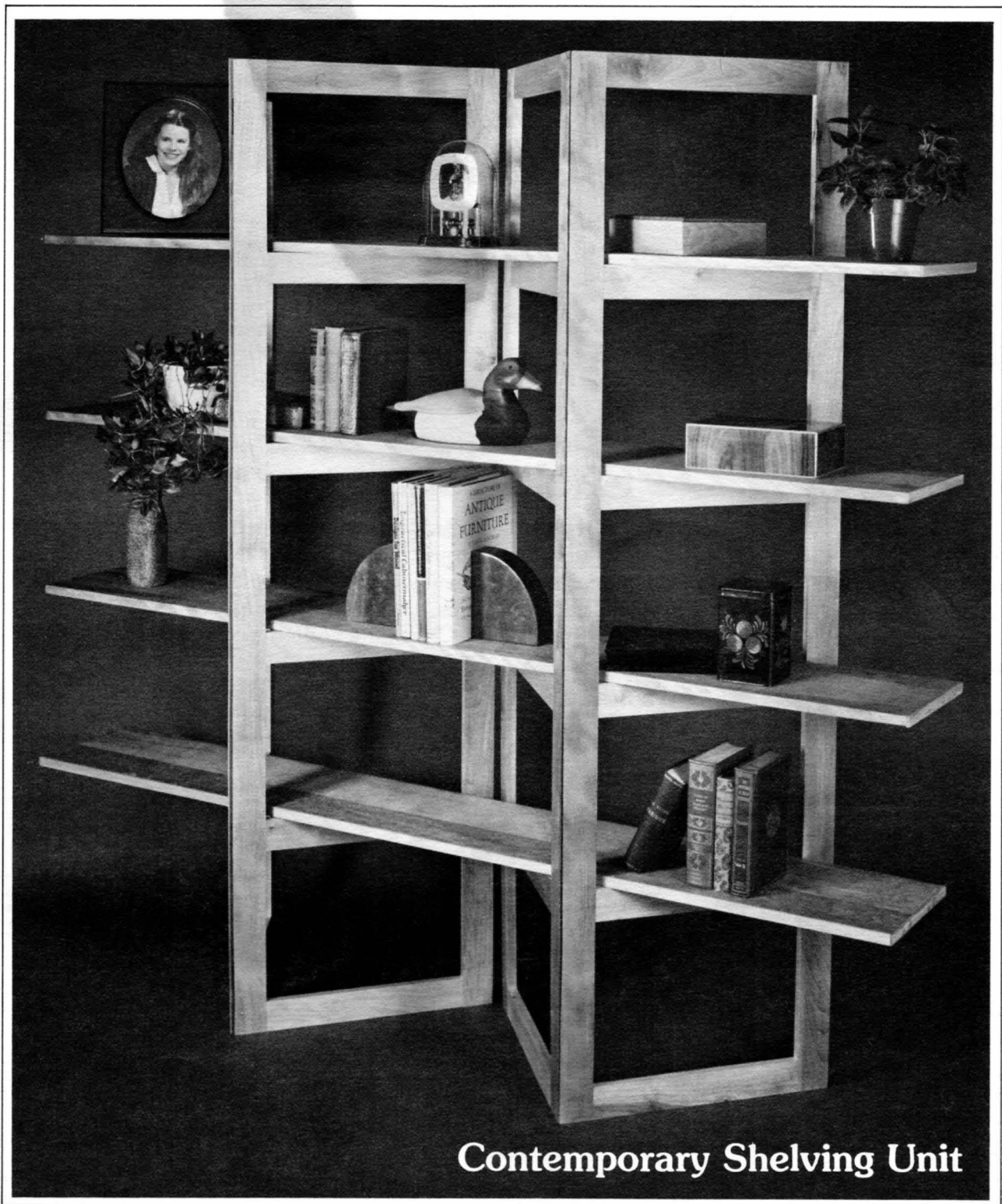


The Woodworker's Journal

Vol. 5, No. 6

November/December 1981

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Tile Clock • Fireplace Bellows • Mahogany Corner Shelf
Victorian Sled • Weather Station • Antique Knife Tray**



Back Issues

Each issue of THE WOODWORKER'S JOURNAL is filled with fully detailed plans for all types of wood-working 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, Butterfly-Wing Table, 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. 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, Auxiliary 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 Coffee 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.

Vol. 5, No. 2 Mar-Apr '81: Child's Rocker, Bandsaw Jig, Push-Pull Toy, Half-Round Table, Spoon Rack, Salt and Pepper Shakers, Calculator Stand, Anchor Thermometer, Plant Stand, Oak Writing Desk, 18 Cent. Chair Table, Shop-Built Handscrew.

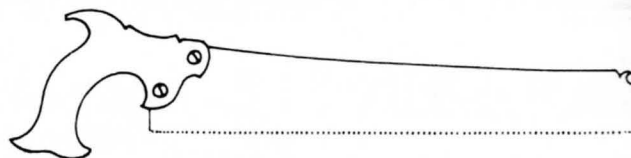
Vol. 5, No. 3 May-June '81: 18th Cent. Sleigh Seat, Child's Step Stool, Kiddie Gym, Flying Duck, Dominoes, Trouser Hanger, Mug Rack, Folding Sun Seat, Ship's Wheel Table, Contemporary Buffet.

Vol. 5, No. 4 July-Aug '81: Longhorn Steer, Bike Rack, Miniature Chest, Doll House Bed, Curio Shelves, Belt Rack, Rocker Footrest, Early American Wall Shelf, Multipurpose Cabinet, Box Cutting Jig.

Vol. 5, No. 5 Sept-Oct '81: 18th Cent. Rudder Table, Musical Jewelry Box, Colonial Candlestick, Deacon's Wall Shelf, Toy Hippo, Spalted Boxes, Woodbox, Sewing Cabinet with Tambour Doors, 18th Cent. Tavern Table, Router Jig for Stopped Dadoes.

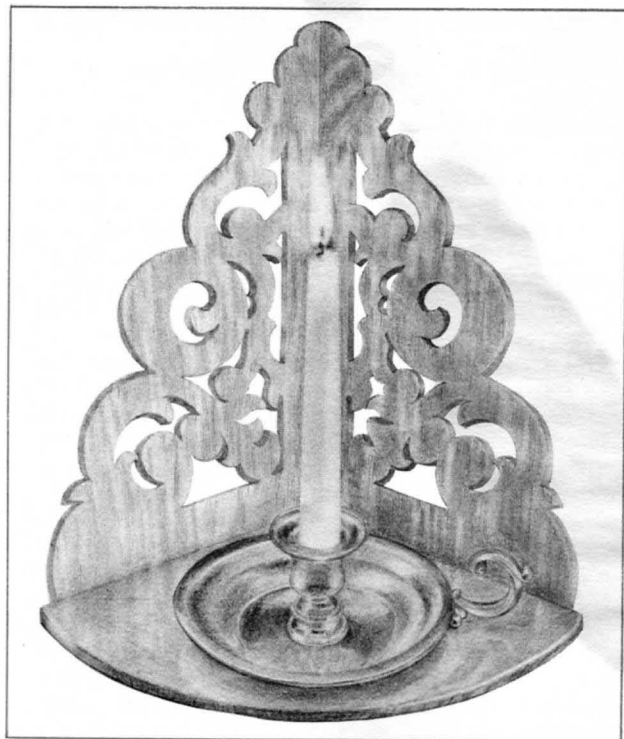
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Vol. I, No. 1 through Vol. IV, No. 4 are newsprint issues for \$1.50 each. From Vol. IV, No. 5 on, they are magazines for \$2.25 each. CT residents only please add 7 1/2% sales tax.



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NOVEMBER/DECEMBER 1981



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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.

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Shoptalk

by Jim Mc Quillan

A Weekend in The Big Apple

The September Excellence in Woodworking show in New York City was quite an experience. We trucked a lot of stuff to the show, including the 300 pound workbench featured in the Sept/Oct '80 issue. Of the many finished projects from past issues, the little boxes with spalted wood tops proved the most intriguing to our visitors. Most had never actually seen spalted wood in the planed state and when we explained that the stuff was gleaned from piles of old firewood in Connecticut, you could see their eyes light up. I wonder how many piles of firewood were torn apart and carefully examined by the end of that weekend.

The various displays of handtools and shop machinery were enough to make even the most affluent woodworkers glassy-eyed with desire. Of all the equipment on display, the one item that impressed me the most was the Hegner Multimax-2 jig saw. This little machine makes intricate cuts in hard maple up to 2 inches thick *and the finished cuts are so smooth that sanding is unnecessary.* I also watched an operator repeat the performance with $\frac{3}{8}$ " thick brass; again the cuts were glass smooth.

As you might expect, this outstanding performance does not come cheaply. The ticket reads \$799.00 but this price is close to what you will pay for a high quality scroll saw of a design that hasn't changed in years. I cannot vouch for the long-term reliability of the Hegner machine but from what I've seen, this machine will propel you into a new world of scrollsawing with no tedious finish sanding.

Scholarships For Professional Woodworkers

Kirby Studios in Vermont is a teaching studio offering a four year course in design and woodworking. In addition to the full course, a program of week-long, intensive workshops in woodworking techniques and design is run in the summer. As a token of their concern for the needs of professional woodworkers who have not had the benefit of formal training, Kirby Studios is offering one scholarship in each of eleven workshops during the summer of 1982.

Scholarships cover the course fees; students will still have to pay for their own transportation and lodging. To qualify, an applicant should have been a practicing professional woodworker for at least a year and have had no formal training. Those interested in taking this opportunity may obtain further details by writing to Kirby Studios, North Bennington, VT 05257.

An Anniversary

I sat in my backyard one sultry August afternoon in 1976, a clipboard and pad of yellow paper in my lap, trying to work out the endless details involved in the planning of a publication for woodworkers. My ignorance of the perils and complexities of the periodical publishing business was exceeded only by my enthusiasm for getting started with the first issue.

This issue marks the completion of five years of publishing. It's the thirtieth issue and I'd like to express my thanks and appreciation to our readers and advertisers for their support. Also, to the small but very dedicated staff who help to keep this balancing act together....thanks guys!

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Letters

Enclosed find a piece of wood I removed from the packing crate of a piece of heavy machinery. I believe it is rock hard maple. Can you advise me how to stain and finish it suitably for furniture?

Harvey Spaulding, Kenosha, WI.

We've examined the wood sample you sent along and as you suspected, it is maple. In regard to your question on finishing this wood, it can be done in any one of a number of ways - which one is best depends upon your personal preference. Stains are available in a wide range of colors. There are also various kinds of clear finishes: regular varnish, polyurethane varnish, shellac, lacquer, or penetrating oils. There really isn't a "best" one for all applications, it depends upon the piece, how and where it will be used, cost factors, etc. Generally speaking though, when we finish maple here in our shop we usually use the following procedure:

1. Sand thoroughly with aluminum

oxide paper, starting with 80 grit, then 120, 150 and finally 220.

2. If we choose to stain (maple often looks good unstained) we usually use Minwax. The color depends upon the piece, its style and where it will be used.

3. For a final clear finish we like a penetrating oil finish such as Watco Danish Oil. This finish penetrates the wood surface (absorbed by the cells) and then hardens. It's easy to apply and the satin finish that results is most attractive.

I have been working with wood for some time now, making snack tables, plant stands, etc. However, I've hit a stumbling block. I need some 3" long dowel screws and I've been to just about every hardware store and lumber yard in this city - all to no avail. Do you know of a source for dowel screws?

Raymond Follmer, Chicago, IL.

Dowel screws are related to hanger bolts. A hanger bolt has a wood screw thread on one end and a straight thread on the other, whereas a dowel screw has wood screw threads on both ends. They're available from The Woodworkers' Store, 21801 Industrial

Blvd., Rogers, MN 55374. Sizes range from 1/4" x 1 1/2" long to 5/16" x 3" long.

We have a small craft business in our home. Recently we've been asked to build a shelf that features brass gallery rail. To date, we have been unable to find a source for it.

David Byram, Mapleton, MN.

Brass gallery rail is available from The Wise Co., 6503 St. Claude Ave., Arabi, LA 70032.

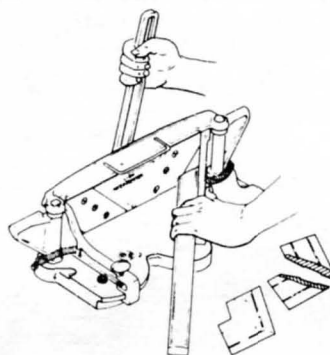
In your September/October 1981 issue, you asked for names of woodcraft organizations. I think many of your readers would like to learn of our organization, the Marquetry Society of America. As you know, marquetry is a companion craft to all forms of woodworking and most of our members are woodworkers, either professional or amateur. We are always eager to assist craftsmen with their particular

(Cont'd on page 8)

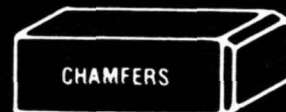
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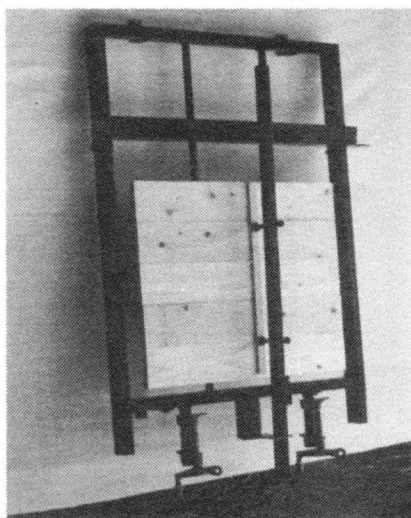
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The Clamp Bed incorporates 3/4" pipe clamps which remain removable for odd jobs. We don't include the pipe clamps, but chances are you already have some, and you'll be happier than a pig in mud when you screw 'em on there!

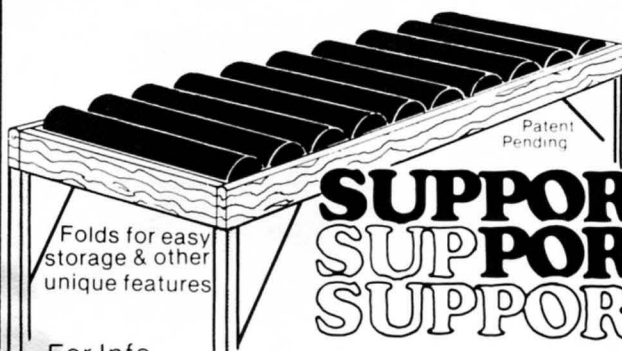
Cabinetmaker's Supplies

As a service to our readers, *The Woodworker's Journal* periodically lists sources of supply for various woodworking products. In this issue we are listing companies that specialize in mail-order sales of woodworking supplies, along with a code to indicate some of the products they carry. Code: hand tools (HT), power tools (PT), stationary equipment (SE), hardwoods (HW), veneer (V), hardware (H), clock parts (C), lamp parts (L), books (B), finishing supplies (F).

Barap Specialties 835 Bellows Ave. Frankfort, MI 49635	H, C, L, F 46 page catalog \$1.00
Conover 18125 Madison Rd. Parkman, OH 44080	HT, SE 24 page catalog \$1.00
Constantine 2050 Eastchester Rd. Bronx, NY 10461	HT, HW, V, H, C, L, B, F 104 page catalog \$1.00
Craftsman Wood Service 1735 West Cortland Ct. Addison, IL 60101	HT, HW, V, H, C, L, B, F 152 page catalog \$0.50*
Fair Price Tool Co. P.O. Box 627 La Canada, CA 91011	HT, B 22 page catalog \$1.00
The Fine Tool Shops 20 Backus Ave. Danbury, CT 06810	HT, PT, B 132 page catalog \$5.00
Frog Tool Co., Ltd. 700 W. Jackson Blvd. Chicago, IL 60606	HT, B, FS 100 page catalog \$2.00
Garrett Wade 161 Ave. of the Americas New York, NY 10013	HT, SE, B 116 page catalog \$1.00
John Harra Wood & Supply 511 West 25th St. New York, NY 10001	HT, PT, SE, HW, B, F 90 page catalog \$3.00
Lee Valley Tools, Ltd. 857 Boyd Ave. Ottawa, Ontario Canada K2A 2C9	HT, B, F 96 page catalog \$1.00
Leichtung, Inc. 4944 Commerce Parkway Cleveland, OH 44128	HT 80 page catalog \$1.00
The Princeton Co. P.O. Box 276 Princeton, MA 01541	HT, B 64 page catalog \$1.00
The Toolroom East Oxbow Rd. Shelburne Falls, MA 01370	HT 48 page catalog \$1.00
The Toolworks 111 8th Ave. New York, NY 10011	HT, H catalog \$2.00
Woodcraft Supply Corp. 313 Montvale Ave. Woburn, MA 01888	HT, HW, C, B, F 128 page catalog \$2.50
Woodline/Japan Woodworker 1004 Central Ave. Alameda, CA 94501	Japanese Hand Tools 32 page catalog \$1.50
The Woodworkers' Store 21801 Industrial Blvd. Rogers, MN 55374	HT, PT, HW, V, H, C, B, F 112 page catalog \$1.00
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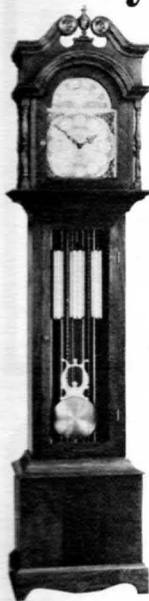
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Letters (Cont'd)

problems, our goal being to promote and encourage the art/craft of marquetry.

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A monthly newsletter reports on the latest developments in tools and techniques, answers reader inquiries, provides hints and tips. A pattern-of-the-month as well as illustrations of available patterns are contained in each edition. A beginner's column offers very practical advice to the aspiring marquetarian.

If your readers would like further information, write to: The Marquetry Society of America, P.O. Box 224, Lindenhurst, NY 11757.

Gene Weinberger, President

Can you tell me where I can get plans for a grandfather clock?

Rick Taylor, British Columbia.

Try Mason & Sullivan, 39 Blossom Ave., Osterville, MA 02655. They offer plans and kits for a variety of clock styles.

I am in need of plans and information on making a spinning wheel.

Timothy O'Brien, Milwaukie, OR.

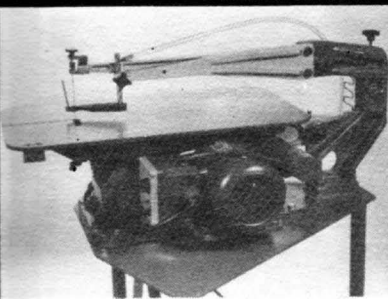
The book *Spinning Wheel Building and Restoration* by Bud Kronenberg should prove helpful. It suggests tools, equipment and jigs along with a variety of spinning wheel plans for novice, intermediate, and advanced woodworkers. The publisher is Van Nostrand Reinhold Co. Price is \$18.95.

(Cont'd on page 11)

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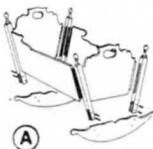
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Letters (Cont'd)

After reading the "Letters" column of the September/October issue of your magazine I cannot refrain from writing regarding the request for information from one of your readers about branding irons.

I am enclosing a few sample brandings from a few orders I have completed recently. As you can see, designs do not have to be kept simple, size is no problem, small lettering can be made easily, and no length restrictions are needed. Prices vary depending on the amount of work included. I will gladly quote a price or assist in developing any branding iron upon receipt of specifications.

Gerald B. Nordling
Norcraft Custom Branding Irons
P.O. Box 277
So. Easton, MA 02375

I'm very interested in making clocks out of slab wood. Is there a company that carries this type of wood?

Gerald Roberts, Gillespie, IL.

The company Weird Wood, Box 190, Chester, VT 05143 sells a variety of woods in the form of slabs and free-form cut ovals. They also specialize in clock ovals and movements, among other things. A copy of their brochure is 50¢.

Please caution those who contribute children's toy plans that they should only suggest finishes that are non-toxic. All the toy plans I now own are very specific about this. As woodworkers we must protect the small ones from themselves. Do not use plastic (polyurethane) finishes... please.

John Thresher, West Nyack, NY.

A very good point, Mr. Thresher. We now feel the best finish for toys is none at all. We also think it's a good idea to use glue that's non-toxic, such as Elmer's Glue-All.

Where can I get plans for a gate leg table?

D. Clayton Hardman, St. Joseph, IL.

Plans for an oval gate leg table can be found in the book How to Build Period Furniture by V.J. Taylor, published by Stein & Day.

(Cont'd on page 12)

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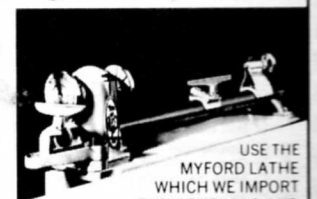
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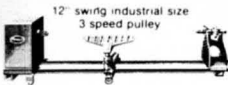
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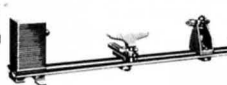
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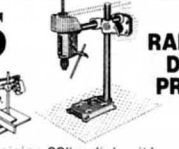
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Where can I purchase sheet glue in large quantities?

Edward C. John, Old Town, MD.

The company Industrial Finishing Products, Inc., 465 Logan Street, Brooklyn, NY 11208 carries sheet hide glue in one pound to one hundred pound quantities. Write or call them for details. A copy of their catalog is \$2.50.

In the September/October 1981 issue you printed a letter from William Mirabello of Staten Island, New York who was looking for a local woodworking club he could join. You asked readers to let you know of any such clubs so that you could publish a listing in some future issue. Although I don't know of one here in the St. Louis area, I certainly would be interested in helping to form one. Would you be willing to forward any interested names from the St. Louis area that you might hear from. Also, if you do learn of a woodworking club in this area, could you let me know?

