minimum of cup. If they only carry narrower stock, you'll once again have to join them.

Part (F), the cleats, are made from 1⅛" stock and cut to dimensions shown in both the side elevation and detail of the rear pivot hole location. Next, locate and drill the pivot and locking holes.

The 28" wide by 36" long top (G) can now be made. Edge-join boards as necessary, trim to length and width, then cut the corners to 30 degrees as shown.

At this point, before assembly, it's a good idea to give all components a thorough sanding job.

Assemble sides (A) to arm rests (C) and feet (B). Be sure to apply sufficient glue to both mortises and tenons.

Clamp securely and allow to dry overnight. When dry, drill ¼" dia. holes for dowel pins as shown. Cut pins a little long, then trim and sand flush.

The seat (E) is glued to the dado in side (A) and further secured with two countersunk woodscrews. The countersunk holes are then plugged and sanded flush. The back (D) can now be attached with glue and three countersunk and plugged woodscrews each end.

Each cleat is fixed to the top with three wood screws. Since the top will want to expand and contract in width due to seasonal humidity changes, it's best not to use glue here. The wood screws will allow some movement of the top and minimize the chance of cracking. Locate the cleat so that there is about ⅛" of "play" between the cleat and the arm rest.

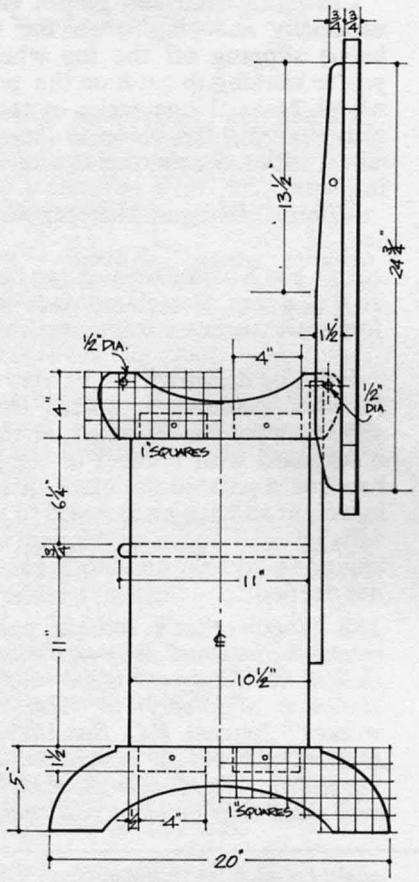
Now, with the top resting in proper position on the arm rest, mark the location of the arm rest pivot and lock holes. After drilling holes, pegs can be made as shown in the detail.

Final sand all surfaces. Round off sharp corners, taking particular care to smooth curved edges. We stained our piece with 2 coats of Minwax Early American wood finish. After allowing the stain to thoroughly dry, we applied two coats of Minwax Antique Oil Finish. A light rub down with 0000 steel wool completed the project.

