

The Woodworker's Journal

Vol. 8, No. 4 \$2.50



Included in this issue: Wag-on-Wall Clock • Sewing Machine Cabinet
Mirror • Lazy Susan • Contemporary Hamper • Oak Swing • Pipe Box
Toy Tugboat and Barge • Coffee and End Tables • Candy Dispenser

BACK ISSUES



Veneered End Table

Country Kitchen Cabinet

Pine Cabinet
Jan/Feb '83

Toy Circus Wagon

May/June '82

May/June '82

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Casserole Dish Holder

Nov/Dec '80

Old Time Radio Case

Nov/Dec '82

Contemporary Writing Desk
Sept/Oct '82

Colonial Candlesticks
Sept/Oct '81

Sept/Oct '81

Jan/Feb '83

Tinsel Art Mirror

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/18th Cent. Trestle Table, Lathe Steady Rest.

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, 18th 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, Trousers 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, Dish Rack.

Vol. 5 No. 5 Sept-Oct '81: 18th Cent. Rudder Table, Musical Chest, Doll House Bed, Curio Shelves, Belt Rack, Rocker Footrest, Early American Wall Shelf, Multipurpose Cabinet, Box Cutting Jig, Dish Rack.

Vol. 5 No. 6 Nov-Dec '81: Old-Time Ice Box, Victorian Sled, Tile Clock, Wine Glass Holder, Mahogany Wall Shelf, Inkwell, Bagel Slicer, Seal Push Toy, Wooden Combs, Antique Knife Tray, Memo Cube, Fireplace Bellows, Contemporary Shelving, Weather Station, Shop-Built Bar Clamp.

Vol. 6 No. 1 Jan-Feb '82: Contemporary Sofa Table, Artist's Easel, Candle Box, Laminated Box, Butcher Block Knife Rack,

Frog Pull Toy, Infinity Mirror, Japanese Style Table Lamp, Empire Footstool, Desk Caddy, Stepped-Back Hutch, Buckboard Seat, Latticework Cutting Jig.

Vol. 6 No. 2 Mar-Apr '82: Early American Blanket Chest, 18th Cent. Corner Shelf, Pine Footstool, Cheese Cutting Board, Napkin Holder, Trivets, Coaster Set, Pierced Tin Cabinet, Hutch Clock, Oak File Cabinet, Mahogany Tripod Table, Wall Hung Plant Bracket.

Vol. 6 No. 3 May-June '82: Country Kitchen Cabinet, Rough-Sawn Cedar Clock, Swinging Cradle, Toy Helicopter, Casserole Dish Holder, Ship's Wheel Weather Station, Octagonal Planter, Tambour Desk, Band Saw Boxes, 19th Cent. Step-Chair, Sailing Ship Weather Vane.

Vol. 6 No. 4 July-August '82: Dovetailed Footstool, Toy Chest, Plant Stand, 18th Cent. Lawyer's Case, Frame and Panel Joint with Decorative Bevel, Collector's Plate Frame, Toy Jeep, Trestle Table and Bench, 19th Cent. Danish Washstand, Contemporary Wall Valet.

Vol. 6 No. 5 Sept-Oct '82: Early American Hanging Corner Cupboard, Breakfast Serving Tray, Veneered End Table, Chess Table, Chest of Drawers, Contemporary Writing Desk, Whale Toy, Laminated Shoehorn, Spaghetti Measure, Candle Holder, Horizontal Boring Jig, Cane Suppliers, Finishing Suppliers.

Vol. 6 No. 6 Nov-Dec '82: Lyre Clock, Geodesic Lighting Fixture, Sawhorse Dining Table, Oak Desk Clock, Shaker Wall Shelves, Old-Time Radio Case, Cider Press Lamp, Contemporary Hanging Light Fixture, Firewood Rack, Toy Tool Box, Christmas Tree Ornaments, Willie and Tuna Push Toy, Woodpile Trivet, Circle Cutting Router Jig.

Vol. 7 No. 1 Jan-Feb '83: Workshop Tote Box, Tinsel-Art Mirror, European Spinning Wheel, Key Holder, Dump Truck Toy, Bang-a-Peg Toy, Puzzle, Wall Cabinet with Reverse Glass Stencil, End Grain Table Lamp, Butler's Tray Table, Contemporary Clock, Pine Cabinet.

Vol. 7 No. 2 Mar-Apr '83: Porch Swing, Homemade Jig Saw, Cheval Mirror, Punched Tin Spice Cabinet, Television Stand, Nautical Table Lamp, Wooden Balance, Nesting Cube Tables,

Steam Roller Toy, Back Massager, Mailbox, Wall Shelf, Chippendale Mirror, Clock Parts and Suppliers.

Vol. 7 No. 3 May-June '83: Oak Pedestal Table, Drafting Table, Early American Wall Unit, Folding Snack Table, Pine Corner Cupboard, Toy Car with Boat & Trailer, Letter Opener, Contemporary Serving Tray, Hanging Mirror with Shelf, Carved Eagle, Early American Portable Bookcase, Hardwood Suppliers.

Vol. 7 No. 4 July-August '83: Turned Lamp, Decoy Carving, Antique Sugar Chest, Record Album & Tape Cabinet, Chinese Tea Table, Old-World Weather Forecaster, Toy Tractor & Cart, Display Pedestal, Two Planter Projects, Collector's Plate Stand, Hardware Suppliers.

Vol. 7 No. 5 Sept-Oct '83: Shaker Writing Desk, Modelmaker's Bench, Canning Jar Storage Shelves, Turned Bowl, Oriental Table, Router Table, Band Saw Box, Toy Pumper Firetruck, Toy Airplane, Spoon Rack, Magazine Rack, Bootjack, Furniture Kit Suppliers.

Vol. 7 No. 6 Nov-Dec '83: Lighted Wall Planter, Roller Stand, Early American Wall Secretary, Dressing Screen, Wine Rack, Shaker Chest of Drawers, Waterbed, Toy Train, Mitten Box, Hooded Doll Cradle, Coal Scuttle, Elephant Push Toy.

Vol. 8 No. 1 Jan-Feb '84: Shaker End Table, Medicine Cabinet, Cassette Tape Rack, Captain's Clock, Stacking Storage Unit, Veneer Bracelets, Toy Car Carrier, Infant Bead Toy, French Bread Cutter, 19th Cent. Kitchen Clock, Early American Trestle Table & Benches, Table Saw Cut-Off Table, Coaster Set, General Woodworking Suppliers.

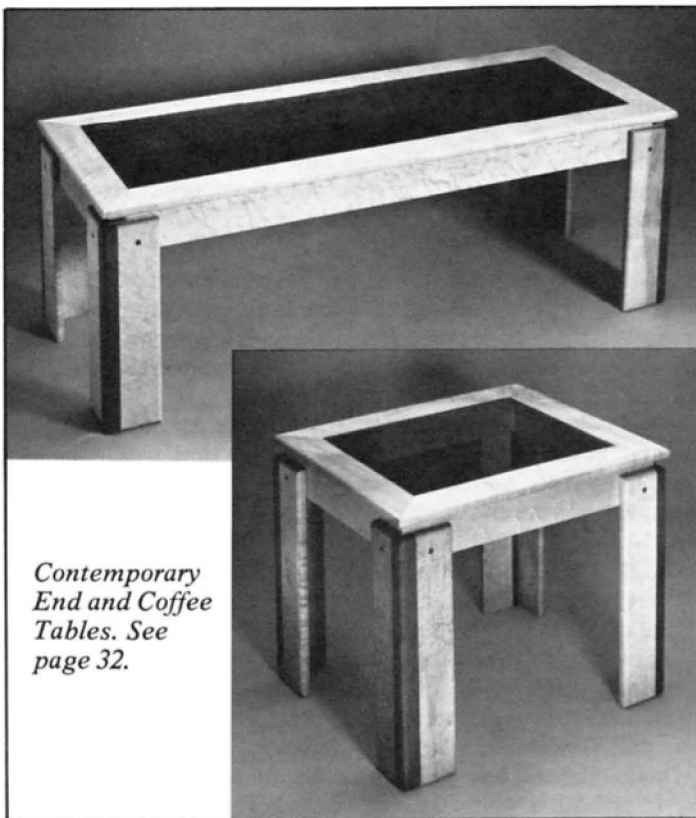
Vol. 8 No. 2 Mar-Apr '84: Shaker Wall Clock, Compact Dry Bar, High Chair, Kitchen Canister Set, Colonial Water Bench, Stacking Desk Trays, Wooden Brooches, Toy Bulldozer, Rocking Horse, Contemporary Table, Wall Hung Telephone Cabinet, Pipe Smoker's Organizer, Clock Parts Suppliers.

Vol. 8 No. 3 May-June '84: Country Vegetable Bin, Folding Deck Chair, Shaker Pedestal Table, Wall Hung Display Cabinets, Wooden Coat Hanger, Toy Car and Trailer, Paper Towel Holder, Carved Hand Mirror, Writing Desk, Carved Walking Stick, Laminated Clock, Oak and Glass End Table.

Please Note . . . supplies are limited! To order, use the form and envelope included in this issue.

The Woodworker's Journal

VOLUME 8, NUMBER 4
JULY/AUGUST 1984



*Contemporary
End and Coffee
Tables. See
page 32.*

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Associate Publisher
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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

About a year ago I received a review copy of a soft-cover book entitled *Silky, Sensuous Wood Finishing* by Joe P. Thomas. Mr. Thomas also sent a couple of samples of cherry and walnut which had been beautifully finished with his methods. I skimmed through the book and must admit that I wasn't particularly impressed by either the contents or format at that time.

The basic premise of the book is quite simple: in order to achieve a superior finish, you must sand the wood thoroughly, using the proper grit sandpapers. Good advice? Sure, but what about the experts who claim that sandpaper obscures fine grain details and nothing exceeds the grain clarity of wood that has been worked over with a well-sharpened scraper blade?

I must confess to an inclination to use a scraper for final surface preparation on certain projects, particularly boxes with highly figured veneers. This in spite of the fact that one pass with an improperly sharpened scraper can result in hideous damage.

We covered the scraper in a *Beginning Woodworker* column in the July/August '82 issue and recommended it for removing machining marks such as router burns and jointer ripples, prior to sanding. I still think the scraper is great for that purpose; it saves a lot of sanding. But I must concede that it is not a particularly popular tool as it is a bit fussy to sharpen and requires more physical effort than a power finishing sander.

Since Mr. Thomas' book appeared, we have been receiving occasional letters praising it, so I re-read the book carefully and came to the conclusion that if Mr. Thomas' advice

is followed, a superior finish on new work will be practically guaranteed.

There are no startling revelations in the book; just straight-forward information on how to achieve a glass-like surface by sanding with increasingly finer grits. However, the technique includes raising the grain between sandings and finishing off with 600 grit paper.

Mr. Thomas is quite specific in his recommendations for stain and surface finishes that are both easy to apply and produce excellent results. His surface preparation methods are also the key to a fine finish for any penetrating oil or surface finish such as varnish.

The book reflects a perfectionist's approach to finishing without getting bogged down in details that would be of more interest to a chemist. I think it's a worthwhile addition to any woodworker's library. *Silky, Sensuous Wood Finishing* (\$13.00 61 pages) is available from Wood Finishing, P.O. Drawer 1158D, Lilburn, Georgia 30247.

I'm very pleased to announce the addition of three people to our staff. Roger E. Schroeder, who has been a frequent contributor is now a contributing editor. Besides writing magazine articles, Roger has also authored or co-authored three books: *Woodcarving Illustrated*, *How to Carve Wild-fowl* and *Timber Frame Construction*.

David Peters has joined us as an editorial assistant. David is both a writer and woodworker, and in addition to magazine work, has authored a home repair newspaper column for the past three years.

Jane Pratt is our versatile editorial secretary. Having three years experience with a printing firm, she comes to us with knowledge of typesetting, layout and design.

Jim Mc Quillan

PILLAR & SCROLL CLOCK KIT

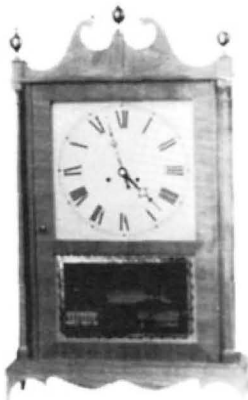
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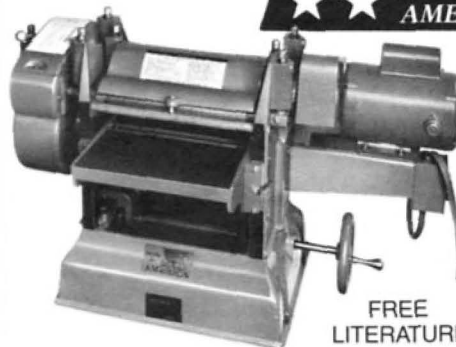
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Letters

In your May/June 1984 issue you had a shop tip that suggested using newspaper to protect a board against scratches while it was being sanded on the workbench. I had the same problem but gave up on newspapers a long time ago because the ink came off on the board. Now I get large cardboard boxes and cut them up. It works much better than newspaper. It lasts longer and, of course, there is no ink to come off.

D.C. Voigt, Dallas, N.C.

While I agree scratches are bad, so is using newspaper as suggested by the shop tip in your May/June 1984 issue. Light colored woods such as birch, maple, fir, and pine will show the dark ink that comes off the newspaper, so the piece has to be sanded again.

Instead, I cut a piece of carpet to fit my workbench. You can often pick up odd sizes of carpet from your local

floor covering dealer. These odd sizes are usually leftover material from an installation, so you can usually get them for a nominal charge — sometimes even for free.

O.M. Otis, Coldwater, Mich.

Can you tell me where to find a sturdy functional workbench for children, or plans on how to make one? The only ones I've seen so far are nothing more than toys and are more frustrating for my child than having no bench at all. Has anyone really tackled this problem for preschool children?

I feel I'm letting some golden opportunities to teach my son the joys of woodworking slip through my hands. Everything I do he wants to do with me. And he can do those things if I take the time to set the work up for him, clamp it in place and help him start. I want to teach him the proper skills but it's difficult when he's balanced on a stool trying to work at my

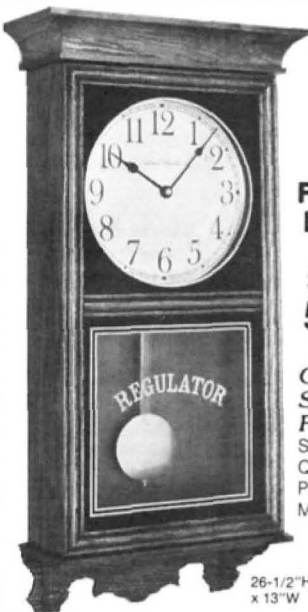
bench. There's got to be a better way.
Bob Holland

Plans for a sturdy child-sized workbench are available from The Wood Chop, P.O. Box 649, Ashland, OH 44805. Current price is \$12.00.

The North Texas Woodworkers' Guild (N.T.W.G.) in cooperation with NorthPark Center will stage the First N.T.W.G. Show of Fine Woodworking on September 13th, 14th, and 15th of this year. This exhibition will feature the finest woodcrafting from this area produced by both professional and serious non-professional woodworkers. The pieces selected for the show will have been judged earlier by a panel of artisans and prominent Dallasites who have a knowledge of fine craftsmanship and design.

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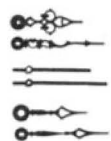
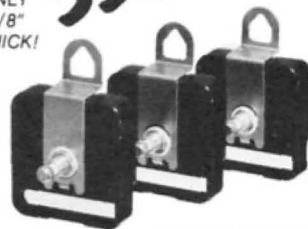
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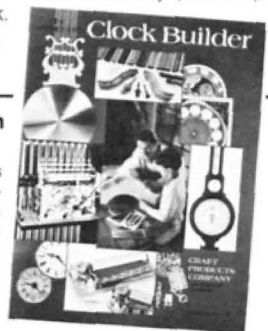


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art and exotic woods in many different colors from Texas and around the world. None of the items in the show will be for sale. Any member whose work is judged to be exemplary of the high standards of The Guild may exhibit. Registration of work will continue through August 1. Anyone interested in membership and entering their work should contact Gloria H. Jacobus at (214) 363-3317.

The N.T.W.G., started in April of 1983 with 13 members, now has over six times that number. "The guild provides a forum for woodworkers of all skill levels to share ideas and learn from the experience of others. The interest in woodworking in this area is exploding," said Michael Simon, President and owner of his own woodworking business in Carrollton.

A number of woodcrafters from the central (Columbus) Ohio area have expressed a desire to form a woodworking club and we hope to organize one in late September 1984. At this time

the club does not have a name, or constitution, or any officers. If interested, send a postcard telling us your name, address, telephone number, and woodworking interest. We, in return, will contact and advise you of the initial organizational meeting.

Col. (Ret.) Walter P. Betley
2687 Wellesley Drive
Columbus, OH 43221

In your March/April 1984 issue you had a shop tip that suggested using a 3 in. wide trim roller for spreading glue when you have a large job to do. It's an excellent idea, one that I have used for many years. A convenient way to clean up the paint tray is to line it with aluminum foil which is then discarded after the job is completed.

When using a trim roller to apply contact cement, I store the roller in a mason jar with a little solvent added. It keeps the roller soft and ready to use. If you use a brush to apply the cement, the same method will keep it soft. A word of caution though: Make sure the roller and brush are compatible with

the solvent.

Omar W. Nichols, Greensburg, Pa.

We intend to start a small home workshop where we plan to make wooden toys to sell. We would like to know if there are any particular safety standards we should be aware of that might pertain to the toys we will make. Is there any government bureau administering these standards, and are they strictly enforced?

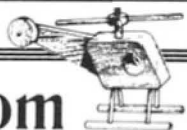
The Whites, New Caney, Tex.

There are standards relative to safety, toxic substances, and even the design and construction of toys. Write to The Consumer Products Safety Commission, and ask for a copy of their Regulations for Toys and Children's Articles.

As a small manufacturer of wooden toys, if the toys are not sold across state lines, you will probably not be breaking any federal laws. However, the general safety guidelines are there to protect children, and certainly do

(continued on next page)

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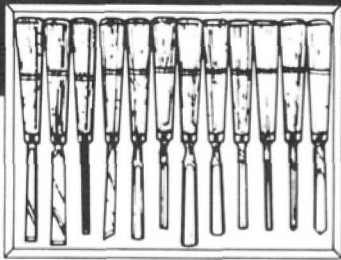
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Letters, (Cont'd)

make sense. We strongly recommend that you obtain a copy of the regulations, and adhere closely to the published standards.

Editor's Note: John Olson, who writes our Restoring Antiques column, was kind enough to help us with the next two letters.

In a Restoring Antiques column in your January/February 1983 issue (page 18), John Olson mentions that, "Old-fashioned varnish is based on boiled linseed oil and Japan drier plus other additives used by the manufacturers."

I'd like to learn the formula in order to make the finish. I have several antique pieces to refinish and I'd like to restore them using a finish that is as close as possible to the original.

Robert E. Kirkland, Memphis, Tenn.

I wouldn't recommend that anyone attack the problem of making an old-fashioned linseed oil varnish finish from scratch. There are all sorts of unforeseen problems connected to this task and today it is almost impossible to buy the ingredients that were used a hundred or more years ago.

Also involved is the matter of nomenclature and vocabulary. It would take weeks to trace down the obscure names used in some of these old formulas. However, I do know of two books that offer formulas and other information on the subject. They are: How To Do Your Own Wood Finishing by Jackson Hand, published by Harper and Row, and Fortunes in Formulas For Home, Farm, and Workshop, edited by Hiscock, Sloane, and Eisenson, published by Books, Inc. Fortunes in Formulas is no longer in print, but you might be able to locate a copy at a local book store.

I would recommend that you strip and repair your antique pieces, then stain them if you so desire. Use a good spirit stain followed by three or four coats of Moore's One Hour Clear Finish. Three coats of high gloss followed by one or two coats of low luster will give a deep finish that has the appearance of an old-fashioned hand-rubbed varnish finish. Allow to dry at least 24 hours, then rub down with 0000 steel wool and a good hard wax containing a large percentage of carnauba. I've often used this finish and have had a

number of people remark that the finish looks antique.

I have a small woodworking shop in my basement where I make children's furniture and toys. However, one of my projects has a finishing problem that I hope you can help me with.

A baby cradle I made for our grandchild looked great at first, but when a humidifier was placed next to it a few weeks later, the finish began to dull and lose its shine. The cradle was made of hardwood and finished with a Danish walnut gelled stain followed by a urethane gloss finish.

What did I do wrong and how can I correct this without going to all the work of stripping everything and starting from scratch? I like my finish to shine almost bright enough to hurt my eyes, so I'm not satisfied with a dull finish.

Also, can you suggest any good books on finishing?

Lowell Adkins, Lockridge, Iowa

All finishes are porous to some degree, so moisture condensing on the surface chemically alters the outermost layers of the finish. If the cradle continues standing next to the humidifier, it will probably develop a white haze.

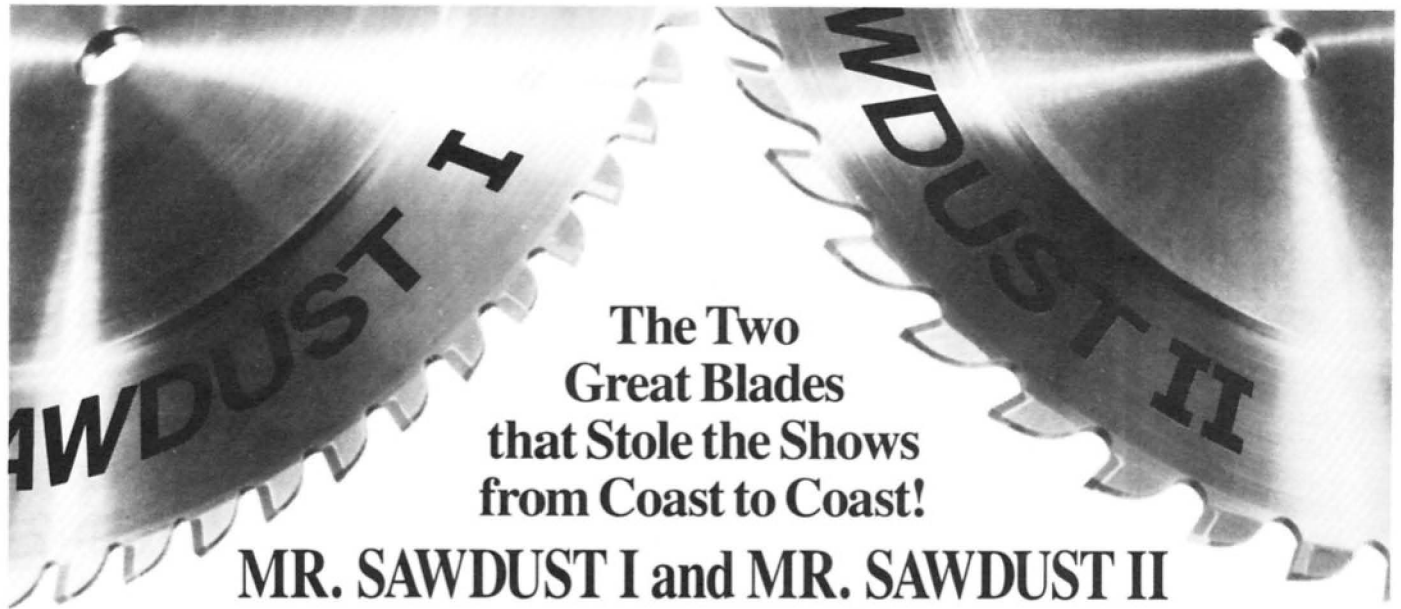
The cure is to very gently rub down the finish to remove the outermost layer that has been chemically altered. Steel wool (0000 or 00000) and wax, rottenstone and oil, or cigarette ash and water can all make good rubbing compounds — just be sure that you don't rub completely through the finish. I prefer trying automobile polishing compound. If that doesn't do the job, try automobile rubbing compound followed by the polishing compound. Clean off the compound frequently and rub just enough to remove the haze — not one bit more.

As for books on finishing, here are some good ones:

The Furniture Doctor by George Grotz, Doubleday and Co.

Furniture Finishing, Decoration, and Patching by Pattou and Vaughn, Drake Publishers

How To Do Your Own Wood Finishing, by Jackson Hand, Harper and Row



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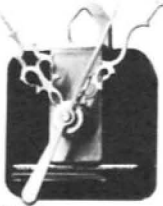
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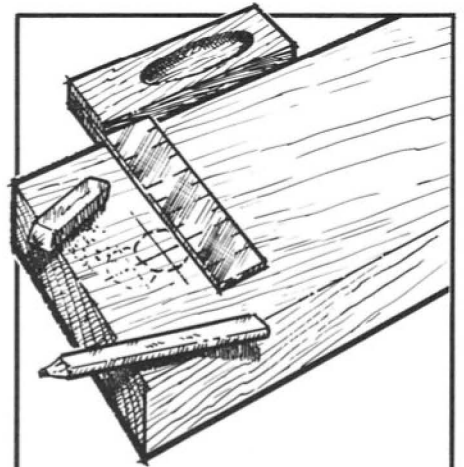
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Readers' Information Exchange

Looking for an owner's manual for an old band saw? Need a bearing for a hand-down table saw? Can't find a source of supply for an odd piece of hardware? Maybe our readers can help. Send along your request and we'll try to list it here — and hopefully one of our readers will have an answer for you. Due to space limitations, we will be unable to list all requests, but we will include as many as we can.

Can any of your readers supply me with manuals for the following Craftsman tools: thickness planer, model no. 103.1801; jig saw, model no. 103.23151; 6 in. jointer, model no. 103.23321. I am willing to pay any reasonable price.

Jack L. Criefield
Rt. 1 Box 130
Metz, WV 26585

Would any of your readers be able to inform me as to where I may purchase "Steel Wool Max," manufactured by the Golden Star Polish Manufacturing Co., North Kansas City, Missouri? Or is it not being produced anymore? Is there another product that does the same job?

Gerald L. Treadway
410 Strasburg Ave.
Parkesburg, PA 19365

I recently purchased a 24 in. wide wood planer that is in pretty good condition. It's an old planer but it seems to be in workable shape — all I need is a motor. I'd like to know if the manufacturer is still in business in order to get some information on the planer. It was made by the American Saw Mill Manufacturing Co., Hackettstown, NJ and the name plate specifies it as a "Triumph 4470."

John Hollingsworth
327 North Front Street
Warsaw, NC 28398

I recently purchased a 6 in. jointer made by Sears in 1971, model number 113-20621. I'm in need of a copy of the instruction booklet and parts list, and will gladly pay for the copies.

David Osborn
14 Lemp Road
Kirkwood, MO 63122

Recently I purchased a Walker-Turner 16 in. band saw (model number BM1135 or MBN1105) and am in need of an instruction manual and parts list.

Joseph Donnarumma
39 Lafayette Place
Lyndhurst, NJ 07071

I need the owner's manual and parts list for the following:

Atlas Power King Band Saw
Model No. 912, Serial No. 13068

Atlas Drill Press
Model No. 1010, Serial No. 001425

Atlas Power King 4 in. Jointer
Model No. 6050, Serial No. 1959

Atlas Power King 8 in. Table Saw
Model No. 282, Serial No. 20136

Any information would be appreciated and I'd be glad to pay for the copies.

Stuart W. Lehman
RD 2, Box 140 Martin Road
Voorheesville, NY 12186

I've just been given a Sears 6 in. planer/molder, model no. 103.1801 and I'm in need of a user manual/parts list. If anyone who has one would send me a copy, I'd be happy to pay for its reproduction and handling costs.

Skip Leibensperger
3604 Marwick
Plano, TX 75075

I would appreciate information on where to order a lift mechanism for a sewing machine cabinet. The cabinet is hand-made for a new Singer sewing machine, but Singer does not sell the lift. Sears has one lift that is not electric, but the price is \$155.00, and that takes the fun and profit out of building the cabinet. And I can't complete the project until I find the hardware.

Clyde Smith
24970 Crisler
Taylor, MI 48180

I'm looking for plans for a Hoosier cabinet?