Mrs. Sharon Riek, Chesterfield, MO.

To date we have not learned of a club in the St. Louis area. If we do we'll be sure to let you know. If any readers are interested in forming a St. Louis club, let us know and we'll forward the information to Mrs. Riek.

Do you know where I can buy, in large quantity (200-400 pieces), 1 1/2 inch diameter and 2 inch diameter wooden wheels for making toys?

E.P. Schollenberger, Springfield, PA.

Toy parts, in large quantities, are available from Woodworks, P.O. Box 79238, Saginaw, TX 76179 (Tel. 817-232-4079). Another source is Cherry Tree Toys, 67131 Mills Road, St. Clairsville, OH 43950.

The miniature Empire chest (July/August 1981 issue) is a beautiful work of craftsmanship. Please tell me where I can purchase the key hole covers.

Ira Pigg, Indian Head, MD.

Key hole covers (insert escutcheons) can be purchased by mail-order from the company Paxton Hardware Co., Upper Falls, MD 21156. Send \$1.50 for a copy of their current catalog.

Workshop Income by Paul Levine

Casework

For many of our readers, woodworking is becoming more than an enjoyable hobby. A growing number are learning that they can use their woodworking skills to provide a part-time income that will supplement their regular weekly paycheck. Garage and basement nooks are being cleaned out and turned into small production shops, with work scheduled for evenings and weekends. While most lack sophisticated equipment, they more than make up for it with enthusiasm, ingenuity, and plenty of hard work.

A good many of these part-time businesses will concentrate on making small projects, often using pine. Generally, their major market is the gift and craft shops, where there is almost always a demand for small handcrafted wooden items of high quality. Previous "Income" columns have talked about the value of this market - and it continues to be a good one. For many woodworkers, this market deserves all their attention.

However, there are others who prefer woodworking on a larger scale. They enjoy tackling the big jobs: cabinets, built-in furniture, shelving, and storage systems, much of it falling into the category of casework. This is a different market and it requires a different approach. For those who would like to explore its possibilities, here are a few points that I think will be helpful.

First of all, keep in mind that although casework is often considered plain and ordinary, it can look extravagantly rich if properly designed and constructed. By employing plastic laminates and wood trim, along with finely made wood doors, ordinary casework can be transformed into fine woodworking. With care, even shelving can have the look of prized woodwork.

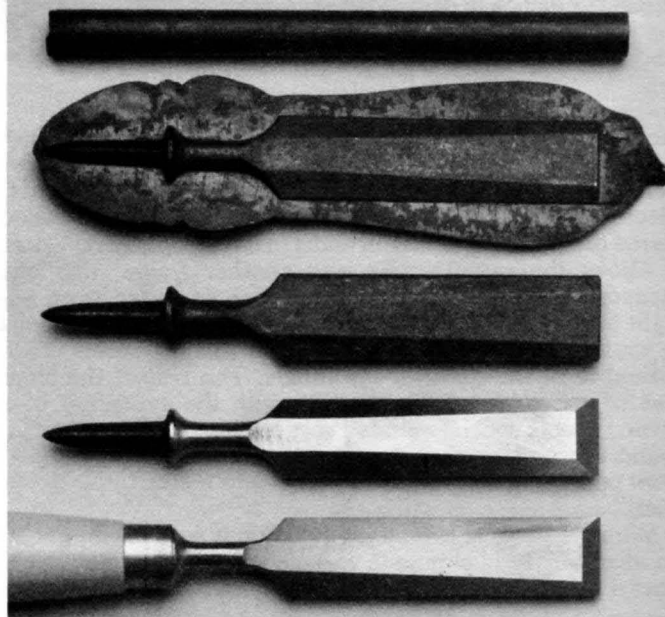
To be successful in this market, the woodworker must learn who the customer is. Architects may seem to be the likely place to turn, but this approach is usually disappointing. When designing a residence, architects frequently design some or all of the interior spaces. This often includes the kitchen cabinets. When the client finishes paying for the shell of the dwelling, sometimes there is little or nothing left to pay for cabinetwork. Therefore, the jobs to go after are not new dwellings, but the older ones. In most cases, the older structure has long been paid for, so money is available to replace those old worn-out cabinets. Sometimes, this work is handled by an architect, although usually it falls into the domain of the interior designer, or decorator.

It's not always easy to connect up with a designer that can design wooden cabinets. When it comes to cabinetwork, interior designers often lose their creative ability. Unfamiliar with wood and its many possibilities, they usually turn to plastic where color overrides form, and where they have greater competence.

If you wish to make fine wooden cabinets for this market, in most cases you will first have to design them yourself, then present them as a concept to the decorators and designers. You can accomplish this with sketches and samples of doors and woods you use. If you have already done some casework, photographs (of professional quality) will also be valuable.

Why should the designer choose a part-time basement workshop cabinetmaker over a professional firm? There are two good reasons. First, you have your own style, and that makes your products unique. This may also mean the use of unusual materials such as spalted wood, or the use of designs that offer features that are not suitable to production machine woodworking. Second, it's often much easier to work with an individual woodworker, on a one-to-one basis, rather than dealing with a large and busy production shop. Working together, the woodworker and designer can discuss new ideas, design concepts, cost factors, delivery requirements and a variety of other details that will help make the designer's job a lot easier.

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Restoring Antiques

by John Olson

Several years ago, while restoring an antique rocker, I learned a lesson about replacing cane in old chairs. This particular rocker was from the Victorian period, a beautiful chair featuring a seat and back of cane. Its construction and design was somewhat different from that generally found in cane rockers of that period. The uprights on either side of the back were turnings, made of birch, each measuring about 1½ inches in diameter. They extended 32 inches from the seat frame to the top of the finial on each side. These finials were grooved balls, turned with a round tenon to fit into a hole bored in the top of each upright. The hand caned portion of the back, which measured 14 inches wide by 24 inches high, consisted of a frame made from rounds with regularly spaced holes for the caning. The vertical pieces were ½ inch diameter and fit into the ¾ inch horizontal pieces. These cross-pieces extended beyond the caned frame to fit into round tenon holes in the uprights.

Above the caned frame was another frame, this one measuring 4 inches high. Its top piece extended from upright to upright and was again assembled with round tenons in round mortises. This frame held 6 vertical spools, each turned to fit the motif of the finials. The rest of the chair was of conventional construction with the exception of 5 turned spools which extended vertically below the arms to a round cross-piece that fit into the rear uprights and the front posts. These spools were turned to match those in the back.

When the rocker came into my shop it was finished with an unsightly reddish maple varnish stain (a now almost extinct item, I am happy to say). It also had a brand new can-

ing job. Unfortunately, however, the stresses from that new cane resulted in disaster. The seat side rails and all four members of the caned back frame had split and broken beyond reasonable repair. Close inspection showed that the side rails had been made from a defective board, one with wind shakes, and that the caning holes had been drilled along cracks that developed over the passing years. The backframe members apparently broke because they did not have a large enough diameter for the applied stresses.

It would be unreasonable to reglue these members and expect them to stand up to the stress of a new caning job. Proper repair first required complete disassembly of the rocker. This job wasn't too difficult since the old original animal glue had almost completely disintegrated. Next, the old finish was removed and the joints thoroughly cleaned. All parts then received a complete sanding.

New side rails (close copies of the original) were made from birch. A jig made from 1 inch angle iron assured that the 7/32 inch caning holes would be spaced exactly ¾" on center. Clamped to each piece, this jig made hole drilling a quick and easy job. The new inner frame members were made from straight grained birch dowels and each member was made ⅛" larger in diameter than the originals to prevent a repetition of the disaster. Incidentally, the larger members improved the overall appearance of the chair.

All parts were reassembled with a good epoxy formulated for wood gluing. After a careful cleanup and finish sanding, a clear low luster acrylic finish was applied with a spray gun. The back and seat were recaned in the conventional manner using well-soaked ⅛" caning. This material comes in strips up to 6 or 8 feet long and must be coiled for soaking. When applied wet and then pulled taut, a tremendous pressure builds up as the cane dries and shrinks to form a tight springy seat and back.

STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION

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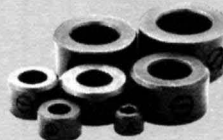
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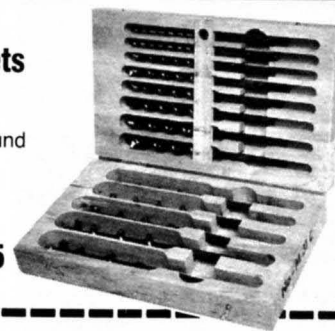
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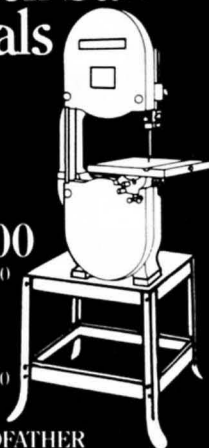
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The Beginning Woodworker

Frame and Panel Construction

As far back as 2000 B.C. the Egyptians were using frame and panel construction. The Greeks and Romans also employed this rather sophisticated joinery but unfortunately, most of the woodworking knowledge that had been accumulated over thousands of years of trial and error was lost after the final collapse of the Roman Empire by the 5th century A.D. There followed a long period of confusion and ignorance during which Western civilization slowly blundered its way back to the enlightenment enjoyed by the ancient Egyptians. It took nearly one thousand years before advanced woodworking techniques, including frame and panel construction, were rediscovered.

Prior to this rediscovery, woodworkers made large flat sections by using very wide boards or sometimes by cleating several boards together. This resulted in a rather plain and heavy construction. Also, since boards shrink and swell across their width according to seasonal changes in humidity, the use of wide boards resulted in slabs that "moved" or changed in width, swelling wider in wet seasons and shrinking during prolonged dry spells.

would shrink causing unsightly gaps. Boards that are restrained with nails, screws or other such fastenings will surely split.

Narrow boards shrink proportionately less than wide boards so if we redesigned the cupboard and used narrow stiles with a wider door made up of narrow stiles and rails grooved to hold a pierced panel, we will have achieved an attractive and much more stable design (Fig. 2).

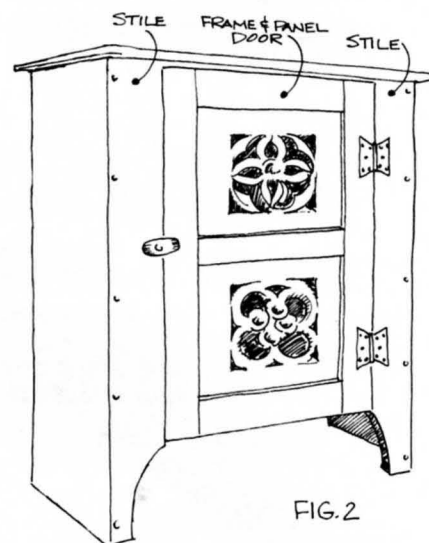


FIG. 2



FIG. 1

Fig. 1 shows a sketch of a 15th century English cupboard of pierced Gothic design. The cupboard sides, front stiles and door were made of single wide boards. With this sort of construction it becomes very difficult to achieve a good permanent fit of the door as the stiles and the door itself swell and shrink. During prolonged periods of damp weather, one can imagine the door and stiles each gaining perhaps 1/8" in width. This would cause the door to jam tightly between the stiles. On the other hand, during prolonged dry weather, the boards

If the door panel is made of one wide board or several narrow boards joined with glue, there will still be a fair amount of swelling and shrinkage across the width. If we set the panel into grooves in the frame and these grooves are deep enough to contain the panel through the extremes of swelling and shrinkage, we will have effectively solved the seasonal problem of sticking door, warping, splitting and unsightly gaps between members.

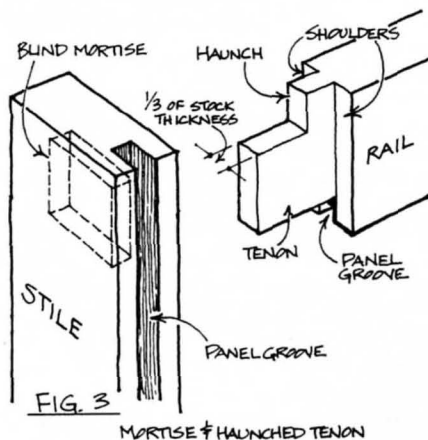
That, basically, is the logic behind frame and panel construction. If a thin door panel is used, we will also reduce the weight and use less wood in the process although, admittedly, we've also increased the amount of labor required to build the cupboard. This extra labor is a worthwhile trade-off if our goal is to build a piece that not only looks good today but will also look good 50 or even 100 years from now.

Once the decision has been made to use frame and panel construction for the door (we could also use it for the chest sides), we can turn our attention to the problem of how to join and groove the horizontal rails and vertical stiles to form a good sturdy frame to hold the panel.

There are many methods of joinery to choose from but the beginning

Beginning Woodworker (cont'd)

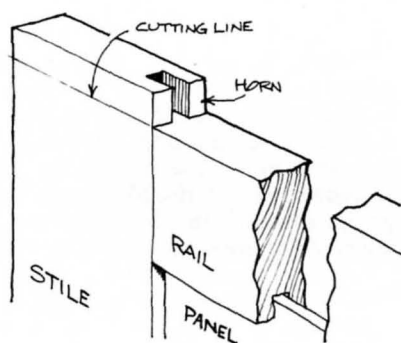
woodworker cannot go astray if the classic blind mortise and haunched tenon joint is used (Fig. 3). An examination of this joint reveals that the mortise, tenon and panel groove are aligned. Note that the tenon is cut



away at its bottom to clear the panel corner when it's inserted in the rail groove. The haunch at the top of the tenon helps to reinforce and prevent twisting of the joint while at the same time it fills the groove at the ends of the stile.

The first step is to cut the rails and stiles to length. It's prudent to cut the stiles allowing for an extra $\frac{1}{2}$ " of length at each end. This extra length will help prevent the mortise from splitting through to the top of the stile when the tenon is driven home. After the glue cures, this excess "horn" is sawed off (Fig. 4).

FIG. 4
ASSEMBLED JOINT WITH STILE
HORN TO BE CUT OFF



Plan on making the mortise width and corresponding tenon thickness equal to one-third the stock thickness. This is not an ironclad rule for all mortise and tenon joints but applies generally to frames. Working with $\frac{3}{4}$ " thick stock, if we make the tenons $\frac{1}{4}$ " thick, and cut the panel grooves $\frac{1}{4}$ " wide, then the mortises, tenons and grooves should all line up.

The mortises are usually laid out and cut first. Mortise dimensions will vary depending on stock thickness and the width of the stiles. A good general mortise depth is two-third the width of

(cont'd on next page)

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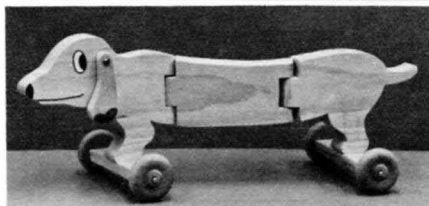
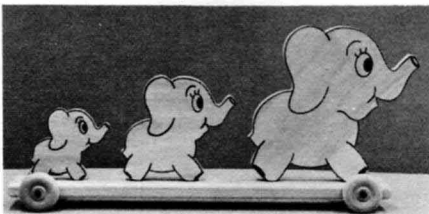
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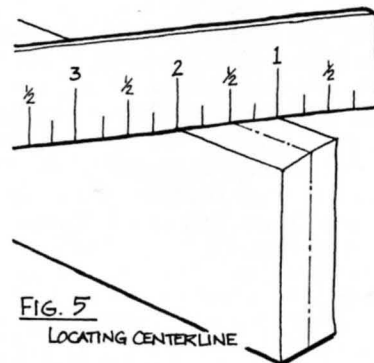
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Beginning Woodworker (cont'd)

the stiles. Mortise length will depend on the height of the tenon (less the haunch), which should be as high as possible for maximum gluing surface.

If the mortise will be chiseled out...(and this is the best way if not too many need be done) the mortise width is determined by the width of the chisel used...usually $\frac{1}{4}$ inch. When locating the upper and lower edges of the mortise don't forget to allow that $\frac{1}{2}$ inch extra "horn" at the stile ends as well as the height of the haunch which can be as high as it is long. Mortises are normally laid out centered on the stile thickness. If the mortise falls off-center, the corresponding tenon can be cut to compensate, but too much compensating can get you into trouble so it's best to work as accurately as possible.

To find the centerline of a mortise, stand a rule on edge across the thickness of the stile and angle the rule so that the 1 inch mark falls exactly on one edge of the stile while the 2 inch mark aligns with the opposite edge. The exact centerline is at the $1\frac{1}{2}$ inch mark (Fig. 5).



Before laying out, identify with a pencil mark what will be the face side of each stile; clamp them together with the face sides out and mark both with the same lines. Use a marking gauge, or better yet, a double spur mortise gauge to mark the boundaries of the mortises, gauging from the face sides.

FIG. 6 LAYOUT LINES ON STILES

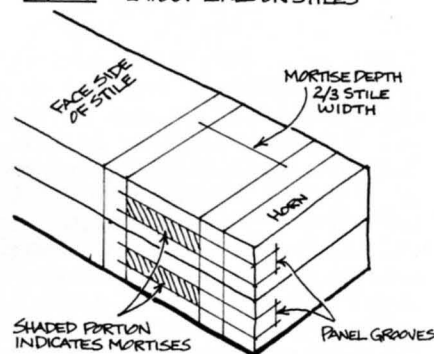


Fig. 6 shows two stiles with all lay-out lines completed. After marking the mortise depth, wrap a piece of mask-

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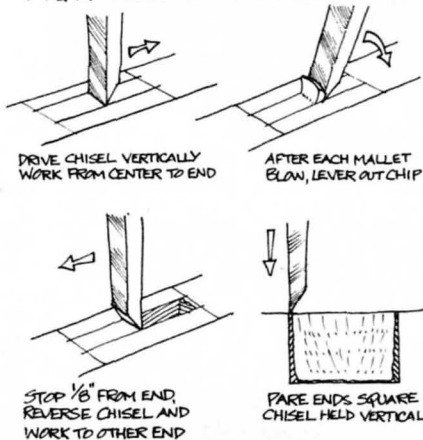
Beginning Woodworker (cont'd)

ing tape around the chisel blade to serve as a depth gauge.

A mortising chisel is the proper tool to use for chopping out mortises by hand. This chisel has a thick blade with parallel sides and a handle designed to absorb heavy mallet blows. Once started, this type of chisel will guide itself. Ordinary bench or butt chisels are not adequate for this work; their thin beveled blades tend to twist on the cut and they may break when levering out chips.

Clamp the workpiece to the benchtop and start chopping near the center of the mortise, holding the flat face of the chisel towards the center. Use a heavy mallet to give the chisel authoritative blows. Proceed toward one end, levering out the chips after each cut. The depth of each cut will depend on the hardness of the wood but $\frac{1}{4}$ " to $\frac{3}{8}$ " depth is good. When you reach a point about $\frac{1}{8}$ " from the end of the mortise reverse the chisel and start chopping from the middle to the other end. Continue this process until the final depth has been reached, then trim the mortise ends by paring straight down with the chisel held in the vertical position (Fig. 7).

FIG. 7 CHOPPING A MORTISE



Many woodworkers use a drill bit or auger to remove most of the mortise waste before final paring of the cheeks with a wide bench chisel. This method requires a doweling jig setup which introduces yet another possibility of inaccuracy and often results in cheeks that are out of square.

When a large number of mortises must be cut, a mortising attachment used with a drill press is justified but for the occasional work in the amateur shop, hand chopping with a mortising chisel can be done very quickly and accurately with a bit of practice.

After mortises have been cut, and before cutting tenons on rail ends, the grooves for the panels (and tenon haunches) should be cut with the table saw and dado blade or with a router and straight bit. Fig. 8 shows a number of ways that panels of various thicknesses can be fitted. Example A

is the beveled and raised panel common to much traditional furniture while B shows the fitting of a panel of $\frac{1}{4}$ " plywood. In all cases, the frame stock is $\frac{3}{4}$ " thick and the panel grooves are $\frac{1}{4}$ " wide and aligned with mortises. The depth of the grooves depends on how much the panel is expected to shrink and expand. In the case of plywood, dimensional changes are negligible so the grooves need only provide an easy fit for the panel. A groove depth of $\frac{1}{4}$ " is adequate. Solid panels of 12" or more in width should be cut from $\frac{3}{16}$ " to $\frac{1}{4}$ " less in width than the distance between the bottoms of the stile grooves which are generally $\frac{3}{8}$ " deep. Panel height is not critical but it's best to allow a total "play" of about $\frac{1}{8}$ ".

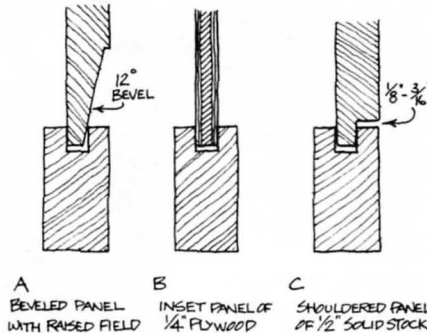


FIG. 8 THREE COMMON METHODS OF FITTING PANELS TO FRAMES

The panel grooves are cut the full length of both stiles and rails and should line up with the mortises. To make sure that the grooves will all line up when the frame is assembled, always keep the face sides of stiles and rails against the table saw fence when cutting grooves. When grooving with a router, gauge the groove locations from the face sides.