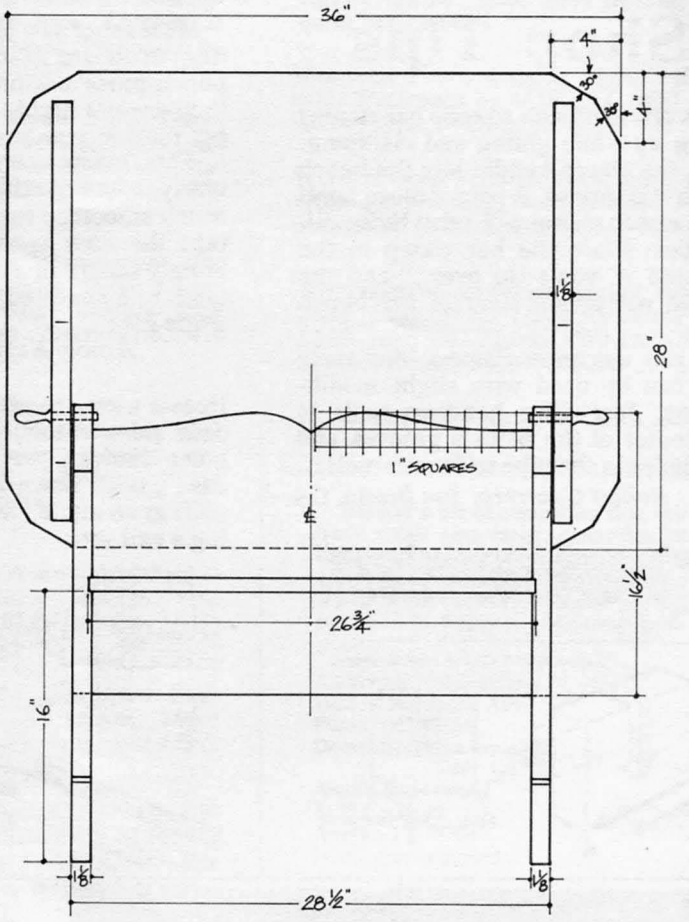
Chair Table

Bill of Materials
(All Dimensions Actual)

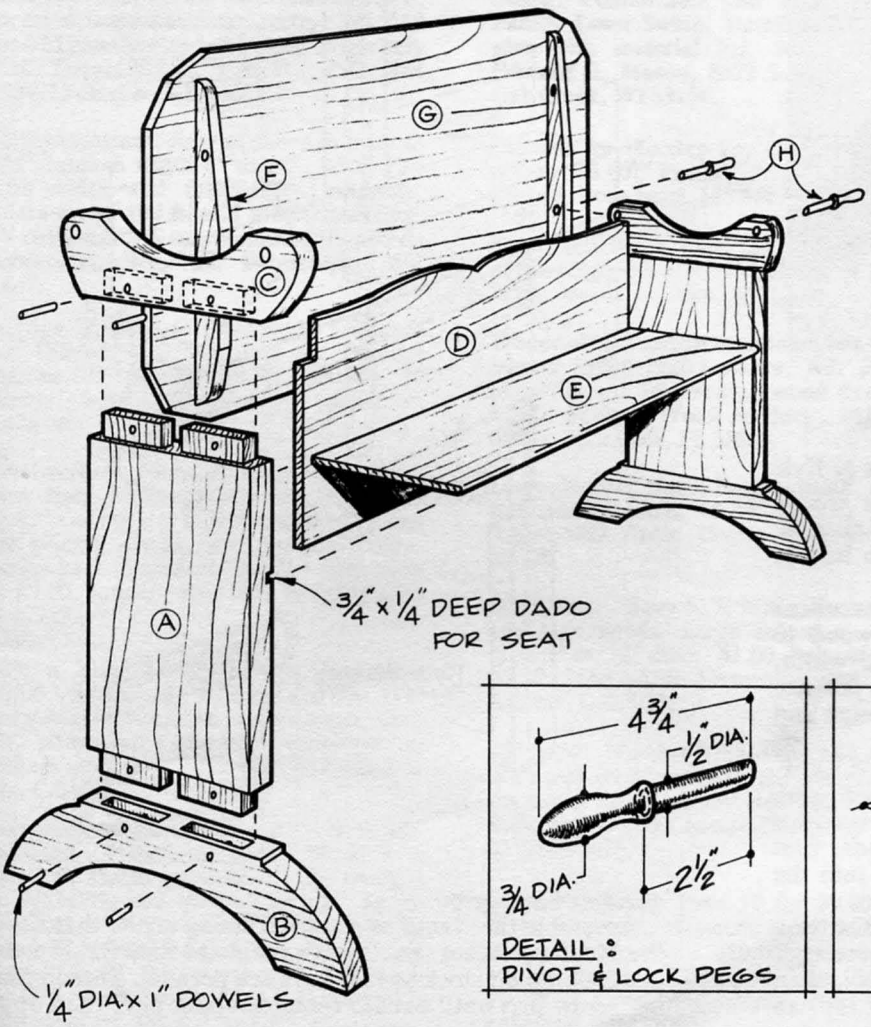
Part	Description	Size	No. Req'd.
A	Side Board	1⅛ x 10½ x 21 (Inc. tenons)	2
B	Foot	1⅛ x 5 x 20	2
C	Arm Rest	1⅛ x 4 x 14½	2
D	Back	¾ x 16½ x 28½	1
E	Seat	¾ x 11 x 26¾	1
F	Cleat	1⅛ x 1½ x 24¾	2
G	Top	¾ x 28 x 36	1
H	Pivot & Lock Pegs	See Detail	4