James Phelps
42 Ridgeway St.
Newington, CT 06111
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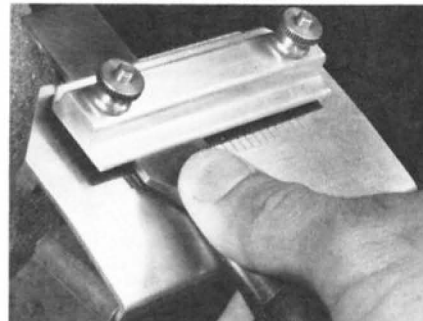
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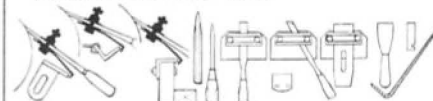
HONING

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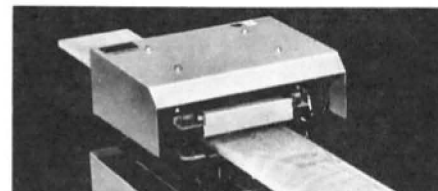
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Workshop Income

Retailers Answer The Question “What Sells Best?”

Whether you are a weekend hobby-woodcrafter selling to local stores, or a full-time, professional woodworker managing a serious commercial enterprise, the bottom line when measuring success is sales. Indeed, the foundation of most any profitable business is a product that meets a need, and therefore sells well. The sale of both handcrafted one-of-a-kind wooden artifacts and limited production-run items is certainly no exception to this rule.

The key question then, for many woodworkers, is exactly what to make. In an effort to answer that question, *The Woodworker's Journal* conducted what amounted to a mini-poll, asking retail outlets around the country, “What types of wooden things crafted by American woodworkers sell best?” The results of our inquiries, though perhaps not startling, do contain a few surprises in addition to some practical information for the woodworker interested in selling his craft.

As an overall guideline, Gordy Thomas of The Artifacts in Hanover, New Hampshire, offered this suggestion: “Quality and value are the two most important considerations for the buyer.” Additionally, Mr. Thomas noted that “people prefer utilitarian, as opposed to purely decorative pieces.” Function is a strong selling point, and Mr. Thomas explained that a jewelry box, for instance, should be designed to hold rings, bracelets, necklaces, etc., with adequate space for each type of ornament. “The intensity of design is secondary.” Mr. Thomas reported that wooden kitchen utensils, including trays and bowls, were all popular. Like many other retailers he indicated steady sales for all sizes of chopping blocks, “because they make ideal gifts, and age gracefully.” Of particular interest was Mr. Thomas' opinion on design, a theme echoed by almost all the retailers surveyed: “People who purchase wood like to see the wood. Don't cover it up with gaudy hardware.”

At Old Bedford Village in Bedford, Pennsylvania, Audra Javits also reported brisk sales of wooden kitchen utensils, especially spaghetti measures, french tasting spoons, and oven hooks. Ms. Javits pointed out that clientele is an important factor relative to the success of a given product. Hickory rockers crafted by a local furniture maker sold well because individuals visiting the village appreciate colonial design and hand-crafted construction.

Louise Bell of Guild Crafts in Ashville, North Carolina, noted that cutting boards, bread racks, and casserole holders sold consistently well, along with traditional wooden toys and log trucks. Ms. Bell also mentioned that bookends were usually in demand.

At The Country Store in Mentor, Ohio, Robin Schwed pointed out that toys with moveable parts were particularly popular. Airplanes with both wheels and propellers that moved sold better than airplanes with only moving wheels, for instance. Ms. Schwed also revealed that doll cradles are selling briskly, perhaps in response to the “Cabbage-Patch” doll craze.

Lu Makin-Byrd of The Emporium in Johnstown, Pennsylvania, told us that better quality toys, banks, wooden phones, and Christmas tree ornaments all sold well. Of special note, however, was Ms. Makin-Byrd's observation that free-form wooden "slab" clocks were not moving. We found this same opinion shared by nearly all the retailers contacted, indicating to us that a market saturation point has perhaps been reached for this type of clock.

In Cedarburg, Wisconsin, Marline McGrew, of Marline's Creative Ideas reported that country furniture, especially hutches, has sold consistently. In Florida, New York, Marjorie Zap of The Craft Barn said that both hand and table mirrors were popular choices.

Approximately half the shops we spoke with said they carried only the products of local or regional craftspeople, and without exception the retailers indicated that, all else being equal, they gave preference to local craftspeople. Also noteworthy is the fact that some retailers may request the rights to exclusive area representation.

The retailers we contacted were all relatively small (no chain or department stores), and as such were more apt to feature the work of American craftsmen. Although some stores reported fairly steady sales of "big-ticket" items (mostly colonial furniture), by and large the retailers indicated strongest sales in the \$1 to \$100 price range. Narrowed down even further, \$5 to \$25 appeared to be the price range most shoppers seemed comfortable with.







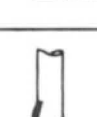

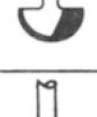

Craftspeople should keep in mind that price markups from wholesale to retail can run as high as 100%. We found most retailers operating on 40-50% markup schedule. Pricing policy and purchasing arrangements also varied substantially. Some retailers operated on a consignment-commission basis, although most everyone agreed that an outright purchase agreement between buyer and seller was preferred.

Toys remain an all-time favorite, and Harvey Sneiderman of The Wooden Toy in Canton, Connecticut offered several valuable "tips-on-toys." Mr. Sneiderman noted that toys must be designed with careful attention to the child's age. Toddlers, for instance, should have toys with no small parts that are easily removed or broken off. Furthermore, Mr. Sneiderman said that he has found the toy market to be very seasonal, with an overwhelming percentage of sales coming, of course, just before Christmas. Mr. Sneiderman also mentioned the importance of furniture designed especially for use by "little folks." "Step-stools, such as those used in a bathroom, are always a popular item," he maintained. Mr. Sneiderman also pointed out the need for outdoor play equipment, with swing sets usually being the best seller. Although Mr. Sneiderman designs and builds many of the toys he sells, he did indicate that he is "constantly on the lookout for well-made, sensibly designed, reasonably priced toys." Mr. Sneiderman added, "I never seem to have enough time to locate all the toys I need."

If any firm conclusions could be drawn from our informal survey, they are: Wooden kitchen utensils of all types, from breadboards to dish racks, are in demand. Quality wooden toys continue to sell well, as do country and colonial furniture. Regional considerations are an important factor in determining marketability, with pieces designed specifically for a particular location faring best. (Many retailers suggest a query first.)

In summation, retailers unanimously agreed that a sensible balance of quality and value, reflected in an attractive form-follows-function design, are the key ingredients in a product with lasting appeal. Wwj

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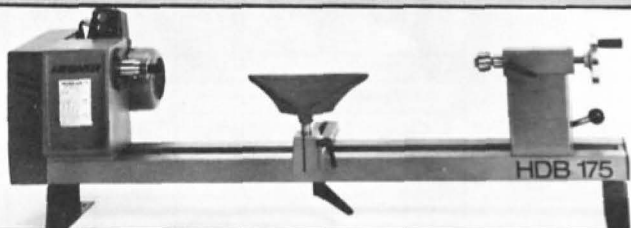


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Restoring Antiques

By John W. Olson

Homemade Removers

Last issue, in this column, I talked about how to strip old finishes using the commercially available removers that can be purchased at just about any hardware store. While these removers work quite well, they have one drawback — they can be somewhat expensive, especially if the job is a big one. Therefore, in this issue, I've included a few homemade formulas that also work well, but unlike the hardware store varieties, won't cost quite as much.

One of the least expensive and most effective paint and varnish removers can be made from nothing more than a solution of old-fashioned household lye and hot water. However, it can only be used under certain conditions and not on all materials. The chemical action that removes the paint is effective only at a temperature of at least 70 degrees Fahrenheit, so make sure the work area is warm enough. And since you'll need a lot of water to flush the stripped surface, this work is best done on a bare concrete floor with good drainage, or out in the backyard over bare dirt (lye effectively kills any kind of plant life) or in an old barn or other site where the lye can cause no harm.

After the work site has been selected, your next concern should be to protect yourself. Lye is highly caustic and can cause bad burns on unprotected skin and eyes. To protect your face you'll need a large plastic face shield that extends from forehead to chin. For hand and arm protection, a good pair of synthetic rubber gloves with long gauntlets extending to the elbows should be used. A rubber laboratory apron will provide the best protection for your legs and trunk. If a lab apron isn't available, use an old, long-sleeved shirt or jacket, along with pants that extend to your ankles. Lye will eat holes in most cloth, but wool is somewhat more resistant. A pair of rubber boots and a hat will complete your protective outfit.

To prepare the remover, dissolve a can (about a pound) of household lye in a quart of hot water and stir well. To this mixture add a solution of one cup cornstarch in one-half gallon of hot water. This will make a thick viscous liquid which will cling to vertical surfaces.

Lye is particularly effective when the finish to be removed is old, thick and hard. Apply the solution with a brush, mop or similar tool. A swab made of old rags tied to the end of an 18 or 20 in. long stick is very effective. Keep the surfaces covered for at least twenty minutes, longer if necessary, until the old finish is completely softened and starts to swell, wrinkle and become almost liquid. At this point, flush with the garden hose or buckets of water. The more volume and force used, the better the flushing action will be. If any paint remains after flushing, apply more remover and flush again. When all surfaces are completely clean, allow to dry thoroughly. Metal surfaces may be re-finished immediately. Don't, under any circumstances, use lye to remove the finish from aluminum objects. The lye will

a very sudden and corrosive action on aluminum. For this reason, use only heavy plastic, stainless steel or enameled iron as a container for remover made from lye.

The wood must be further treated with a mild solution of vinegar in water and reflashed before being refinished. Some species of wood, especially the oaks and related woods, will turn black when treated with lye. If this is objectionable, their original color can be restored by bleaching with a saturated solution of oxalic acid. This chemical is available in nearly all paint stores. A saturated solution is prepared by dissolving the oxalic acid crystals in water until it will accept no more. Swab this solution on the wooden surface generously and let stand for some time. Again, this solution will work better if it is hot.

If, after twenty or thirty minutes, some dark spots still remain, you can treat them with regular household bleach applied on top of the oxalic acid solution. The ensuing chemical reaction produces nascent chlorine. This is a powerful bleach and a very corrosive agent. Be careful. Stand back and take care not to breathe any of the fumes that rise as the bleach is applied. Purex, Clorox or any other household bleaches sold in liquid form can be used. They all contain essentially the same ingredients in varying amounts. Again, the surface must be thoroughly flushed and allowed to dry before it is refinished.

Trisodium phosphate (TSP) is another common chemical compound (available at most hardware stores) that can be used as a paint and varnish remover for many finishes. This is the washing compound used by nearly all painting contractors to prepare old, dirty, greasy surfaces for repainting. A hot, saturated solution of TSP will remove most finishes if they are not too thick. Apply the hot solution with a mop or a rag swab and allow to stand for thirty minutes or so, then scrape off the softened finish with a scraper, putty knife or coarse steel wool. TSP is almost as corrosive as lye, so the same safety precautions should be observed while using it. Should you wish to apply it to a large vertical surface such as a wall, a reasonable amount of starch, whiting or flour may be used to thicken the solution to a jelly-like consistency to make it adhere better.

You can also make a hydrocarbon-based paint remover from toluol, acetone, and denatured alcohol. All three can be found in any paint store. Mix two parts toluol, one part acetone, one part denatured alcohol and one-eighth part paraffin wax (old-fashion sealing wax which can be bought at the grocery store). All of the ingredients are highly flammable so be very careful when mixing and using them. You will find that the wax will go into solution more easily in a liquid form. It can be easily melted, just be careful not to spill it on a hot surface. Also, to reduce the danger of flashback, be sure to pour it into the other ingredients (already mixed) at a safe distance from the source of heat used to melt the paraffin. Flow it onto the surface to be cleaned, don't use a brush. Allow it to soak in for twenty minutes or so, then test for softness. If the finish isn't softened through to the underlying wood, apply more remover and let stand another twenty minutes. When the finish is soft and can be easily scraped to bare wood, it can be removed. Use a paint scraper and steel wool. Cracks and crevices can be cleaned with a stiff bristle brush as described in the May/June issue. Dry with lacquer thinner and alcohol mixed about half and half (a little heavy on the lacquer thinner works best). This method will not raise the grain of the wood and if you have been careful when scraping the surface, you will need only a light sanding with fine paper before refinishing.

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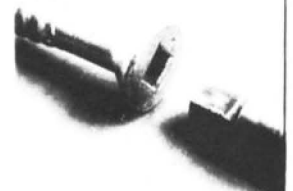
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The Beginning Woodworker

Buying a Basic Set of Hand Tools

SAWS

When I think of hand tools, it's usually the saw that first comes to mind.

Some decided advantages of the handsaw are that it has no moving parts, does not need depth settings, produces neither chips nor flying sawdust, makes little noise and vibration, and allows you safely to get closer to the work.

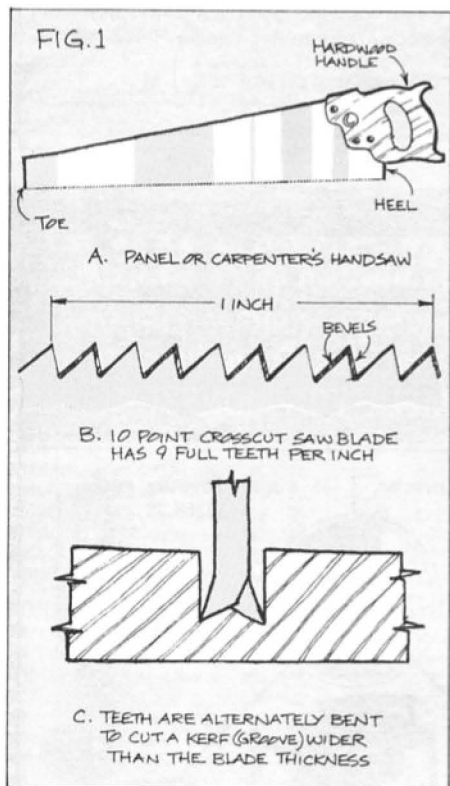
Many types exist, from hack saw to backsaw, from coping to fret saw. But the most versatile for the beginner is the panel saw (Fig. 1A). The first thing you should know about the panel saw (or any other saw for that matter) is

eration in the shop. However, for sawing with the grain or along the length of a board, a rip panel saw is used. This usually has 5½ points per in. For a comparison, the fret saw, used for extremely fine work, will have over 30 points per in.

Another fact about saws is that their teeth are alternately bent to the left and to the right. This makes the cut, called a kerf, wider than the blade to prevent the tool from binding in the wood (Fig. 1C).

You should also know that a good panel saw, as with any tool, should be made of quality materials and have a good design. For the home craftsman's needs, one that has a taper ground blade with good steel is a must. A tapered blade is thicker where the teeth are than on its top edge. This minimizes friction during sawing. Also, when purchasing a saw, check how it feels in your hand, look to see that the handle is of a sturdy wood, not plastic or plywood, and that it is well secured to the blade.

end of the steel. A ferrule at the opposite end prevents the wood from mushrooming. But more important, the steel of these sets will be of a better quality than their hardware store cousins, and better steel means it will hold a keener edge longer. Steel toughness is designated by what is



that the coarseness or fineness of the cut is determined by the number of teeth or points per inch (Fig. 1B). All saws are designated this way with there being one less tooth than there are points per inch of saw blade. For most beginners, a standard size 26 in. long crosscut panel saw with 10 points per in. is ideal.

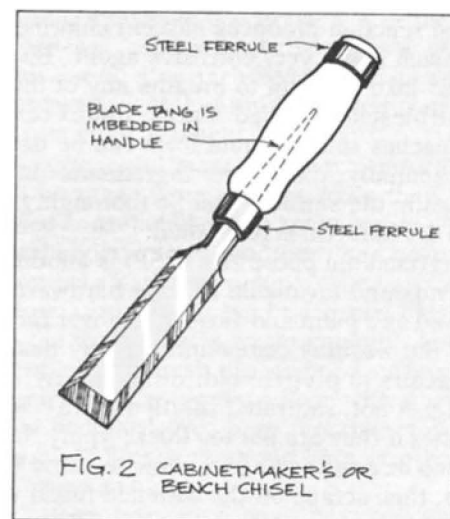
The crosscut panel saw will effectively cut across the grain, a typical op-

CHISELS

Another type of cutting tool is the chisel, which in essence is a steel wedge. Whether it is used for setting-in hinges on a door, making a joint that will bring together two or more pieces of wood, or paring wood away from a surface, the chisel is indispensable.

The problem comes, however, with purchasing a set of chisels. So many kinds and qualities exist, it is difficult to know what to look for. What most of us seem to begin with are the so-called butt chisels. They are the shortest of the chisels ranging in length from 7 to 8 in. Typical blade widths are ¼, ⅜, ½ and 1 in. Usually priced around ten dollars, these sets of four are found in virtually every hardware store and are what a beginning woodworker might want to start with.

There are also cabinetmaker's chisel sets that should be spoken for (Fig. 2). Many of them have hardwood handles for a good grip, with steel rings or ferrules at both ends. One ferrule keeps the handle from splitting due to wedging action of the tang or tapered



called Rockwell hardness or Rc. The best chisels I've found have Rc's in the high 50's and low 60's.

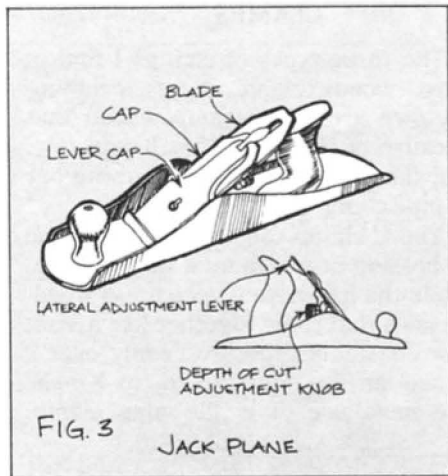
I invested over 50 dollars in a fine set of six wooden handled cabinetmaker's chisels. They measure 10½ to 12 in. long with blade widths that range from ¼ to 1¼ in. They have an Rc of 62 and can handle the heaviest work and hardest wood while retaining an edge, yet they can still deal with the delicate projects. My plastic handled bargain chisels with their poor steel are now used only for scraping paint.

PLANES

No one knows how many thousands of different planes have been developed since the Egyptians discovered that a chisel held in a block of wood could take shavings from a board. Over the last four thousand years, hand planes were developed to accommodate every conceivable job: from making barrels, to molding, to intricate cabinet joinery, to violin making. But the kind that will be most valuable to the reader is the common metal jack plane (Fig. 3).

The one that I have had since I started working wood is a standard 14 in. long and 2½ in. wide. It can smooth the rough edges of a board or take away wood from high spots on a board's surface. Basically, it is the workhorse of planes.

It weighs about 4½ pounds, and there are some 18 parts that make up the typical metal jack plane. Two different pieces, called caps, keep the 2



in. wide removable blade in place while an adjustment screw sets the depth of the cut. A lever adjusts the blade laterally.

This tool, like the saw and chisels, should be cleaned of dust and dirt and given a light coating of oil or a silicone spray as a way of preventing rust. This breakdown of steel, owing to oxidation, will always be a problem, especially since most of us have basement or garage shops where moisture is not easily controlled.

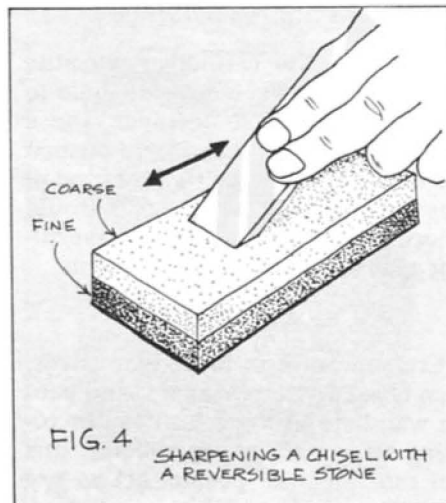
SHARPENING STONES

To me, the stone is not only one of the most important tools, it is also the least used among beginning woodworkers. Not only do we assume that tools come sharp upon purchase, but we also labor under the belief that they stay sharp. My first set of carving tools went through months of use before they ever touched a sharpening stone.

The stone cannot take the place of a grinding wheel if the tool is truly dull or chipped. But for touching up an edge after some use, it can keep a chisel or plane blade reasonably sharp.

Stones come in an array of materials, degrees of hardness, and shapes. The best natural ones, taken from quarries, are the Arkansas stones. Synthetic stones, the ones most of us start with, are usually made of silicone carbide, though ones called diamond sharpening stones are now appearing in tool catalogs.

With most stones, a lubricant is needed when the steel is rubbed across them. Either water or oil is used, which will also keep the stone's surface unclogged of steel filings.



Probably the best type of stone for the beginner to purchase is a reversible oil stone (Fig. 4). It's made of two different stones laminated together, and might have a coarse, silicone carbide half and an Arkansas stone joined to it. The man-made side would help bring back an edge to a somewhat dull tool, while the harder side would put a final, polished edge to it.

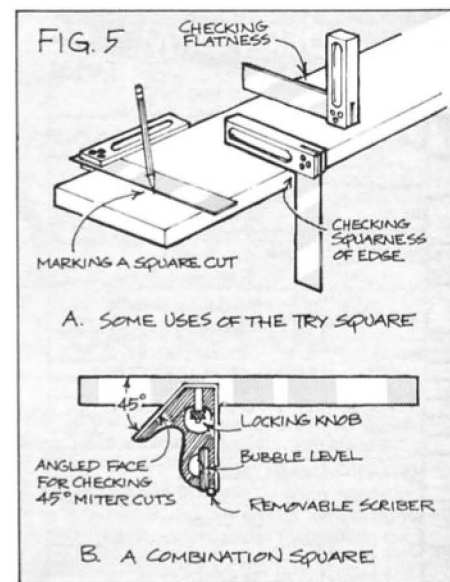
But to me, more important than the quality is how the stone is used — something that will take some instruction and lots of practice. I've known expert craftsmen who can utilize nothing more than a piece of sandpaper laid over a flat steel surface and get great results.

As for maintenance, unless it comes boxed, the stone should be kept in a plastic bag. This is particularly important if you generate a lot of dust in your shop, a material that will interfere with the sharpening.

MEASURING TOOLS

There are two tools for measuring that are a must: the try square and the tape measure. The try square not only can measure, it can guide a pencil to make a straight line across a board, it can check the squareness of a board's end or edge, or it can check the flatness of a board's face (Fig. 5A). Plus, it can lay out holes to be drilled and joints to be cut.

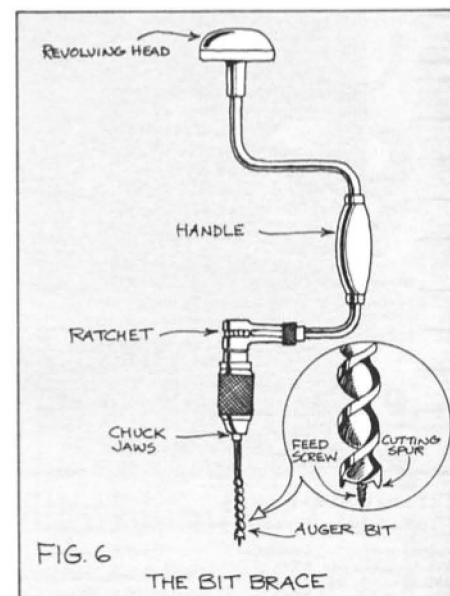
The try square has a handle and a blade that is usually 6 or 8 in. long with ⅛ in. and 1 in. markings. A more versatile relative is the combination square (Fig. 5B). This tool has a moveable handle that can slide along the length of a blade.



The best tape measure to purchase should have an automatic return steel tape 12 or 16 feet long with easily readable numbers. The 12-foot tape will take care of nearly any conceivable cabinetmaking project, but the extra four feet will be helpful at a lumberyard where boards are sometimes up to 16 feet.

BORING TOOLS

Though the relatively inexpensive electric drill has taken the place of hand drills, there is still a place for the bit brace, a tool that has changed little in design during the last hundred years or so (Fig. 6).



An offset handle turns a holding device called a chuck. The chuck, in turn, accepts the bits. Boring attachments called auger bits can cut clean and deep holes in the hardest of woods. Their spiral design draws up

(continued on next page)

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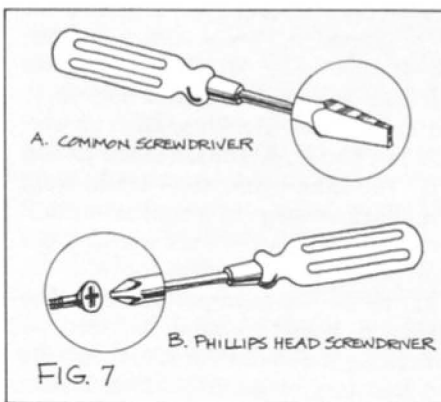
The Beginning Woodworker, (Cont'd)

the wood chips as a tapered screw pulls the bit into the wood. Other bits have screwdriver tips, twist bit drill tips, and all bits have tapered and squared ends that won't slip once in the chuck.

The push drill is another versatile boring tool. Having a hollow handle to hold interchangeable drill bits, and a spring return, this tool can be pushed down to make small holes. Many small jobs can be done with it that would otherwise require dragging out the 50-foot extension cord and electric drill.

SCREWDRIVERS

Everyone invests in a screwdriver, even housewives, teenagers, and people who hate using tools. Besides rotating screws in and out of holes, this tool can, for most people, act as pry bar, stirrer, and even chisel.



The most common screwdriver has a tapered and flat-end blade that is for the single-slotted screws (Fig. 7A). But a set should be invested in that can deal with the cross-slotted or Phillips head screws (Fig. 7B). Plus, large screwdrivers don't deal effectively with small screws that turn up in cabinetwork areas such as small hinges. A set that includes small and medium-sized slotted and Phillips head screwdrivers would be advantageous.

HAMMERS

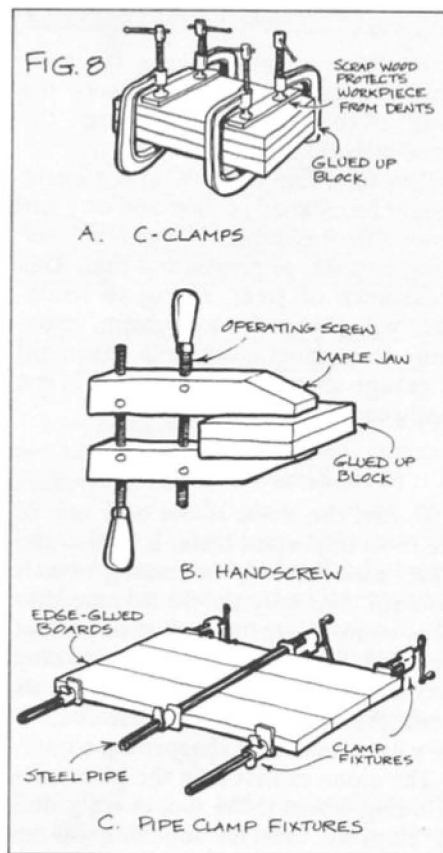
The hammer probably evolved with the chisel and is, like the screwdriver, a tool everyone seems to have. Traditionally, hammers came with wooden handles that could withstand the shock of impact, but today's one-piece steel hammers with rubber and leather grips are as good or better. A 16-oz. hammer will take care of most of the beginner's needs. But make sure it has a slightly convex head so that it will drive a nail flush with the wood without leaving a depression. And for pulling nails, make sure it has a curved claw.

A beginner might also want to invest in a dead blow mallet. These one-piece plastic hammers with shot- and oil-filled heads do what rubber mallets do — but they don't bounce. They can lend assistance when taking apart furniture or putting together tight-fitting parts, and they are less destructive than steel hammers when pounding on a good set of chisels.

CLAMPS

The three types of clamps I find in most woodworking shops including my own are the C-clamp, called that because of its shape, the handscrew, which is a wooden clamp, and the bar or pipe clamp (Fig. 8A, 8B, 8C).

The C-clamp can exert a great deal of holding pressure on a limited area, while the handscrew, which has wooden jaws that come together like a vise, can distribute pressure evenly over a broad surface. But the clamp I make the most use of is the pipe clamp.



Jawed fixtures can be purchased and attached to standard plumbing pipe, both of which are usually cheaper than the ready-made bar clamp.