Rails are clamped together for tenon layout as was done for the stiles (Fig. 9). Tenon shoulders should be marked

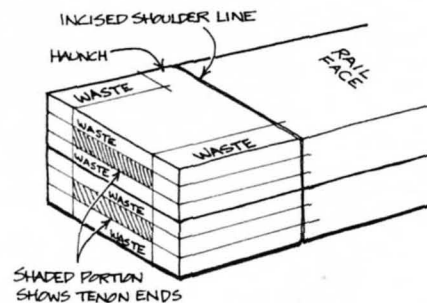


FIG. 9 LAYOUT OF TENONS

all around with a thin sharp knife blade to sever the fibers. Tenon cheeks are laid out to conform with the mortises, and are cut first by placing the rails at an angle in the vise and starting a backsaw blade at the corner nearest you. The sawcut is made on the waste side just grazing the line. Run the blade down and along the top edge;

(Cont'd on page 21)

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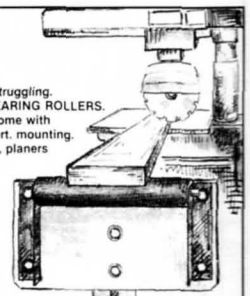
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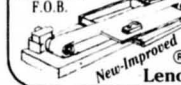


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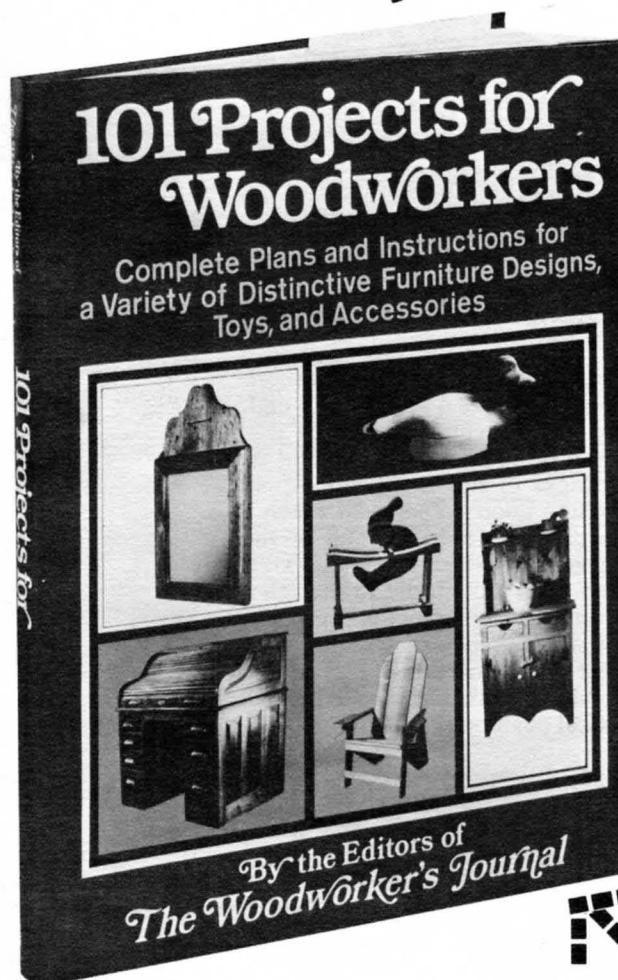
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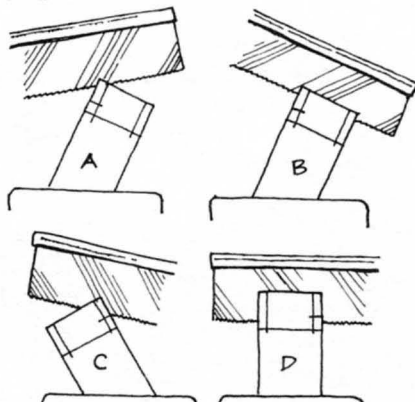
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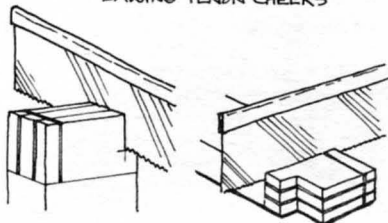
Beginning Woodworker (cont'd)

then turn the workpiece around in the vise and use the initial cut to guide the saw. Finish the cut with the workpiece in a horizontal position (Fig. 10). The tenons are next trimmed to allow for the panel corner and then the haunches are cut. The shoulders are then sawed on the waste side of the knifed line.

FIG. 10



SAWING TENON CHEEKS



CUTTING HAUNCH

1ST SHOULDER CUT

After tenons have been cut, the frame and panel is assembled without glue to check the fit. If a joint is too tight, examine the tenon for burnished spots indicating a point of tight contact. Tight tenons should be carefully pared against the grain with a wide chisel. Loose tenons can be salvaged by gluing veneer to one or both cheeks.

The assembled frame should lay flat and the tenon shoulders should meet the stiles squarely and without offsets. A frame which displays a slight twist or lack of flatness can be corrected by planing the entire frame...definitely not a fun job.

If the panel and frame are to be stained, it should be done before gluing up. When gluing the frame together, apply glue to the sides of the mortises and swab a bit on the tenon ends and the haunches. *Do not put glue into the panel grooves.* The panel must be free to move in its grooves. Some glue may be squeezed out of the joints and get into the grooves at the corners. To prevent the panel from being glued at these corners, smear a bit of vaseline on the panel corners.

Clamping pads (scraps of wood) are used under clamp jaws to prevent damage to the frame. Pipe or bar clamps are used to draw the stiles tight against the tenon shoulders. C-clamps and pads should also be used to apply light pressure to each of the mortise cheeks.

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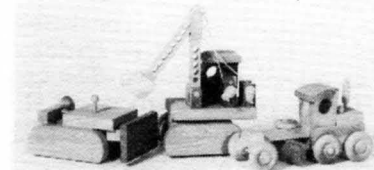
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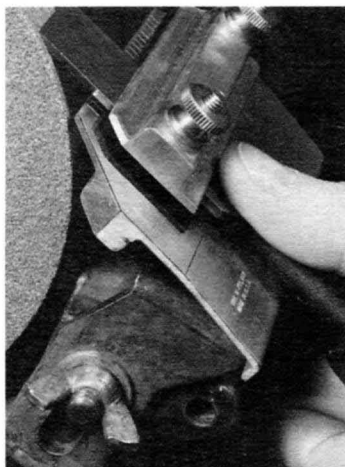
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Old-Time Icebox by Richard Wonderlich

About eight years ago I obtained an old icebox, one that was a basket case by the time I got it home. After restoring and using it for magazine storage I decided to build one myself. I chose to make mine out of oak, since that's what most of the originals were made of.

To simplify construction, I joined the frame members using dowel pins, although more advanced woodworkers may want to consider the mortise and haunched tenon, a more permanent form of construction.

Make the front frame first (parts A, B, C, D, and E). Select good flat stock. Cut parts to dimensions shown in the Bill of Materials. These cuts must be square so check your saw before starting. Drill dowel holes as shown. If available, a doweling jig will be helpful for this step. Assemble the five front frame parts with glue, then clamp securely with bar or pipe clamps. Check for squareness and make adjustments if necessary. Allow to dry overnight.

The two side frames, consisting of parts F, G, H, and I, can be made next. Drill dowel holes as shown. The upper part H has a $\frac{1}{4}$ " x $\frac{1}{4}$ " groove cut along its lower edge while the center part H has the same groove cut on both edges. Part I has the groove on its upper edge. Either a table saw or router can be used to cut these grooves. Parts F and G also have a $\frac{1}{4}$ " x $\frac{1}{4}$ " groove; however the groove must be stopped short of the ends or else it will show. The stopped groove is best made with the router. In addition part G has a $\frac{1}{4}$ " x $\frac{1}{4}$ " rabbet (see blind doweling detail) for the back. This rabbet is stopped 1" short of the bottom. Note that dados are required in parts F & G, and that the dado location (for the shelves) on the left frame differs from the right frame.

Begin making the end panel (J) by cutting $\frac{1}{2}$ " stock to 10 $\frac{1}{2}$ " wide by 12" long. Edge-join stock if wide enough material is not available. The taper edge can be cut on the table saw, radial-arm saw, or with a panel raising cutter on the shaper. Thoroughly sand the completed panel.

Assemble the end frame as shown. Do not glue the panel in place. It must be free to expand and contract in the frame. As with the front frame, make sure all parts are square before setting aside to dry.

The $\frac{1}{4}$ " back (K) can be made from common fir plywood or you may want to consider oak plywood. Chances are, your local lumber yard won't stock it, but it usually can be ordered. You'll need one-half sheet (4 foot by 4 foot). It's not cheap, but it does do a lot for the interior appearance.

Changes in moisture content will cause the top (Q) to change in width, therefore the rear rail (O) and the mounting block (P) have elongated



holes which allow free movement of the top. If this free movement is not permitted, stress will build which could cause the top to crack.

The bottom (L), divider (M) and shelves (N) are also made from $\frac{3}{4}$ " plywood. Like the back, it can be fir, but oak would look considerably better. To keep the plywood laminations from showing on the front edge, I glued $\frac{1}{8}$ " thick oak strips to parts L and N. These strips are ripped from $\frac{3}{4}$ " thick oak solid stock.

The left and right doors are made in the same manner as the frame. When locating the dowel holes, make sure you don't get too close to the edges or

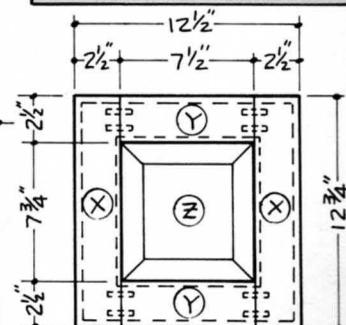
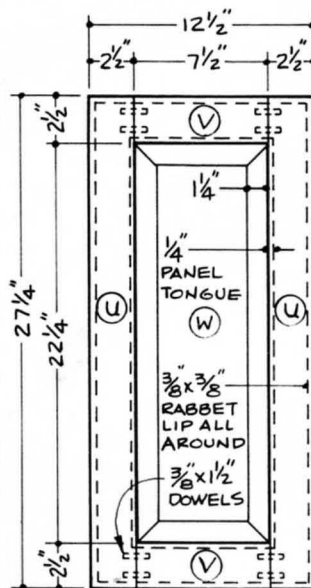
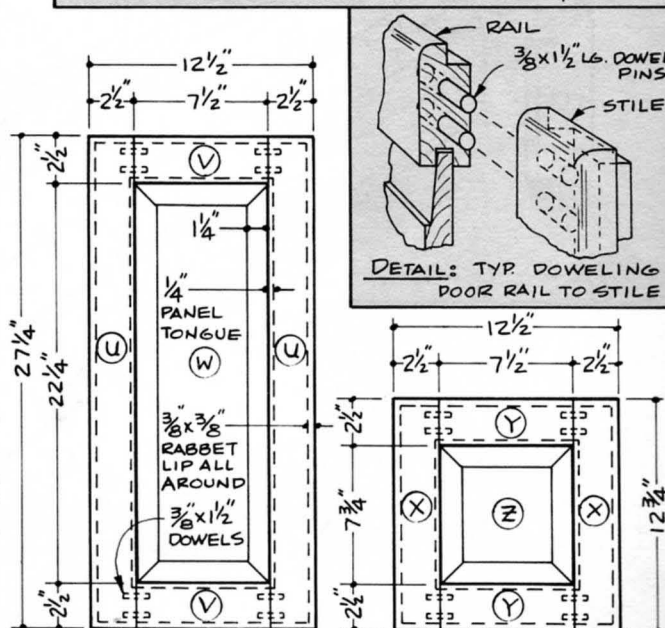
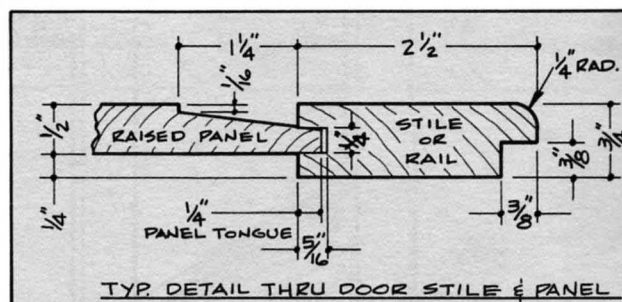
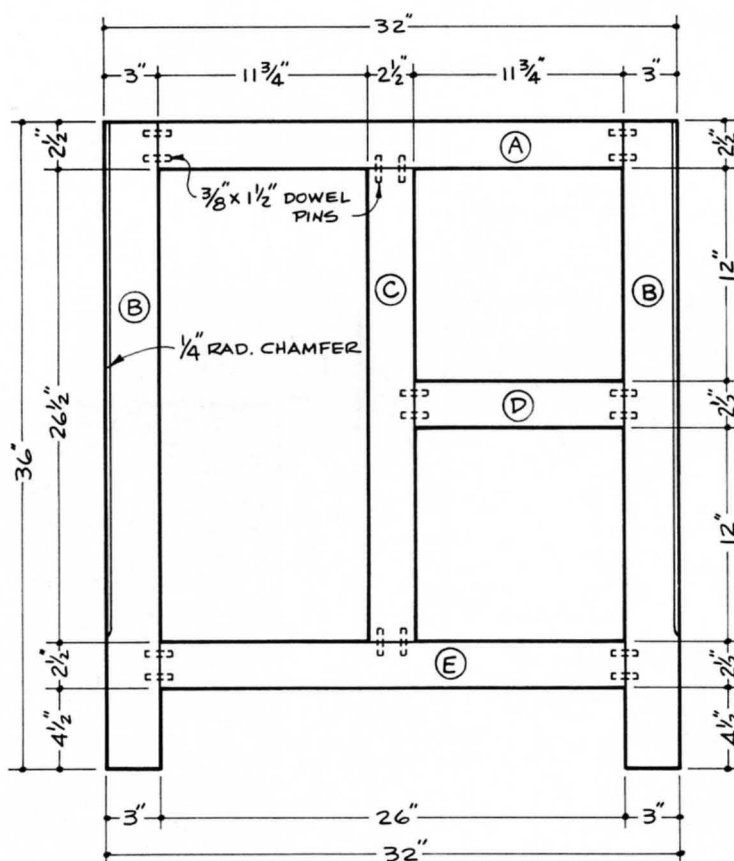
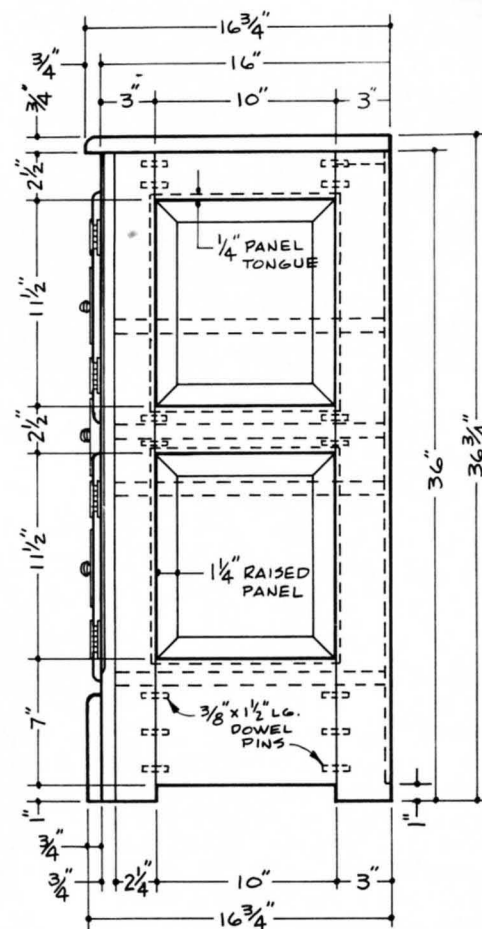
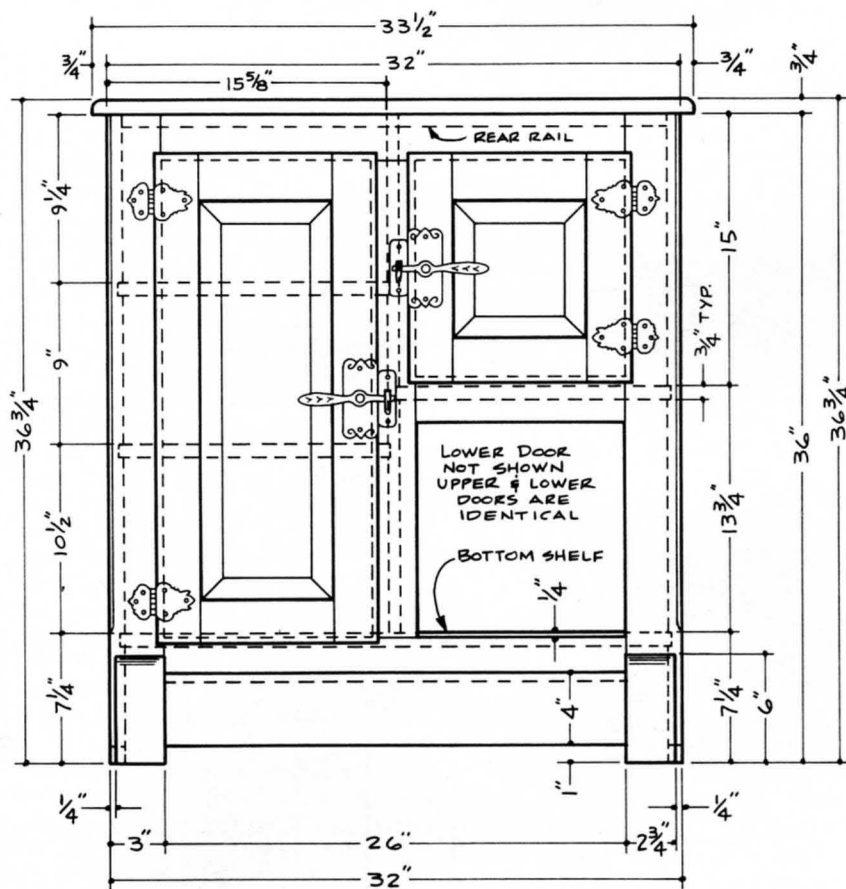
they will show when the door lip is added. Note that the outer edge has a $\frac{1}{4}$ " radius and a $\frac{3}{8}$ " x $\frac{3}{8}$ " rabbet all around to form the door lip. Check doors for a good fit in the front frame.

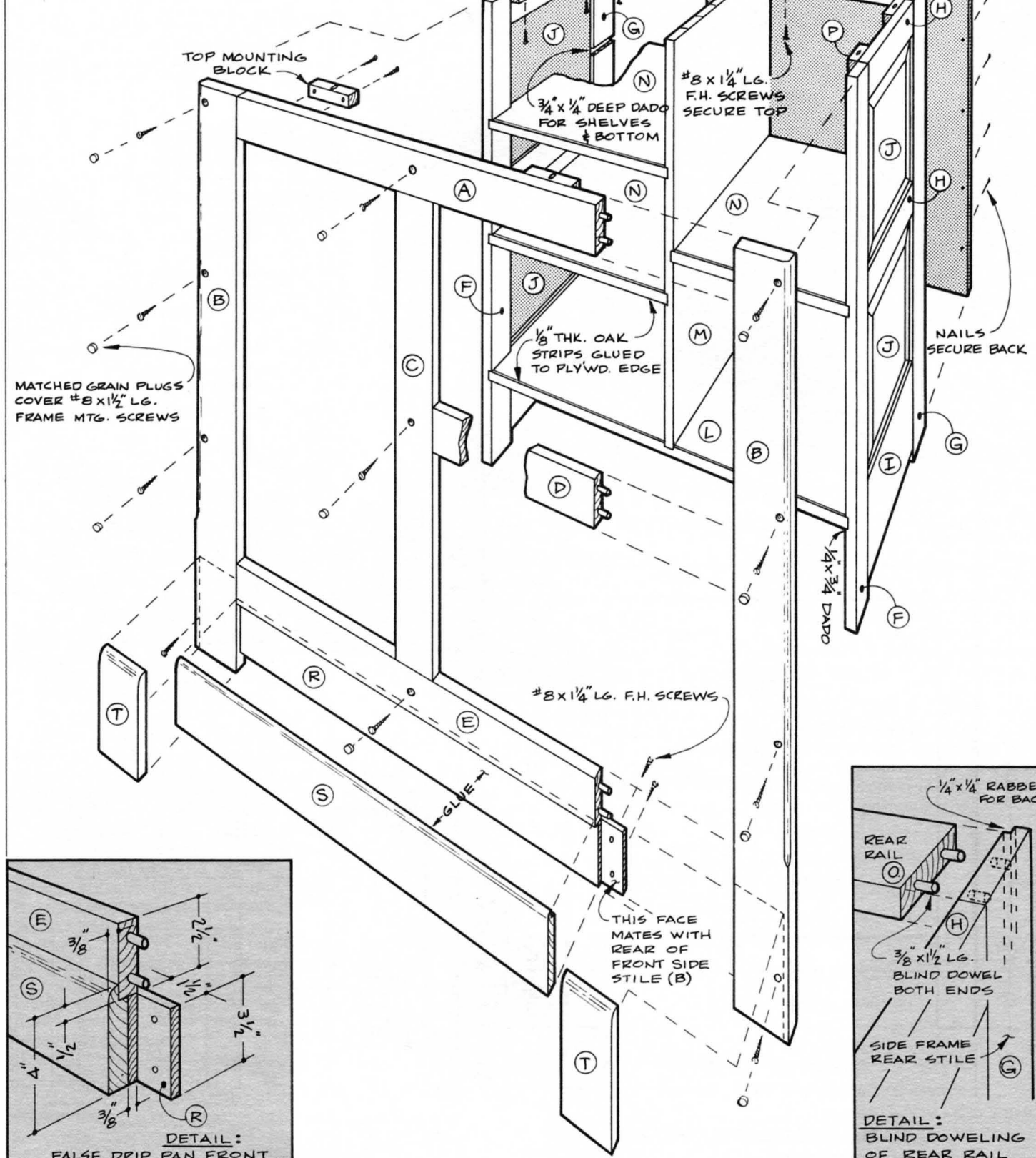
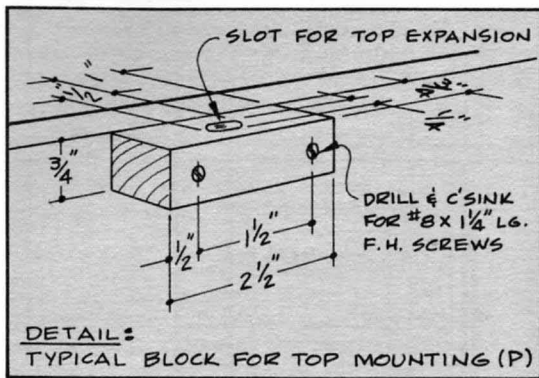
The icebox is assembled as shown in the exploded view. The solid brass icebox hardware can be ordered from Ritter and Son Hardware, Gualala, CA 95445.