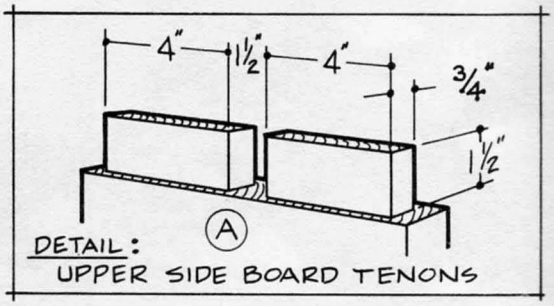


SIDE ELEVATION

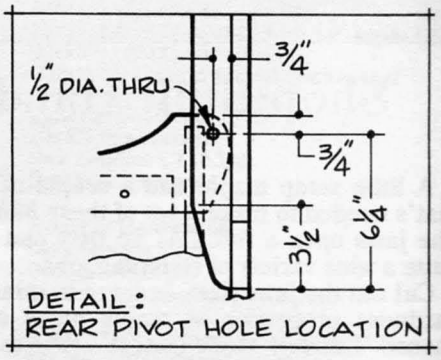


FRONT ELEVATION



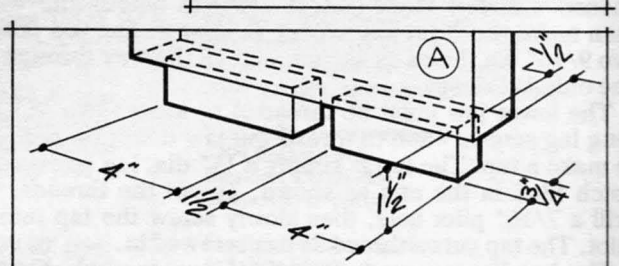


DETAIL:
UPPER SIDE BOARD TENONS



DETAIL:
REAR PIVOT HOLE LOCATION

DETAIL:
PIVOT & LOCK PEGS



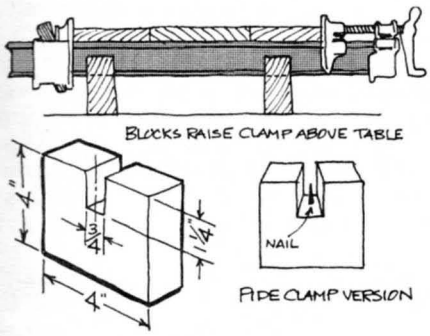
DETAIL:
LOWER SIDE BOARD TENONS

Shop Tips

It's often difficult to keep bar clamps facing up while gluing and clamping. Also, the clamp handle hits the bench top as it is turned. A pair of these holders for each clamp will solve those difficulties. Place the bar clamp in the slot and it won't tip over... and the handle will swing clear of the bench top.

If you use pipe clamps, the same idea can be used with slight modifications. Just drive headless nails in the center of the block's grooves and drill holes in the pipe to fit over nails.

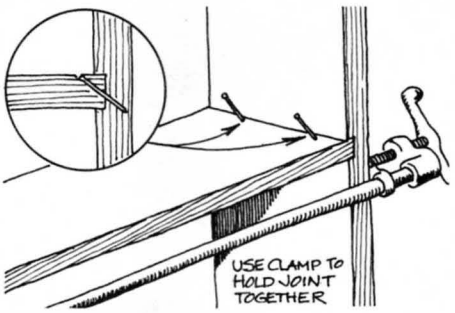
Robert Guerrero, San Bruno, CA



Most saber saw blades made for cutting wood are stamped out on huge punch-press machines. For this reason they are not highly sharpened and often tend to tear wood rather than cut it. This results in a rough edge, particularly when working with plywood. Much smoother cuts will result if you take the time to sharpen the blades. Simply secure in a vise, then file each tooth to a sharp edge with a small triangle file.

Arnold Kastrup, Richfield, OH

Here's a way to attach shelves to carcase sides without having filled nail holes showing on the outside. Turn case upside down and drive finishing nails at an angle into shelf bottoms using a nail set.