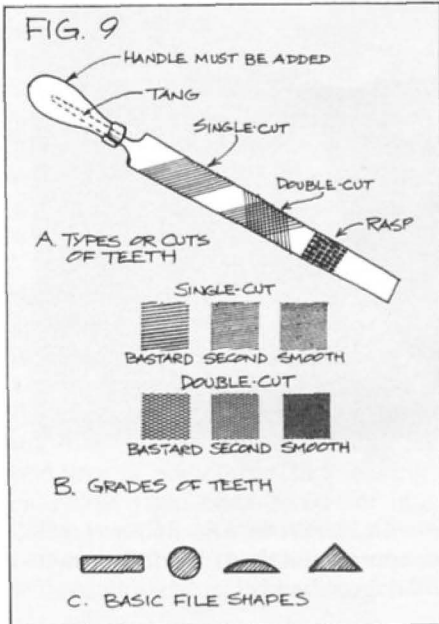
I have a number of pipe clamps in two and four-foot lengths. These in turn can be joined with pipe couplings to make longer lengths and, to me, they are most versatile clamps.

I don't believe the woodworker

doing serious cabinetmaking ever has enough clamps.

FILES AND RASPS

Files are useful for shaping and smoothing wood and also for touching up dull edges on some tools. Single-cut files have rows of parallel teeth cut at an angle to the face (Fig. 9A). A flat file of this type is good for sharpening tools. Files with crisscrossed rows of teeth are double-cut and are faster cutting.



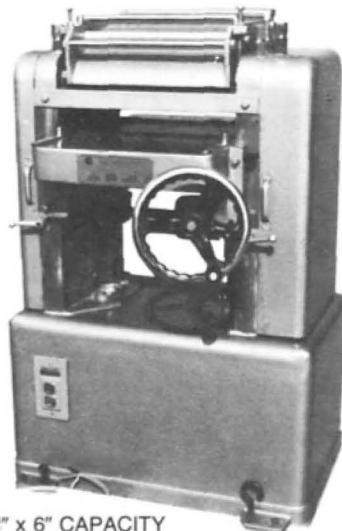
Single and double-cut files are further broken down into three grades of bastard cut, second cut and smooth (Fig. 9B). The bastard cut is used for rapid stock removal while the second cut and smooth files finish the job. Rasps, which have individually cut triangular teeth are used for quick removal of wood because the teeth are not prone to clogging easily.

Fig. 9C shows four basic cross-sectional file shapes. My favorite is the half-round which can be used on flat, concave and convex surfaces. The round file, or rattail, is ideal for smoothing small curves and holes.

Do all these tools require a major cash outlay? I priced top-of-the-line tools in a 1984 catalog and came up with a cost close to \$300 for a basic set. Buying lesser quality tools could bring the prices down to \$200 or less but if you're serious about woodworking, you'll soon replace many of them. Often, fine used tools can be found at garage or estate sales and if you can get a veteran woodworker to go with you, it's possible to get most of the tools you need at very low cost. WJ

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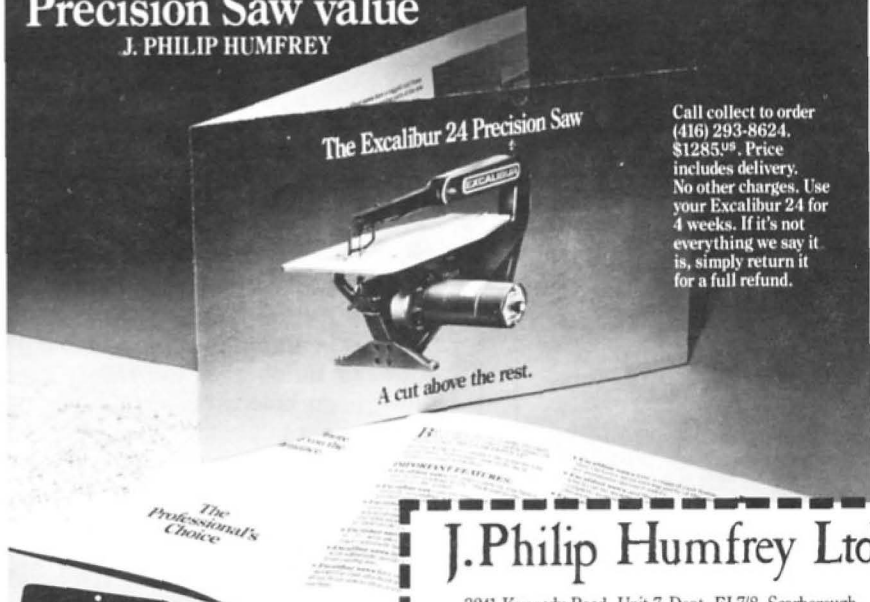
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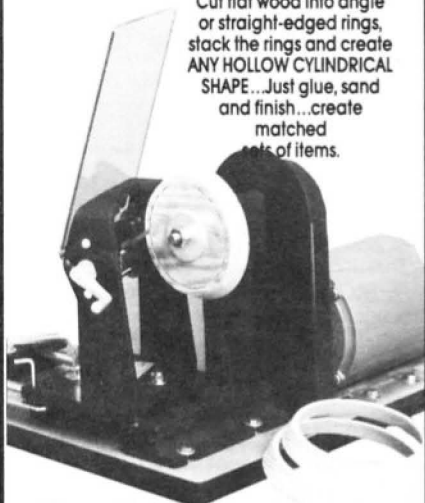
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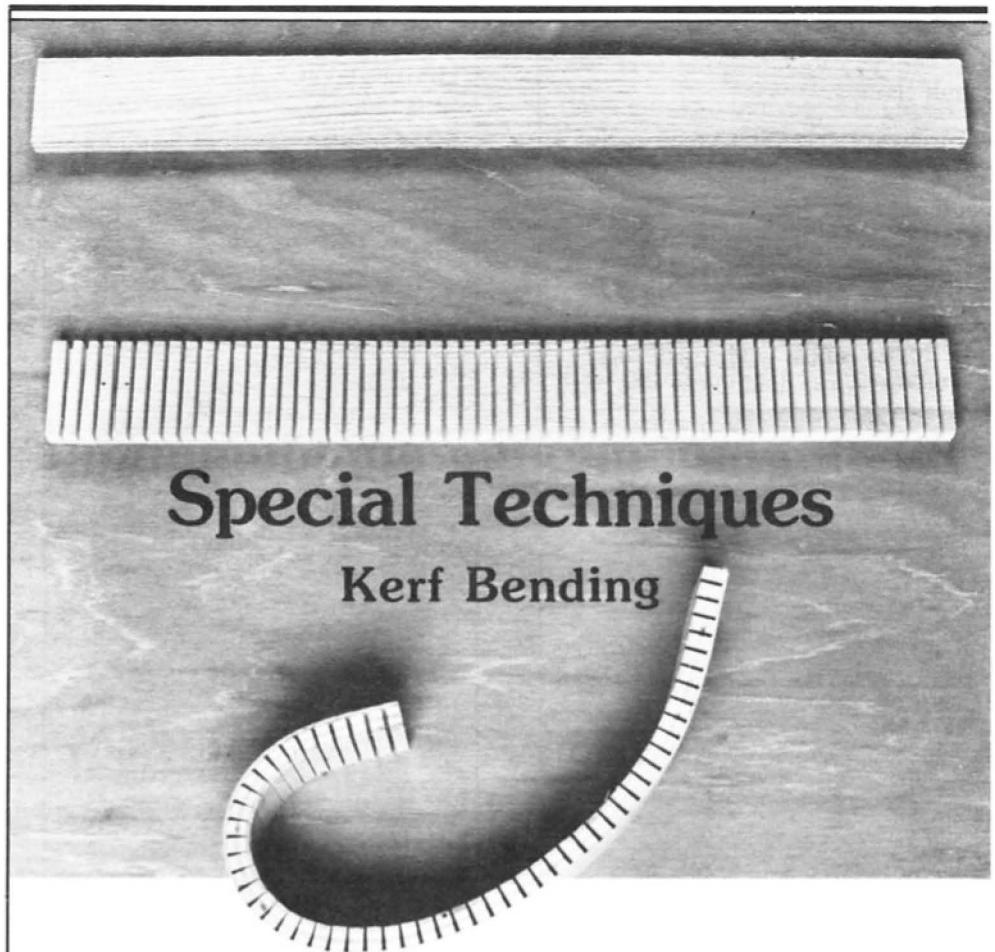


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Special Techniques Kerf Bending

Kerf bending is a wood bending technique that, although no longer widely used in commercial cabinet-making, can be an especially handy technique for the home craftsman. It requires no special tools or skills, and can be used to create curved edges or surfaces for a broad variety of applications.

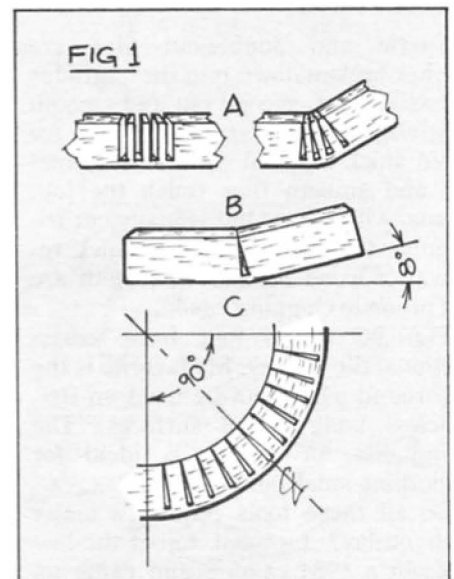
Very simply, kerf bending is a technique that utilizes a series of saw kerfs, cut side-by-side on one surface of the material, to make that material flexible enough to be bent. It is a method that may be used with equal success on either solid lumber or plywood.

In kerf bending, the object is to cut a sufficient number of individual kerfs into the workpiece, so that when the piece is bent to a point where the kerf edges close up, you will have achieved the desired curve (Fig. 1A).

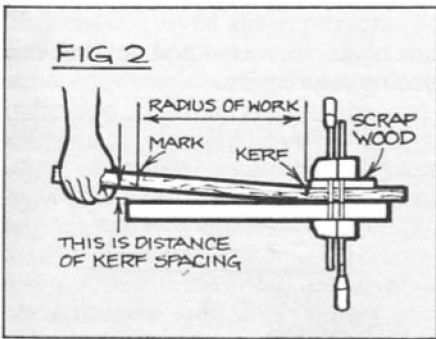
The key to successful kerf bending, then, is to calculate the number of kerfs necessary to complete the bend, and the space between the individual kerfs.

To determine the number of kerfs required for a given bend, first cut a single kerf and measure the angle of bend (Fig. 1B). Now simply divide this angle into the total degrees of bend you wish to achieve. For instance, if the angle equals about 8 degrees, and you want a 90 degree bend, divide 8 in-

to 90. As shown in Fig. 1C, you will need approximately 11 kerfs to make the 90 degree bend.

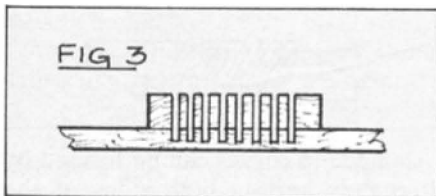


The wider the saw kerfs are spaced apart, the broader the arc will become. An accurate method for determining the distance between saw kerfs is shown here (Fig. 2). Cut a single kerf, measure the radius you will need, and mark it on the workpiece as indicated. With the workpiece bent up so the kerf edge is closed, measure the distance between the table and workpiece at the radius mark. This is the distance that you must space the kerfs apart to achieve the desired arc.



The flexibility of the material you are working with, its thickness, and the width of the saw kerfs, are all factors that will effect any kerf bending project. As a rule of thumb, however, kerfs may not be cut wider than 1/4 in. or the "curve" will in fact become a series of flat sections joined at angles to each other.

The thinner the individual kerfs are, the more kerfs will be needed to form a specific curve. If an especially wide arc is needed, you may either cut very thin kerfs, spaced far apart, or increase the thickness of the stock (Fig. 3). Achieving the desired curve through kerf bending is something like baking a cake: the right combination of ingredients — that is, kerf size, distance between kerfs, and thickness of stock — will result in the right curve.



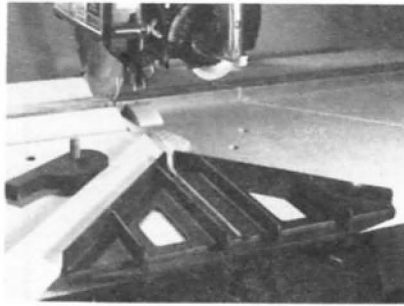
Several other factors are also important in kerf bending: the type of wood and the thickness of the material that is left when the kerfs are cut. There are no hard and fast rules here. Most experts agree that the kerfs should be cut so the remaining stock is no less than 1/16 in. thick. Depending on the particular character of the wood, however, the thickness may go as high as 1/4 in. Generally speaking, hardwoods such as oak will require 1/16 in., while plywoods and softer woods can be kerfed to within 1/8 in. of the outside surface. Only the most flexible woods such as willow, hickory and black locust can be kerfed so that a full 1/4 in. of material remains.

To simplify cutting the kerfs, you may wish to build a jig, as shown in Fig. 4. The jig is in fact no more than a guide board with a locating pin, attached to the table saw miter gauge. Position the pin at a distance from the

(continued on next page)

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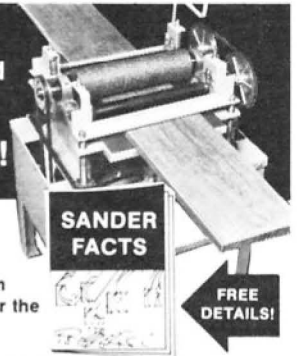


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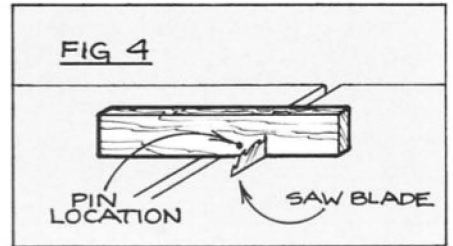
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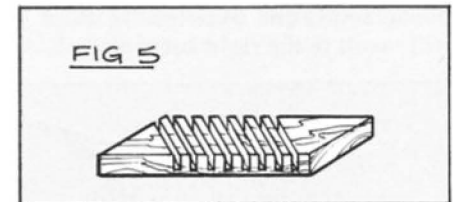
Special Techniques, (Cont'd)

saw blade that is equal to the kerf spacing you require.



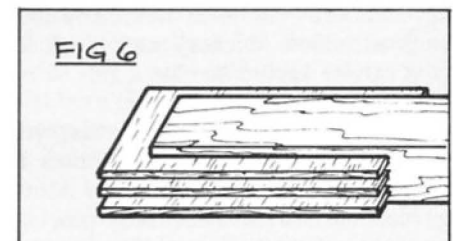
Kerf bending is one of the three most common wood bending techniques, the others being steam bending, and laminate bending. Although kerf bent material does not have the tensile strength of either steam or laminate bent material, the kerf bending process is far less time consuming and complicated. Moreover, most hobby woodworkers simply do not have a steam box. Therefore, kerf bending is an alternative that many woodworkers will find especially useful.

By modifying the kerfing technique, kerf bending may be used to create elliptical or even spiral curves. A spiral curve can be produced by cutting the kerfs at an angle (Fig. 5).



Compound curves can be formed by alternately kerfing both sides of the wood. When bending severe or complicated curves, soak the wood in warm water to ease the bending process.

Kerfing is usually done across the grain, however, occasionally a piece of wood with a bend only at the end will be needed. By cutting the kerfs into the end grain, then gluing veneer strips into the kerfs (Fig. 6) the board can be easily bent into the desired shape. Clamp the piece while the glue sets, and the curve will become permanent.



Kerf bending is most often used to
(continued on next page)

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either make curved drawer fronts, or to form the aprons on circular and round edge tables. Another common application of kerfing is in the construction of stringed musical instruments, especially guitars. Kerf-bent boxes have long been a popular item, and kerfing is sometimes used to create free-form and elaborately curved furniture. Kerfing can also be used to form an arch in flat stock.

Wherever it is used, kerf bending is essentially a structural technique. The kerfed side must be covered over or concealed, because kerfs are simply not meant to be displayed. Kerf bending is only a means to an end, and the kerfs themselves are never featured in the piece.

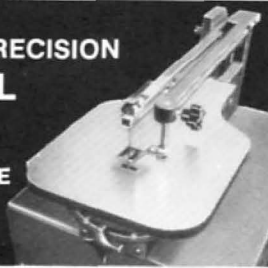
Two other considerations that may affect the appearance of a kerf-bent piece are the tendency of the kerfs to telegraph through the wood to the finish side, and the fact that the flats created by kerf bending are easily visible if the wood is highly polished. This last problem can be minimized by increasing the number of kerfs, and cutting them thinner. Use a band or jig saw instead of the table saw. The closer the kerfs, of course, the tighter the bend will be. Be careful that the kerfs are not cut too close, or the wood between kerfs will simply break out, ruining the piece.

Although the kerfing process essentially cuts away much of the strength of the wood, a kerfed piece may be strengthened by filling the kerf spaces with thick glue or wood putty, which is forced into the kerfs before bending. Kerfed pieces are also commonly reinforced by gluing a thin plywood or veneer over the kerfed side.

Because wood is highly individual, and since even within a given species there can be substantial differences, it is strongly recommended that a test piece be made before any kerfing project is attempted. Take a length of the material you intend to use and test kerf it. Check for flexibility, strength, kerf spacing, kerf width, and thickness of remaining stock, and then make adjustments if necessary.

Kerf bending is a special technique that we suspect will open up a whole range of new projects and possibilities for the hobby woodworker. If you have shied away from wood bending in the past because it seemed to be overly complicated or time consuming, we strongly recommend that you try kerf bending. We are confident that you will find kerf bending is a technique you will be glad you added to your repertoire of woodworking skills. W&J

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Cabinetmakers' Supplies

As a service to our readers, we periodically list sources of supply for various woodworking products. In this issue we've included two listings: suppliers of cane and related products, and suppliers of wood finishing products.

Caning Supplies

Most of these companies also carry reed, splint, rush, rattan, and related materials.

The Brass Tree
308 North Main Street
St. Charles, MO 63301
Catalog \$2.00

Cane & Basket Supply Company
1283 South Cochran Avenue
Los Angeles, CA 90019
Catalog \$1.00

The Caning Shop
926 Gilman
Berkeley, CA 94710
Catalog \$1.00

Connecticut Cane & Reed Co.
P.O. Box 1276
Manchester, CT 06040
Brochure/Price list: 50¢

The H. H. Perkins Company
P.O. Box A.C., Amity Station
Woodbridge, CT 06515
Handbook/Price list: \$1.00

Ye Olde Village Workshop
Box 227
Mountain Home, PA 18342
Catalog 50¢

Wood Finishing Supplies

Finishing Products & Supply Co.
4611 Macklind Ave.
St. Louis, MO 63109
Write for information

Industrial Finishing Products
465 Logan Street
Brooklyn, NY 11208
Catalog \$2.50

The Wise Company
P.O. Box 118 (WJ)
Arabie, LA 70032
Catalog \$3.50 (two volumes)

WoodFinishing Enterprises
Box 10117
Milwaukee, WI 53210
Free catalog



Wag-on-Wall Clock

This Early American Wag-On-Wall Clock is something of a hybrid, its design reflecting the best features of several Wag-On-Wall clocks that we studied. It is a handsome, well-made piece, requiring moderate woodworking skill to build. Our clock was made from solid mahogany and $\frac{1}{4}$ in. mahogany plywood, although either cherry or walnut would also be ideal. Keep in mind, however, that you will need $\frac{1}{4}$ in. finish plywood to match the hardwood you choose.

Start the project by cutting the two sides (A), the base (B), and stretcher (C) to size. Next, using the dado-head, cut the $\frac{1}{4}$ by $\frac{1}{4}$ in. tenons in either end of the stretcher (C), and in the bottom end of each side (A). Note that these side tenons are cut back about $\frac{1}{4}$ in. on the front edge. Referring to the illustration, now mortise both sides to accept the stretcher tenons.

Cut the $\frac{1}{4}$ in. thick plywood dial board (D) to size, mortise the sides and stretcher to fit the dial board, and dry assemble these four parts. With the dry assembly as a guide, scribe the base for the two stopped mortises into which the side tenons fit, and for the dial board mortise. Use the router table and a $\frac{1}{4}$ in. straight bit for these mortise cuts.

Next, cut two $4\frac{1}{2}$ by $3\frac{3}{4}$ in. blocks from $\frac{3}{4}$ in. thick stock for the brackets

(H), laying out both pieces so the grain will be parallel to the back edge. With the dado-head cut the $\frac{1}{4}$ by $\frac{1}{4}$ in. tenons, and trim each tenon back about $\frac{1}{4}$ in. from the front edge. Following the grid pattern in the illustration, use a saber or scroll saw to cut the matching contours in each bracket. With the bracket tenons as a guide, now cut the stopped mortises for each tenon in the base bottom. The decorative edge around the base is cut on the router table with a $\frac{3}{8}$ in. piloted round-over bit. You will need to make several passes to achieve the $\frac{1}{8}$ in. deep lip along the top edge of the round-over. Cut out the pendulum slot with the saber or scroll saw.

At this point, glue up the two sides, stretcher, base, and dial board to form the clock carcass. Cut the $\frac{1}{4}$ in. thick plywood bottom contour (I), and with a $\frac{1}{2}$ in. piloted rabbeting bit, rout the $\frac{1}{4}$ in. deep stopped rabbet into the back edge of the base to accept the bottom contour. (See back view detail.)

The crown ends (E), and front (F), are cut from $\frac{3}{4}$ in. thick stock. Transfer the crown profile from the illustrated grid pattern, and cut out with a saber or scroll saw. The decorative cove on the crown is made with a $\frac{3}{8}$ in. piloted cove bit. When gluing the crown in place, note that the entire crown assembly extends $\frac{1}{2}$ in. down over the

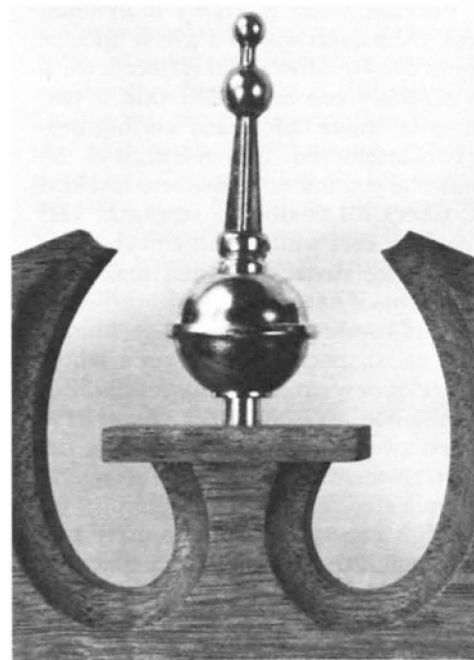
carcase, concealing the mortise and tenon construction.

Resaw $\frac{3}{4}$ in. thick boards to make the $\frac{5}{16}$ in. thick dial frame (parts J and K). You will note that the dial frame back is rabbeted to accept the $\frac{1}{16}$ in. thick by $7\frac{1}{8}$ in. square dial face (L). Measure the length of both J and K very carefully, so that a press-fit will hold the frame in place when it is glued up.

The $\frac{3}{4}$ in. thick door frame (parts P and Q) is a half-lap construction. Cut both the stiles (P) and rails (Q) slightly long, so the door may later be sized down for an accurate fit. Cut the half-laps with the dado-head. After the frame has been glued up, the back is rabbeted to accept the glass panel (R). Use a $\frac{3}{8}$ in. piloted rabbeting bit and square the corners with a chisel. The $\frac{1}{4}$ in. by $\frac{3}{8}$ in. molding (S) is cut for a press fit and mitered at the corners. (See back of door frame detail.) To simplify replacement should the glass break, it's best not to glue the molding in place.

Rabbet the clock back for the $\frac{1}{4}$ in. thick plywood back piece (N), and mortise the door and carcass for the hinges (T). We recommend either a magnetic catch (V), or a brass hook and eye to hold the door tight. Finally, make the knob (U), cut out the finial base (G) and back piece (N), and, referring to the illustration, complete the assembly. The clock face (part No. 26055, \$15.95), pendulum movement (part No. 11045, \$12.50), finial (part No. 38012, \$4.35), hinges (part No. 39019, 85¢), and hands (part No. 66930, free with movement), are all available from Klockit, P.O. Box 629, Highway H North, Lake Geneva, Wisconsin 53147, Tel.: (414) 248-1150.