Choosing a final finish will depend to a great extent upon the type of wood used for the icebox, as well as individual taste. No matter how you decide to finish this product though, it should be done with patience and care.

Bill of Materials
(All Dimensions Actual)

Part	Description	Size	No. Req'd	Part	Description	Size	No. Req'd
A	Front Top Rail	$\frac{3}{4}$ x 2 $\frac{1}{2}$ x 26	1	N	Shelf	$\frac{3}{4}$ x 14 $\frac{7}{8}$ x 15 $\frac{3}{8}$	3
B	Front Side Stile	$\frac{3}{4}$ x 3 x 36	2	O	Rear Rail	$\frac{3}{4}$ x 2 $\frac{3}{4}$ x 30 $\frac{1}{2}$	1
C	Center Stile	$\frac{3}{4}$ x 2 $\frac{1}{2}$ x 26 $\frac{1}{2}$	1	P	Mounting Block	$\frac{3}{4}$ x $\frac{3}{4}$ x 2 $\frac{1}{2}$	6
D	Center Rail	$\frac{3}{4}$ x 2 $\frac{1}{2}$ x 11 $\frac{3}{4}$	1	Q	Top	$\frac{3}{4}$ x 16 $\frac{3}{4}$ x 33 $\frac{1}{2}$	1
E	Front Bottom Rail	$\frac{3}{4}$ x 2 $\frac{1}{2}$ x 26	1	R	Backing	$\frac{3}{4}$ x 3 $\frac{1}{2}$ x 29	1
F	Front End Stile	$\frac{3}{4}$ x 2 $\frac{1}{4}$ x 36	2	S	False Pan Front	$\frac{3}{4}$ x 4 x 26	1
G	Rear End Stile	$\frac{3}{4}$ x 3 x 36	2	T	Foot	$\frac{3}{4}$ x 2 $\frac{3}{4}$ x 6	2
H	End Rail	$\frac{3}{4}$ x 2 $\frac{1}{2}$ x 10	4	U	Left Door Stile	$\frac{3}{4}$ x 2 $\frac{1}{2}$ x 27 $\frac{1}{4}$	2
I	Lower End Rail	$\frac{3}{4}$ x 7 x 10	2	V	Left Door Rail	$\frac{3}{4}$ x 2 $\frac{1}{2}$ x 7 $\frac{1}{2}$	2
J	End Panel	$\frac{1}{2}$ x 10 $\frac{1}{2}$ x 12	4	W	Left Door Panel	$\frac{1}{2}$ x 8 x 22 $\frac{3}{4}$	1
K	Back	$\frac{1}{4}$ x 31 x 35	1	X	Right Door Stile	$\frac{3}{4}$ x 2 $\frac{1}{2}$ x 12 $\frac{3}{4}$	2/Door
L	Bottom	$\frac{3}{4}$ x 14 $\frac{7}{8}$ x 31	1	Y	Right Door Rail	$\frac{3}{4}$ x 2 $\frac{1}{2}$ x 7 $\frac{1}{2}$	2/Door
M	Divider	$\frac{3}{4}$ x 15 x 29	1	Z	Right Door Panel	$\frac{1}{2}$ x 8 x 8 $\frac{3}{4}$	1/Door





Victorian Sled

This sled from the 1880's is a bit of pure nostalgia and the perfect vehicle for a toddler's first winter snow ride. Unscrew the seat portion and bigger kids can have a lot of fun with it too, once they learn the knack of steering with Body English.

Hardwood such as oak or maple should be used for the main parts. The runners (A) can be cut from 8" wide boards but it's less expensive to use 5½" wide boards and simply glue and dowel on pieces of 2½" x 6" stock to form the horns at the front. A saber saw will do a nice job of cutting the curves. Lay out the hand slots and drill the ends with a ¼" auger; then cut between the holes. Also bore ⅜" deep sockets for the 1" birch dowel.

Steel strap, available at hardware stores is bent to form a loop over each runner horn and drilled and countersunk at 4" intervals. Fasten the steel "shoes" with ⅜" x No. 6 FH screws and trim the shoes flush with the back ends of runners.

The bed (B) is made of two or three edge-joined ¾" boards (or a piece of plywood). Lay out and cut the curves at each end (see *Shop Tips in this issue*) and the notches which are centered on the runner slots. Screw the cleats (C) to the underside using 1½" x No. 8 RH screws.

The seat parts are cut next. Note

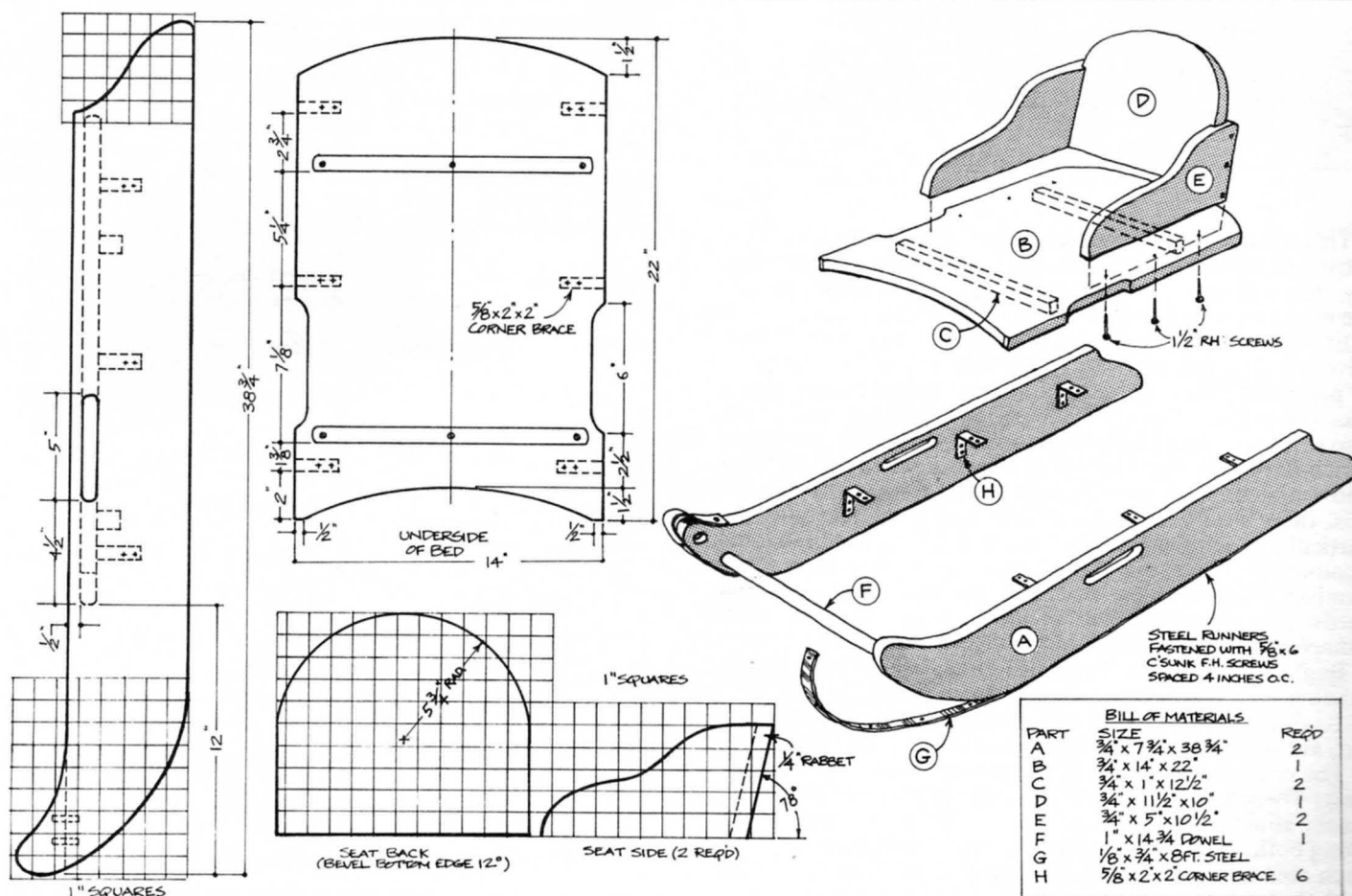


that the seat back is tilted and fits into a ¼" rabbet in the sides. Join these parts with six 1½" x No. 6 FH screws and glue and bevel off the bottom edge of the back. Sand all parts carefully, putting a generous radius on all upper edges.

Scribe a line 1¼" below the top edge of each runner to serve as a guide for locating the corner braces which are fastened with ¾" x No. 6 FH screws. Turn the sled upside down,

add the front dowel and with pipe clamps holding the bed between the runners, screw the corner brackets to the bed. The seat is fastened centered on the bed and about 4" from the back edge using 1½" x No. 6 RH screws.

Many of these sleds were gaily decorated with bright colors and gold striping but this easily wears away unless heavily coated with varnish. The sled looks fine if left natural and just given two or three coats of urethane varnish.



Tile Clock by Roger E. Schroeder

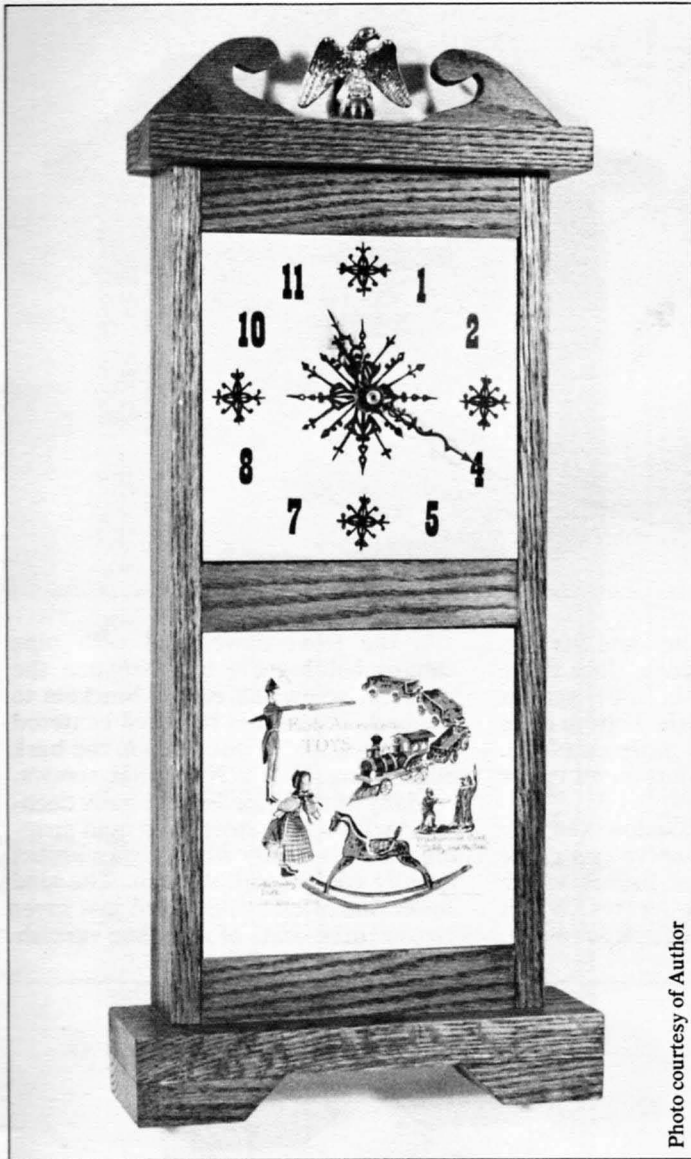


Photo courtesy of Author

This attractive clock will be a fine addition to a colonial setting or nearly any room in the house, from den to nursery. It's a project that's surprisingly easy to build, in fact the work can be completed in just one afternoon.

Except for the back (H), the dial board (I), and the decorative scroll (G), all parts are made from 1" ($\frac{3}{4}$ " actual) pine. If possible, when choosing boards, select stock that's reasonably free of knots. Of course, other wood species are also suitable, particularly the hardwoods. Walnut results in a rich dark look while maple or birch is much lighter. Oak and mahogany are also good choices. With a project like this, there's no hard and fast rule that predetermines the particular type of wood. The choice is left to the individual woodworker. If you can't find hardwoods locally, there are a number of companies that sell domestic and imported hardwoods via mail-order. A list of some of these companies was included in our March/April 1981 issue.

Begin by cutting the two sides (A) to size. These can be made from a single piece of stock about 3 feet long. A $\frac{1}{4}$ " x $\frac{1}{4}$ " rabbet is cut on both edges. The router will make this cut, although the table or radial arm saw can also be used.

The center rail (B) and the upper and lower rails (C) are next. These can be made from a single piece of 1 $\frac{3}{4}$ " wide stock, about 2 feet long. Make the $\frac{1}{4}$ " x $\frac{1}{4}$ " rabbet cuts along both edges of the stock, then cut it into three lengths, each measuring 6 - 1/16". For parts C, remove one of the rabbets by cutting it flush on the table saw. Then, on all

three pieces, make a $\frac{1}{4}$ " x $\frac{1}{2}$ " rabbet cut on both ends.

Parts A, B, and C can now be glued and clamped together. Make sure parts A are square to parts B & C. Part D is cut to size and attached using countersunk $\frac{1}{2}$ " x #8 flat headed wood screws. These should be located where they will be covered by parts G (see drawing).

After cutting to size, part E is held to the case with $\frac{1}{4}$ " diameter wood dowel pins and glue. Drill $\frac{3}{8}$ inch diameter by $\frac{3}{4}$ inch deep holes in the bottom of parts A and use dowel centers to mark the location of the holes in part E. Parts F are bevel cut to a 45 degree angle on one side, then added to part E with glue.

Parts G, the decorative scrolls, are cut to size from $\frac{1}{2}$ inch thick stock. Transfer the profile from the detail, then cut out on the jig or saber saw. Attach to part D with $\frac{1}{4}$ inch diameter by $\frac{1}{2}$ inch long dowels as shown.

The back panel, part H, is cut to size from $\frac{1}{4}$ inch plywood, as is the dial board, part I. Be sure to cut both parts square.

Give all components a complete sanding, taking care to remove planer marks. Watch for areas of excess glue squeeze-out and remove with sandpaper or a sharp chisel. If desired, round all corners to simulate years of wear. Final sand using 220 grit paper.

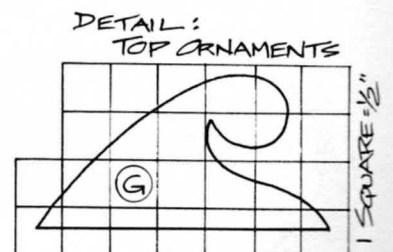
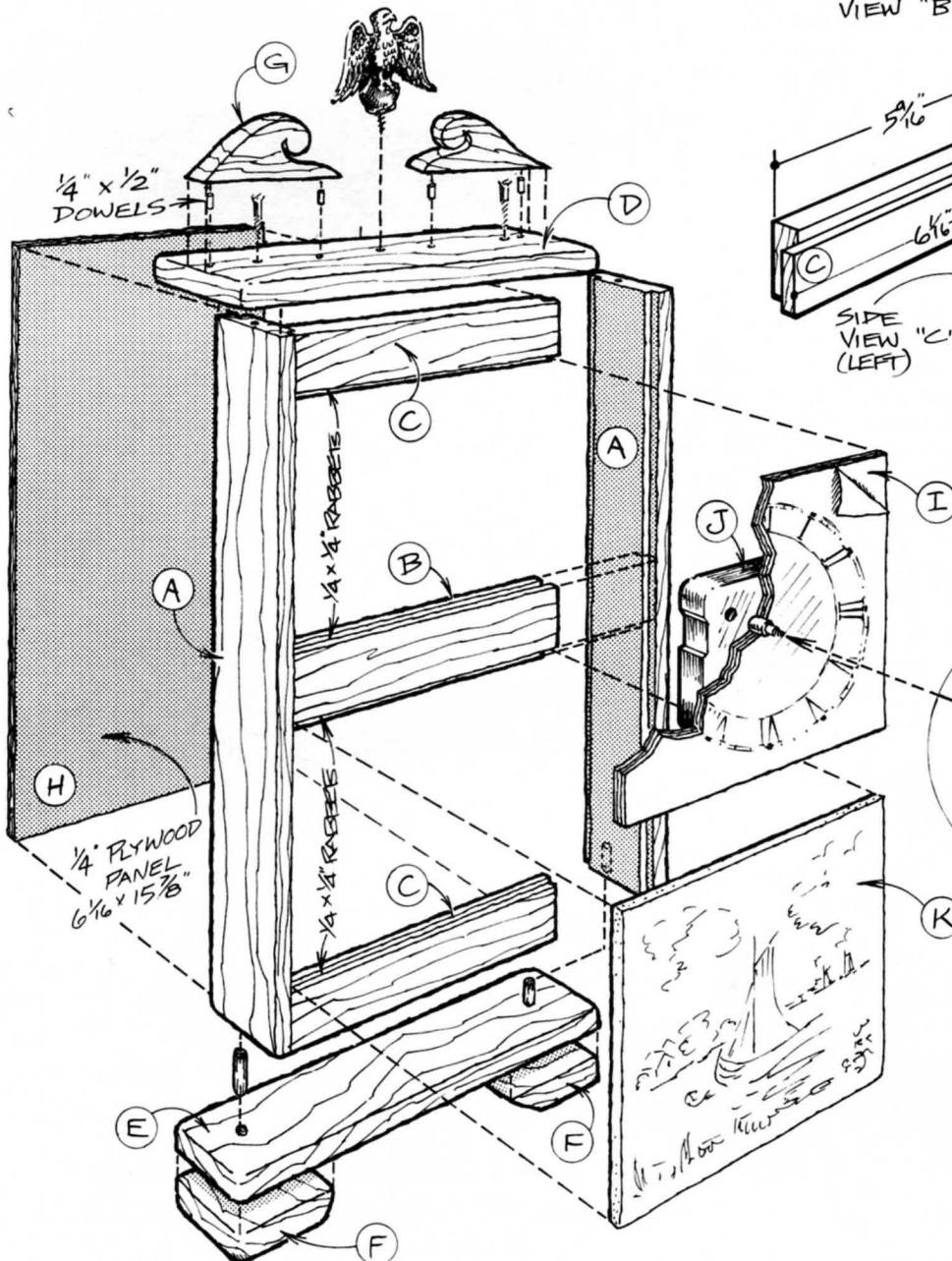
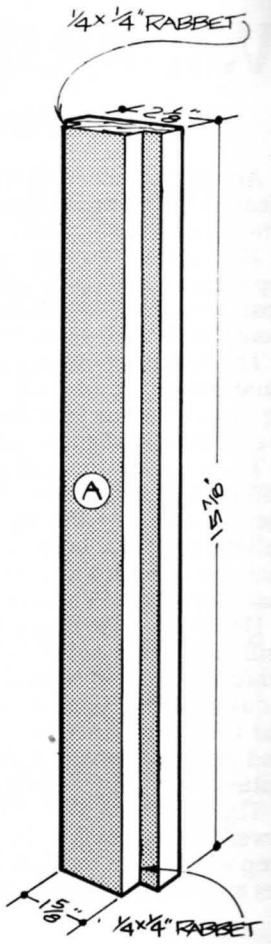
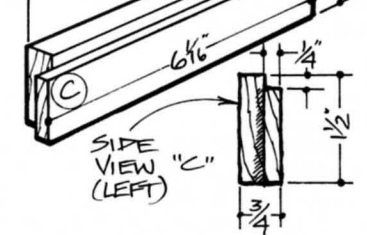
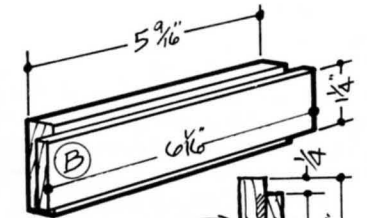
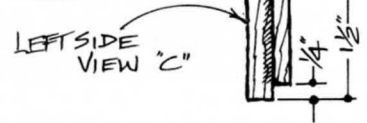
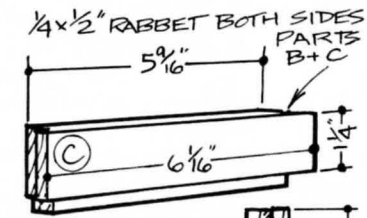
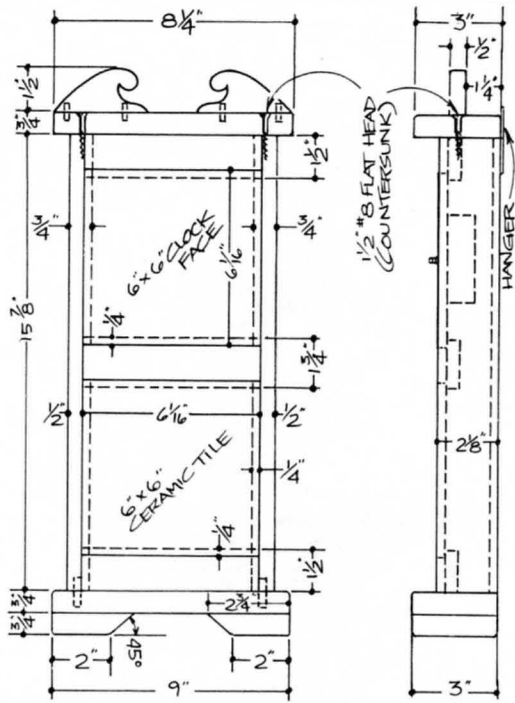
All hardware and clock parts were purchased from the mail-order firm Craft Products Co., 2200 Dean Street, St. Charles, IL 60174. A copy of their current catalog is available for \$1.50. The white painted paper dial, number 2650-W10, can be mounted (glued) to $\frac{1}{4}$ " plywood and the plywood glued to the clock case. The movement (battery powered) is number 2320-X01 with number 2400-W42 hands. The movement shaft extends through a hole drilled in the dial board (I). A locknut (included with the movement) is threaded on the movement shaft to secure it to the dial board. The eagle ornament, number 3242-C42, is screwed to part D. Four back locks (not shown), number 3262-C53, hold the back in place yet permit easy removal if necessary. The hanger is number 3261-C55. A 6" square tile is mounted using contact cement.