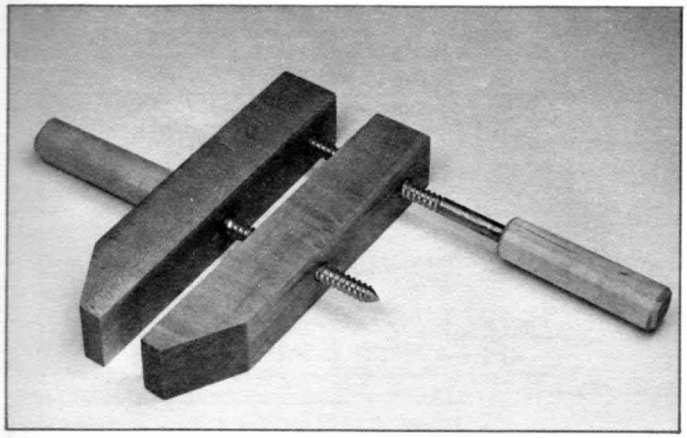
Changing band saw blades can be especially annoying when the blade keeps slipping off the top wheel as you're working to get it on the bottom wheel. Make things easier by temporarily securing the blade to the upper wheel with a couple of pieces of masking tape.

Clifford Schwieger, Minneapolis, MN

In a pinch a pipe wrench can be used as a C-clamp. Use clamp pads to protect work surfaces from wrench jaws.

Full size drawings can be very helpful when planning a project. Use the shop floor for chalk layouts, or make a blackboard with a sheet of tempered hardboard painted flat black. It's light in weight and can be screwed to any available wall space or hinged to the ceiling to be held up with hooks when not needed.

The Woodworker's Journal *pays for reader submitted shop-tips that are published. Send your ideas (including sketch if necessary) to:* The Woodworker's Journal, *P.O. Box 1629, New Milford, CT 06776, Attention: Shop-Tip Editor. We re-draw all sketches so they need only be clear and complete.*



Shop-Built Handscrew

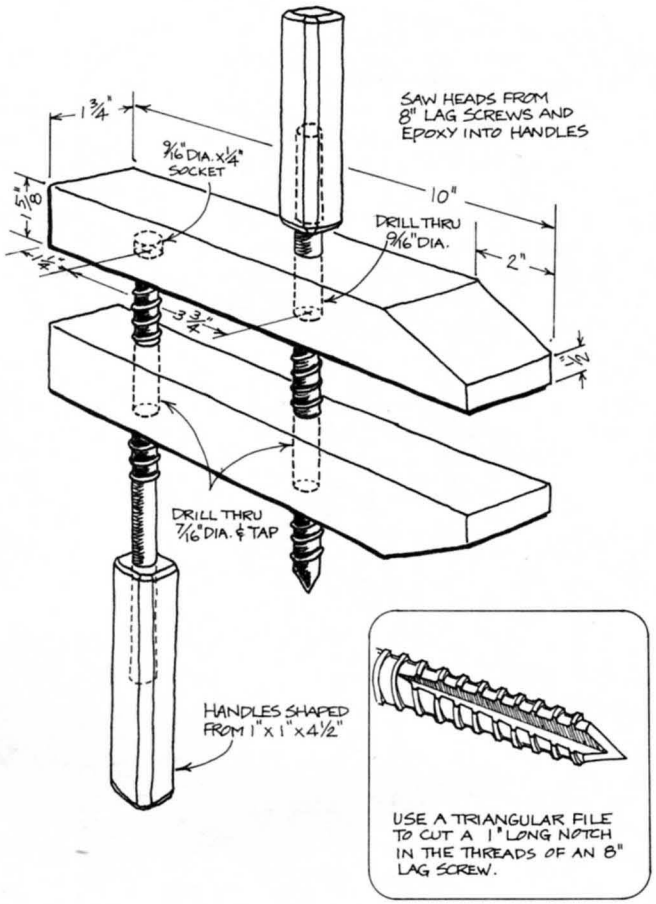
By Andy Kyle

A little scrap maple and a couple of lag screws are all that's needed to make a set of these handy parallel clamps. The jaws open a full 2¼" so they can be used to handle quite a wide variety of clamping jobs.

Cut out the jaws first, keeping in mind that the excellent hardness properties of maple make it a good wood to choose. Cut 8/4 stock (actual 1¾") to length and width, then make the front angled cut as shown. The top jaw has two 9/16" dia. holes as shown; one all the way through and one only ¼" deep.

The lower jaw must be threaded to accept two ½" x 8" long lag screws - and to thread the jaw it will be necessary to make a tap. The tap is simply a ½" dia. lag screw with a notch filed in the end as shown. To cut the threads, first drill a 7/16" pilot hole, then slowly screw the tap into the pilot. The tap cuts a thread as it is screwed in.