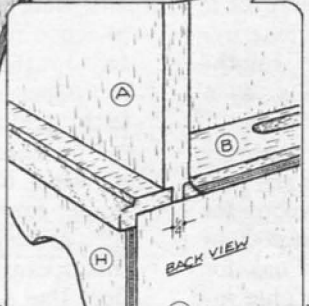
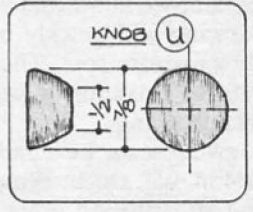
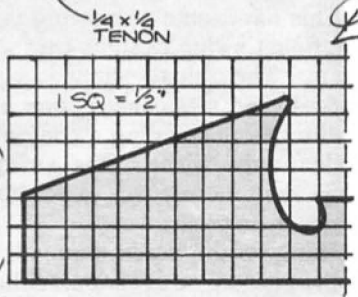
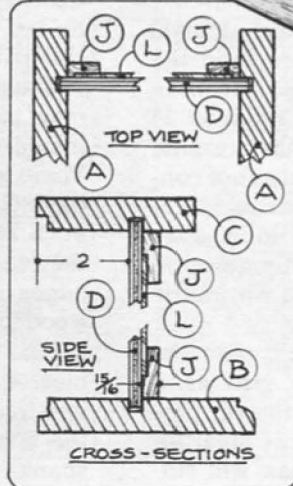
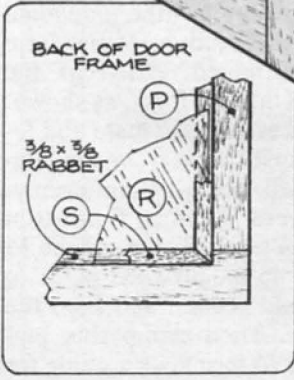
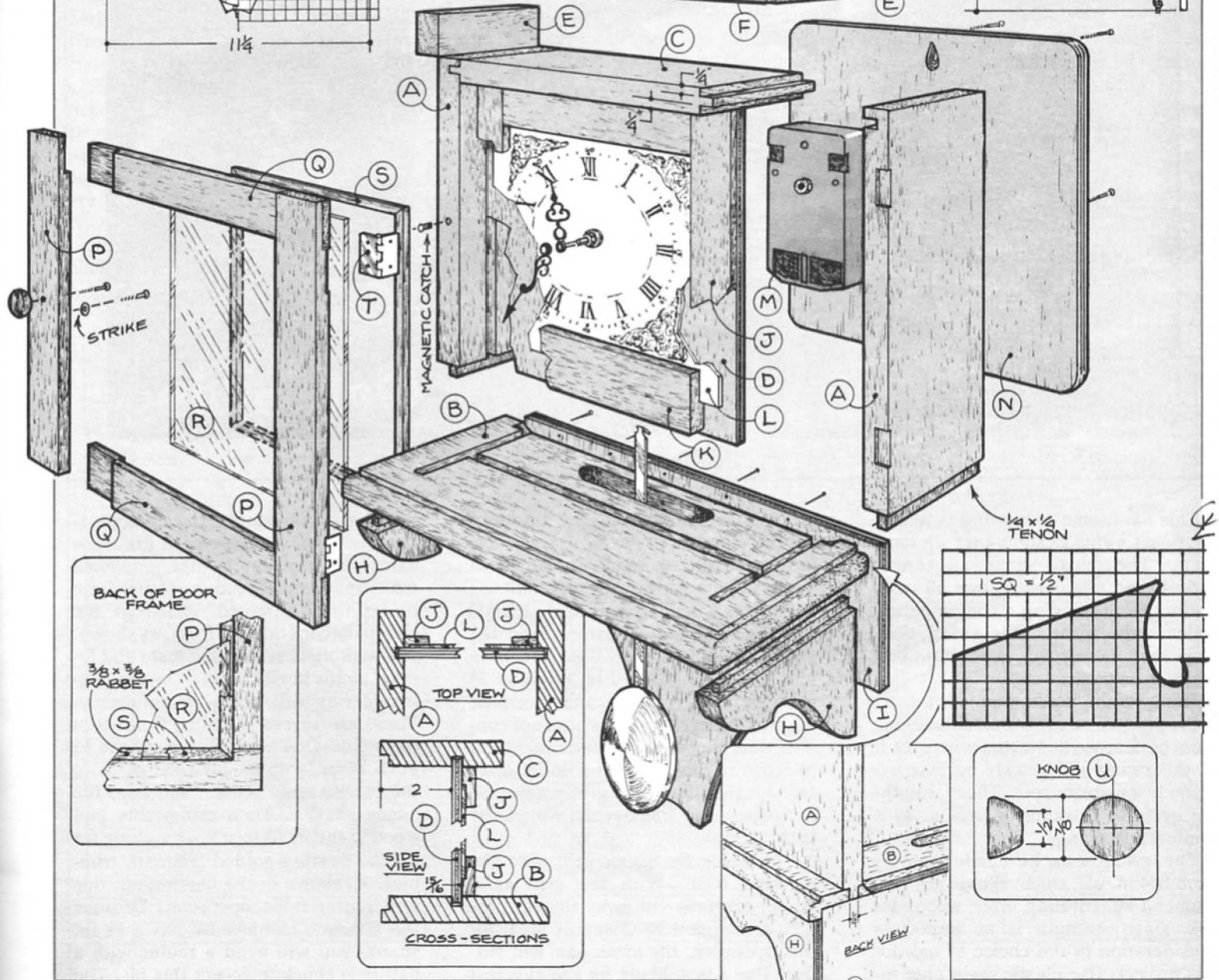
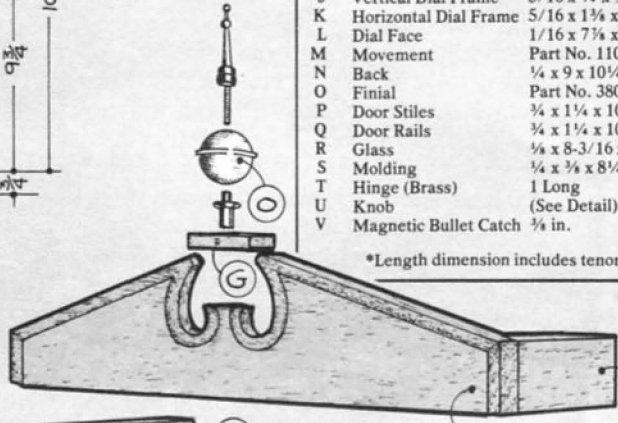
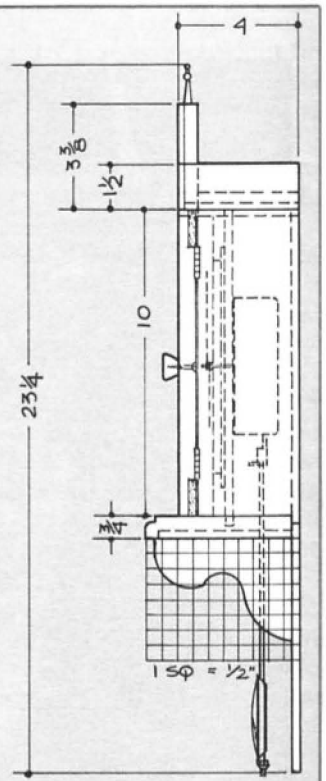
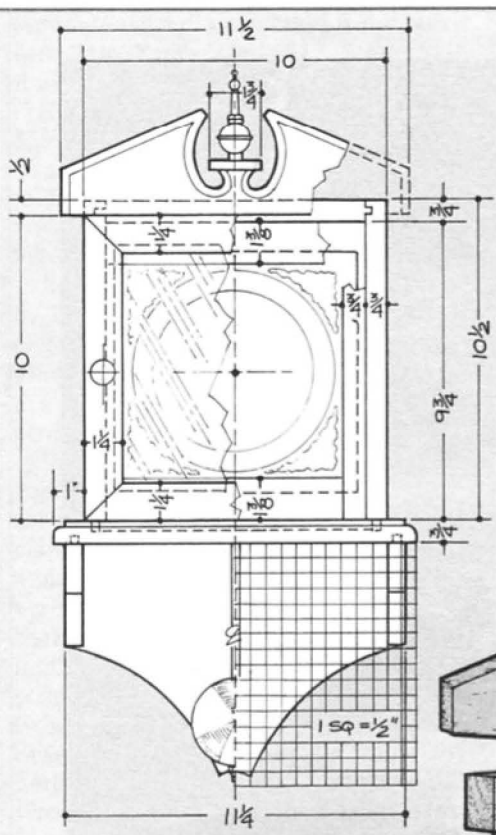
Stain to suit, if desired, and finish with penetrating oil. W&J



Bill Of Materials
(All Dimensions Actual)

Part	Description	Size	No. Req'd.
A	Side	3/4 x 3 1/4 x 10 3/4*	2
B	Base	3/4 x 5 x 12	1
C	Stretcher	3/4 x 3 1/4 x 9*	1
D	Dial Board	3/4 x 9 x 10 1/4	1
E	Crown End	3/4 x 1 1/2 x 3 1/4	2
F	Crown Front	3/4 x 3 1/4 x 11 1/2	1
G	Finial Base	3/4 x 3/4 x 1 1/4	1
H	Brackets	3/4 x 4 1/2 x 3 3/4*	2
I	Bottom Contour	3/4 x 11 1/4 x 8	1
J	Vertical Dial Frame	5/16 x 3/4 x 9 1/4	2
K	Horizontal Dial Frame	5/16 x 1 1/4 x 7	2
L	Dial Face	1/16 x 7 1/4 x 7 1/4	1
M	Movement	Part No. 11045	1
N	Back	3/4 x 9 x 10 1/4	1
O	Finial	Part No. 38012	1
P	Door Stiles	3/4 x 1 1/4 x 10	2
Q	Door Rails	3/4 x 1 1/4 x 10	2
R	Glass	3/4 x 8-3/16 x 8-3/16	1
S	Molding	3/4 x 3/8 x 8 1/4	4
T	Hinge (Brass)	1 Long	2
U	Knob	(See Detail)	1
V	Magnetic Bullet Catch	3/8 in.	1

*Length dimension includes tenon(s)





Oak Swing

This handsome oak swing is one of the finest swing designs that we have seen. The clean lines, sweeping curves, and slat construction all work well together, lending a contemporary style to the piece. This swing does more than merely look good, however, it also feels great.

Hung on the porch, beneath a tree, in the garden, or even inside the living room or den, we know that wherever it is, this swing will quickly become everybody's favorite spot. There is nothing quite so relaxing, it seems, as a comfortable swing.

The swing can be made entirely from 8/4 in. oak stock. We do not recommend substituting other woods for oak, since strength is an important consideration in the choice of oak for this project. Use plastic resin glue in-

stead of common wood glue throughout the piece, both for its superior adhesive character, and its excellent water and moisture-resistant quality.

Start by making the male-female mold, which you will use to form the swing's laminated ribs (A). Cut three identical sections of 3/8 in. plywood 24 in. wide x 46 in. long, and face-glue them together. Also cut a sheet of construction paper and a piece of 1/2 in. plywood to this same 24 x 46 in. size. Lay out the illustrated grid pattern on the paper, and transfer the rib profile to the grid.

Now, glue the paper grid onto the plywood form. With the grid as a guide, carefully cut away the rib profile. Although a band saw is ideal for this operation, the saber saw will suffice. Use a new blade for the cleanest

possible cut, and locate the cut approximately 1/16 in. inside each line. The extra 1/16 in. will allow the individual male and female sections of the form to be finish-trimmed. Also cut the clamp notches into the form, as shown.

The profiles of both the male and female molds must be exact, or the laminated ribs will not glue up evenly. There are several ways to finish-trim the molds. One method is to cut the 1/2 in. x 24 in. x 46 in. plywood piece to the precise mold profile, and sand the edges smooth. Then clamp this plywood to the mold forms, as a guide for a 2 in. bearing-guided laminate trimmer. As shown in the illustration, this is a router table operation. Because the laminate trimmer bit has a 1/2 in. shank, you will need a router with a half-inch chuck to accept this bit. The

laminated cutter is available from Jackson Saw Knife Co., 517 State St., Rochester, New York 14602. Tel.: (716) 546-7485. Cost of the bit is \$25.20. Order part No. FTB8-8-2. A straight cut router bit can also be used to trim the molds, although you will need to cut the plywood guide piece back to accept a router guide bushing.

Resaw 8/4 stock to make the 1/4 in. by 1 3/4 in. laminate strips that form the ribs. Cut the strips about 56 in. long to allow for finish trimming after the ribs are made. You will need a total of 15 strips — five for each of the three ribs.

Wax both the male and female mold contours so the stock will not bind on the contour faces when the molds are clamped up. With the molds spread apart, locate three bar clamps, one across the center and one each on either side. Using plastic resin glue, laminate the first five 1/4 in. thick strips to form a rib. Position the rib between the mold halves and gradually draw the male and female molds together, forcing the rib into the final desired shape. Because the average bar clamp has a limited screw adjustment, a minimum of three bar clamps are necessary to complete this operation. Draw the center clamp up, then alternately tighten the two side clamps and reset the center clamp, until the molds are drawn up into their final position. Now reposition the two side clamps, setting them in the previously cut clamp notches, and allow the glue to

thoroughly dry. Repeat this same procedure to form the two remaining ribs. (You may want to dry clamp the first rib assembly, since this will allow you the opportunity to shim the molds and insure a more perfect fit.)

Cut the top and bottom rails (B) to size, and resaw 8/4 stock to make the slats (C). Use a 1/4 in. radius cutter to round over the edges and ends of the slats, and the edges of the rails and ribs as shown.

The mortises and tenons in the rails and ribs are cut by hand. First square off the front end of the three ribs (see cut off line), cut the tenons, and dry assemble the ribs into the bottom rail. Do not mortise the top rail or square off the top rib ends yet. Instead, carefully position the ribs and temporarily clamp them onto the top rail. Now attach the 22 slats, one at a time, using a spare slat as a 3/8 in. spacer between the slats. Anchor the slats with #8 flat-head brass wood screws, countersunk so the heads are flush. Note that two screws are used with each slat for the end rails, and a single screw along the center rail. You may wish to fashion a simple jig for this drilling operation, as a drill guide to insure perfect location of all the screws.

After the last slat is in place, measure 1 1/2 in. farther along each rib, and square off the three rib ends at that point. Cut the rib end tenons and, with these tenons as a guide, scribe for and then cut the corresponding top rail

mortises.

If, after a dry test assembly, all fits are as intended, reassemble the swing, using plastic resin glue on all mating surfaces. Screw the rails into the ribs as shown, locating the screws so they will not interfere with the screw eye hangers.

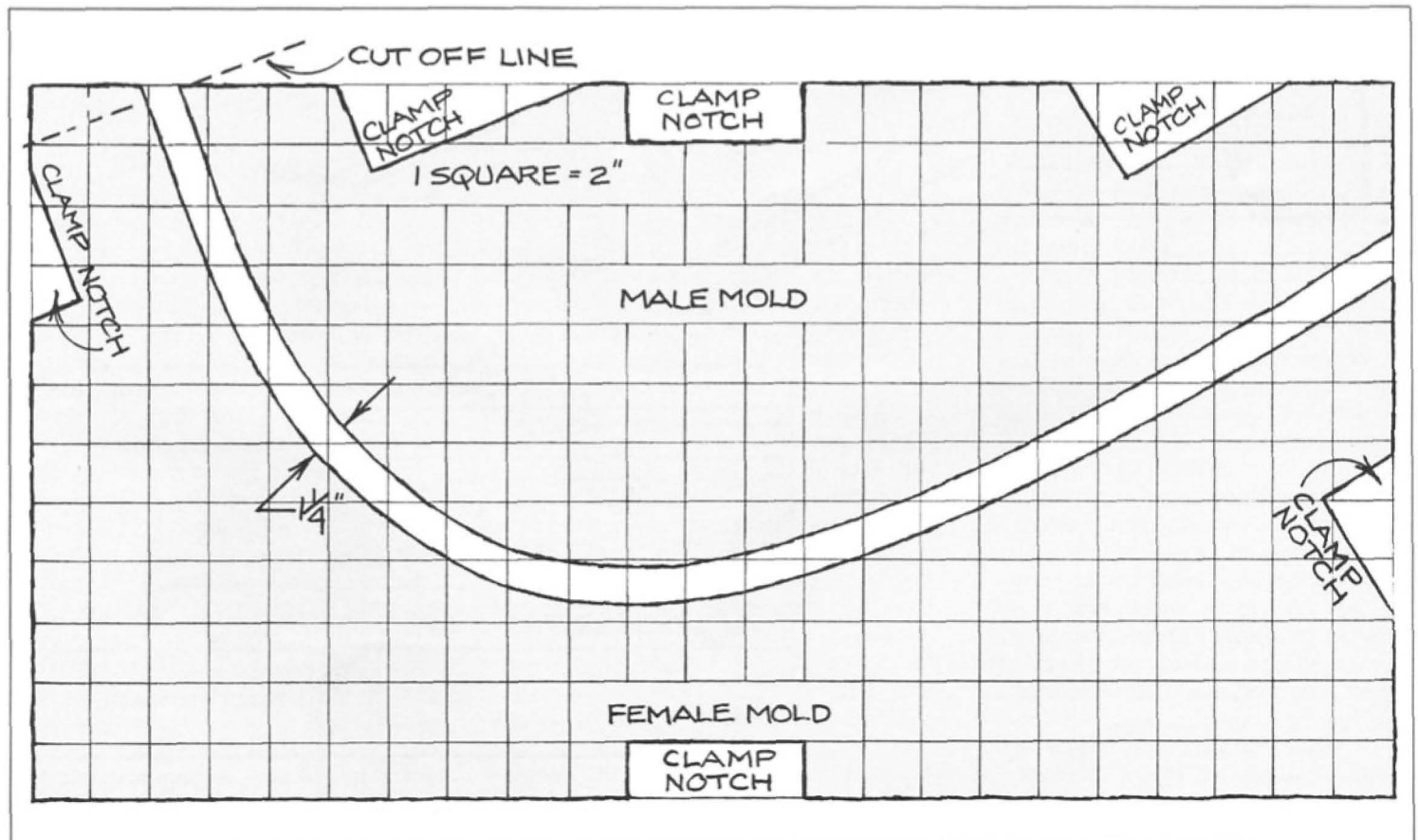
The 4 in. deep holes for the 6 in. screw eye hangers are drilled with a 3/8 in. bit. Drill a 1 in. hole into the rail backs to accommodate the screw eye nuts (see back view detail).

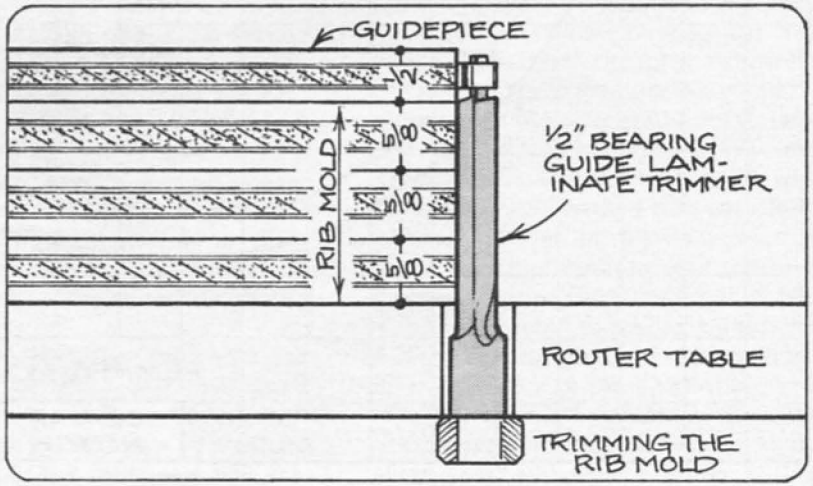
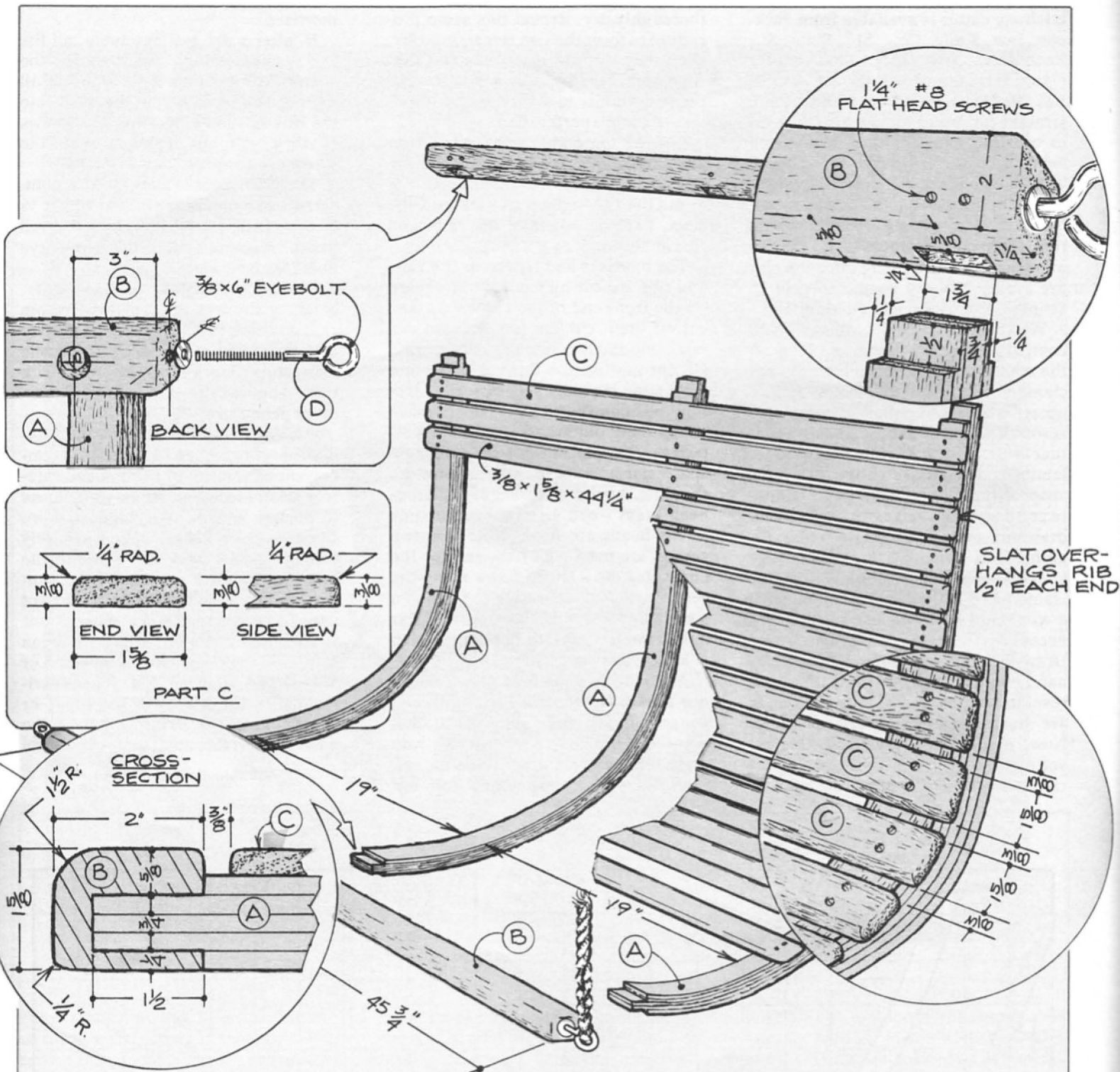
Finally, with a rasp or draw knife, chamfer the top edge of the bottom rail, so there is no sharp edge to bite into the backs of the legs of anyone using the swing. Finish the swing with three applications of a quality waterproof penetrating oil.

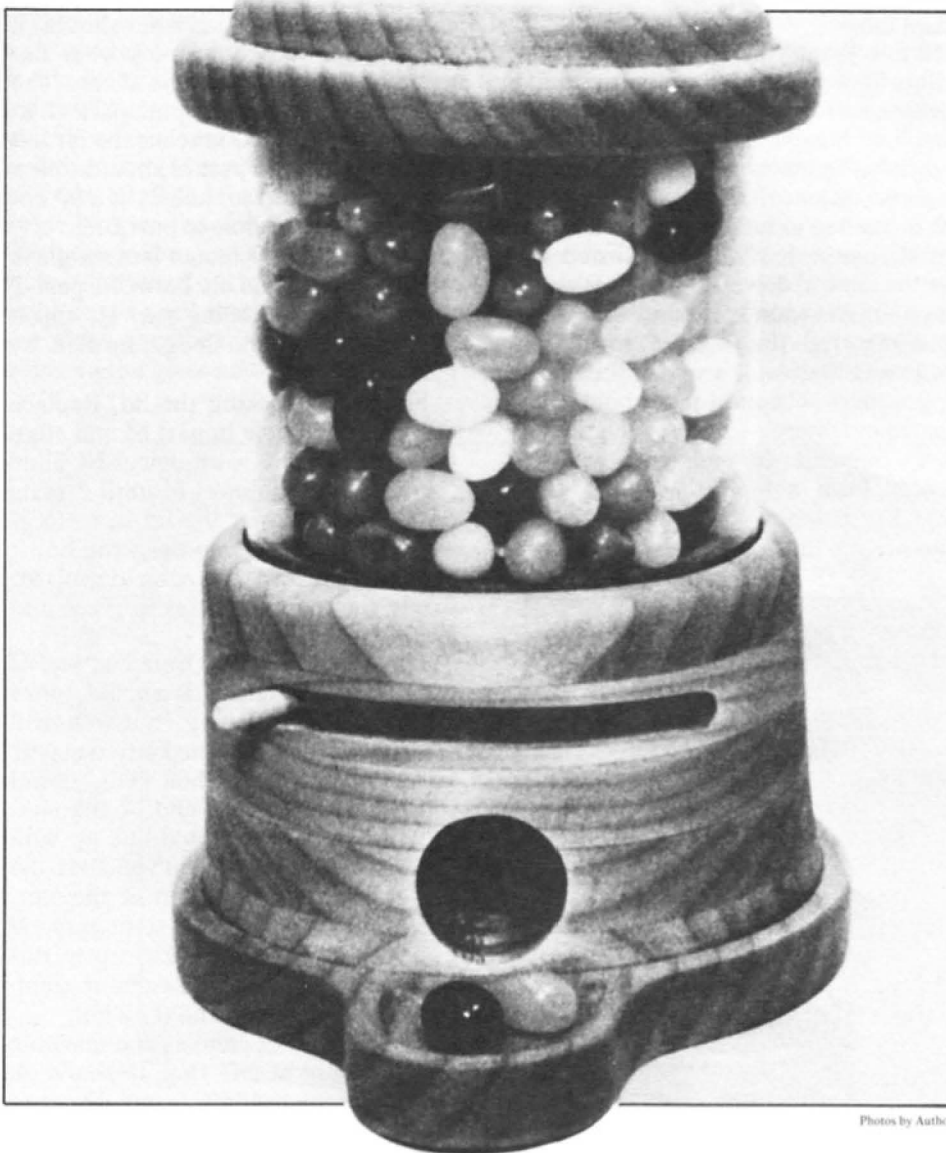
Our oak swing was designed to safely support two persons. Equally as important as the swing design, for safety's sake, are the hangers you choose to anchor it with. We suggest 6 in. screw eyes or hooks, bolted securely through a joist or beam. Position the hangers toward the center of the supporting beam, so they will not tear out under a maximum load.

We suspended our swing with nylon rope, although you may prefer chain or hemp. We suggest that you experiment with the length of the ropes or chains, until the swing is set at the most comfortable angle. WwJ

(continued on next page)







Photos by Author

Candy Dispenser

By Sam Allen

This wooden replica of a gumball machine can be used to dispense many different types of candy. It makes a fun accessory for kitchen or family room. The glass is an easily obtainable replacement unit for a Coleman lantern. Any close grain hardwood can be used to make the candy dispenser; the prototype was made from birch.

The project was designed so that all of the parts can be cut out with a band saw. To make the inside cuts, you have to make an entrance cut as is shown on the plans. When they are glued together, these cuts are not very noticeable, especially if you make them on the back side of the part.

Before starting the project, buy a replacement glass for a Coleman lantern at a hardware or sporting goods store. If its size varies from the size shown on the plans, adjust the dimensions of the parts to fit the glass.

Start by cutting out the base (A) and

the lid (J) as shown in details A and F. When you have these two parts cut out, set the band saw table to five degrees. Make an entrance cut at the back of the base and cut out the center of part A to make part B. Use the same technique to cut part I from part J, then glue and clamp the entrance cuts together.

The purpose of the five degree cut is to form the lip around the lid and the bottom of the base. The center piece will wedge into the outside ring when it is about two-thirds of the way through the ring. When the glue is dry on the entrance cuts, sand the saw marks from the inside of the rings and the outside edge of the center disk. A drum sander is useful for sanding the inside of the rings and a disk sander makes sanding the edge of the disks easier. When you glued the entrance cuts back together, the diameter of the ring was decreased slightly; this gives

you the allowance needed to sand off the saw marks.

Now, spread a $\frac{1}{4}$ in. wide band of glue around the edge of the disks at their wide ends and slide them into the rings. Turn the disk until the grain is aligned with the grain of the ring. Keep pushing the disk into the ring until it is wedged tightly and the distance from the top of the disk to the top of the ring is uniform around the entire perimeter. The wedging effect is sufficient to hold the parts in place so no clamps are necessary.

Next, cut out four 6 in. diameter disks. These will be used to make parts C, D, E, F, G, and H. No further cutting is needed for parts C (detail B) and D (detail C). Parts G and H are cut from the center of parts E and F as shown in details D and E. Before assembling the base unit, sand the inside of parts E and F to remove the saw marks.

Spread glue on the mating surfaces of parts A through F and stack them together to form the base unit. A piece of plywood put across the top and bottom of the stack will make it easier to clamp.

When the glue is dry, drill the candy exit hole in line with the candy tray that projects from the base. This hole is $1\frac{1}{4}$ in. diameter and is drilled at a slight upward angle to make the candy roll out easily. Next drill the 1 in. diameter hole in part D in line with the candy exit hole. Stop drilling when the drill breaks through into the exit hole. Use a power carving tool to smooth the intersection of the two holes so there aren't any areas that would cause the candy to jam. In the center of Part D, drill a $\frac{3}{8}$ in. diameter hole $\frac{3}{4}$ in. deep. Also drill a $\frac{1}{4}$ in. diameter hole for the dowel (S) as shown in detail C. Use a power carving tool to cut a recess in the candy tray.

Next, cut the slot in the edge of part E. The slot should be wide enough for a $\frac{1}{4}$ in. dowel to slip through easily. Drill a $\frac{1}{4}$ in. hole at each end of the slot and use a coping saw to complete the opening. Now, sand the outside of the base unit to remove the saw marks and any irregularities.

Round the top edge of part F with a rounding-over bit in a router. It's easier if the router is mounted in a router table. Also, use the router to round the edges of the lid rim (J). There isn't enough clearance between part I and part J to use a router bit with a pilot to round the top of part I, so you will have to round this edge by hand with a rasp or with a disk sander.

Part M is a $\frac{5}{8}$ in. diameter dowel. Drill a $\frac{1}{4}$ in. hole through the dowel $\frac{1}{2}$

(continued on next page)

in. from one end and then round that end with sandpaper. Glue the other end into the hole in the center of part D. A piece of $\frac{1}{4}$ in. dowel approximately 1 in. long is used for part S. Insert it into the $\frac{1}{4}$ in. hole in part D. The dowel should extend slightly less than $\frac{1}{4}$ in. above the surface of part D. This dowel acts as a stop to keep part H from rotating too far.

The holes in the center of parts G and H are slightly larger than $\frac{5}{8}$ in. so the parts will rotate freely on the dowel. The normal position of the 1 in. hole in part H is 90 degrees from the holes in parts D and G, but all three holes should be drilled so that they line up perfectly when the parts are rotated into alignment. If there is any misalignment of the holes, use a power carving tool to smooth out the transition between holes so there won't be any ridges that will catch the candy and cause it to jam in the opening.