Finish is a matter of personal choice. I used McCloskey's dark oak stain. After the stain was thoroughly dry, several coats of tung oil were applied as a final finish.

If a lighter finish is preferred, try Minwax Provincial Wood Finish. Apply two coats, following the manufacturer's directions for drying time. This can be followed by two coats of polyurethane varnish. Rub down between coats, and after final coat using 0000 grade steel wool.

Bill of Materials All Dimensions Actual

Part	Description	Size	No. Req'd
A	Side	$\frac{3}{4}$ x 2 $\frac{1}{8}$ x 15 $\frac{7}{8}$	2
B	Center Rail	$\frac{3}{4}$ x 1 $\frac{3}{4}$ x 6-1/16	1
C	Rail	$\frac{3}{4}$ x 1 $\frac{1}{2}$ x 6-1/16	2
D	Top	$\frac{3}{4}$ x 3 x 8 $\frac{1}{4}$	1
E	Bottom	$\frac{3}{4}$ x 3 x 9	1
F	Foot	$\frac{3}{4}$ x 3 x 2 $\frac{3}{4}$	2
G	Scroll	See Detail	2
H	Back	$\frac{1}{4}$ x 6-1/16 x 15 $\frac{7}{8}$	1
I	Dial Board	$\frac{1}{4}$ x 6 x 6	1
J	Movement	Craft Products 2320-X01	1



Wine Glass Holder

by Roger E. Schroeder

Although reasonably easy to make, this lathe project is an ideal gift item, and it can certainly be done with a minimum amount of scrap lumber.

The top and bottom can be made from plywood, as the top of this one is, pine, or even a hardwood. The four turned posts should be hardwood, however, and these were turned from 5/4 (1-1/16 actual) maple.

The top and bottom can be done on a lathe, although a bandsaw or jig saw will also cut them to shape. A router equipped with an ogee bit was used to cut the bottom molding. The top was rounded over with a 1/4" rounding over bit.

To locate the post tenon holes, clamp together the top and bottom and drill a 1/2 inch diameter hole through both pieces. Back-up the bottom with scrap stock to prevent splintering. The holes on the top will be covered with 1/2 inch wood buttons. The four notches in the top piece are started using a 1/2 inch drill bit and finished on a bandsaw.

Here's a way to insure a tight fit for the post tenons: pre-drill holes for a small 3/4 inch screw into the centers of the tenon ends. Then cut a notch along their diameter lines with a dovetail saw. Glue and clamp the assembly together and put the screws in. These will cause the tenons to separate and make a tight fit. Cover the top holes with the wood buttons.

The project was finished with a dark walnut stain followed by two coats of satin polyurethane varnish. The final step was to glue the cork disc to the bottom. Four wine glasses and a bottle of wine provide the finishing touch.

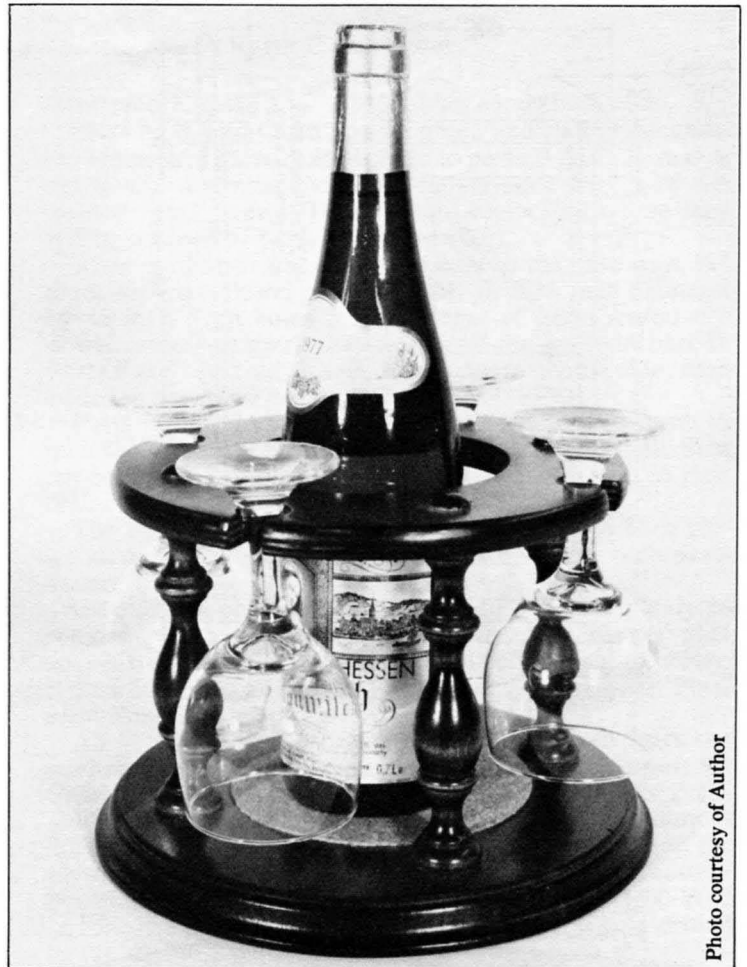
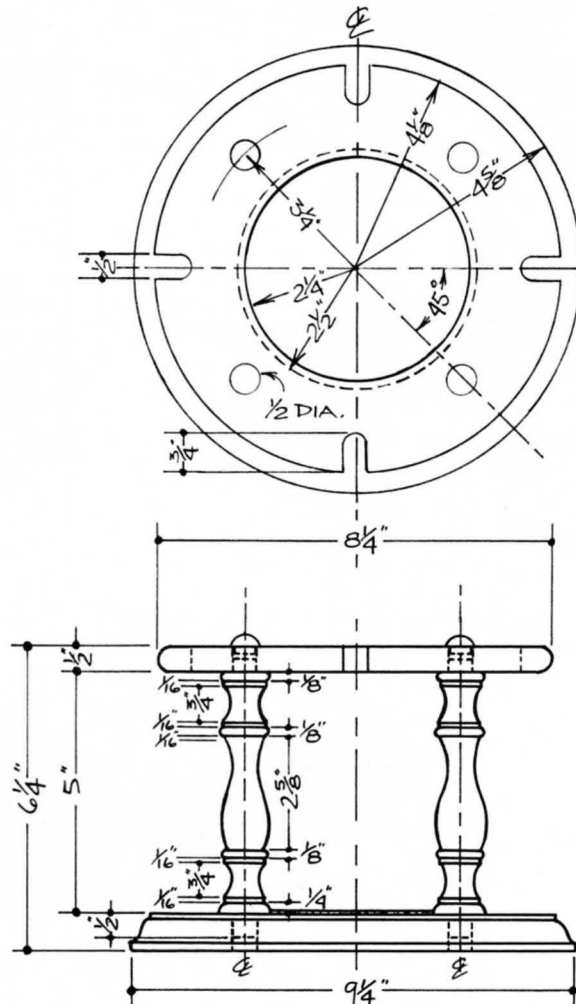
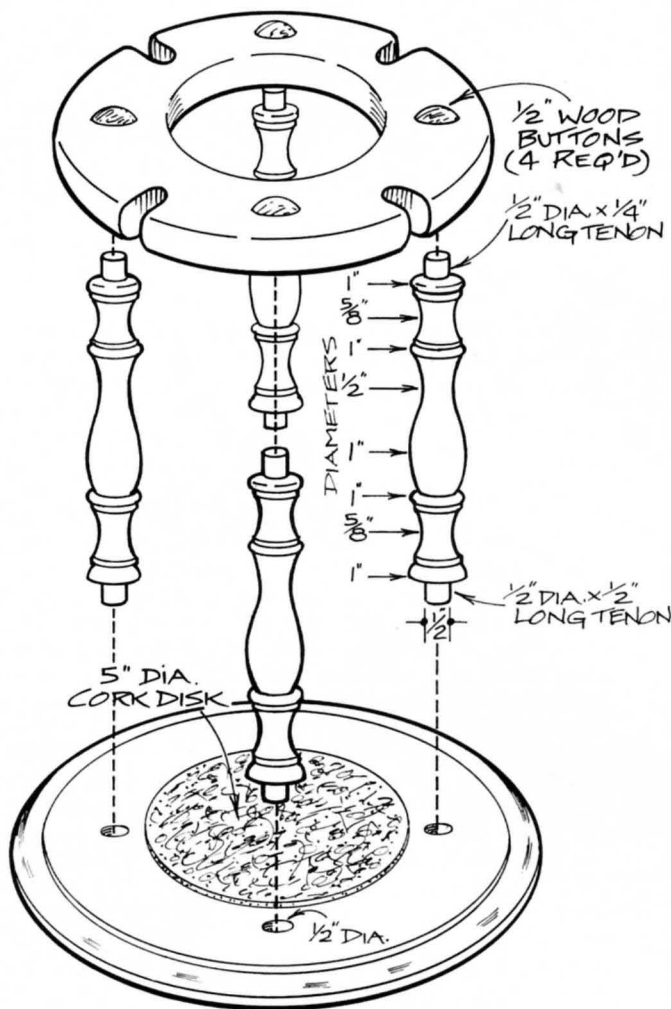
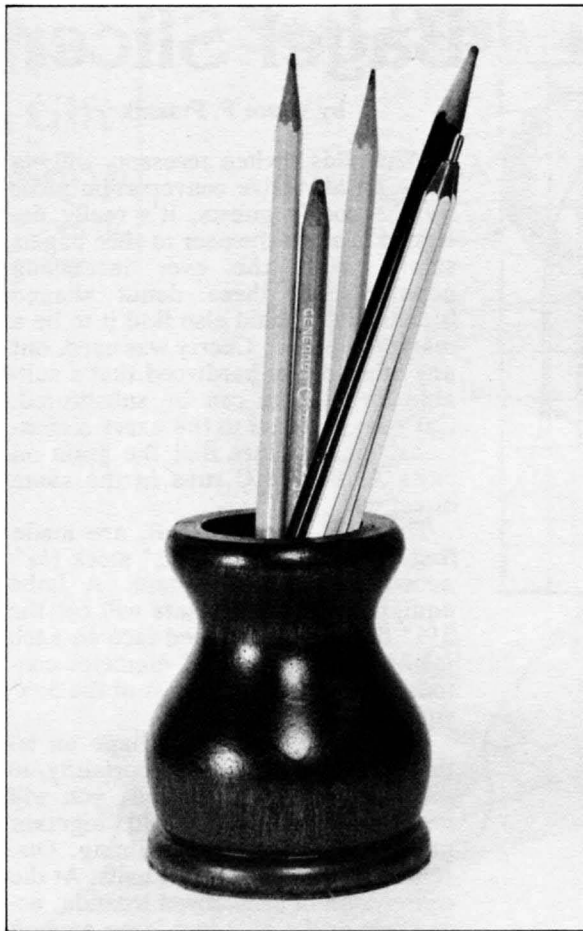


Photo courtesy of Author



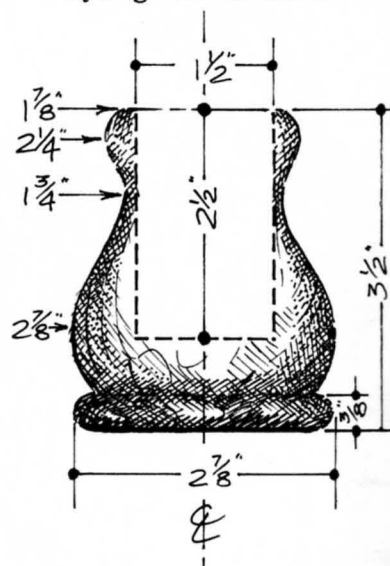


Although it's an easy lathe project, this inkwell styled pencil holder can make a well-received gift or a nice addition to your desk. It's turned from a solid block of 3 inch square by 3½ inch long mahogany. Secure the block to a turning plate using screws or by gluing it to a scrap block with newspaper between. After turning and sanding, a 1½" spade bit will bore the 2½" deep hole. It's finished with brown mahogany paste filler mixed with Minwax Jacobean stain. Two coats of satin polyurethane varnish were applied, then a piece of green felt was glued to the bottom, completing the project. Most hobby shops will carry felt.

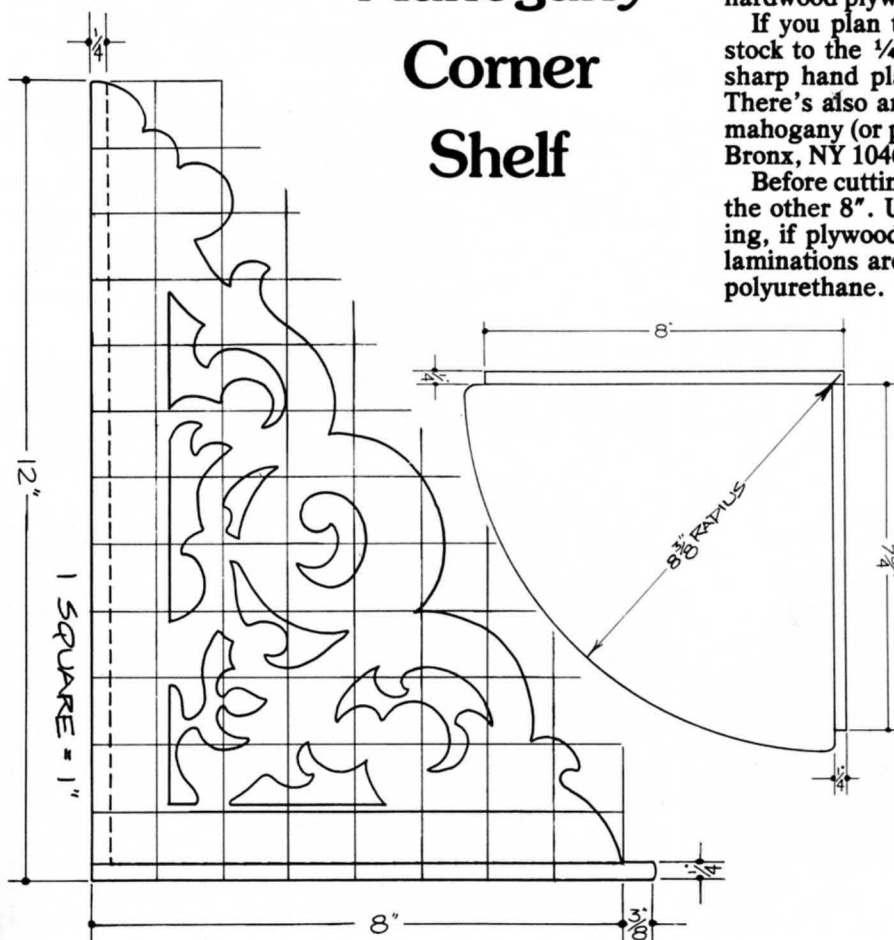
Mahogany Inkwell Pencil Holder

by Roger E. Schroeder

The Gift Shop



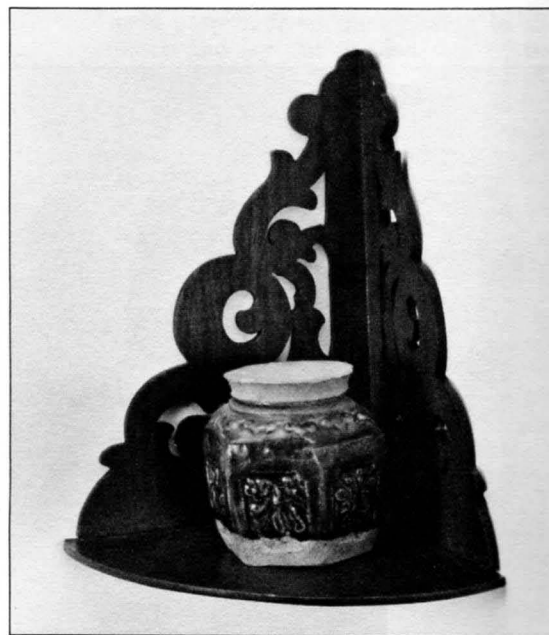
Mahogany Corner Shelf



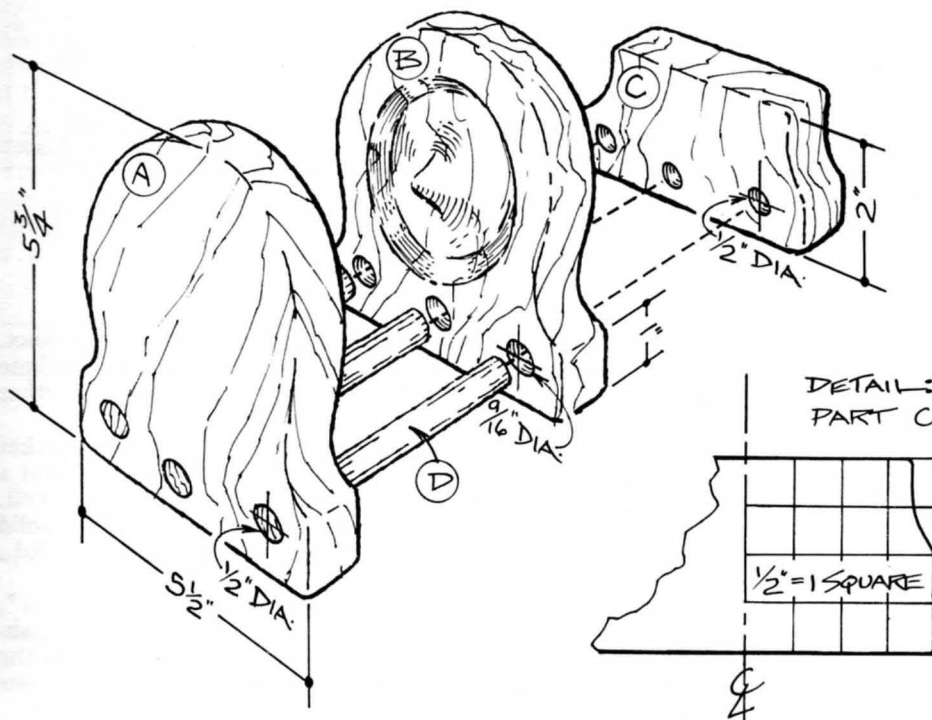
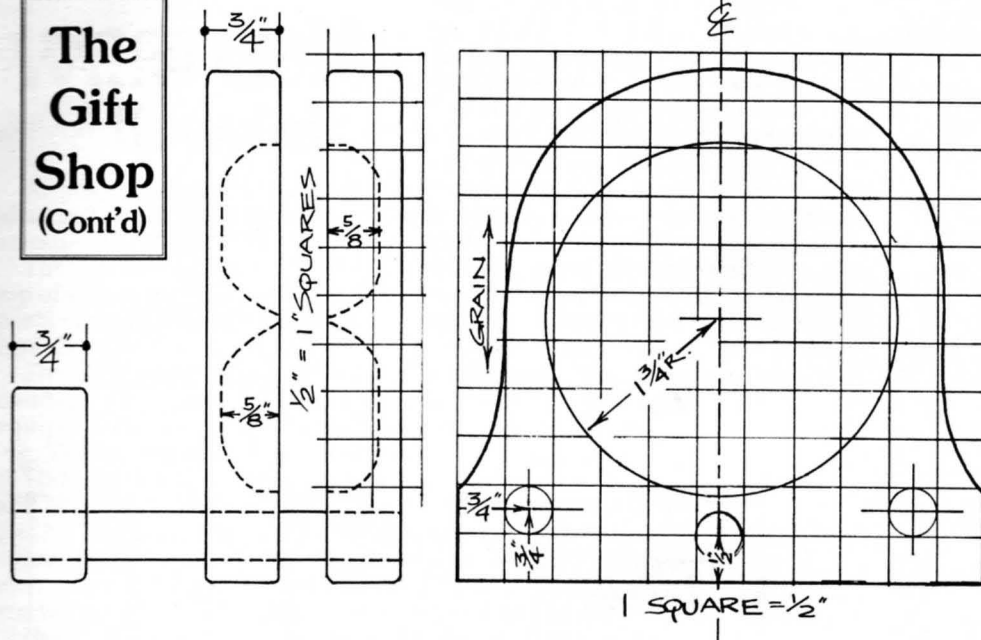
Those who like jigsaw work will find this an enjoyable project. It can be made from ¼" thick solid mahogany, as this antique original is, or from ¼" mahogany plywood. Most any other hardwood plywood is also suitable.

If you plan to use solid stock, you'll have to reduce thicker stock to the ¼" dimension. A power planer can do this, but a sharp hand plane, and a little patience, will do just as well. There's also another option; you can mail-order ¼" thick solid mahogany (or plywood) from Constantine, 2050 Eastchester Rd., Bronx, NY 10461.