The handles are made from 5/4" square stock. Cut to a 4½" length and drill a ½" dia. x 1½" deep hole in one end. Use a hacksaw to cut the heads off both lag screws, then epoxy to the handles. The lag screw that served as a tap can be used here. Round the handle edges to make for a comfortable hand grip.



Assemble the clamp as shown. The lag screw that fits in the ¼" deep socket should have the point filed flat. To use, place clamp on stock so that jaws are parallel. Thread front lag screw just until handle contacts upper jaw, then apply clamping action by tightening back lag screw.

Classified

Craftsmen - show pride in your fine work. Personalize your pieces with engraved solid brass plates. Send $1.00 for 2 line sample plate. VB, Dept. WJ, 807 East Dana, Mountain View, CA 94040.

Cabinet - Spacious, sturdy, attractive jewelry cabinet. Six drawers and necklace compartment with revolving hanger. Easy to follow plans $3.00. Fred Faust, Box 3688, Laureldale, PA 19605.

Wooden Toy Plans. Simple Hand Tool Projects; truck, bulldozer, train engine, car. Send $2.00, Turner Toys, Rt 1 Box 48, Colt AR 72326.

Stainless Steel and Brass, screws and bolts. Small quantities, free catalog. Elwick, Dept. 413, 230 Woods Lane, Somerdale, NJ 08083.

Catalog of Wooden Toy Truck Patterns. $1.00 refundable. Franks (WJ-1), 1202 S. Second, Booneville, MS 38829.

New Enlarged Catalog of wooden toy patterns, wooden toykits and toymakers supplies. Send $1.00 to Toy Designs, P.O. Box 441-N, Newton, IA 50208.

Table Kit for Woodworkers: detailed plans and instructions for 8 different tables with necessary lumber for any one--selected, kiln dried, solid American cherry, S4S, $69 plus $10 handling and shipping. Plans only $9.50. TuggleWood, Dept. WJ, P.O. Box 21436, Louisville, KY 40221.

Wormy Chestnut, clear surfaced to order to 13/4" random width 4" to 10" $3.50 BF. Extra width and thicknesses available. Orders under 100 ft. add $10.00 handling, WV residents 3% tax. Potomac Highlands Woodcrafts, Box 723, Petersburg, WV 26847.

Bagpipe Drawings: Highland, Lowland, $11; Uillean, $15; Fireside, $8, Practice Chanter, $3, postage $1.50. Dougan, 19 Hunter Road, Crosshouse, Ayrshire, Scotland.

Woodworkers Make Money when they learn from "The Woodworker's Money Book." Covers how to sell retail and wholesale, pricing, credit, labeling, much more. Money-back guarantee. Mailed first class for $3.00. Inprint, Box 687, Farmingdale, NJ 07727.

Build a 20 inch Jig Saw for less than $40.00 - Plans only - Plans and Kit - or completely assembled. Information send self addressed stamped envelope to William Jenkins, P.O. Box 812, Culver City, CA 90230.

Woodworking Book Sale: 20 - 60% off. Spellman - "Working Green Wood with PEG" $6.35, Tangerman - "101 Designs for Whittling and Wood Carving" $5.98, Hayward - "Woodwork Joints" $4.75, Gottshall - "Furniture of Pine, Poplar, and Maple" $5.98. Prices are good until April 30, 1981. Bark Service Co., P.O. Box 637, Troutman, NC 28166.

Kiln-Dried Cabinet Woods. Buy direct. Complete selection Hardwoods - Mahogany - Eastern White Pine. Lumber & Squares. Churchill Forest Products, 91 Franklin, Hanson, MA 02341.

"How Polyethylene Glycol (PEG) Helps the Hobbyist Who Works with Wood"; 25 page booklet. Send $2.00 to: Brandy Station, Box 78AMAW, RD #3, Corning, NY 14830.

Animal Puzzle Patterns for young and old. Simple to complex. 15 for $5.00. 35 for $10.00. The Woodsmith Shoppe, 4509 Christmas Tree Lane, Bakersfield, CA 93306.

Work Green Wood into bowls, tables, lamps, etc., crack-free with amazing PEG treatment. Catalog of supplies, books, project ideas. Send $1.00. Spielmans Wood Works, 188WJ Gibralter Road, Fish Creek, WI 54212.