At this point you can insert dowels P and O, but don't insert dowel Q. Dowel O extends from the bottom of part H slightly less than $\frac{3}{4}$ in. Dowel O serves two purposes; it bumps into dowel S to stop the rotation of part H and it serves as an attachment point for the knitted elastic (R) that connects part G to part H. Dowel P is the attachment point for the knitted elastic on part G.

Part K (see detail G) is the lock mechanism that holds the lid on. First cut out a $2\frac{1}{4}$ in. diameter disk on the band saw, then drill a $1\frac{1}{4}$ in. hole in its center. Stop drilling when the hole is about $\frac{3}{8}$ in. deep. Complete the hole using a $\frac{5}{8}$ in. drill. Make a $\frac{1}{4}$ in. wide slot from one side of the $1\frac{1}{4}$ in. hole to the other using a power carving tool. This slot should allow dowel N in the end of Part M to enter; adjust the size until it slips in freely. Now use the power carving tool to form a ramp inside of the $1\frac{1}{4}$ in. hole from the edge of the slot and form a stop about $\frac{1}{4}$ in. away from the opposite end of the slot. Make a duplicate ramp on the other side of the slot starting at the opposite end. When you have finished these ramps, you should be able to insert part M into the hole and then twist part K. As you twist part K, the $\frac{1}{4}$ in. dowel (part N) should ride up the ramp and hit the stop before it reaches the opening of the slot.

Drill a $\frac{5}{8}$ in. hole in the bottom of part I where it will line up with the hole in part K. Stop the hole before the center spur of the bit breaks through the top of part I. This hole simply provides some additional clearance for the top of dowel M. Glue and clamp part K to the bottom of part I. Position the slot in part K so that the entrance cut in part J will be at the back when the lid is

locked on.

At this point you can try a test assembly to make sure all of the parts fit together and operate smoothly. Dowel N must be removed to assemble or disassemble the machine so it should not be glued in place. A friction fit is all that is needed to hold it in place. With part N removed, slide parts G and H over the central dowel (M). Part R consists of $\frac{1}{4}$ in. wide knitted elastic, the same material that's used to make elastic waistbands. It's sold in the sewing products section of just about any department store. Cut the elastic to length, then tie the ends in a square knot to form a loop that measures about $3\frac{1}{2}$ in. long.

Rotate the disks until the 1 in. holes



line up; put one of your fingers through the holes and lift the two disks up until they clear the base but are still on the central dowel. Stretch the knitted elastic from dowel O on the bottom of part H to dowel P on the edge of part G. The tension of the knitted elastic will rotate the two disks, lightly wedging your finger in the holes. Now you can raise and lower the disks with your finger. Twist the disks until dowel S in part D is positioned between dowels O and P. Lower the disks until they rest on part D. Both sides of the knitted elastic should be between dowel S and the edge of part G. With your finger still holding the disks from rotating against each other, turn the disks until the hole in the front edge of part G is visible through the slot in the front of part E. Insert dowel Q through the slot and into the hole; don't glue the dowel in place. It must be removable to disassemble the unit for cleaning or to

change the knitted elastic should it break. Now you can remove your finger from the holes in the disks. The knitted elastic should pull part G around until dowel Q reaches the far left end of its slot and part H should rotate around until the 1 in. hole is at a 90 degree angle to the hole in part D.

Next, put the Coleman lantern glass in place. It should fit between part F and H without binding part H, and it should rest on the ledge formed by part E.

Finally, try locking the lid. Replace dowel N in its hole in part M and align the slot in part K with dowel N. Slide the lid down on dowel M until it rests on the glass. Twist the lid in a clockwise direction. As you twist the lid, it should be drawn down on dowel M, firmly clamping the glass in place and locking on the lid.

Try moving dowel Q from one end of its slot to the other. It should move freely without binding, but you will feel the resistance of the knitted elastic as it stretches. When the dowel reaches the far right end of the slot, the hole in part G should line up with the hole in part H. When you slide the dowel back to the far left of the slot, part H should remain stationary. If everything is working okay up to this point, put a few jelly beans or gumballs in the machine and try it out.

The number of candies the machine will dispense at one time depends on the size of the candies. It will dispense about two normal size jelly beans at once. To dispense the candies, move the dispensing lever (dowel Q) from the left end of the slot to the right end of the slot and back again.

As you dispense the candy, you will notice that occasionally a piece will become wedged between the holes in parts G and H; that is why part H is free to rotate and attached to part G with knitted elastic. When a candy becomes wedged, part H will rotate with part G. When the lever is moved to the right again to dispense another piece of candy, part H will stop when dowel O hits dowel S; but part G will continue to rotate, clearing the jam.

Part T is optional. Some types of candy feed better than others; gumballs are round and roll into the hole fairly easily, but jelly beans are odd shapes and may not feed as well. If you use a type of candy that doesn't feed well, you may want to add part T. Its job is to stir up the contents of the machine so there is always some candy ready to fall into the hole. Without part T you may find that it is necessary to shake the machine once in a while to get more candy to feed down into the hole in part H.

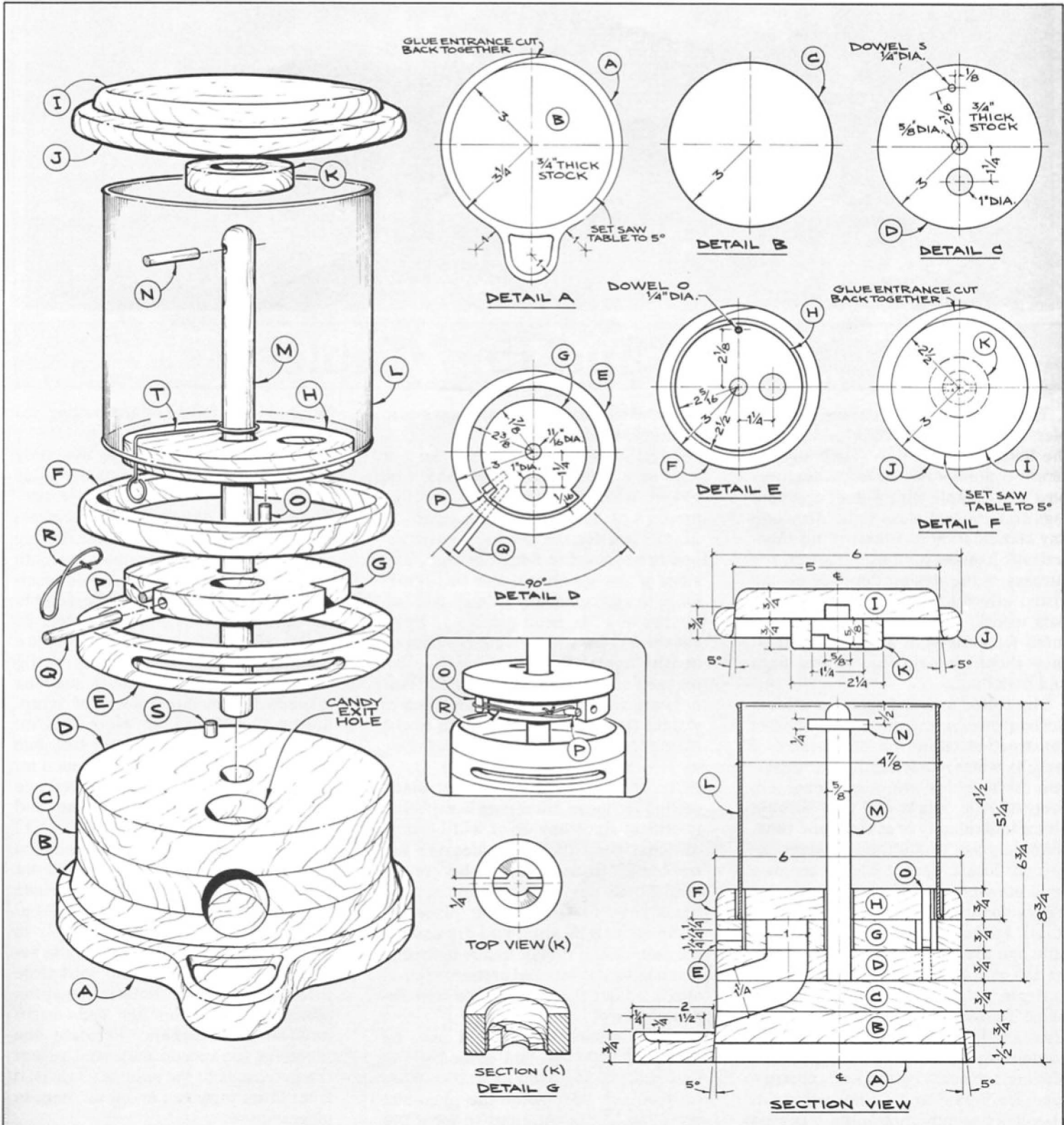
Part T is simply a piece of thin stiff wire about 6 in. long. It is bent so there is a large loop at one end that will slip loosely over the center post (part M), and there is a small loop at the other end that slips over the dispensing lever (part Q). The wire is given a right angle bend in the middle so that when the large loop is on the center post the wire will extend out from the post at a right angle until it is almost touching the glass and then bend down to slip between the glass and part H. Remove

the dispensing lever part Q and line up the small loop in the wire with the hole for part Q, then reinsert part Q so that it passes through the loop in the wire. At this point the top of part T should be about one inch above the top of part H. When you move the lever from one side of its slot to the other, the wire should move with it, but part H should remain stationary.

If you have a problem with the knitted elastic breaking repeatedly, check to make sure there is enough clearance

between dowel O on the bottom of part H and the edge of part G. If there isn't enough clearance, the knitted elastic will chafe against the edge and break after only a few uses.

When you are satisfied with the operation of the machine, disassemble it and give all of the parts a final sanding. Then apply a nontoxic finish like Behlen Salad Bowl Oil finish, available by mail from Garrett Wade Co., 161 Avenue of the Americas, New York, New York 10013. Wwj





End table designed and built by Shannon Miller.

Coffee and End Tables

These matching coffee and end tables will be an attractive addition to the living room or den. Their uncluttered contemporary design features bird's-eye maple with walnut accented legs and smoked glass tops. Although any combination of woods could theoretically be used for these projects, the success of the design depends on the visual effect of contrasting light and dark woods. If other woods are substituted for either the maple or walnut, they should remain true to this light and dark theme.

The coffee and end tables are identical in design and in the manner of construction. Only the dimensions of length, width, and height are different. Both tables are constructed entirely of $\frac{3}{4}$ in. stock, and may be built either individually or at the same time. If you choose to build both tables together, locate each table in its own separate work space so that parts are not accidentally interchanged or confused. In the event you decide to build only one piece, refer only to the illustration of that table.

Begin by forming the leg assemblies. To facilitate construction of the legs, and to insure accurate 90 degree corners on each leg, we suggest employing a "box" method of construction (see Figs. 1 and 2). Following this plan will not only guarantee a perfect

fit for all the legs, it will also save considerable time and effort.

To build the "box," first cut the four leg-board sides. Each board must be $6\frac{1}{8}$ in. wide, or double the actual leg piece (A or AA) width plus an extra $\frac{1}{8}$ in. to allow for the saw kerf when the box is cut apart to form the legs. The sides of the box should also be slightly long, to accommodate a finish trim after the box has been glued up. Next, cut the $1\frac{1}{8}$ in. wide walnut leg trim (B or BB), again allowing an extra $\frac{1}{8}$ in. on each strip for waste when the corners are mitered (Fig. 1). Glue the two walnut leg strips on either side of the maple leg boards and miter each side as shown in details A and B (Fig. 1).

An accurate 45 degree saw blade setting for these miter cuts is especially critical since any error will become obvious when the four sides are assembled into the box. To be certain that the 45 degree saw blade setting reads true, first miter four pieces of scrap about 6 in. long, and dry assemble them using rubber bands to form a test box. If the mitered corners are not exact, adjust the blade angle and repeat this test.

Each finished side should now be $8\frac{1}{8}$ in. wide. Glue and assemble the four sides, using band or web clamps, to form the box. After the glue has dried the box is cut apart to form the

finished legs, following the cutting sequence shown in figure 2.

The end and side apron assembly may be built next. Cut both the sides (C or CC) and ends (D or DD) to size. The 45 degree miters should be cut using the same setting as when the leg miters were cut. If possible, cut both miters at the same time to avoid resetting the saw blade. Glue and assemble the apron parts. The spline dadoes at each corner of the apron assembly are cut with the dado blade using the jig shown in figure 3. This jig may be fashioned from three pieces of scrap. Start with a 10 by 12 in. piece of $\frac{3}{4}$ in. particle board or plywood. Cut two boards from 5/4 stock, each about 3 in. wide and 14 in. long, and miter one end of each board. Then glue and screw the two boards into the 10 by 12 in. base, to form the jig indicated in figure 3. Locate the table saw fence for the first spline dado, setting the blade width for $\frac{1}{4}$ in. and the blade height at $\frac{7}{8}$ in. Position the apron assembly in the jig as shown in figure 3, clamp securely and pass the jig and workpiece through the blade. Rotate the apron assembly so that this first dado is cut into all four corners. Relocate the fence for the second dado and repeat the process. Cut the splines (G or GG) from $\frac{1}{4}$ in. plywood, and glue them in place.

When selecting stock for both the apron assembly and frame, try to arrange for matching grain patterns in each piece. If possible, lay out each assembly on a single board with uniform grain. This is especially important with the frame, since the high visibility of the frame surface will cause any unusually grained board to look out of place, detracting from the final appearance of the project.

Cut the frame ends (E or EE) and sides (F or FF) to size, and miter the corners for a close fit. Again, these miters must be exact because of their highly visible position. Both the rabbet edge along the inside of the frame and the spline rabbet in each of the corners is cut on the router table. To cut the spline rabbet, set up a jig as indicated in figure 4. Locate the router table fence so that the router bit will cut the $\frac{1}{4}$ in. spline rabbet exactly in the center of the $\frac{3}{4}$ in. thick frame stock. Next, clamp the mitered guide board shown in figure 4 to the fence, carefully positioning it so that when the spline rabbets are cut they will start about $1\frac{1}{2}$ in. from the frame corners. Using a $\frac{1}{4}$ in. straight bit, set the router for a $\frac{1}{8}$ in. deep cut and gently lower the stock onto the bit. Pass the stock through the cutter, readjust the

bit depth, and repeat this process several times, or until a final $\frac{1}{2}$ in. depth is achieved. To avoid readjusting the router depth several times for every piece, simply pass all the frame pieces through at each depth setting until the final $\frac{1}{2}$ in. spline rabbet depth is complete.

The $\frac{1}{4}$ in. by $\frac{1}{4}$ in. frame rabbet, which supports the smoked glass insert, is cut on the router table with a $\frac{1}{4}$ in. piloted rabbet bit. Once again, however, the router depth must be set gradually so that no more than $\frac{1}{8}$ in. of stock is removed at a time.

Cut the 1 in. by $3\frac{1}{4}$ in. splines (H or HH) from $\frac{1}{4}$ in. thick plywood, adding an extra $\frac{1}{8}$ in. to their length to allow for final trim. Glue and assemble the frame and insert the splines, bedded in glue. The splines may be notched (see illustration) after the frame assembly has dried.

Both the apron and frame assemblies must be clamped securely while the glue dries. Although band or web clamps are preferred here, a series of strategically positioned bar clamps should do the job. Take care that the clamps are not over-tightened, however, or they will force the miters off line.

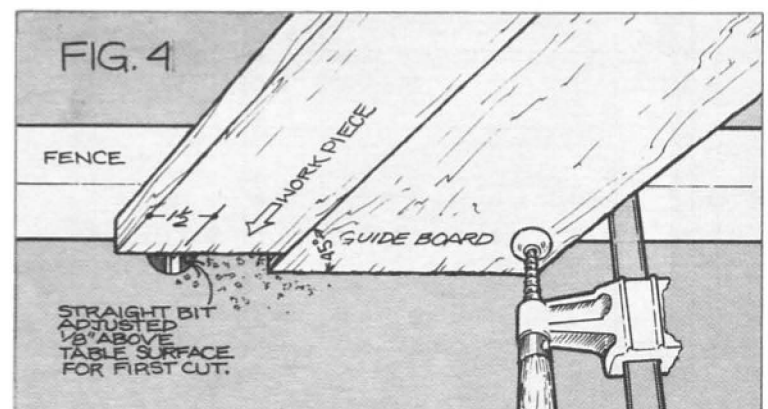
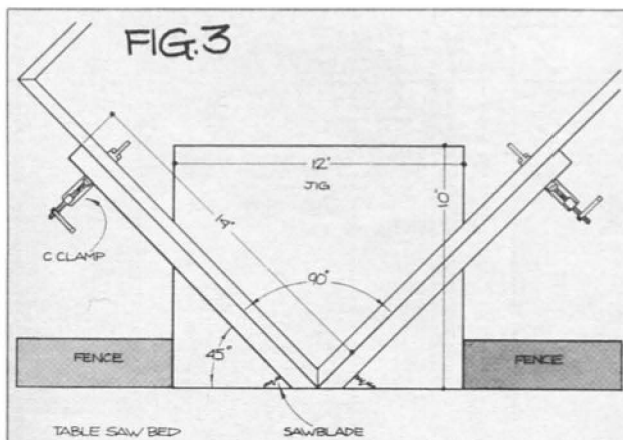
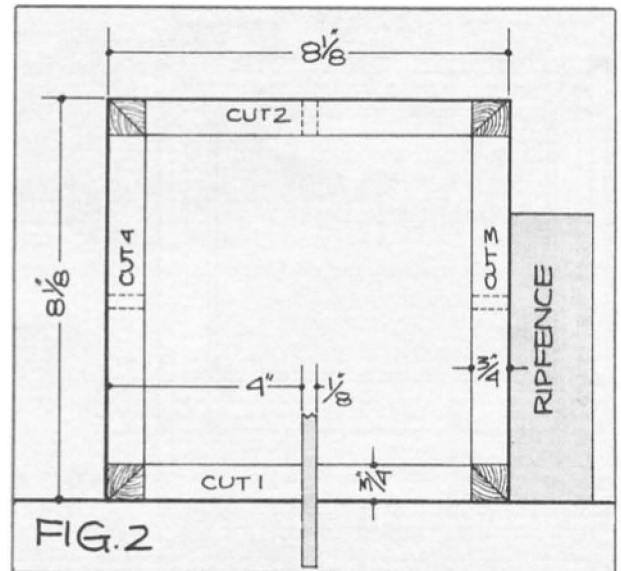
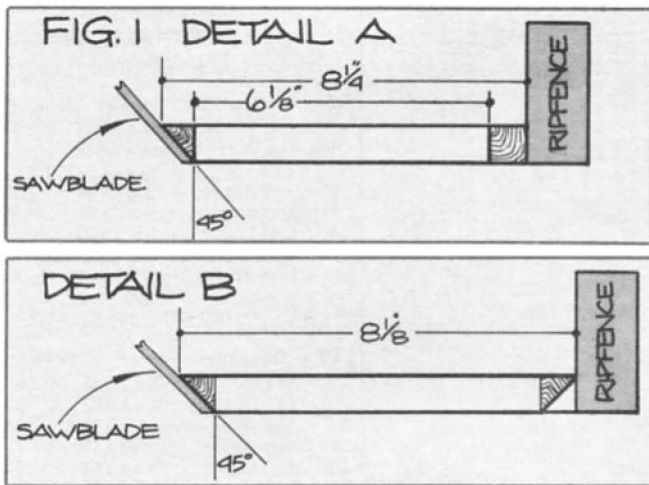
The component parts of the tables—

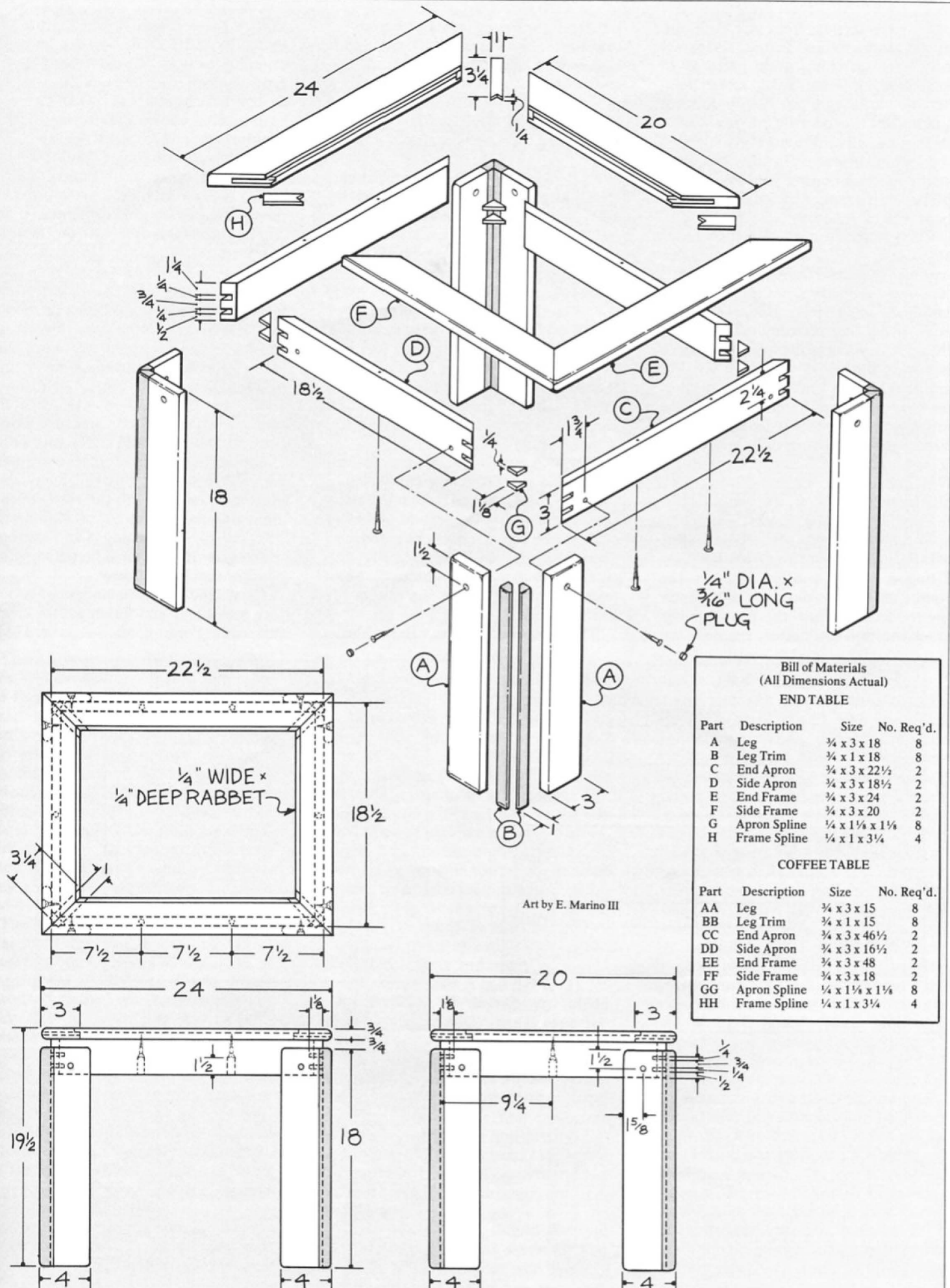
that is the leg assemblies, apron assemblies and frames — are screwed together without the use of any glue. Drill through each side of the legs to accept $\frac{1}{4}$ in. flathead wood screws, as indicated in the illustration. Then counterbore to accept the $\frac{1}{4}$ by $\frac{3}{16}$ in. deep walnut plugs. If the counterbore depth is accurate, the $\frac{1}{4}$ in. wood screws should not protrude through the inside of the apron. If in doubt, however, file off the screw point.

The frame is then fastened to the apron assembly with 2 in. long flathead wood screws. As shown in the illustration, the counterbore for these screws is $1\frac{1}{2}$ in. deep, allowing the screw threads to protrude about $\frac{1}{2}$ in. into the frame.

The smoked glass inserts for both tables are $\frac{1}{4}$ in. thick. Measure carefully for the glass and check the table frames for alignment. If the frames are not perfectly square, have the glass cut to match. For the closest possible fit, make a paper or cardboard template. The sharp edges and corners of the glass inserts must be polished to prevent accidental injury.

Final sand the table components before assembly, and finish with a clear penetrating or tung oil. Wwj





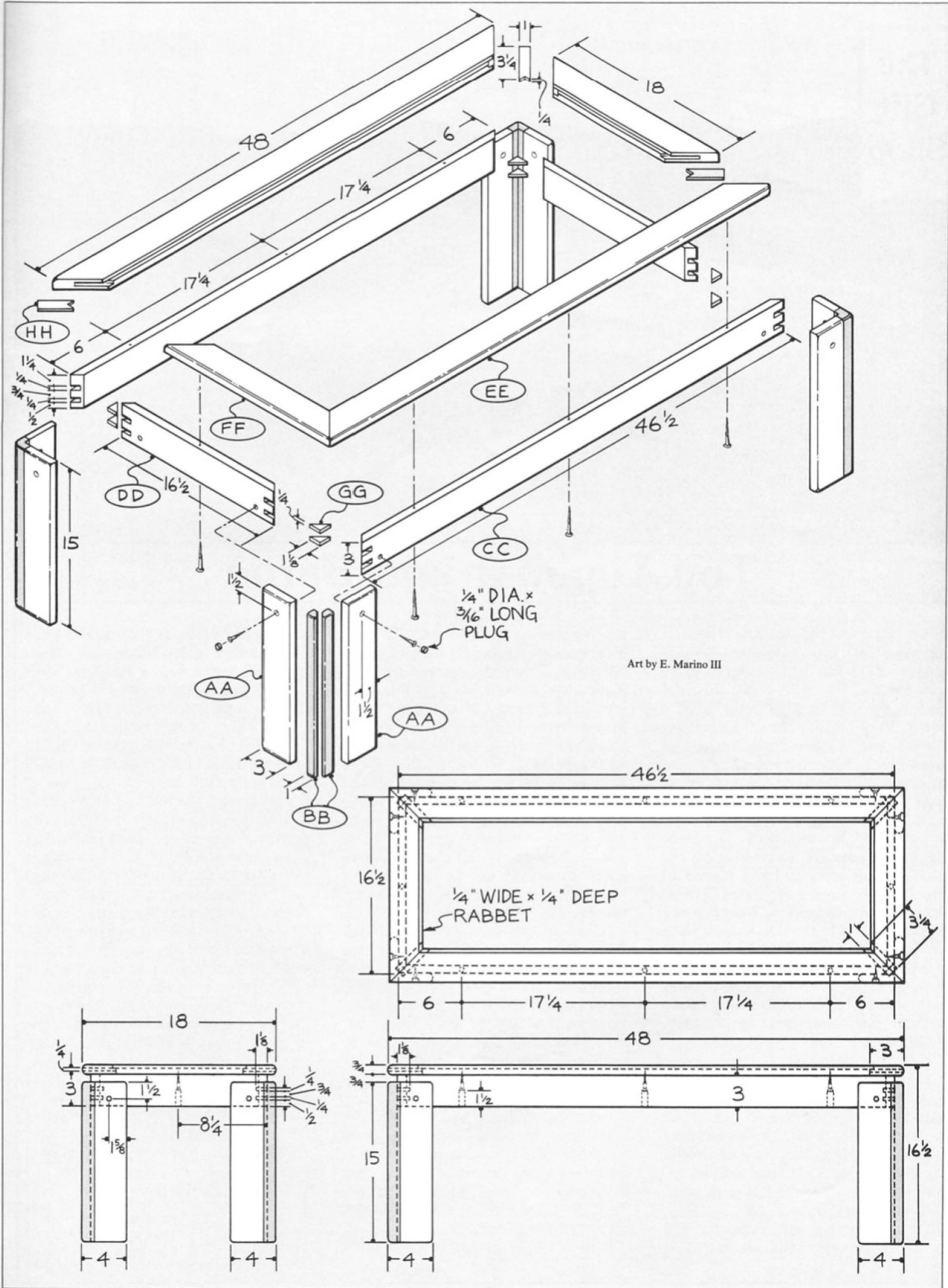
Bill of Materials
(All Dimensions Actual)
END TABLE

Part	Description	Size	No. Req'd.
A	Leg	3/4 x 3 x 18	8
B	Leg Trim	3/4 x 1 x 18	8
C	End Apron	3/4 x 3 x 22 1/2	2
D	Side Apron	3/4 x 3 x 18 1/2	2
E	End Frame	3/4 x 3 x 24	2
F	Side Frame	3/4 x 3 x 20	2
G	Apron Spline	1/4 x 1 1/4 x 1 1/4	8
H	Frame Spline	1/4 x 1 x 3 1/4	4

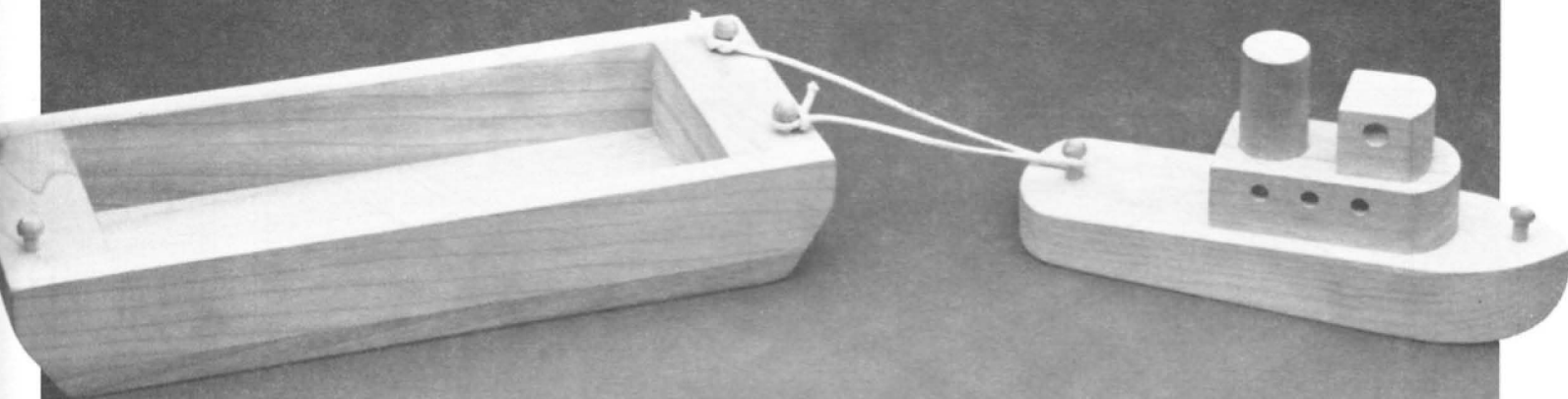
COFFEE TABLE

Part	Description	Size	No. Req'd.
AA	Leg	3/4 x 3 x 15	8
BB	Leg Trim	3/4 x 1 x 15	8
CC	End Apron	3/4 x 3 x 46 1/2	2
DD	Side Apron	3/4 x 3 x 16 1/2	2
EE	End Frame	3/4 x 3 x 48	2
FF	Side Frame	3/4 x 3 x 18	2
GG	Apron Spline	1/4 x 1 1/4 x 1 1/4	8
HH	Frame Spline	1/4 x 1 x 3 1/4	4

Art by E. Marino III



The Gift Shop



Toy Tugboat and Barge

by C.J. Maginley

Certain toys seem to enjoy a universal appeal, providing an endless source of fascination to children of all generations. We believe that this tugboat-barge combination is just such a toy. It is a project that even a beginner can master. Although our barge and tug were crafted from rock maple, any close-grained hardwood will work as well.