Before cutting parts to size, note that one side measures 7¼", the other 8". Use glue and finishing nails to join. When finishing, if plywood is used, it's best to stain all edge grain so the laminations are less likely to show. Final finish with two coats polyurethane.



The Gift Shop (Cont'd)



Bagel Slicer

by Victor F. Ptasnik

While this kitchen accessory will become an attractive conversation piece for the cook's guests, it's really designed to allow the user to slice bagels safely. With the ever increasing popularity of these donut shaped breads, you should also find it to be a marketable item. Cherry was used, but any other dense hardwood that's suitable for turning can be substituted. Cut your material to the exact dimensions, making sure that the grain on parts A, B, and C runs in the same direction.

The jaws, parts A & B, are made first. Cut each one from 1" stock ($\frac{3}{4}$ " actual) to a $5\frac{1}{2}$ " square. A lathe equipped with a faceplate will cut the $3\frac{1}{2}$ " diameter contoured face on each jaw. Note that the $3\frac{1}{2}$ " diameter contour is exactly in the center of the $5\frac{1}{2}$ " square.

To achieve a uniform shape on all three pieces and, more importantly, to precisely locate the dowels, you will need to temporarily hold together parts A, B & C for machining. One solution is to use common nails. At the centerpoint of each dowel location, accurately drill a hole just large enough to hold a two-inch long nail. Held together by these three nails, the resulting stack of wood can be cut to the bell shape with a bandsaw or jigsaw. Then remove one nail at a time and, with a drill press, drill a $\frac{1}{2}$ " hole using the nail hole as a guide. Insert a dowel and drill out the remaining two holes in the same manner. After removing the dowels, enlarge the holes in part B with a rasp so that it can freely slide on the dowels.

Use a router equipped with a $\frac{1}{4}$ " rounding-over bit to round all edges except those on the base surface. With part B in place, glue the dowels into parts A and C. Flush sand the dowel ends.

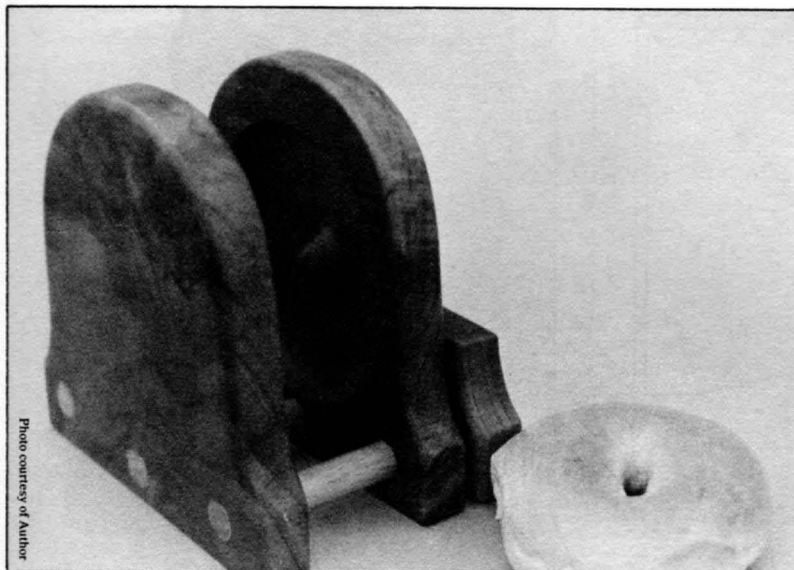


Photo courtesy of Author

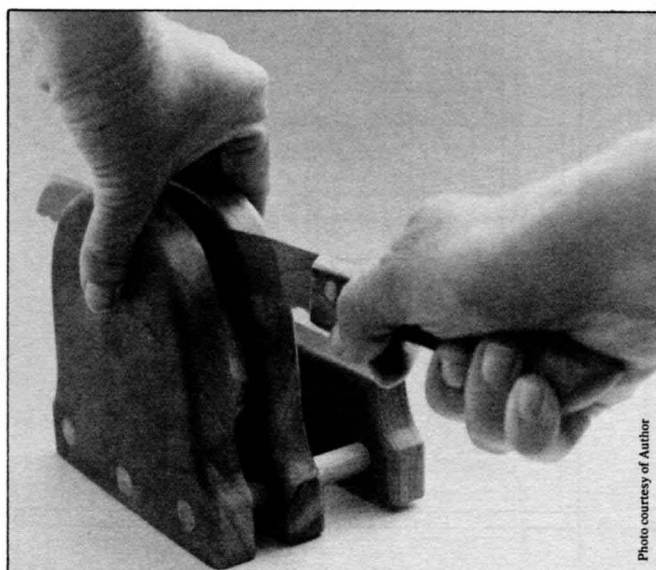
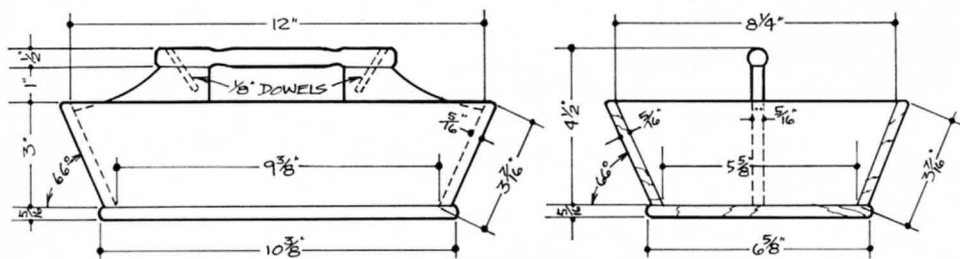


Photo courtesy of Author



Sand all parts thoroughly, taking care to remove all sharp edges. Assemble as shown. Keep in mind that part C is glued to part D. For toys, it's always best to use a glue that's non-toxic such as Elmer's Glue-All. A final finish is not added.

The Gift Shop (Cont'd)

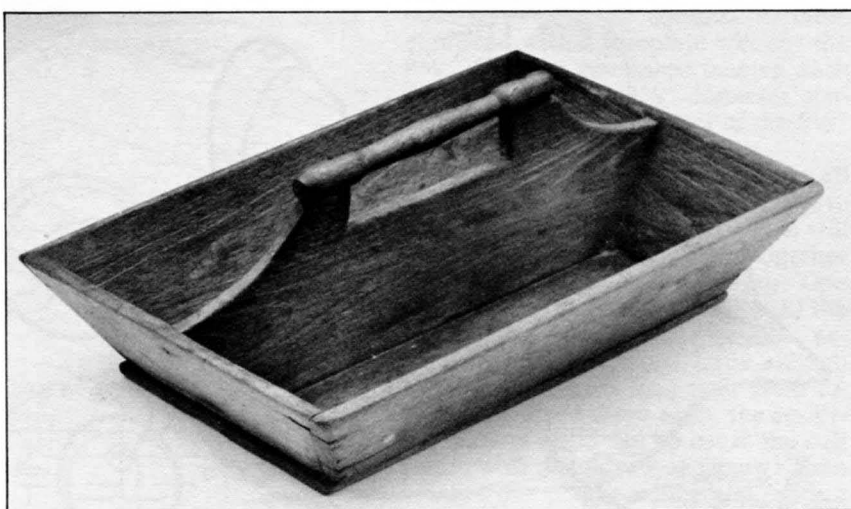
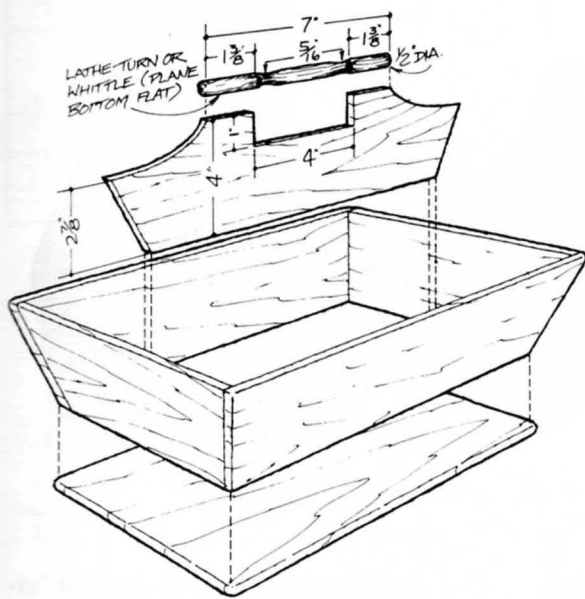


Antique Knife Tray

In times past, the knife tray was used as a means to store and carry the household table knives. We found this fine example of an early knife tray at the Gunn Historial Museum in Washington, Connecticut. The museum was kind enough to let us take photographs and some actual measurements.

This well-proportioned tray owes its graceful appearance to the sloping sides and ends, and the use of thin stock throughout. The divider incorporates a sensitively shaped dowel which is fastened to the top for a handle.

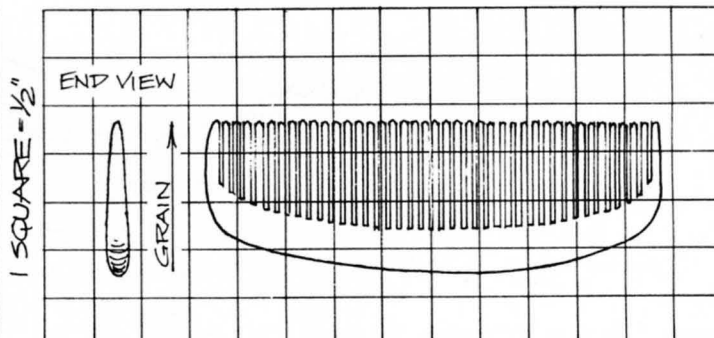
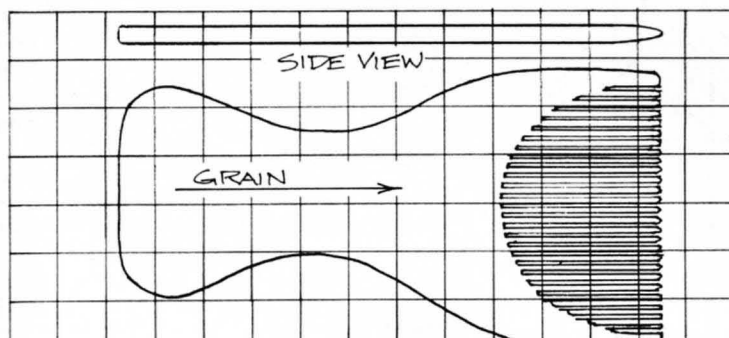
Referring to the drawing, make all parts as shown. Assemble with glue and finishing nails. Note that the handle bottom is planed flat before attaching with angled dowels and glue. Sand thoroughly, stain and final finish with two coats of Minwax Antique Oil Finish.



Wooden Combs

Why wooden combs? Well, for one thing, they're a lot more attractive than the usual molded plastic kind. For another, they don't generate any static electricity. We made ours from birch, but maple, beech or any other close grain hardwood will also be suitable.

There are various ways to make them, but perhaps the easiest is to start with 1/4" thick stock and transfer the shape from the grid pattern. Be sure to run the grain in the direction shown. Use the band or jig saw to cut out the profile. Plane or sand the side (or end) view taper as shown, then again use the band or jig saw to cut the individual teeth. Sand all surfaces smooth, including between each tooth. No finish is required.



Message Cube

by Sam Allen

Note pads using adding machine paper rolls are not new but they take up a lot of desk space and the paper rolls from the top down so any additions to a list must be made at the top rather than the bottom. This compact note paper dispenser overcomes these drawbacks. The plans are for a 2 1/4" wide roll of paper but you can change dimensions to suit other sizes.

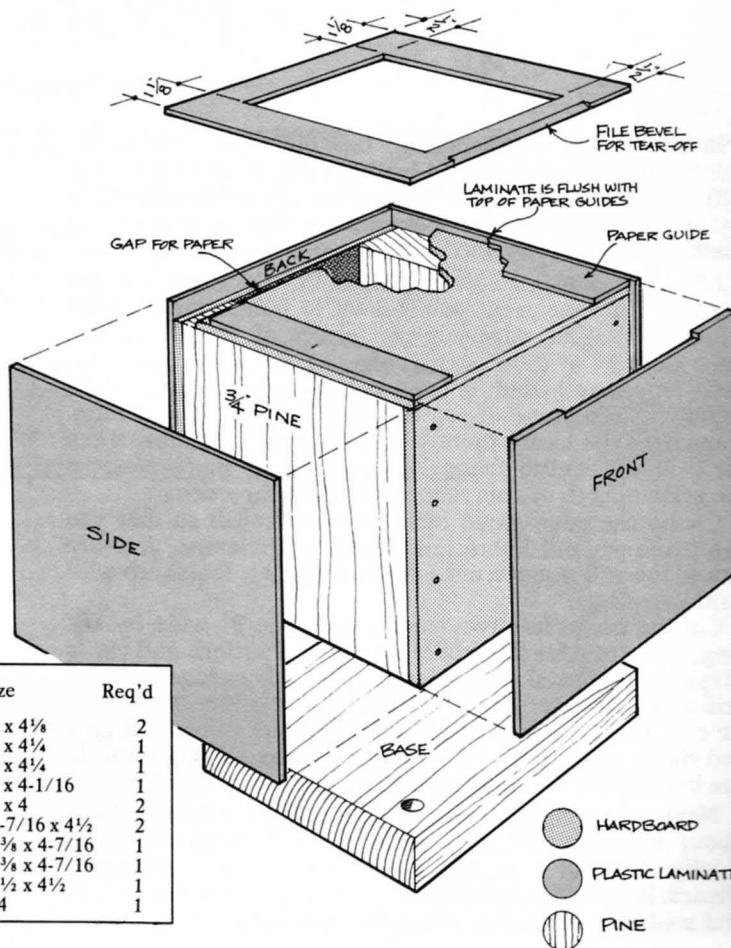
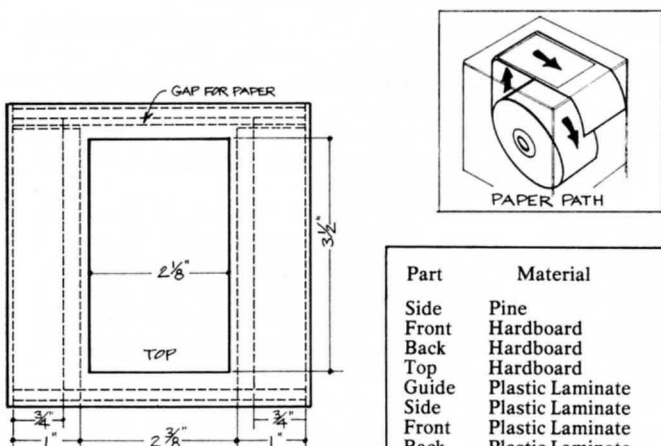
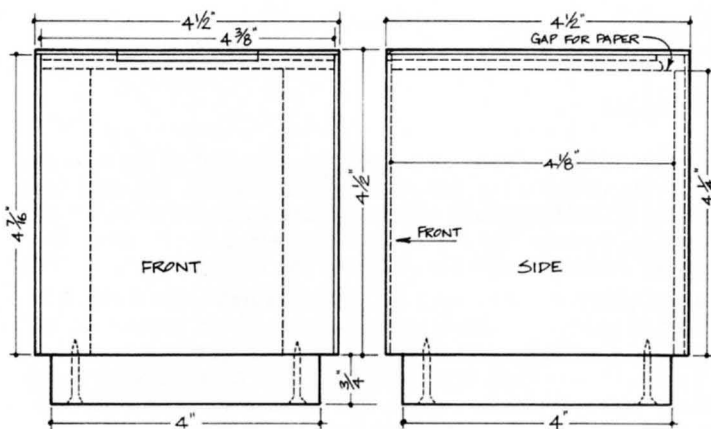
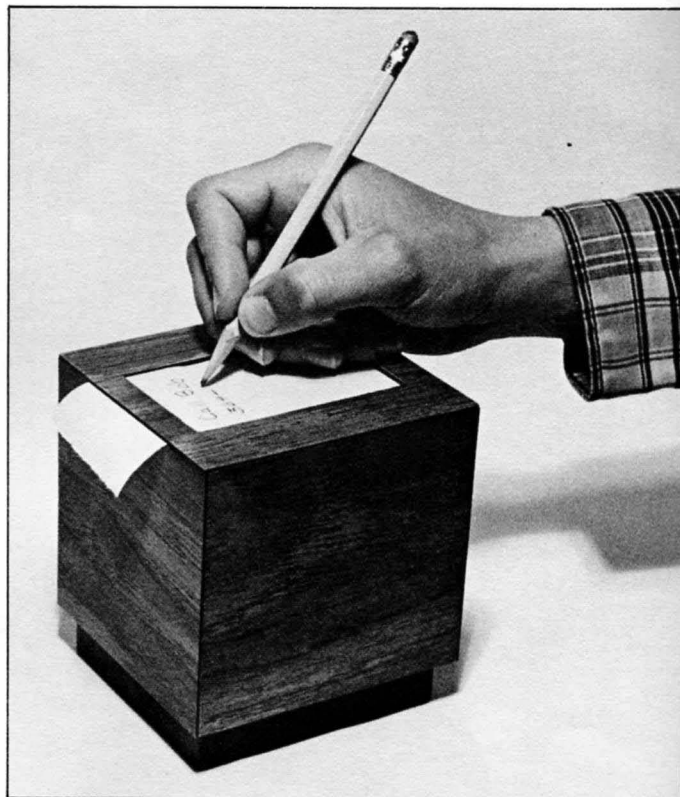
Begin by nailing two 1/8" hardboard sides to the 3/4" pine sides to form a box. Next, close the top of the box with a piece of hardboard. Leave a small gap between the back of the box and the top for the paper to pass. Round the edges of the top along the gap to help the paper slide easily.

Use contact cement to fasten two strips of 1/16" plastic laminate that form the paper guides; then cover the four sides of the box with 1/16" laminate. The top edges of all four sides should be flush with the top of the paper guides. On the front file out an exit notch between the guides and down to the hardboard top.

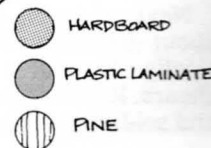
Cut a square of laminate to fit the cube top and lay out an opening 2 1/8" wide x 3 1/2" long. Drill a 1/4" hole in each corner of the opening and cut between the holes with a coping saw. Use a fine file to smooth the cut edges. Roughen the tops of paper guides with sandpaper and cement the top to them. File the edges of the top flush with the sides. The edge that is over the exit slot should be beveled to form a tear-off blade.

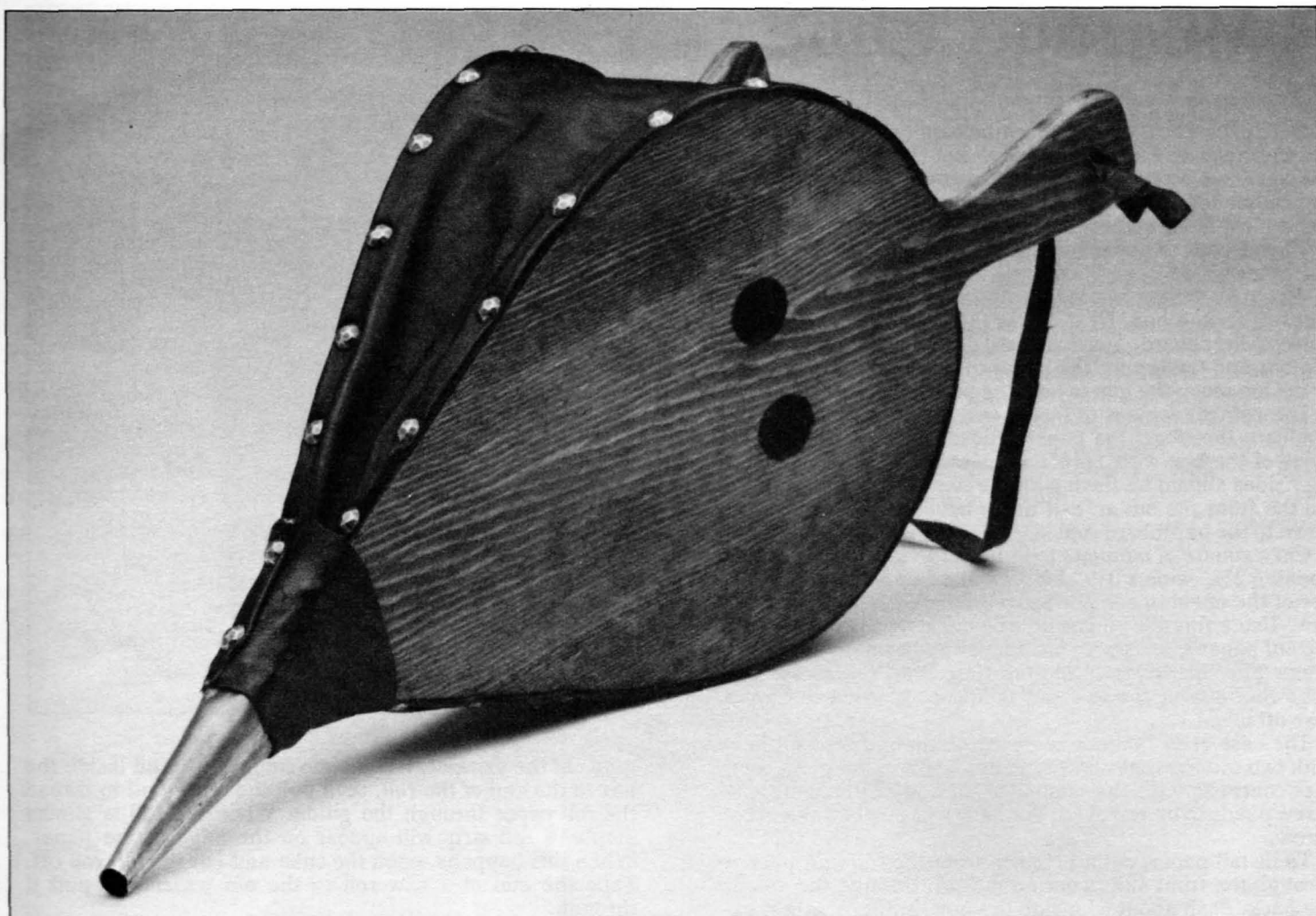
The base of 3/4" pine is centered on the bottom and held with two countersunk screws. Paint the base black or a color that contrasts with the laminate. To add paper, only one screw needs to be removed; the base will pivot on the other screw.