Over 75 Patterns! Enjoy profitable wooden gifts, toys, household accessories. Plus "Shop Secrets", only $5.00. Accents (J-31) Box 262, Danvers, MA 01923.

Woodcarvers Basswood. Kiln-Dried. Easy to carve. 1" thick to 4" square. Many widths, lengths. Blue Mustang, Box 173C, Racine, WI 53401.

Sanding Belts 3" x 21" & 3" x 24" - $12.90 per doz. Shipping and handling $1.50. NY residents 5% tax. Dam Tinker's, P.O. Box 134, 101 South Avenue, Wappingers Falls, NY 12590.

Swing: Comfortable Old Time Platform Family Lawn Swing. Detailed, illustrated plan with material list. Send $3.25 to: Edward G. Mason, 8322 S. Howell Ave., Oak Creek, WI 53154.

Patterns for Wooden Toy Cars, eight best sellers $5.00. Franks (WJ-1), 1202 S. Second, Booneville, MS 38829.

Woodcraft Plans, ideal for gifts, craftfairs or shop income 5/$3.00. Myers of Moonshine, Box W, Aurora, NY 13026.

Woodcrafts. Veteran craftsman has experienced $1000 crafts shows, will provide plans for six fast selling wood items for $5.00. Bennett Wood Products, Rt 8 Box 680-S, Pensacola, FL 32506.

Lamp/Planter plans. Easy to build, attractive planter lamp. $5.00. Custom Woodcraft, 4022 Sadie Court, Campbell, CA 95008.

Buy Direct - Save 50%+ all your sanding and tape needs. Large selection - small quantities. 12" discs - $1.00. Belts 6" x 48" $3.50. Send SASE. Fixmaster, Box 15521, Atlanta, GA 30333.

25' x 50' Woodworking Shop and 6 year old home on 15 acres in the mountains of northeast PA. Beautiful view and excellent hunting. $75,000 owner financing. Tel # 717-746-3678.

Magnetic Clamp Pads 10 for $9.00 ppd. Make your own. Magnetic tape 1 inch x 10 ft. plus instructions $10.00 ppd. Sample and instructions $2.00 ppd. Visa, MC ok. Wood is Good Woodworks, Box 68WJ, Lakeland, MN 55043.

Free Toy Pattern price list, unique, wide variety, SASE. BAS, 3056 Oneida, Saquoit, NY 13456.

Waterbed Plans, Catalog $1.00, refundable. Waterbeds by Mail, WJ, 1657 East Harbor Drive, Warrenton, OR 97146.

Wood is Good T-shirts, sweatshirts. Send SASE for pricelist. Wood is Good Woodworks, Box 68WJ, Lakeland, MN 55043.

Toy Train Pattern (steam engine, caboose, coach, baggage car). Over 24 inches long. $3.00 postpaid. Franks (WJ-1), 1202 S. Second, Booneville, MS 38829.

Cabinetmaker's Supplies

Here is a list of companies that sell both small and large quantities of hardwood lumber via mail-order. This is by no means a complete listing, and we hope that in future issues we will be able to include additional companies.

American Woodcrafters
1025 S. Roosevelt Ave.
Piqua, OH 45356
Domestic, some imported

Austin Hardwoods
2125 Goodrich
Austin, TX 78704
Domestic, imported

Churchill Forest Products, Inc.
P.O. Box 186
Hanson, MA 02341
Domestic

Croy-Marietta Hardwoods, Inc.
121 Pike Street
Marietta, OH 45750
Domestic

D.A. Buckley
Rt. 1
West Valley, NY 14171
Domestic

Educational Lumber Co.,Inc.
21 Meadow Road
Ashville, NC 28803
Minimum of 50 board feet for each thickness of any one species.
Domestic, some imported (mahogany)

General Woodcraft
100 Blinman Street
New London, CT 06320
Domestic, imported

House of Hardwoods
606 Freeman Street
Orange, NJ 07050
Domestic, imported

John Harra Wood & Supply Co.
511 West 25th Street
New York, NY 10001
Domestic, imported
Also carries hand and power tools.

Paul Killinger Hardwood
4309 Butler Circle
Boulder, CO 80303
Domestic, Imported

Sterling Hardwoods, Inc.
412 Pine Street
Burlington, VT 05401
Domestic, imported

Shop Notes