Begin by cutting the tugboat hull (A) to size from 2 in. thick stock. The gradual fore-to-aft deck slope may be cut with a band saw, or hand planed to meet the required dimensions. Transfer the grid pattern (see boat contour detail) directly to the hull by penciling the grid onto the wood. The bow contours can then be cut with either a band or saber saw. The stern contour may also be cut using the band or saber saw, although it can be just as easily shaped with only a rasp and file.

Next, cut the bridge (B) and cabin (C) from 5/4 stock. A disk sander will make quick work of the contours on parts B and C; however, if one is not available the rasp and file are equally effective. Cut a section of 1 in. dowel stock for the stack (D), and drill a 1 in. diameter hole into part B (see illustration) to accept the stack.

Glue, assemble and clamp the tug parts. Keep in mind that when freshly


glued parts are clamped up, especially if the glue joints are not perfectly parallel with the clamp pressure (as with parts A, B, and C), slippage along the glue joint is almost always a problem. To prevent this situation, drive several small brads into one face of each joint and snip the heads off so that about 1/16 in. of the brad protrudes. When the parts are clamped, the protruding brads will catch on the facing piece and lock it in place. Take care, however, when using this technique, to make sure that the position of the brads will not interfere with later cutting or drilling operations.

Next, cut the bottom (E), the two sides (F), and both ends (G) of the barge. Note that the length of both the bottom and sides at this point in the project is 12 in. The 60 degree undercut on either end is made after the barge has been assembled. Parts E and F are cut from 1/2 in. stock, and the ends (G) are cut from 2 in. stock. Glue, assemble, and clamp the barge. Since all mating surfaces are square, no brads are necessary. After the glue has dried, use the table saw with the blade set at 60 degrees to make the bevel cuts on either end of the barge. Push the piece through the saw blade with the miter gauge.

Drill the 7/32 in. peg holes in both

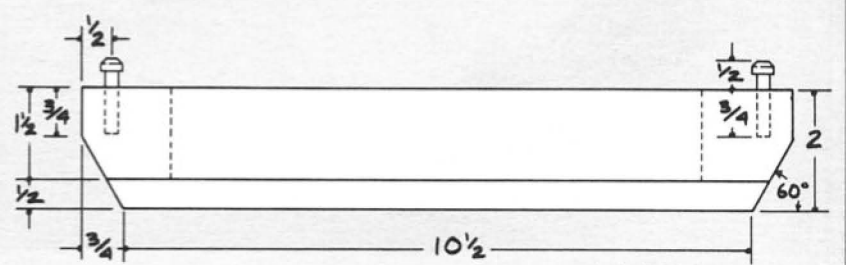
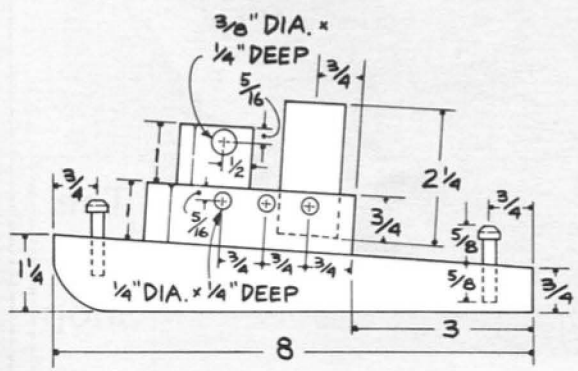
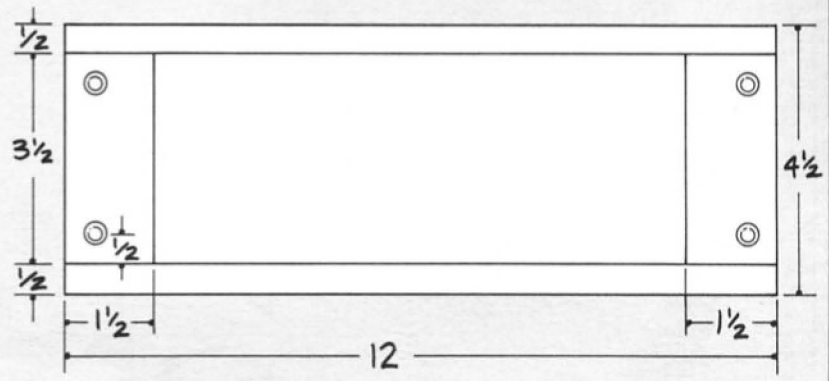
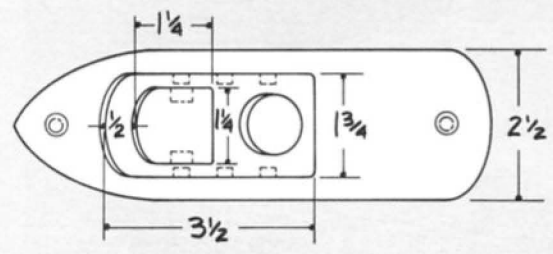
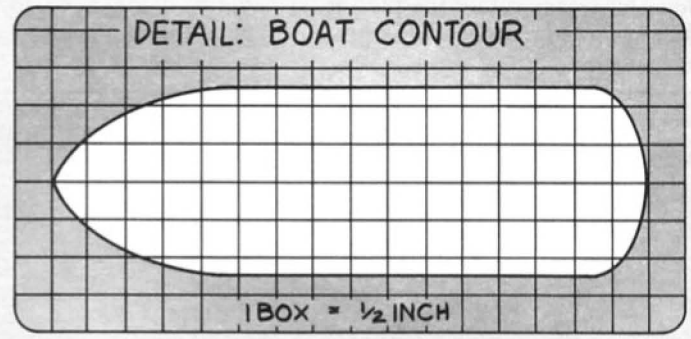
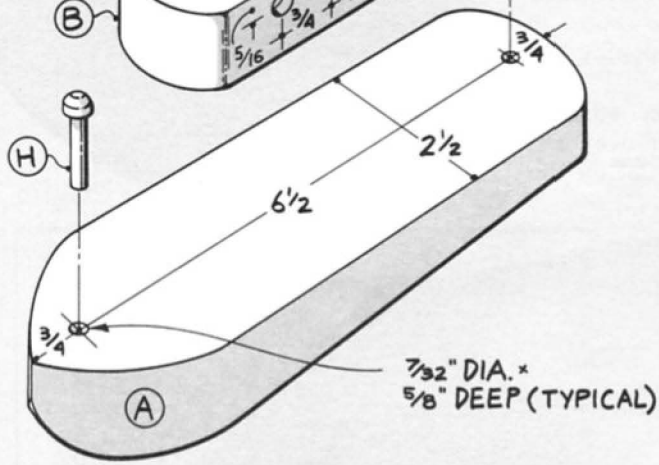
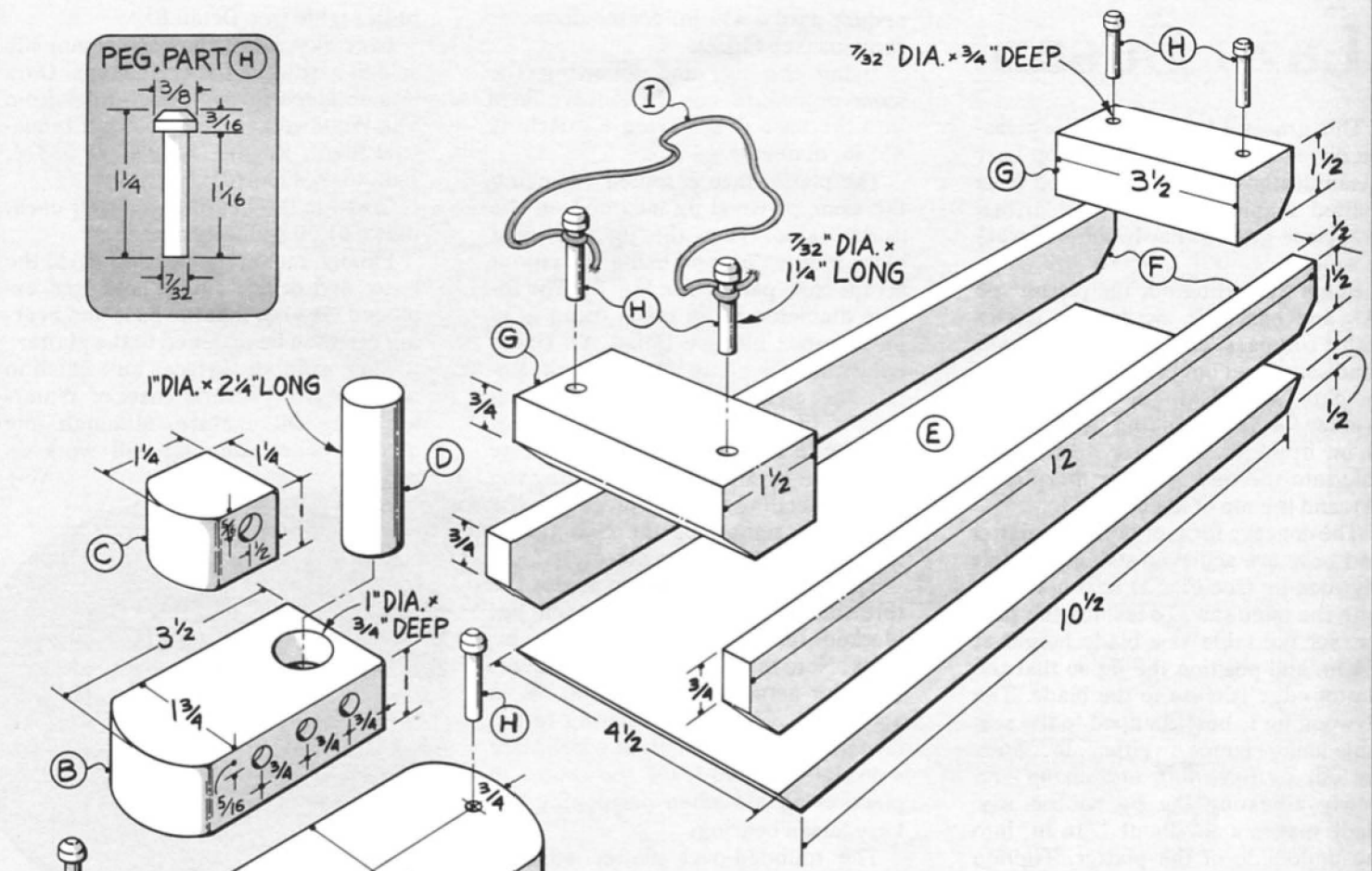
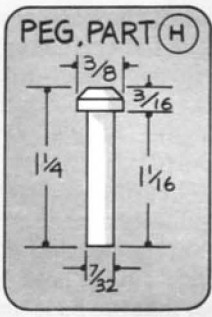
the tug and barge as shown. The pegs (see detail) can either be hand-whittled, turned on a lathe, or purchased ready-made from The Toy-maker Supply Company, 2907 Lake Forest Rd., P.O. Box 5459, Tahoe City, CA 95730. Specify part number PR-216 for a package of 16 pegs. The cost is \$1.50 per package.

Finish sand the tug and barge, particularly sharp edges, and glue the pegs in place. Lastly, tie a pull-string (I) between the barge pegs, so that it can be pulled along behind the tug. The best non-toxic finish is none at all.

Note: After extensive testing in our laboratory (the kitchen sink), we have determined that the tug is not seaworthy, suffering as it does from a persistent tendency to "turn turtle" in the water. It is our belief, however, that this minor problem should present no obstacle to youthful imagination. 

Bill of Materials (All Dimensions Actual)

Part	Description	Size	No. Req'd.
A	Hull	1 1/4 x 2 1/2 x 8	1
B	Bridge	1 x 1 3/4 x 3 1/2	1
C	Cabin	1 x 1 1/4 x 1 1/4	1
D	Stack	1 Dia. x 2 1/4 Long	1
E	Bottom	1/2 x 4 1/2 x 12	1
F	Side	1/2 x 1 1/2 x 12	2
G	End	1 1/2 x 1 1/2 x 3 1/2	2
H	Peg	(See Detail)	6



Lazy Susan

This graceful Lazy Susan is a pleasant diversion from typical flat-top Lazy Susan designs. Ours was crafted from spalted maple, although any attractive, close-grained hardwood will work as well.

Begin by cutting out the platter top (A), and base (C). Scribe the circles with a compass, and use either a jig or band saw to cut out both pieces. Locate the cuts just outside the compass line to allow for finish sanding. Next, drill a $\frac{1}{4}$ in. by $\frac{3}{8}$ in. diameter deep dowel hole into the underside of the platter (A), and the top of the base (C).

The concave form of both the platter and base are achieved using a simple plywood jig (see Fig. 1) in conjunction with the table saw. To fashion the platter, set the table saw blade height at $1\frac{1}{8}$ in. and position the jig so that the platter edge is close to the blade. The plywood jig is best clamped to the saw table using clamps on either side. Start the cut by loosening one clamp and slowly adjusting the jig so the saw blade makes a cut about $\frac{1}{16}$ in. into the underside of the platter. Tighten the clamp and slowly rotate the platter across the saw blade. Repeat this pro-

cedure until a $4\frac{1}{2}$ in. center diameter remains (see Fig. 2).

Using the jig, and following the same procedure, cut the concave form into the base (C), leaving a matching $4\frac{1}{2}$ in. diameter.

The platter face is routed out using the same plywood jig mounted on the router table. Turn the jig over and block it on either end using the cutout scraps from part A (see Fig. 3). The inside diameter cut is made using a $\frac{1}{2}$ in. core-box bit (see Detail A). Gradually raise the bit up into the work. Rotate the piece and repeat the procedure until a $\frac{1}{4}$ in. depth is achieved. Change to a straight bit and complete the cutout by alternately loosening the clamps, feeding the workpiece into the router bit, tightening the clamp, and then slowly rotating the piece.

The base is routed out to accept the three inch bearing, using the same jig, blocked on either side with $\frac{3}{4}$ in. stock. Note that with a three inch bearing, the actual diagonal measure is about 4 in. Check your bearing to determine an accurate cutout width. Use a straight bit and leave the center in place as an aid when positioning the Lazy Susan bearing.

The rounded-over platter edge is made using a $\frac{3}{8}$ in. round-over bit, with the workpiece laying flat on the

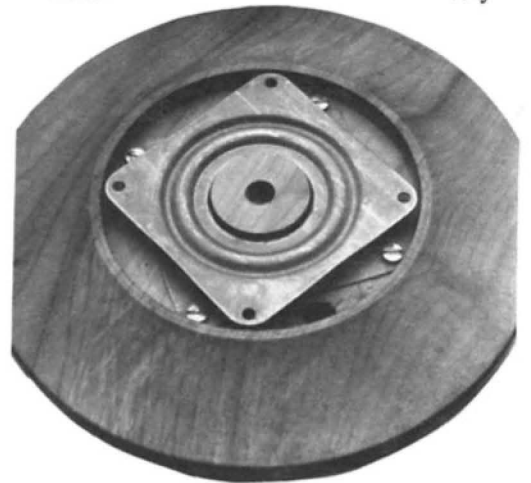
router table (see Detail B).

Lazy Susan bearings are commonly sold in hardware and craft shops. Ours was obtained through mail-order from The Woodworkers' Store, 21801 Industrial Blvd., Rogers, Minnesota 55374, Tel.: (612) 428-4101.

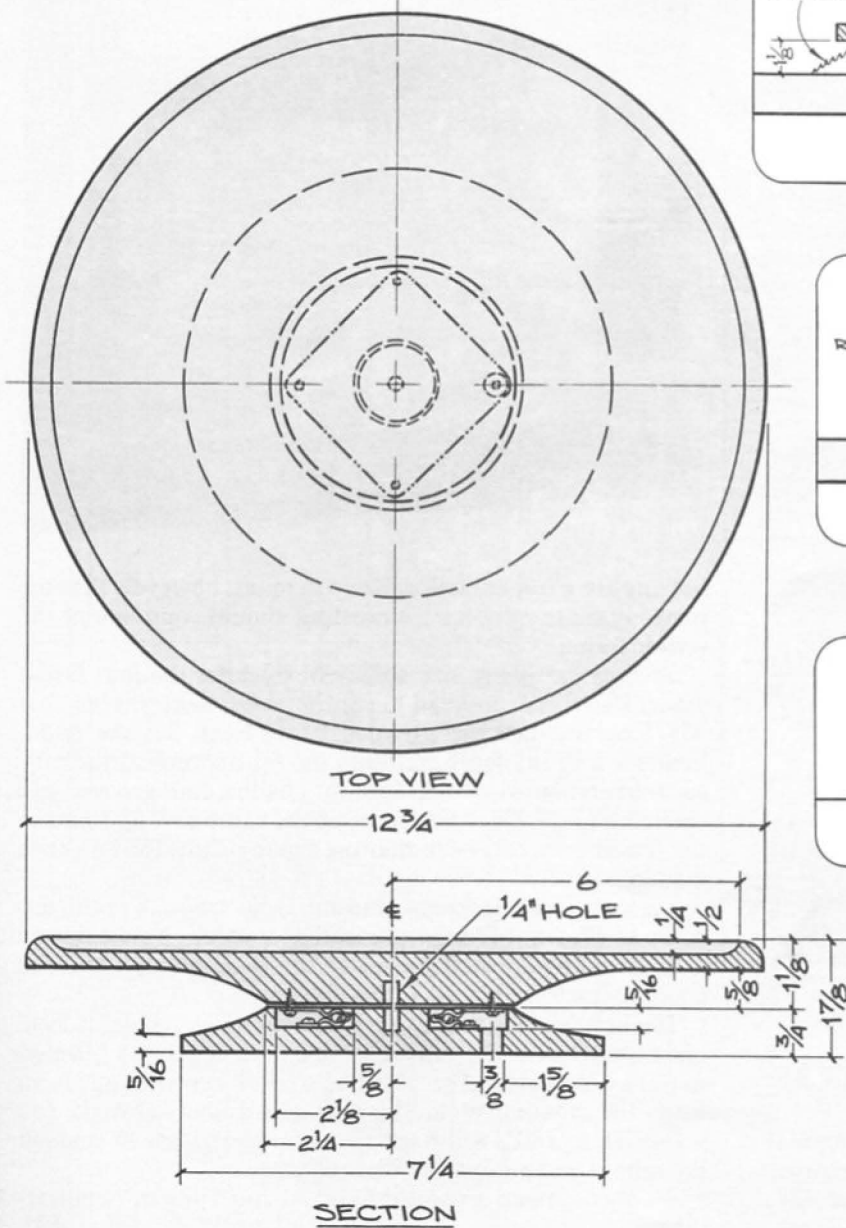
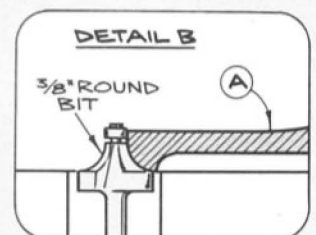
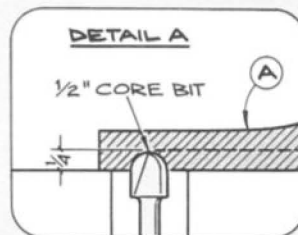
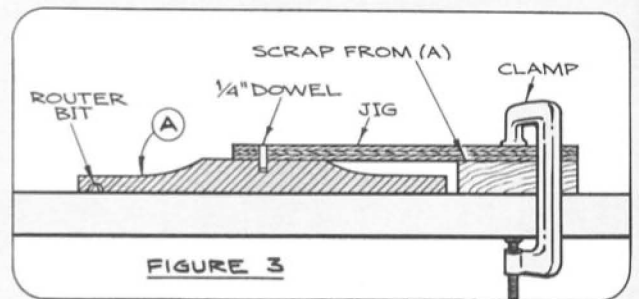
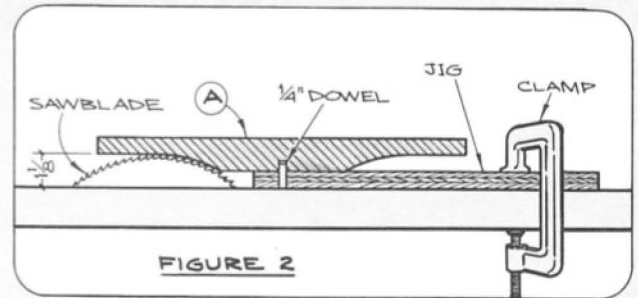
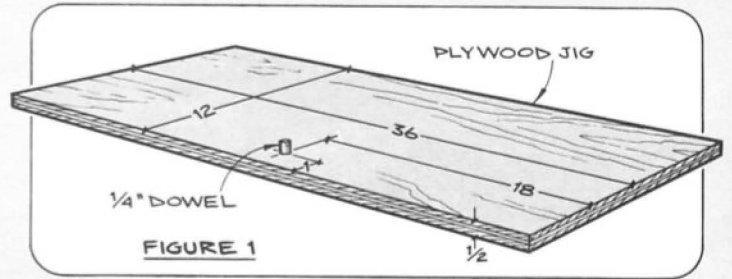
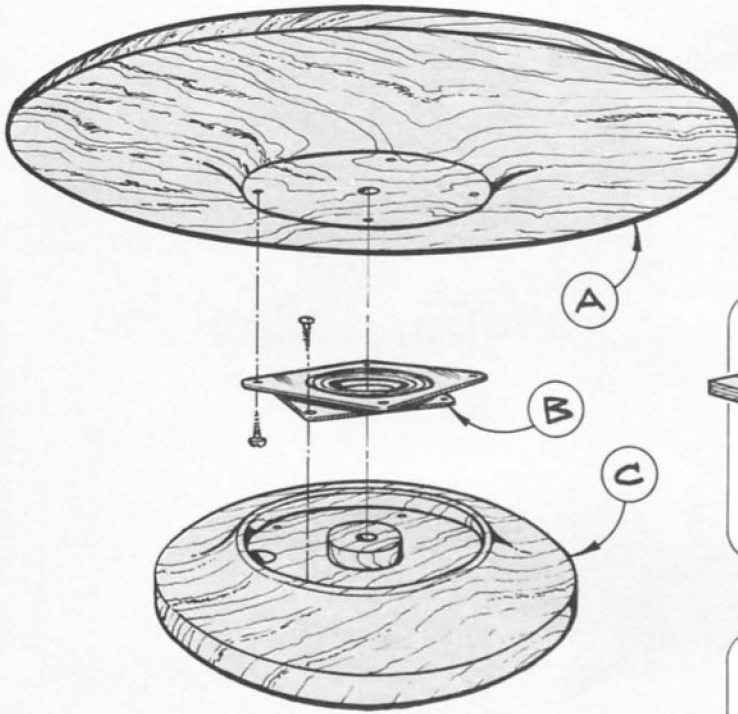
Cost for the bearing is \$1.00 each, plus a \$1.50 handling charge.

Finally, mount the bearing (B) to the base, and drill a single hole (see exploded view) so that the base and bearing can then be fastened to the platter.