To install paper, cut a 12" strip from the roll and push it through the front slot, working it down through the slot at the back. Push about 6" inside the box, letting the rest extend out the exit slot. Use tape to connect the end inside the box to the end of the roll, then pull the other end to thread the roll paper through the guide. When the roll is almost empty, a red strip will appear on the edge of the paper. When this happens, open the cube and cut the old roll off. Tape the end of a new roll to the old paper and pull it through.



Part	Material	Size	Req'd
Side	Pine	3/4 x 4 1/4 x 4 1/4	2
Front	Hardboard	3/4 x 4 3/8 x 4 1/4	1
Back	Hardboard	3/4 x 4 3/8 x 4 1/4	1
Top	Hardboard	3/4 x 4 3/8 x 4-1/16	1
Guide	Plastic Laminate	1/16 x 1 x 4	2
Side	Plastic Laminate	1/16 x 4-7/16 x 4 1/2	2
Front	Plastic Laminate	1/16 x 4 3/8 x 4-7/16	1
Back	Plastic Laminate	1/16 x 4 3/8 x 4-7/16	1
Top	Plastic Laminate	1/16 x 4 1/2 x 4 1/2	1
Base	Pine	3/4 x 4 x 4	1





Fireplace Bellows

by Raymond Schuessler

In addition to woodworking, this old style bellows requires a little metalwork and leatherwork. None of it is very difficult though, and the whole project can be completed in just a few evenings in the workshop. The one shown is made of pine, but any good cabinet wood is suitable.

Make the wooden halves first. If $\frac{1}{2}$ " thick stock is not available in your area, you'll have to hand plane thicker stock. To do this, edge-join two pieces of 1" ($\frac{3}{4}$ " actual) thick stock by 6" ($5\frac{1}{2}$ " actual) wide by 37" long stock. This extra length and width is good to have in case some edges splinter as you plane. If you use dowels when edge-joining, make sure you locate them where they will not show when the bellows is cut to shape. Also, planing is much easier if the grain of both boards runs in the same direction.

Clamp the edge-glued board to your bench so that you can plane without interference from your clamps. A sharp jack plane will remove most of the material. Finish up with a smooth plane.

Cut the board into two pieces, each one 9" wide by 18" long, then transfer the profile for the grid pattern and cut to shape on the band saw. Clamp both halves together and drill a $\frac{1}{2}$ " diameter by 3" long hole in the center of the nozzle end. Cut off $1\frac{1}{2}$ inches of the tip of one board and glue and clamp this piece to the other board as shown. Also, in one board, drill two 1" dia. valve holes.

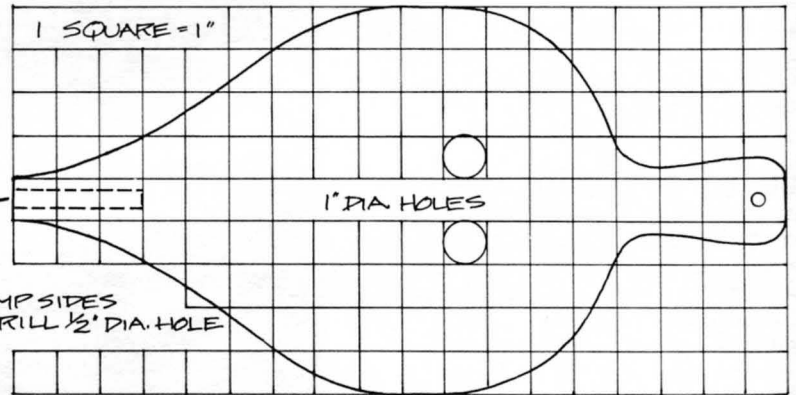
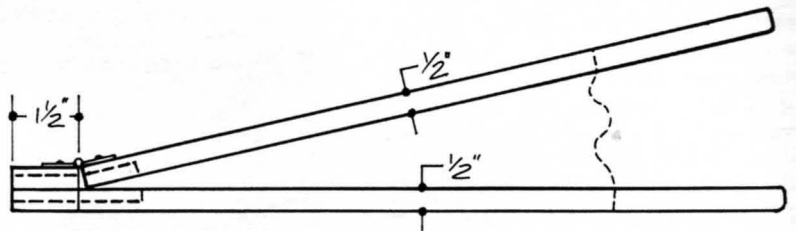
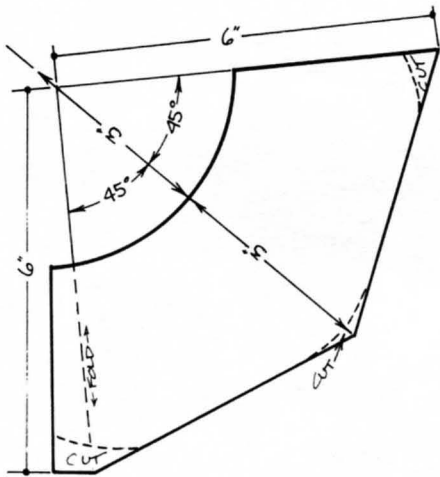
Next, make the metal tip, using copper (or brass) sheet, about .030-inch thick. We used copper flashing purchased locally. Lay out a pattern as shown and cut with metal shears. Roll the sheet into a cone, lapping the edges $\frac{1}{8}$ inch and soldering the seam. When the solder has set, shape the

large end of the cone into a square. The end of the bellows is fitted into the square end of the metal tip, the end first being shaped carefully with a carving knife to fit the square snugly, and so the metal laps the wood by $\frac{1}{2}$ inch. Use epoxy to secure the metal tip to the bellows end. All the wood parts are then sanded, and finished with stain, varnish or paint. We chose to finish ours with a coat of walnut stain followed by two coats of satin polyurethane varnish. To minimize chances of warping, it is necessary to finish both sides of the boards in the same way. Allow to thoroughly dry before proceeding with assembly.

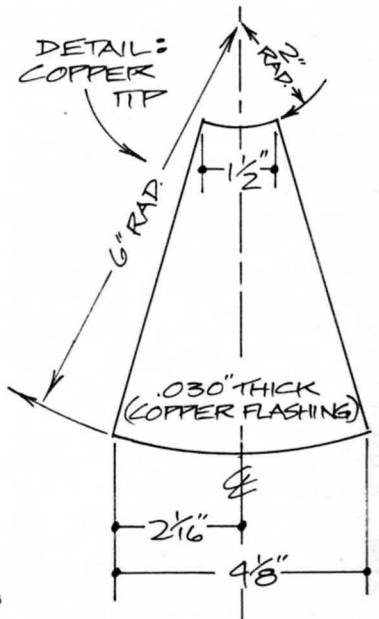
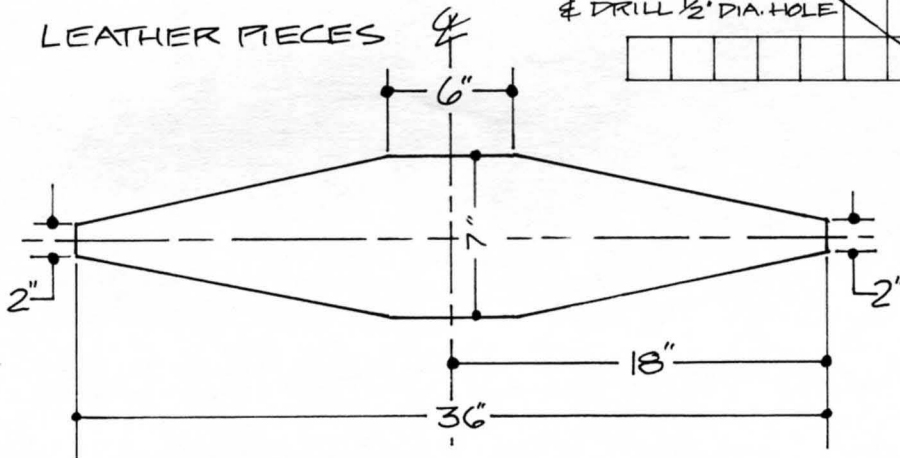
A leather "web" is cut from a 36-inch length of soft hide to the dimensions shown in the drawing. From the scrap material left from shaping the web, cut two small leather squares, 2 by 2 inches. These are the flapper valves for the air intake holes. Stretch each square tightly on the inner face of the bellows, one over each hole, and tack it in place with one carpet tack at each corner.

Attach the web, starting at the center, between the handles of the bellows. Fold the leather over $\frac{1}{2}$ -inch all along the edge so that a double thickness takes the ornamental brass upholsterer's tacks. The tacks are placed at $1\frac{1}{4}$ -inch intervals. No tacks are necessary where the leather crosses near the handles, but the leather should be stretched tightly across this unfastened area.

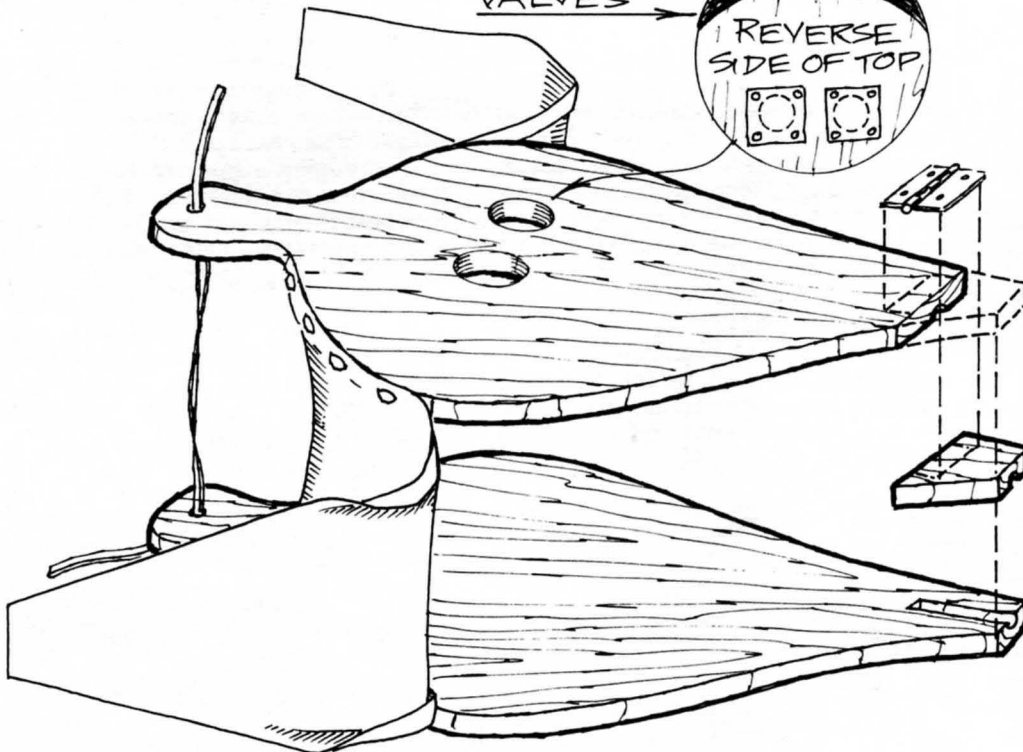
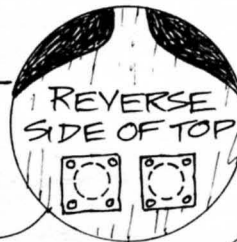
Referring to the pattern, cut a piece of leather to wrap around the tip of the bellows - wide enough to cover the end of the cone and to extend up the bellows $1\frac{1}{2}$ inches past the hinge. This leather piece is glued to the metal cone and ornamented with upholsterer's tacks.



LEATHER PIECES



DETAIL: FLAPPER VALVES



Incorporating a pair of hinged triangular towers, this impressive shelving system folds flat for easy moving and storage - an appealing feature for college students and those who move on a regular basis. Ours is made with 6 foot long shelves, but the towers can be moved apart to accommodate 8 foot shelves as well. The stiles and rails are made from birch solid stock, with edged birch plywood serving for the shelves. Oak, no doubt, would also look very attractive.

It's most important that the stiles (A) and rails (B) be made from flat stock. If you can't get satisfactory solid stock, you may want to consider birch plywood with edging strips for these parts.

Although the joinery is reasonably basic, there are a lot of joints to cut (and sand), so there's a fair amount of time needed to build this unit. It's a good idea to plan your building schedule accordingly.

Make the rails (part B) first. A total of 24 are required for both towers, each one cut to 2½ inches wide by 20 inches long. Check each one for straightness and flatness.

The rails are joined to the stiles with half-lap joints. Each rail will have two ¾ inch deep by 2½ inch wide rabbets. The actual depth of the rabbet will depend on the thickness of your stock. If it measures slightly more than ¾ inch the rabbet will have to be slightly more than ¾ inch. Accordingly, if the rail is a bit less than ¾ inch, the cut will be just under ¾ inch. Some careful trial cuts will be very helpful.

A total of 48 rabbet cuts will have to be made so it certainly makes sense to set up your table or radial-arm saw for multiple cuts. On the table saw, use a dado head cutter and attach a stop block to the rip fence. While holding the edge of the rail against the miter gauge, butt the end of the rail against the stop block, then use the miter gauge to pass the rail over the dado cutter. Set up the stop block so the cut establishes the correct rabbet width. Two or three more passes will have to be made to clean out the remaining stock. When attaching the stop block, make sure the block is far enough in front of the dado cutter so that once the cut starts, the rail will be free and clear of the stop block. This eliminates any chance of binding which could cause kickback. To set up the radial-arm saw for cutting the rabbet, attach a stop block to the guide fence.

The stiles can be made next. A total of eight are needed for both towers, each one cut to 2½ inches wide by 72 inches long. As with the rails, be sure to check for straightness and flatness.

Each stile will have four ¾ inch deep by 2½ inch wide dadoes and two ¾ inch deep by 2½ inch wide rabbets. Again the actual depth will depend on the thickness of your stock (and the depth of the rail rabbet cut).



Contemporary Shelving Unit

To allow for a good snug fit for the rails, it's best to cut the stile dadoes slightly undersize. Later, when the rail edges are planed or sanded smooth, they can be adjusted for an exact fit.

A stop block can again be used to cut the stile dadoes and rabbet. The rabbet can be made on each end first, then move the rip fence to cut the dado nearest each end. Since the distance was too extreme to use our rip fence, the two inner dadoes were cut without a stop block.

After sanding the inside edges and adjusting the rails for a good fit, the frames are glued and clamped one at a time. Pipe clamps will pull the stiles together while a C-clamp or hand screw can be used to squeeze each half-lap joint. The frame should be checked for squareness before setting aside to dry overnight.

After all four frames have been assembled, a thorough sanding is necessary. Sand all joints for a smooth fit. A belt sander is most useful here. Use care to remove all cross-grain scratches.

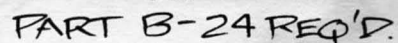
Use the table or radial-arm saw to rip the 45 degree bevel on the front edge. Three hinges are mortised as shown to join each pair of frames.

The edging strips are ripped from solid stock to a thickness of about ⅛". It's best to make them slightly thicker than necessary. Later they can be planed for a good fit in the frames. Also, be sure to cut the strips a little wider than the shelf thickness, then plane or sand flush with the shelf surface.

An application of Deft Danish Oil completed the project.

Bill of Materials (All Dimensions Actual)

Part	Description	Size	No. Req'd
A	Stile	¾ x 2½ x 72"	4/Tower
B	Rail	¾ x 2½ x 20"	12/Tower
C	Shelf	¾ x 10¼ x 72"	6
D	Hinge	2½"	3/Tower



Weather Station

by Sam Allen

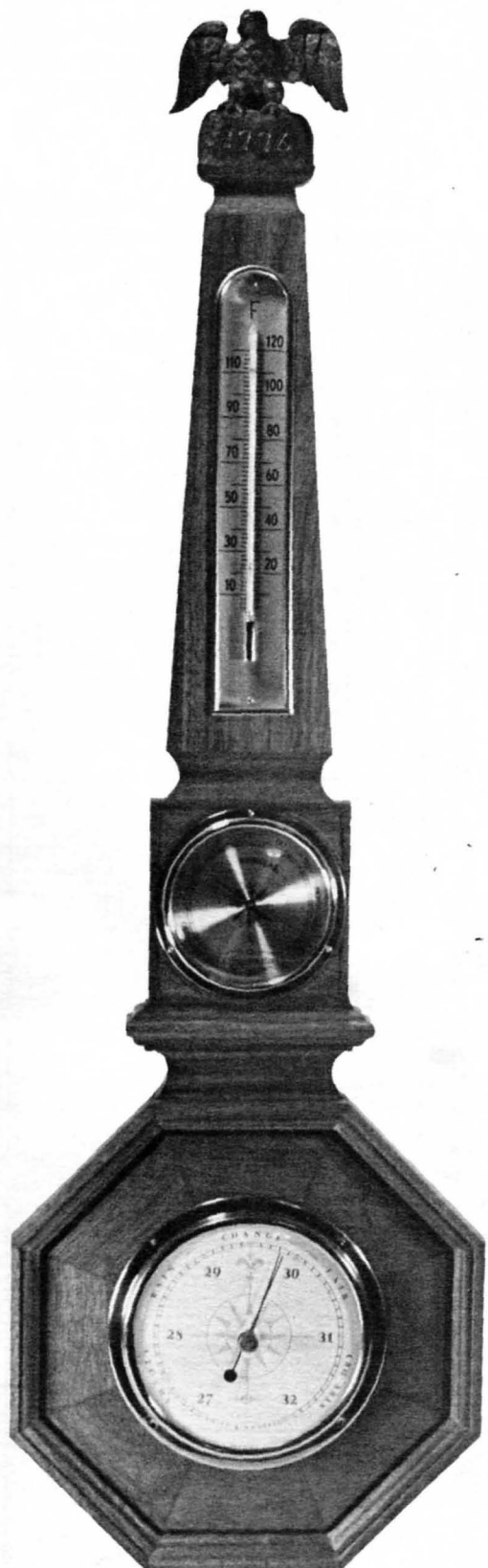


Photo courtesy of Author

If you enjoy carving like I do, you probably sit down occasionally with a small scrap of wood and start to carve with no potential project in mind. That's what happened with the eagle on top of this weather station. Once it was completed, I liked it so much I had to come up with a project to use it on, so I designed this weather station to go with the eagle.

Before beginning construction, it's best to buy all instruments so you can make any adjustments if the sizes vary from those shown on the plan.

The thermometer and hygrometer I used are available from Craft Products Co., 2200 Dean Street, St. Charles, IL 60174. Craft Products also has a barometer but it is larger than the one I used. If you want to use their 6" barometer (#B1G), you will have to enlarge the barometer section of the weather station. I wanted a smaller barometer, so I bought a ship's wheel barometer locally that had a 4½" bezel and removed the barometer from its case. If you want to duplicate my design exactly, you can do the same thing.

The eagle is made of walnut as is the entire weather station. Start with a carving block approximately 1" x 6" x 4". The extra length gives you something to hold on to while you're carving. Transfer the design of the eagle from the plan to the carving block and cut out the rough shape with a coping saw. The detailed carving is done with small knives and chisels. The feathers are greatly exaggerated and cut in bold relief, so they will show up from a distance. For those who don't carve, an alternate turned finial is also shown.

Next, make the molding to go around the octagon, using a molding head cutter equipped with an ogee bit (Sears bit p/n 9-3202). A saw kerf along the inside edge completes the shape of the molding (see Detail D). Make this molding strip approximately 30" long and glue it to a piece of 1" (¾" actual) x 2" x 30" walnut. Both pieces should be fairly uniform in color and grain because when joined into an octagon, pieces from each end will have to match.

Next, set the miter gauge on your table saw to produce a 22½ degree angle. Cut the eight pieces of the octagon from the 30" strip. Number the pieces as you cut them and assemble them in numerical order; this way the grain and color will match. The angle of the joints must be extremely accurate because even a small error in each joint will add up to a large gap when you have eight joints to work with. To make sure your saw is cutting accurately, it's a good idea to first make a test octagon from scrap stock. Glue the octagon together and clamp it with a web clamp or several strong rubber bands. When the glue has set, cut out the circular hole in the center for the barometer with a jigsaw or coping saw.



Cut feathers in bold relief so they show up when viewed from a distance.

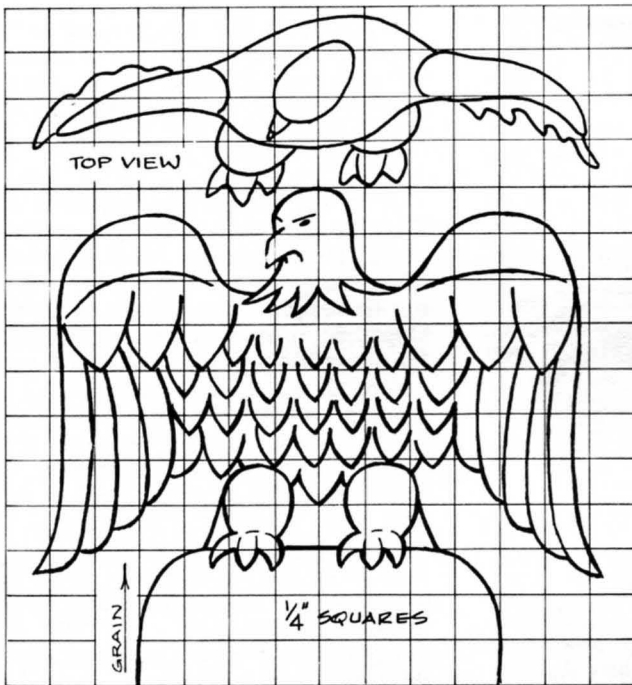
Cut the four transitional moldings with the molding-head cutters shown. Since the moldings are cut on three sides and are very small, it is easiest and safest to shape them before cutting them from larger boards or glue them to a long piece of scrap wood before shaping.

Next cut a square of 1" (¾" actual) walnut 3¼" x 3¼" for the hygrometer. Cut the hole for the hygrometer using a hole saw or a jigsaw. Use small carving tools to make the decorative recesses in the four corners (see Detail).

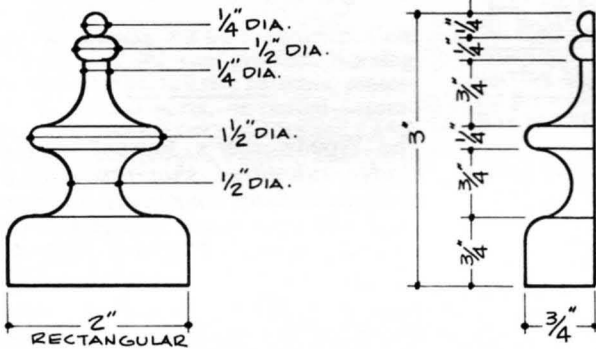
Before cutting the piece for the thermometer to size, cut out the recess for the thermometer to mount in. By cutting the recess first, you will have plenty of room to clamp the work down for the routing process. You could cut the recess by hand, however I used a router equipped with a guide bushing and a hardboard template. The template should be slightly larger than the actual size of the thermometer to allow for the thickness of the template guide bushing mounted on the router base. Make the template a little small at first and make a test cut in a piece of scrap, then file the template until you achieve the exact size and shape needed.

Although not shown in the drawing, the joints between each section are strengthened with dowels. After gluing and assembling all the joints (except for placing the eagle on top) position the unit with its back against a flat surface and clamp it down to prevent buckling; then use a bar clamp to clamp lengthwise. When the glue is dry, position the eagle and use a bar clamp to hold it in place.

I used three coats of Watco Danish Oil for the finish, sanding between each coat with 600 grit sandpaper. After the third coat is dry, apply a final coat and buff with a soft cloth. Don't sand the carving as this would remove the natural sheen left by the carving tools.



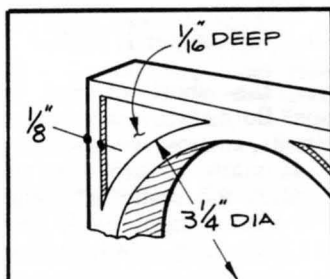
DETAIL: EAGLE CARVING



FRONT VIEW

SIDE VIEW

ALTERNATE TURNED FINIAL



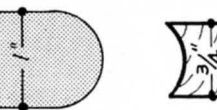
DETAIL: RECESS @ HYGROMETER

SEARS P/N 3207



DETAIL "A"

SEARS P/N 3206



DETAIL "B"

SEARS P/N 2354

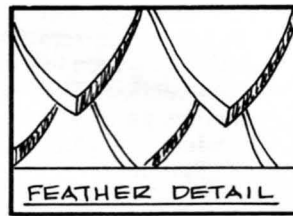


DETAIL "C"

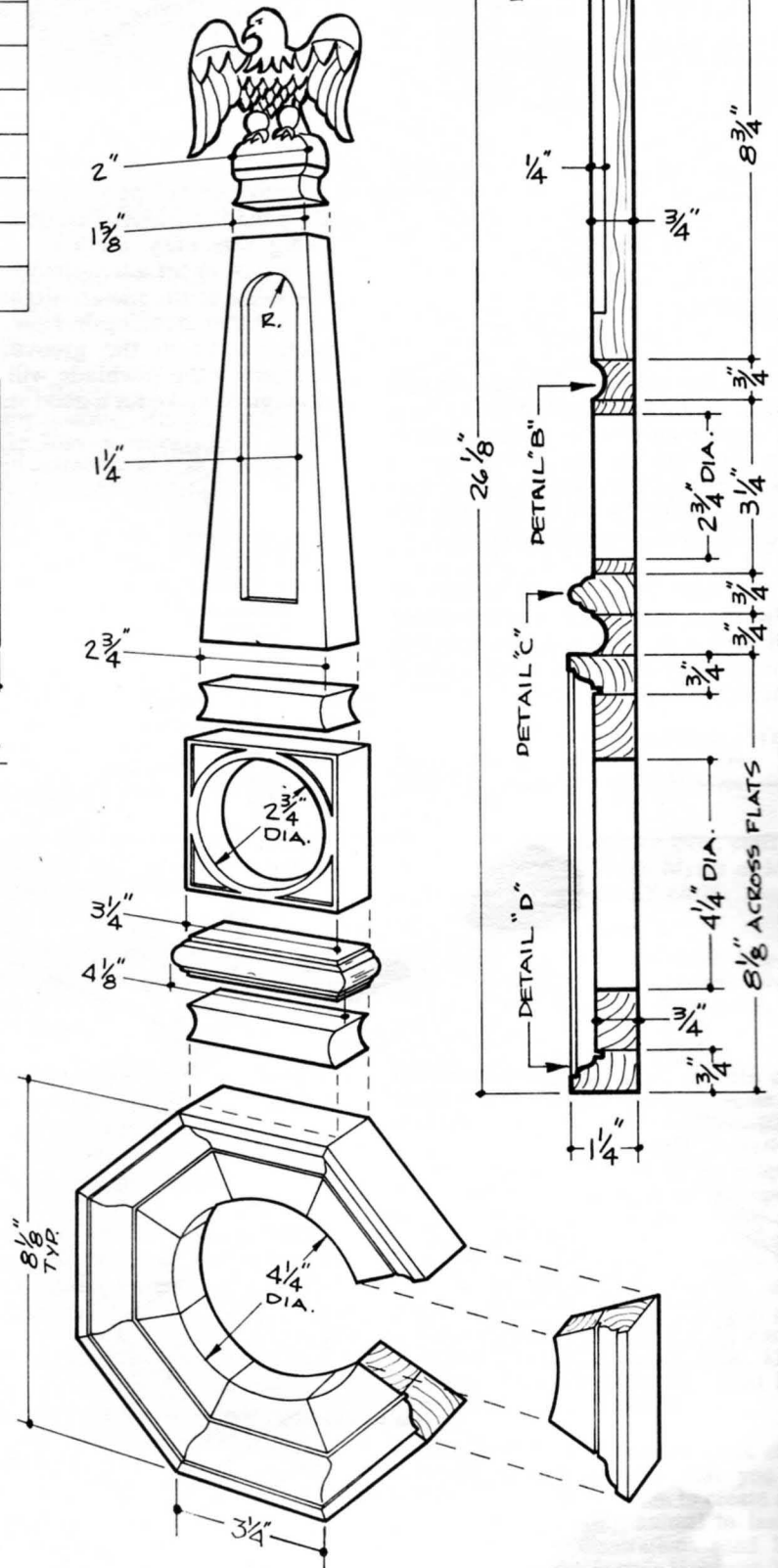
SEARS P/N 3202



DETAIL "D"

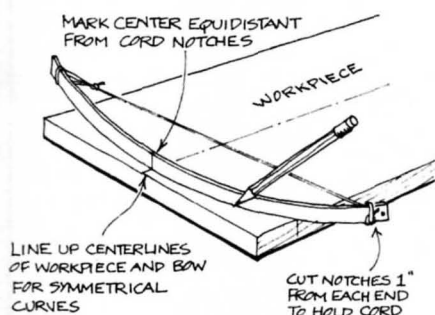


FEATHER DETAIL



Shop Tips

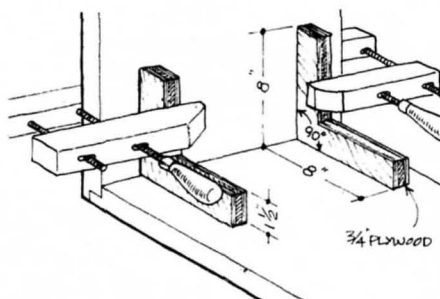
Laying out large, fair curves is often a problem. Boatbuilders spring pine batten strips around driven nails to provide a template. To avoid marring a workpiece with nails, try ripping a $\frac{1}{8}$ " thick piece off the edge of a clear pine board of about 36" length. Notch the ends as shown and mark a centerline



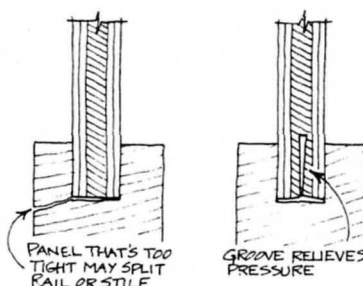
between the notches. Tie on a length of cord; pulling the batten into a bow that approximates the desired curve. Then just line up the centerlines of workpiece and bow and trace around the bow. Relax the cord and hang the batten on the wall for the next time.

A two inch by four inch square of plastic foam can store a great many small drill bits. Stab the bits into the foam and they'll stay in place even if the holder falls to the floor.

Accurately cut a couple of try-squares from scrap $\frac{3}{4}$ " thick plywood and clamp them to cabinet sides during construction. They will help keep the mating parts square, and reduce the tendency of glued joints creeping out of alignment.



A $\frac{1}{2}$ " or $\frac{3}{4}$ " panel that's too tight for a mating groove can be made to fit using this easy method. Adjust the table saw to cut a lengthwise groove in the edge of the panel, slightly deeper than the groove depth. Now, when the panel is fit in the groove, the gap formed by the sawblade will close just enough to make for a good snug fit.



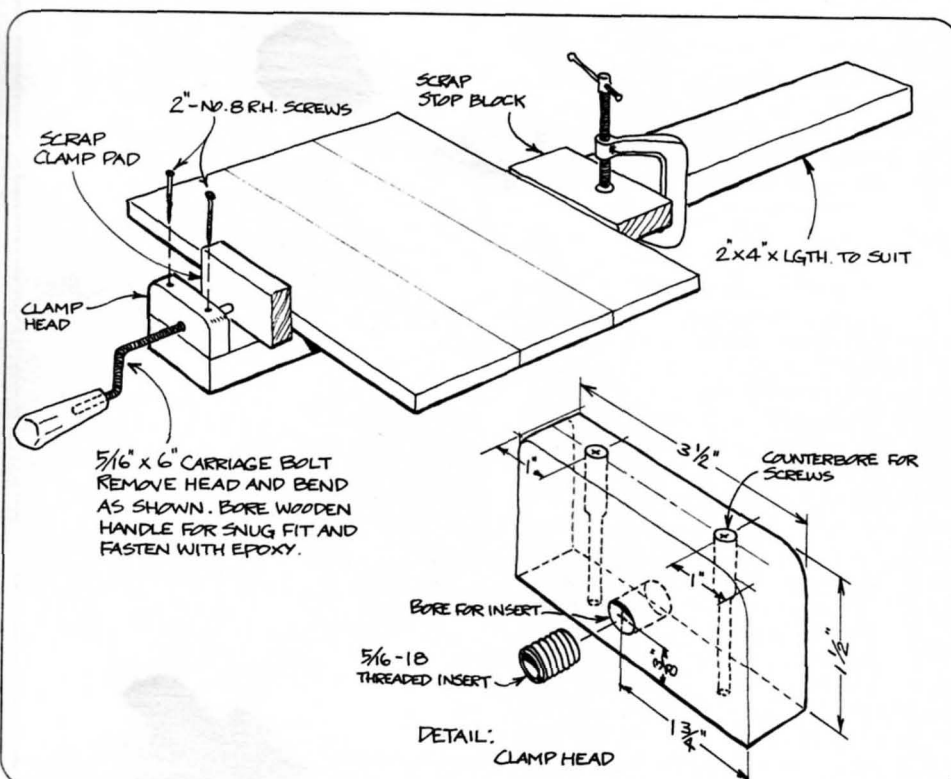
On drawers that are located below eye level, the drawer knobs or handles will look more balanced if they are set slightly above the centerline of the drawer front.

A strong dowel joint requires that there be a good fit between the dowel pin diameter and the dowel hole. Too often though, the fit-up is poor. Either the dowel pin is too small, causing a sloppy fit, or it's too big, which makes for difficult assembly. Here's a way to insure that the fit-up will always be good. Select a twist drill bit that has a diameter about $\frac{1}{16}$ " smaller than your dowel stock. Secure a piece of $\frac{1}{8}$ " thick angle iron or scrap steel to your drill press and drill a hole using the twist drill. Without moving the set-up, remove the bit and secure a dowel pin (cut about $\frac{3}{4}$ " longer than required) in the drill press chuck and "drill" the dowel through the hole at high speed (800-2000 rpm). The same twist drill bit is used to drill the dowel hole, resulting in a fit that's near perfect.

Patrick Warner

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 Bar Clamp



by Gasper J. Barber

Ever run short of bar or pipe clamps? Both of these are fairly expensive items, so most woodworkers don't have as many as are often needed. Sometimes the result is a glue joint that is not as tight as it could be. Shown here is a relatively easy and inexpensive way to make your own - so you'll always be sure to have enough on hand. Although this clamp may not produce as much clamping pressure as the commercial ones, it will be more than acceptable for most applications. It is designed for clamping $\frac{3}{4}$ " thick stock. If you work with a lot of heavier or lighter stock, adjust the location of the threaded insert to suit.

Cut parts to the dimensions shown. The "bar" is made from standard 2" x 4" stock, but use hardwood for all other parts. Glue and screw the clamp head to the "bar". The threaded insert (also called rosan nut) can be purchased for 28¢ from The Woodworkers' Store, 21801 Industrial Blvd., Rogers, MN 55374.

Classified

The Classified Rate is 75¢ per word, payable with order. Minimum ad is 15 words. Send copy and check to **The Woodworker's Journal**, Classified Dept., P.O. Box 1629, New Milford, CT 06776.

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.

New Patterns for Nine Wooden Toy "Hot-Rod-Cars" (Order #CS-7, \$3.00). Franks (WJ-5), 1202 Second, Booneville, MS 38829.

For Sale: Antique wood worker rip saw, band saw, 12" jointer, shaper, mortise machine all in 1 combination. Amos U. Miller, Rt 1 Box 146, Millersburg, IN 46543.

All Kinds of Hardwood Lumber for Sale. 35¢ board foot and up. Send 50¢ for catalog to Irvin's Sawmill, RD 1 Box 28, Shirleysburg, PA 17260.

If you have talent but no experience, time or equipment, we can provide: working drawings, details, full size patterns, material lists, pre-cut parts, or partial assemblies. Send your idea or a picture and SASE for a quote. Yesterday's Yankee, Lakeville, CT 06039.

3 Wooden Fire Engines, detailed plans, \$4.00, J.A. Cissell, 2712 Cypress, Cincinnati, OH 45212.

Radial Arm Saw Operators. Solve your difficult or impossible ripping cuts with our new Easy Rip fence. First and only fence improvement for this saw since it was invented. Extremely thin and narrow cuts made, such as a 3/32 inch strip of veneer. Tiny spline of any size. Iowa Royal Products, 2221 Otley, Perry, IA 50220.

Grandfather Clocks. You build from 9 designs. Send \$3.00 for two easy to follow plans. Information on clock movements and our fine kits included. Kuempel Clock Works & Studio, Dept. 10, 21195 Minnetonka Boulevard, Excelsior, MN 55331-8605.

Special Red Oak - all select lumber, and surfaced 3 sides. \$1.05 for 25 ft. - 95¢ for 200 ft. Send one dollar for price list to Kountry Kraft Hardwoods, Rt. 1, Lake City, IA 51449. Phone 712-464-8140.

Colonial Rocking Horse - Elegant...Simple lines. Sturdy construction. Full sized pattern, detailed instructions. Satisfaction guaranteed! \$5.00. Country Craftsmen, RD 2 Box 67-WJ11, Dauphin, PA 17018.

Cradle Plan - New design that sells. Great gift idea: \$2.00 or S.A.S.E. for illustration. Cradle, P.O. Box 608, Sound Beach, NY 11789.

Make 6" and longer toy vehicles from scrap wood. Nine full size drawings. Send \$2.00. Drawings for woodworker's weekend workbench (42" x 27½" x 30") with 2 pipe clamp vises. Send \$2.00, Weekend Enterprises, 12342 La Barca, San Antonio, TX 78233.

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 Gibraltar Road, Fish Creek, WI 54212.

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

Clock Plans - Make handcrafted clocks for gifts or profit. 6 plans \$4.00 - Kent Anderson, 219 Beedle Dr., Ames, IA 50010.

New Patterns for Six Wooden Toy Trucks (Order #TS-6, \$3.00). Franks (WJ-5), 1202 Second, Booneville, MS 38829.

Framing Pictures? Cut your own mats, perfectly! Double; V-Groove; 3-D; Inlay. How to make and use mat cutting board, \$6.95. Hawleys, 47-K Grace Circle, Marlboro, MA 01752.

Wholesale Hardwoods. Write for price list: Hardwoods Unlimited, 2217 Parview Rd., Middleton, WI 53562. Phone (608)-836-1311.

60 Species of Hardwoods - Native and imported - any quantity. Turning squares, carving blocks, iron-on veneer. Send \$1.00 for price list. Hardwoods of Memphis, P.O. Box W-12449, Memphis, TN 38112.

Large selection of plans. Furniture designs, loom, spinning wheel, clocks, dollhouses, cradles, toys, alphabets, bird houses, weathervanes, kites, and more. Catalog 50¢, Craftplans Co., Rogers, MN 55374.

Save 50% + on Bandsaw Blades and Sanding needs (belts - discs - sheets). Fast Service. We feature 12" discs + 6 x 48" belts. Send SASE (#10) - Fixmaster, Box 15521, Atlanta, GA 30333.

Upholstery and Caning Supplies, catalog \$1.25 (refundable). Jack's Upholstery and Caning Supplies, Dept. WJ1, Oswego, IL 60543.

Free Project list with photos. 12 projects designed exclusively for the novice woodworker. Jil-Mar Designs, P.O.Box 3158-T Yountville, CA 94599.

Miniature furniture patterns. Dollhouse plans. Basswood, hinges, tools, books, accessories, wallpaper & flooring. Catalog \$1.00. Green Door Studio, Dept. WJ, 517 E. Annapolis, St. Paul, MN 55118.

Fine Cabinet Plywood. Cut sizes - full sheets. Many species and thicknesses. Free catalog! Plywood Depot, Box 897, Gaylord, MN 55334.

5000+ BF 4/4 - 8/4 Wormy Chestnut Lumber \$7500.00 or \$2000.00 per 1000 BF or \$3.00 BF. Add 15¢ BF for surfacing. Potomac Highlands Woodcrafts, Box 723, Petersburg, WV 26847.

Business Opportunity! Rail car of quality pine milled furniture parts, hardware, plexiglass. \$50,000 wholesale value, sacrifice \$15,000, will separate. (609)-259-7517.

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.

Woodcarvers Patterns: Three dimensional ducks (decoys), shorebirds, animals, fish, etc. SASE to Long's Easy Patterns, Box 22155h, St. Louis, MO 63116.

Woodworkers! Flea Market Specials! 8 full-size patterns for car and trucks from scrapwood. Send \$3.00 to Tubcity Graphics, P.O. Box 322, Milton, MA 02186.

Wooden Toy Plans. Simple hand tool projects: truck, bulldozer, train engine, car. Send \$2.00, Turner Toys, Rt 1 Box 48, Colt, AR 72326.

Woodcrafts. Veteran craftsman has experienced \$1000 crafts shows, will send plans for 6 best selling wood items for \$5.00. Bennett Wood Products, Rt 8, Box 680-S, Pensacola, FL 32506.

Perfect gift or sale item. Plans sent by return mail for first-time-offered unique 36 piece interlocking puzzle-truck. \$5.00. Visa/Mastercharge. Paul Prebor Woodworking, 1446 N. Wabash Avenue, Lakeland, FL 33805.

Thousands of 3/8-7/16-5/8-1½-1¼ dowels from .01¢ ea. to .10¢ ft. Organic water dye \$2.00 to \$3.00 lb. SASE for details. Sinclair Enterprises, 1907 N. Armistead Ave., Hampton, VA 23666.

Stainless Steel and Brass, Screws and bolts. Small quantities, free catalog. Elwick, Dept. 427, 230 Woods Lane, Somerdale, NJ 08083

Make Toys-Plans, Hardwood Wheels, parts-Catalog \$1.00. Cherry Tree Toys, Mills Rd., St. Clairsville, OH 43950.

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

New Patterns for Four Wooden Toy Airplanes (Order #PS-1, \$3.00). Franks (WJ-5), 1202 Second, Booneville, MS 38829.

Construct prototype of all models of all styles of wooden clock cases and some metal clock parts--mantle clocks, grandfather clocks, bracket clocks, wall clocks-- and barometer cases to be used for proposed do-it-yourself kits. Must set up and operate wood lathes, drills, shapers. Will work from detailed blueprints and use mics and gages to close tolerances. Equipment operated: wood lathes, metal lathes, drills, shapers, band saw, bench saw, drill press and all common woodworking and machine shop tools. Forty hours per week. \$10.33 per hour. Craft Products Co., 2200 Dean Street, St. Charles, IL 60174.

ROK-A-ZOO™. Full size Patterns of six different rocking animals that you can build with total satisfaction to create a supreme quality rocking animal to last for generations. For illustrations send \$1.00 (refundable) to Frechette's Heirloom Toys, P.O. Box 4567, Spokane, WA 99202.

Shop Notes