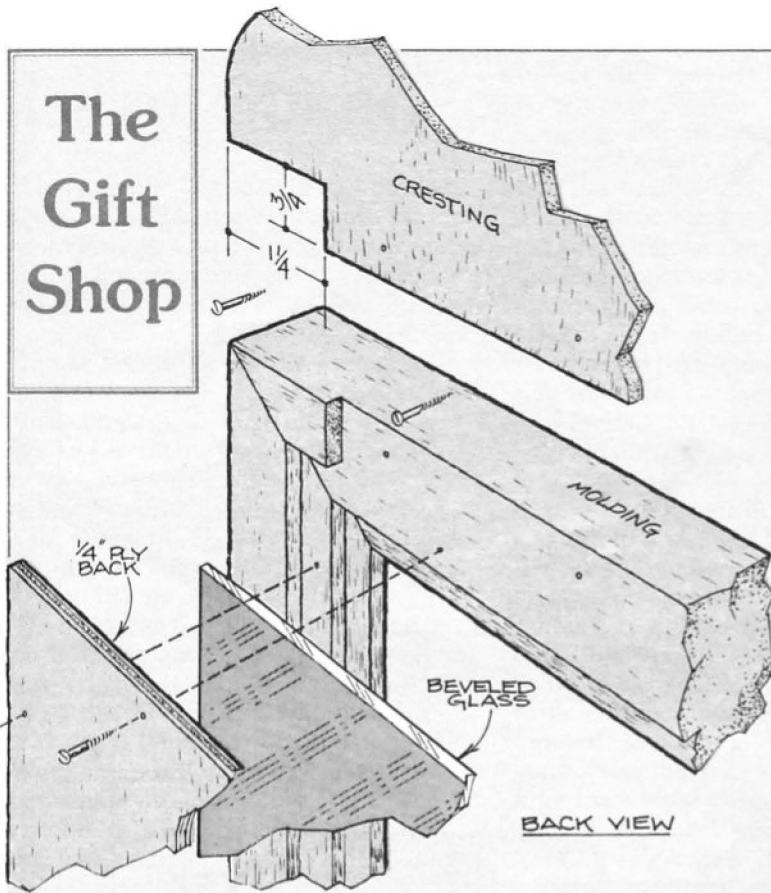
Final sand all surfaces and finish to suit. We used several coats of Waterlox Tung Oil mixture, although any quality penetrating oil will work as well. W&J



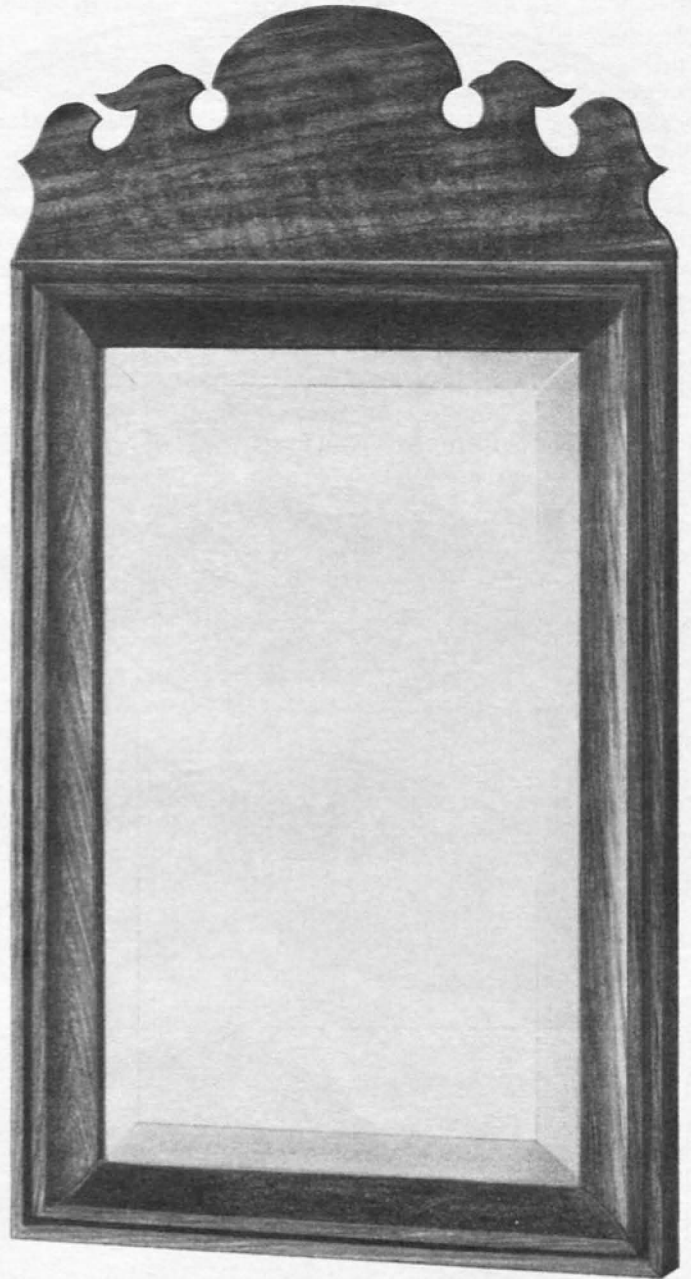
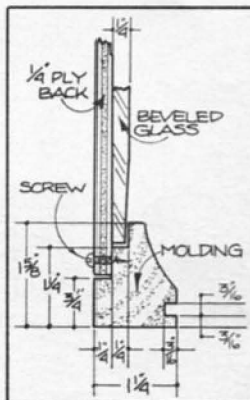
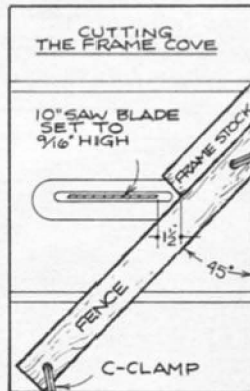
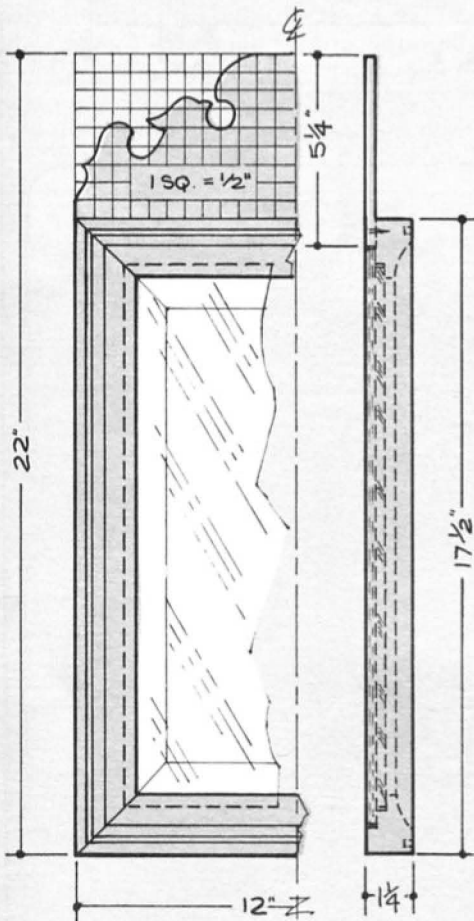
The
Gift
Shop



The Gift Shop



BACK VIEW



hogany are a better choice. Keep in mind, however, that the plywood for the decorative cresting should compliment the mirror frame.

Start by cutting to size sufficient stock for the four frame sides. Use the dado-head to cut the $\frac{1}{4}$ in. deep rabbet that will accommodate the plywood back. Next, set the dado-head for a $\frac{1}{2}$ in. depth, relocate the fence, and cut the mirror rabbets. Now cut the $\frac{3}{16}$ in. shadow-line groove, and referring to the illustration, set up the table saw jig to make the broad cove cut. Note that the blade height for this cove is $\frac{9}{16}$ in.

Miter the frame corners, and cut away the back of the top piece as shown, to fit the decorative cresting. This cutaway is made with repeated passes of the dado-head, while the cresting itself is best cut with a jig saw.

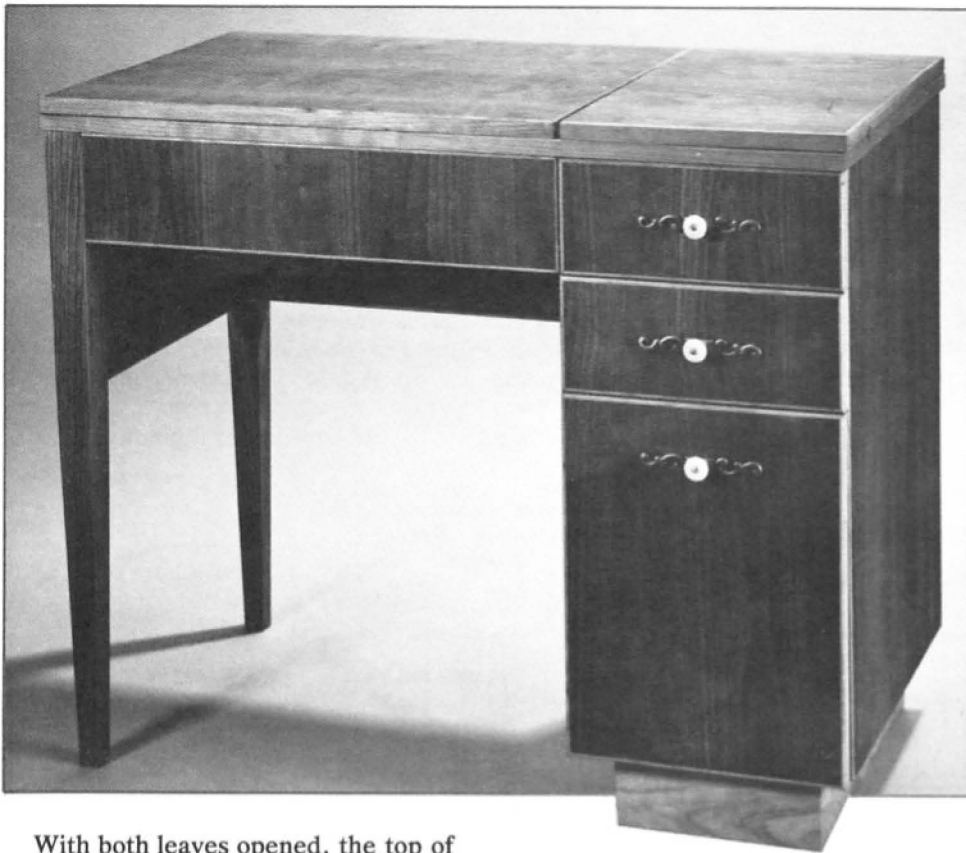
The beveled mirror glass is a custom item. Ask your local glass shop to cut the mirror to size, and apply the beveled edge, as indicated. The plywood back is screwed in place, while the cresting should be both glued and screwed. You may wish to add a felt backing under the glass, to cushion the mirror and protect the silvered side.

We recommend a natural finish, using Tung or penetrating oil.

Early American Mirror

This Early American style mirror recreates the popular wall mirrors that often graced 18th Century drawing rooms.

Although these mirrors were sometimes made from pine, we believe that hardwoods such as walnut, cherry, or ma-



With both leaves opened, the top of this attractive cabinet measures over six feet long, providing plenty of valuable work area. When not in use, the sewing machine stores conveniently in the lower drawer, while the center and upper drawers offer additional storage space for the usual assortment of sewing paraphernalia. Note that the bottom drawer does not have a typical drawer front. Instead, it has a hinged door (N) that opens to allow the sewing machine drawer to be pulled out. To use the machine, simply remove it from the storage drawer and place it in the top cutout.

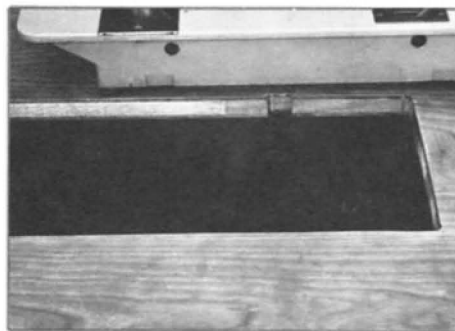
In order to get the sewing machine work surface nearly flush with the cabinet top, the machine must be set into the top. Our machine is the kind that has a "lip" around the base, so we needed only to size the cutout to insure that the lip supported the machine. If your machine is the type that does not have a lip, it can be supported by the alternate means shown in Fig. 1. Two tenoned stretchers are installed between parts E and G, while a pair of cleats are added to the stretchers to support the machine.

Of course, the cutout is not mandatory; the machine can simply be placed on top of part P. In fact, many of the new "free-arm" sewing machines must be used in this manner.

The bottom drawer is sized to fit most sewing machines. However, before starting the project, be sure to measure your machine to be certain it will fit. If it doesn't, you'll need to alter the given dimensions.

Sewing Machine Cabinet

Designed by R.B. Rennaker



As shown in the bill of materials, $\frac{3}{4}$ in. cherry-veneer plywood, with an applied cherry edging, is used for much of the construction, although solid stock can also be used. In spite of the fact that many lumberyards do not stock cherry-veneer plywood, most are willing to order it. However, if you can't get it locally, it can be ordered from McFeely's Hardwood and Lumber, 43 Cadell St., Lynchburg, Virginia 24505.

The two case sides (A) and the top and bottom (B) can be made first. Cut plywood stock to the dimensions shown in the bill of materials, taking care to insure that the cuts are square.

The back (D) is also cut to size (allow a little extra on the length), then the $\frac{1}{4}$ in. thick cherry edging (C) is glued and clamped to each side edge. This edging adds a nice detail while serving to cover the exposed plywood edges. Cut the edging a bit wider than the $\frac{3}{4}$ in. thickness of the plywood so that later, after the clamps are removed, a hand plane can be used to trim it flush to the plywood. Once the edging has been trimmed flush, the stock can be cut to length.

Next, the table saw, equipped with a dado-head cutter, can be used to cut a $\frac{3}{4}$ in. wide by $\frac{1}{2}$ in. deep rabbet along the top and bottom edges of part A and on all four edges of part D. Note that only a $\frac{1}{4}$ in. wide strip of edging remains after the rabbet is cut along the side edges of parts D.

The two legs (H) are made from $1\frac{3}{4}$ in. thick stock. Lay out the location of the $\frac{1}{2}$ in. deep by $\frac{1}{2}$ in. wide mortises as shown. Note that the mortises that accept parts F and G are 11 in. long, while the mortise that accepts part E is 4 in. long. A router table or a router equipped with an edge-guide will serve to cut each of these mortises. Using a $\frac{1}{2}$ in. diameter straight bit, re-

move $\frac{1}{8}$ in. of material with each pass until the $\frac{1}{2}$ in. depth is reached. The bottom end of each mortise will need to be chiseled square.

If you have one, a tapering jig will come in handy to cut the taper on all four edges. However, a sharp hand plane will also do the job with a minimum of effort.

Part E can now be cut to size, allowing a little extra on the length. Apply the edging along both edges lengthwise. When the glue dries, trim to final length before adding edging to the ends. The dado-head cutter is then used to cut the tenon on the leg end. Parts F and G are made following the same basic procedure. Note, however, that part G has a different tenon on each end.

The case (parts A, B, and D) can now be assembled. Use glue and clamp securely with bar or pipe clamps, then be sure to check for squareness. Before the glue dries, add a few countersunk wood screws as shown. The edging (C) along the front edges of parts A and B can now be added. Note that the corners are mitered. Next, the pedestal base (parts K and L) is made as shown. The splines (M), made from $\frac{1}{4}$ in. plywood, provide additional strength. The assembled pedestal is added to the underside of the lower part B with glue and several countersunk wood screws driven through from above as shown.

Now, on the left corner of the back of the case, lay out the location of the $\frac{1}{4}$

in. wide by $\frac{3}{8}$ in. deep by 11 in. long mortise for part G. A router fitted with a $\frac{1}{4}$ in. diameter straight bit and an edge-guide will cut the mortise in three passes, each pass adjusted to remove $\frac{1}{8}$ in. of material.

Part F can now be joined to the legs (H) using glue and pipe clamps. Also, at this time, glue and screw part I to the case. Next, parts E and G can be joined to the F-H sub-assembly and the case. Part E is joined with glue and screws while the remaining joints are glued and clamped.

The top parts (P, Q, and R) are cut to size and the edging (E) is applied. Lay out and remove the center cutout using a saber saw. Our sewing machine had two "ribs" in the back, so it was necessary to use a chisel to add a pair of notches.

Cleats (J) are glued and screwed to the cabinet as shown, then the top (P) secured from the underside with wood-screws through each cleat. Sewing machine hinges are available from The Woodworkers' Store, 21801 Industrial Boulevard, Rogers, Minnesota 55374. Order part No. D2420, \$12.75 per pair.

Three identical drawers are required (parts S, T, and U). For more information on cutting box joints, see The Beginning Woodworker column in our November/December 1982 issue.

On the bottom drawer, a $\frac{1}{4}$ in. high by $2\frac{1}{8}$ in. wide notch will need to be cut in the bottom edge of the drawer back (T) to allow it to slide over the drawer stop. Part V is added to the

center and top drawers, while the bottom drawer is enclosed by the door (N).

The cabinet is sized to take 20 in. drawer guides. If not available locally they can be ordered from The Woodworkers' Store.

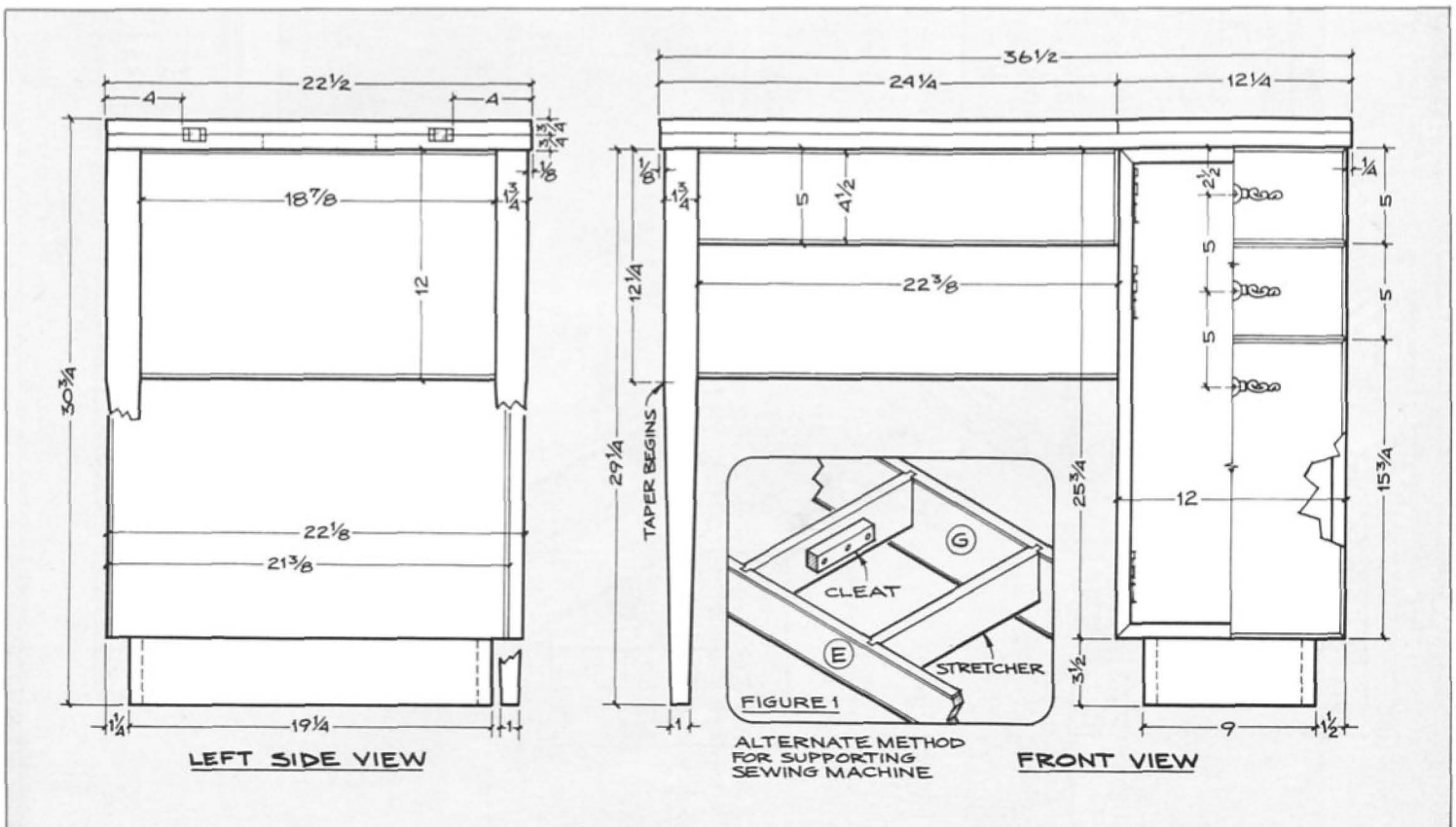
Final sand all parts, finishing with 220 grit paper. Two coats of a good penetrating oil complete the project.

WwJ

Bill Of Materials (All Dimensions Actual)			
Part	Description	Size	No. Req'd.
A	Case Side	$\frac{3}{4}$ x $20\frac{1}{2}$ x $25\frac{3}{4}$	2
B	Case Top and Bottom	$\frac{3}{4}$ x $11\frac{1}{2}$ x $20\frac{3}{4}$	2
C	Edging	$\frac{1}{4}$ x $\frac{3}{4}$	As Needed
D	Case Back	$\frac{3}{4}$ x $11\frac{1}{2}$ x $25\frac{3}{4}$	1
E	Front	$\frac{3}{4}$ x $4\frac{1}{2}$ x $22\frac{3}{8}$ *	1
F	End	$\frac{3}{4}$ x $11\frac{1}{2}$ x $19\frac{1}{4}$ *	1
G	Cabinet Back	$\frac{3}{4}$ x $11\frac{1}{2}$ x $23\frac{1}{4}$ *	1
H	Leg	$1\frac{1}{4}$ x $1\frac{3}{4}$ x $29\frac{1}{4}$	2
I	Frame Cleat	1 x 1 x $4\frac{3}{4}$	1
J	Top Support Cleat	1 x 1 x 3	6
K	Pedestal Front and Back	$\frac{3}{4}$ x $3\frac{1}{2}$ x 9	2
L	Pedestal End	$\frac{3}{4}$ x $3\frac{1}{2}$ x $19\frac{1}{4}$	2
M	Pedestal Spline	$\frac{1}{4}$ x $\frac{1}{2}$ x $3\frac{1}{2}$	4
N	Door	$\frac{3}{4}$ x $11\frac{1}{2}$ x $15\frac{1}{4}$	1
O	Door Hinges	$1\frac{1}{2}$ Long	2
P	Top	$\frac{3}{4}$ x 22 x 36	1
Q	Right Leaf	$\frac{3}{4}$ x 22 x $11\frac{3}{4}$	1
R	Left Leaf	$\frac{3}{4}$ x 22 x $23\frac{3}{4}$	1
S	Drawer Side	$\frac{1}{2}$ x 3 x $20\frac{1}{4}$	2**
T	Drawer End	$\frac{1}{2}$ x 3 x $9\frac{1}{2}$	2**
U	Drawer Bottom	$\frac{1}{4}$ x 9 x $19\frac{3}{4}$	1**
V	Drawer Front	$\frac{3}{4}$ x $4\frac{1}{2}$ x $11\frac{1}{2}$	2**
W	Drawer Guide	20 in.	1 Pair**
X	Drawer Pull	To Suit	1**
Y	Magnetic Catch	$\frac{1}{2}$ in.	1
Z	Hinge	$1\frac{1}{4}$ x $2\frac{3}{4}$	4

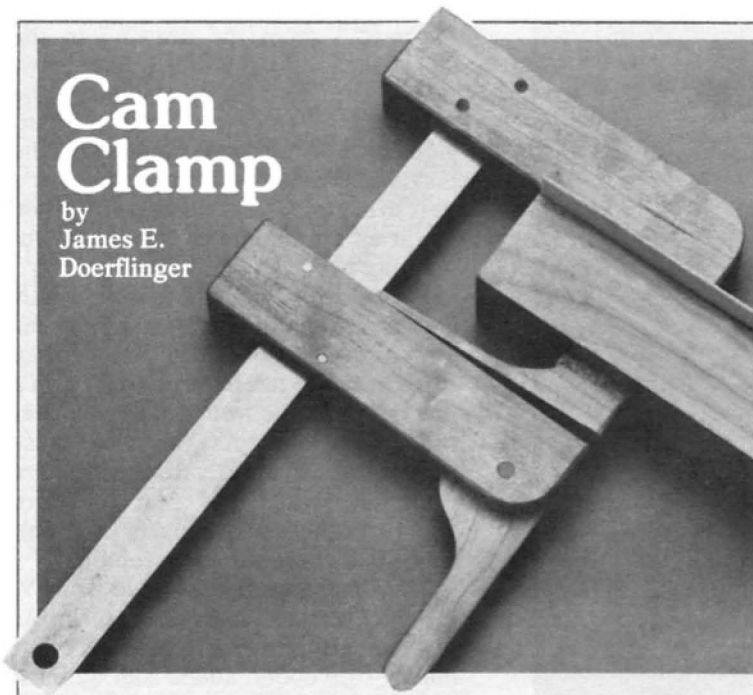
Note:
Parts A, B, D, E, F, G, K, L, N, P, Q, R and V are $\frac{3}{4}$ in. thick cherry-veneer plywood.
*Length dimension includes tenon(s)
**Per drawer
***For center and top drawer only

(continued on next page)



Cam Clamp

by
James E.
Doerflinger



Clamps seem to be the one tool that most woodworkers simply never have enough of. Extra clamps around the shop are always handy, and this 12 in. clamp is an especially useful size. The quick-adjust sliding arm makes it easy to use, and the levered cam action enables the user to apply varying degrees of clamp pressure. Although quality clamps are not cheap, this cam clamp can be made at a unit cost of about \$1.00 each. Ours are crafted from cherry, though any hardwood will work as well.

Begin by roughing out parts A. Although the four identical outer sides (A) may be cut separately, it is simpler to cut them as two pieces, forming both the clamp jaws as a

single unit, and then sawing the upper and lower jaws apart before final assembly. Parts B and D may also be cut as a single piece, from 1/4 in. stock, utilizing the grid pattern shown in the illustration to recreate the profile on part D. Spacer parts C can be cut as a single piece, also from 1/4 in. stock.

Using the galvanized steel bar (E) as a guide, glue, assemble and clamp parts A, B, C, and D. Make sure the steel bar slides easily and can be removed. After the glue has dried, remove the bar and saw the assembly in half, creating the upper and lower jaws. Round over the corners and chamfer the perimeter edges of both jaws as shown.

Now drill the four 1/8 in. wide steel pin holes, adhering strictly to the location shown in the illustration. It is especially important that the pins (G) in the sliding jaw be positioned exactly at the edge of the bar slot, so they function as wear stops.

Next, cut parts F and J, referring to the illustrated grid pattern for the cam lever profile. Drill out for dowel (H), carefully positioning the dowel hole so that the cam lever (F) will engage part J.

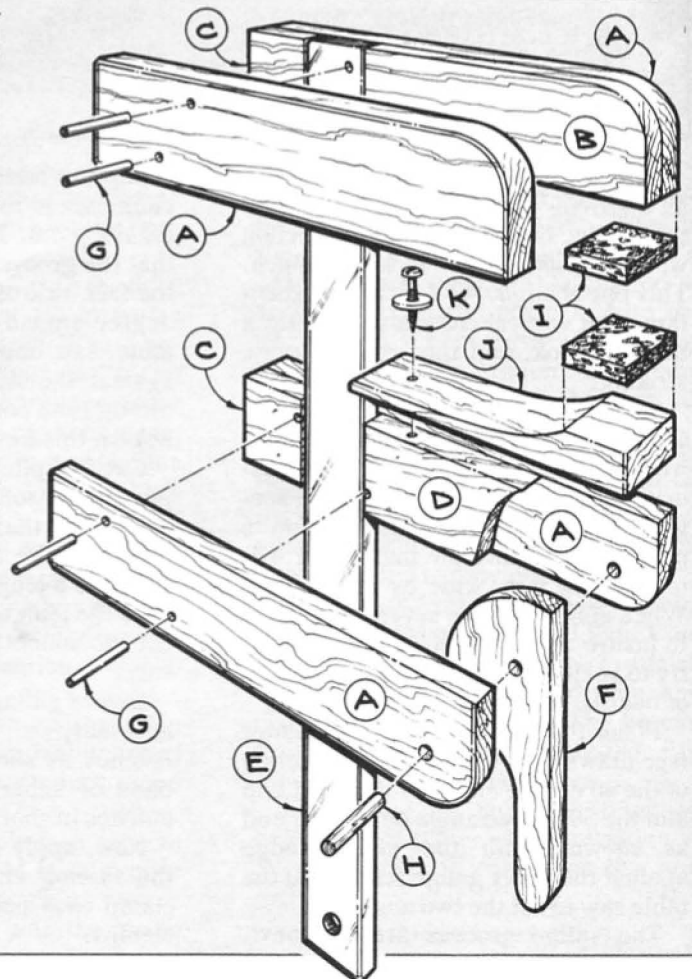
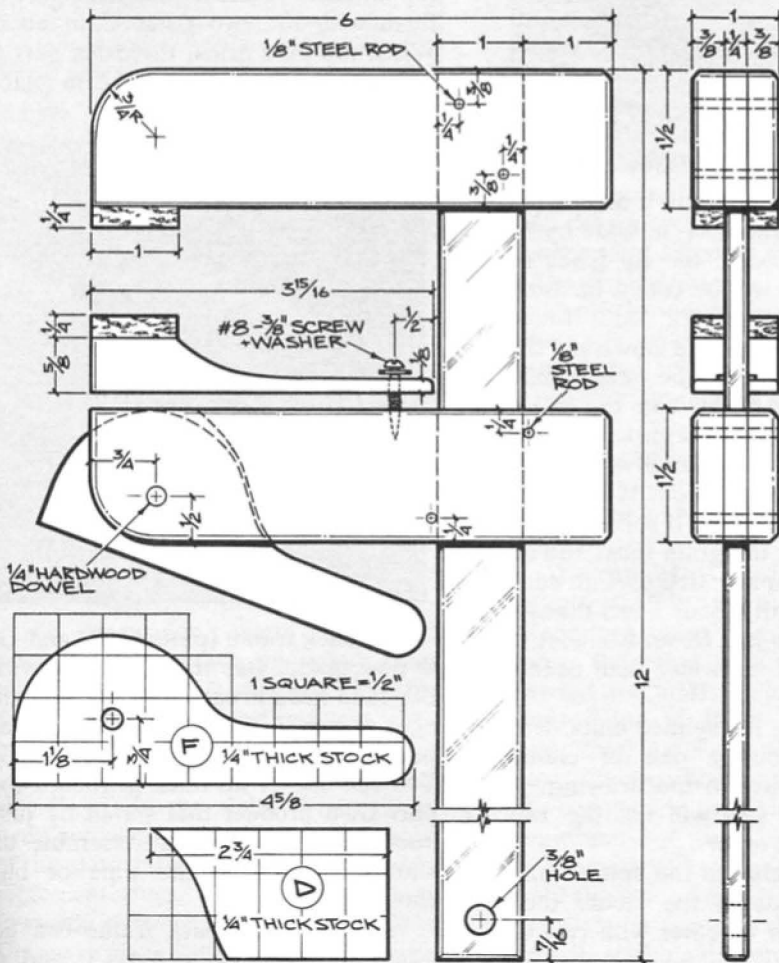
Assemble the clamp, cutting the pins slightly long so they may be filed flush. Both the dowel and the pins must be glued tight. Glue the cork jaw cushions (I) in place, and anchor part J with a No. 8 round-head screw.

Finish with penetrating oil.

Wwj

Bill of Materials (All Dimensions Actual)

Part	Size	No. Req'd.	Part	Size	No. Req'd.
A	3/8 x 1 1/2 x 6	4	G	1/8 dia. x 1 long	4
B	1/4 x 1 1/2 x 4	1	H	1/4 dia. x 1 long	1
C	1/4 x 1 1/2 x 1	2	I	1/4 x 1 x 1	2
D	(see detail)	1	J	3/8 x 1 x 3-15/16	1
E	1/4 x 1 x 12	1	K	3/8 x no. 8 w/washer	1
F	(see detail)	1			



Contemporary Hamper



We often tend to think of a hamper as a strictly utilitarian piece of furniture — one that is expected to function well, but not to ever look like much. This one though, we feel is an exception. The vertical oak slats generate a tambour look, and the result is quite striking.

The three ribs (A) can be made first. Cut twelve pieces of $\frac{3}{4}$ in. thick hardwood plywood, with each piece measuring 6 in. wide by 21 in. long. Face-glue each pair of boards to form 6 pieces; each one now measuring $1\frac{1}{2}$ in. thick by 6 in. wide by 21 in. long. When gluing up, use several C-clamps to insure a good tight glue joint. And try to keep the edges flush on each pair of boards.

Plane the bottom edge on a jointer (see drawing), then lay out the location of the 40 degree angle on the right end and the 50 degree angle on the left end as shown. With the jointed edge against the miter gauge fence, use the table saw to cut the two angles.

The spline grooves are cut next.

Equip the table saw with a dado-head cutter set to make a $\frac{1}{4}$ in. wide by $\frac{1}{2}$ in. deep cut. Locate the rip fence so that the groove will be cut $\frac{1}{4}$ in. from the face side of the stock. With the 40 degree angled end held down on the table saw top, and the stock held against the rip fence, run the piece through the cutter to form the groove. Repeat this for all six pieces of stock.

Cut six splines (B) from $\frac{1}{4}$ in. thick plywood or solid stock. If solid stock is used, note that the grain must run as shown in the spline detail. Cut each spline to a length (about 1 in.) that allows the joint to just close. It's best to cut the spline a bit wider than necessary.

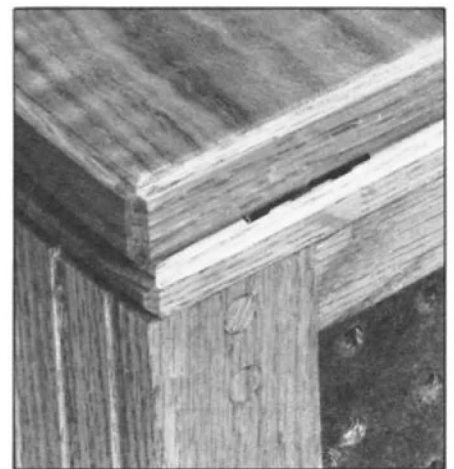
Before gluing the splined ends, it is necessary to cut a pair of clamp notches as shown on the drawing. A band or saber saw will cut the two notches in short order.

Now, apply glue to the splines and the mating ends of the stock, then clamp each pair together with two C-clamps.

Once dry, transfer the grid pattern for part A from the drawing to the stock, then cut out using a band saw, taking care to stay just outside the marked line. Once cut, sand the outside curve with a disk sander and the inside curve with a drum sander. It's best to complete one rib this way, then use it as a template to scribe the remaining two.

From $\frac{1}{4}$ in. thick plywood, cut part C to size, then glue and tack it to the ends of the ribs as shown. Also, cut an extra part C to temporarily tack (with a few brads) to the front of the ribs near the spline joint. As you tack these parts in place, make sure the ribs are properly located and that they are square (90 degrees) to parts C. If not, remove the brads and reassemble.

The inner skin (D) is made from $\frac{1}{8}$ in. thick Luan "doorskin" stock. As the name implies, it is used to cover hollow-core doors, and is sold by most lumberyards. Cut part D about $\frac{1}{4}$ in. longer than necessary and allow about 1 in. extra on the width. Apply a coat of glue to the inside curve of each rib, then begin installing part D by applying a C-clamp to the centerpoint (at the spline) of the top and bottom ribs. Now, working from the centerpoint out to the ends, drive a series of brads to secure part D to the three ribs. Once tacked in place, use a hand plane to trim the length of part D flush with the top and bottom ribs. Also trim part D flush with the two parts C in back. When the glue dries, the extra part C that was temporarily tacked in place can be removed.



The back frame (parts E, F, and G) is now made. Use the table saw with the dado-head to cut the mortise on the ends of part E, the tenon on the end of part F, and the groove to take part G. You can use $\frac{1}{4}$ in. thick pegboard for part G, a product that's sold by just about any lumberyard. Assemble as shown using glue and pipe or bar clamps.

When dry, the back frame can be glued and screwed to parts C and A

with countersunk number 10 by 1 3/4 in. long wood screws as shown.

The slats (L) can now be made. You'll need 50 pieces, but since some will be sure to split or warp it is a good idea to cut about 60 pieces. Cut 30 pieces of 3/4 in. thick by 7/8 in. wide by 30 in. (allows a little extra) long stock. Use the table saw to resaw the 3/4 in. thickness exactly down the middle, creating 60 pieces; each one measuring 3/8 in. thick by 7/8 in. wide by 30 in. long.

Note that resawn stock will have one side that is smooth, and one side that is rough. Use the router table to cut the 45 degree chamfer along the lengthwise edge of each slat as shown. Since it's best to have the smooth side showing, apply the chamfer to this side.

The slats (L) are attached to the front of the ribs as one piece, so they must be joined together with filament tape (or any other strong and sticky tape). You'll need to make a jig (see drawing) to insure that all 50 pieces

Bill Of Materials
(All Dimensions Actual)

Part	Description	Size	No. Req'd.
A	Rib	(See Detail)	3
B	Rib Spline	1/4 x 1 1/2 x 1	6
C	End	1/4 x 1 x 28 1/2	2
D	Inner Skin	1/4 Thick	1
E	Frame Stile	1 x 1 1/2 x 29 3/4	2
F	Frame Rail	1 x 1 x 24	2
G	Back	1/4 x 22 1/2 x 28 1/4	1
H	Base	3/4 x 3 x 40*	1
I	Bottom	1/4 in. Pegboard	1
J	Bottom Block	1 1/4 x 1 1/4 x 3	3
K	Leveler		3
L	Slat	3/4 x 7/8 x 29 3/4	50
M	Cap	(See Detail)	1
N	Back Cap	1/2 x 1 x 24 1/2	1
O	Hinge	1 1/2	3
P	Top	(See Drawing)	1
Q	Front Edging	5/16 x 3/4	2
R	Back Edging	5/16 x 3/4	1
S	Veneer	1/32 x 3/4	2
T	Base Inner Skin	1/4 Thick	1

Note: Parts E, F, J, L, M, N, Q, R, and S are solid oak stock.
*Allows for trimming to length.

have edges that are in close contact before the tape is added. Lay the slats chamfer side down in the jig, then drive the wedges to force the slats together. Add the three strips of tape, locating them where they will not contact the ribs when the slats are later added. Make sure the tape is well secured — you don't want them to fall apart when you pick the whole thing up. If necessary, burnish the tape down with the rounded end of a piece of hardwood scrap stock.

Apply glue to the outside of each rib, then add the slats. When measured across the width, the centerpoint of the slats must line up with the miter joint centerline. The extra length allows you to overhang the ends a little. Clamp in place with three web clamps,

one at each rib. Since the first slat on each end will slightly overhang past E, you'll need to temporarily tack a small (3/4 x 3/4 x 2) block at the point the web clamp bends around the back corner. The block will prevent the clamp from turning the first slat out at an odd angle. After tightening the clamps, examine the end ribs from the top and bottom. If, at any point, a slat does not make good contact with the rib, add a tack to insure a good bond. Later, after the clamps are removed, the tacks can be countersunk and filled.

Use a hand plane to trim the first slat on each end so that it is almost flush with part E, then use a router with a laminate trimmer bit to final trim the remaining stock. When trimming, the base of the router will bear against the first two slats.

Now, place the project on your workbench with the back frame facing down. With one end slightly overhanging the bench, use the laminate trimmer bit to trim the end of the slats flush with the rib. Bear the base of the router against the face sides of the slats as you make the cut. Repeat the process on the other end.

The 45 degree chamfer on each end of the slats is cut using the router and a ball bearing piloted 45 degree chamfering bit. Since the router base will ride on the top (or bottom) face of the end ribs, the ball bearing pilot must have a smooth surface over the slats to bear against. To provide this smooth surface, use double-face tape (available at most carpeting stores) to secure a 1 in. wide strip of 1/16 in. thick veneer or plastic laminate around the top and bottom ends of the slats. Now, use the router to apply the chamfer on each end of the slats and also the back edge of parts E and F.

Part N is now made. Cut 1/2 in. thick stock to a width of about 1 1/4 in. and a length that will allow part N to overhang the tambours about 1/8 in. on each end. Next, use double-face tape to temporarily hold the piece in place. When you put it in place, be sure the back edge of N is flush with the back edge of part F.

The cap (M) is made next. Cut two pieces of 1/2 in. thick oak stock, each piece measuring 6 in. wide by 21 in. long. Referring to the grid drawing, lay out and mark the location of the 40 degree and 50 degree angles on each end, then cut each one on the table saw. The two boards are now notched for clamps and then simply butt-glued together.

When dry, use double-face tape to hold the stock for part M in its proper position on the top rib then, with a pencil, scribe a line on both the inside

and outside. On the inside, use the skin (D) as a guide. On the outside, use the 1 in. wide veneer or plastic laminate. Now, remove the stock and cut out on the band saw, taking care to stay just outside the marked line.

Part M can again be double-face taped to the rib, taking care to properly align it. Once aligned, use the laminate trimmer bit to trim all around the inside of parts M and N, the outside of M, and the ends of N. Note that on the outside of the rib, the bearing rides against the 1 in. wide veneer while on the inside it rides against part D.

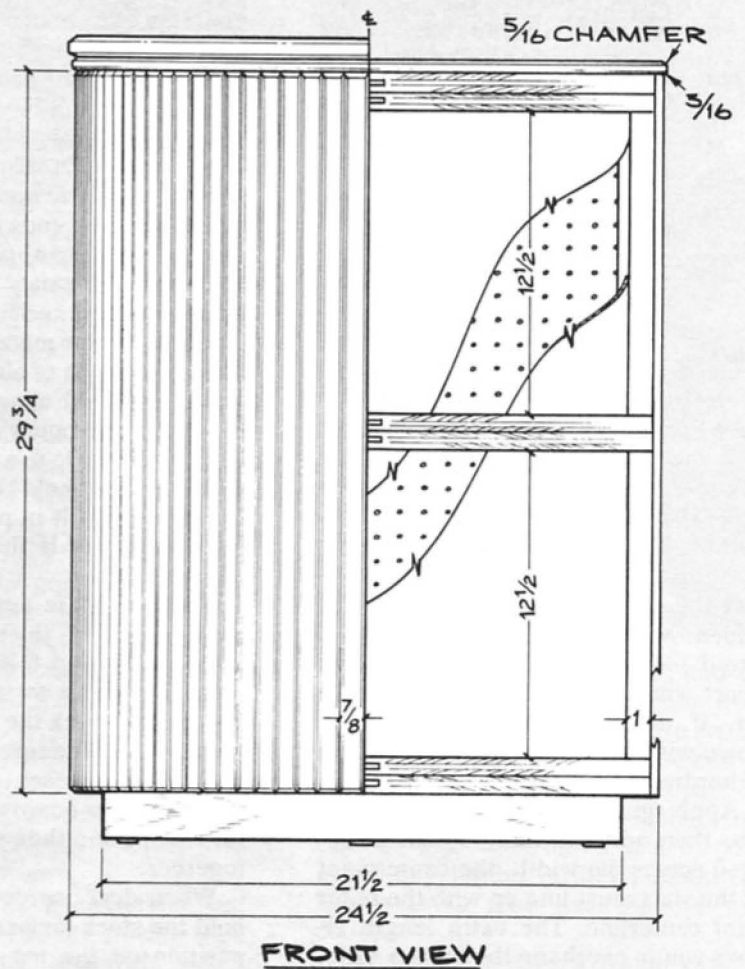
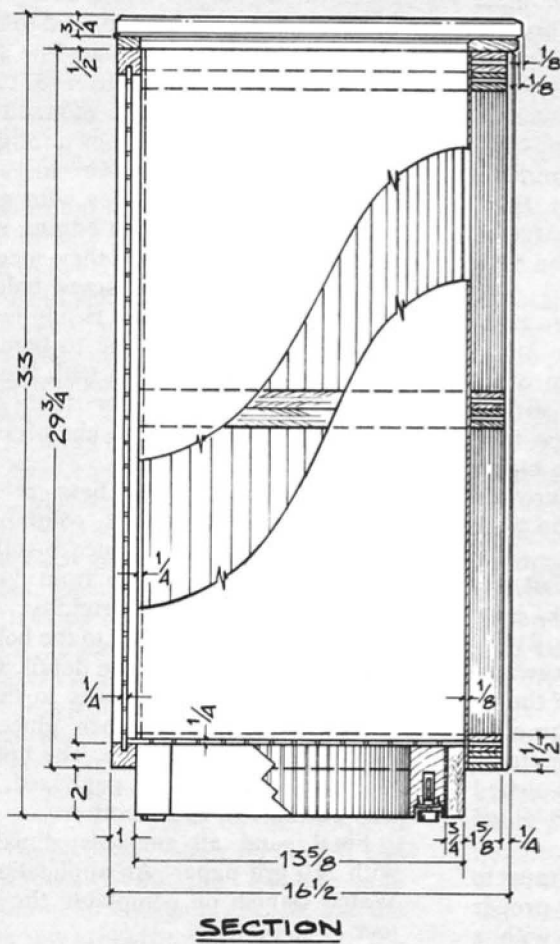
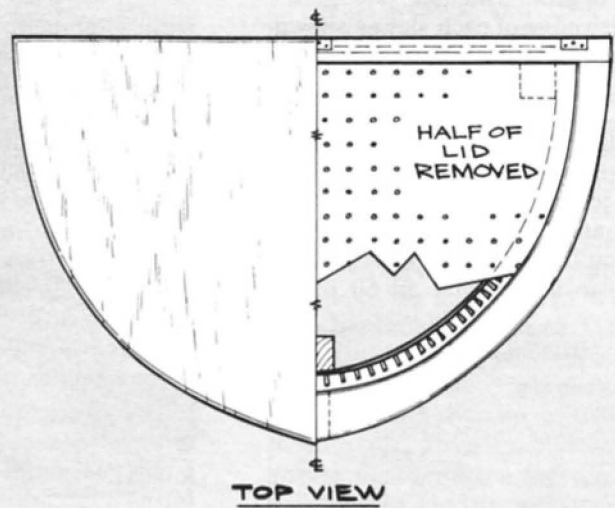
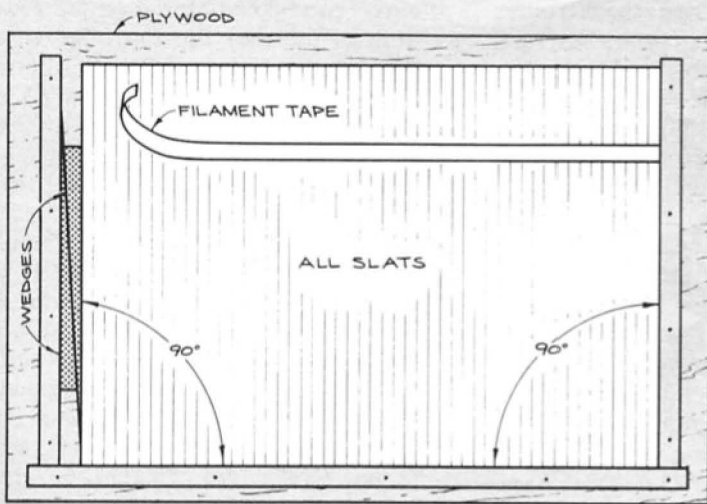
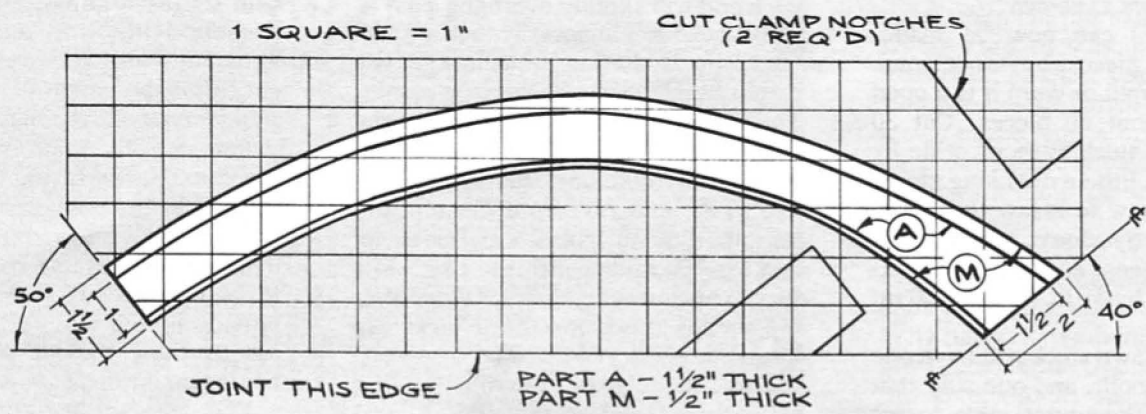
Now, the outside edges of part M and N can be chamfered on the router table. Note that the top edge has a 5/16 in. chamfer while the bottom chamfer measures 3/16 in. A 45 degree chamfering bit is used to make the cuts. Parts M and N are now glued and clamped in place, with care taken to properly align them.

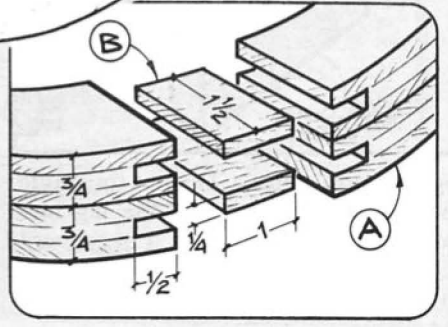
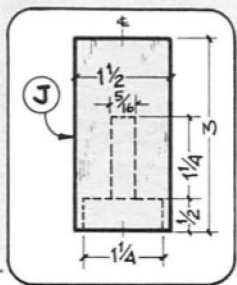
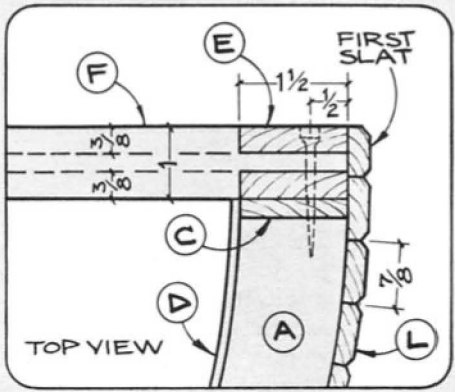
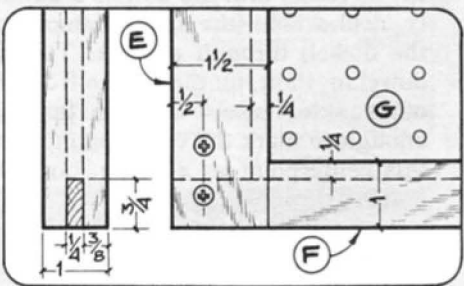
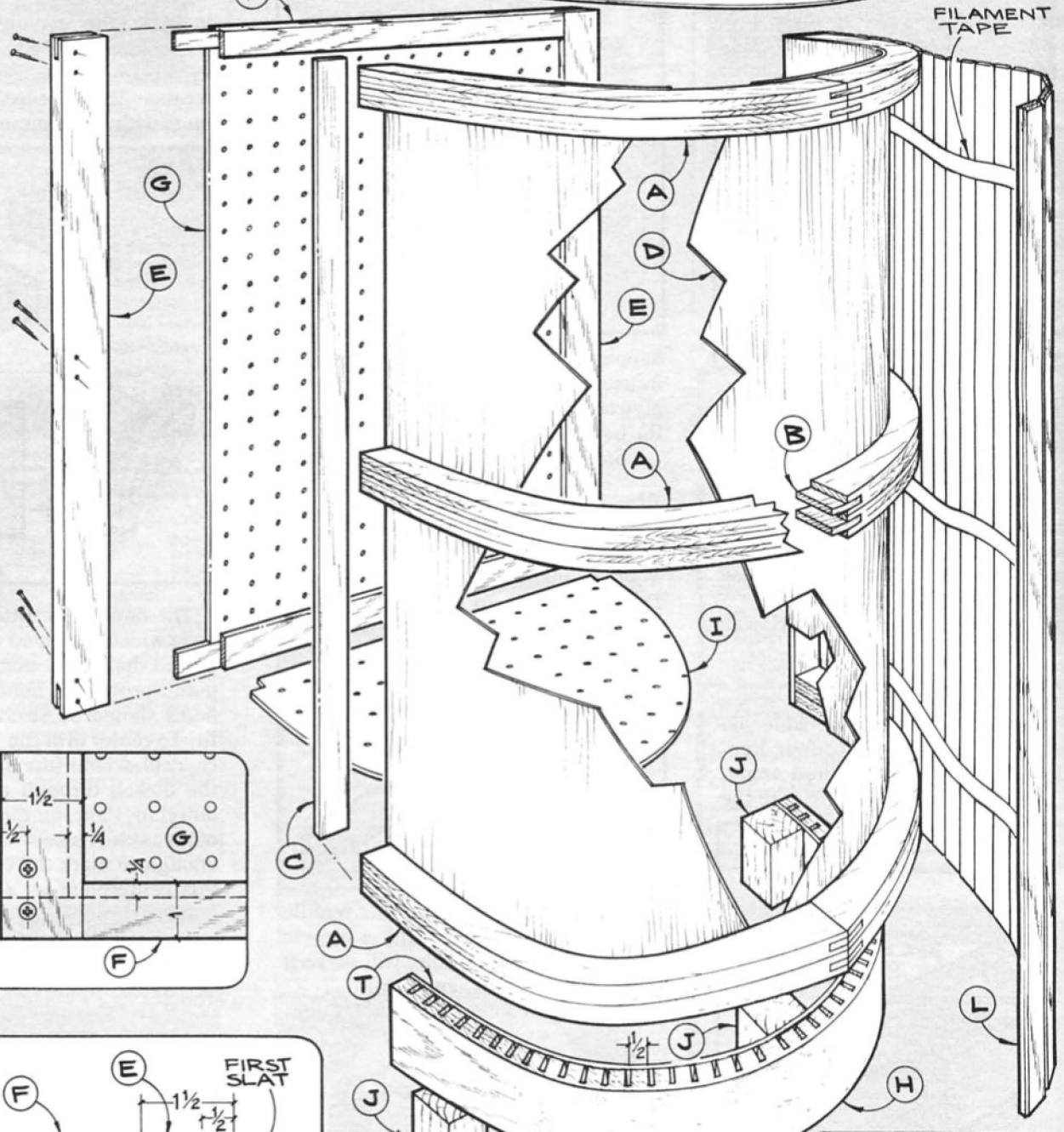
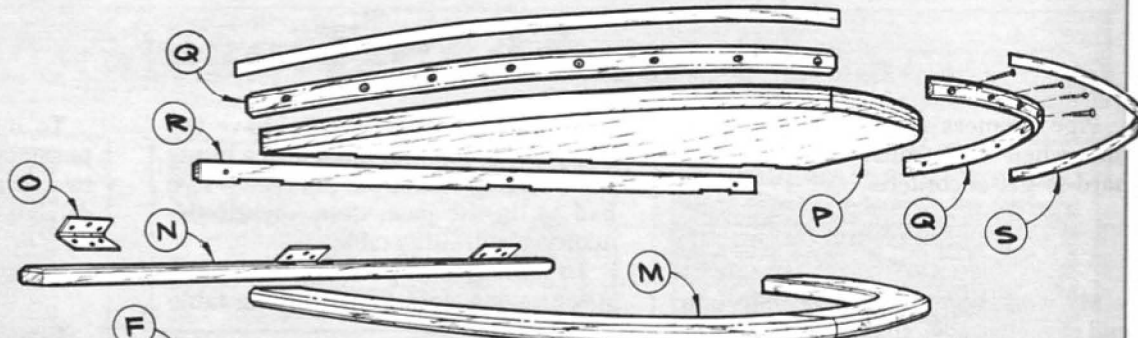
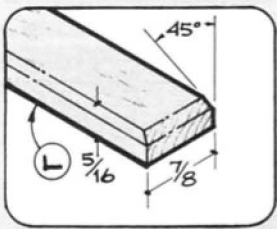
The top (P) is cut from an oversized piece of square oak plywood. Lay the plywood on parts M and N, with the back edge of the plywood flush with the back of N. Use a pencil to scribe the profile, then rip a 5/16 in. wide strip off the back edge. The back edging (R), made from 5/16 in. stock (about 1 in. wide) can then be glued and clamped in place. Now, use the band saw to cut out the top, with care taken to stay on the waste side of the line. A disk sander is then used to sand exactly to the marked line. The front edging (Q), also made from 5/16 in. thick by 1 in. wide stock, is glued and screwed to the front as shown. Slightly countersink (about 1/16 in.) the screws, then fill the holes with wood filler. Note that the front edging must be mitered at the point they meet in the center. To cover the screw holes, a 1/16 in. thick veneer (S) is applied as shown. Use a hand plane to trim the edging and veneer flush with the top before using the router table and chamfer bit to apply the chamfers all around.

To make the kerf-bent base, refer to the *Special Techniques* column on page 20 of this issue. Once installed, an inner skin (T) made from 1/8 in. Luan is added to provide rigidity.

Levelers (K) are added to the bottom blocks (J) as shown in the detail. Contour one edge of the blocks to match the curve of part H, then glue and clamp the blocks in place. The bottom (I), made from 1/4 in. pegboard, can now be cut to fit in the bottom.

Final sand all surfaces, finishing with 220 grit paper. An application of Watco Danish oil completes the project.

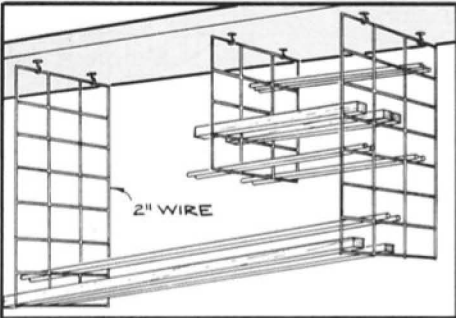




Shop Tips

Pipe cleaners make handy applicators when stain must be applied to hard-to-get-at corners.

My workshop is squeezed into one end of my garage, so space is at a premium. And since I like to make toys and a variety of small projects, I often end up with an abundance of valuable

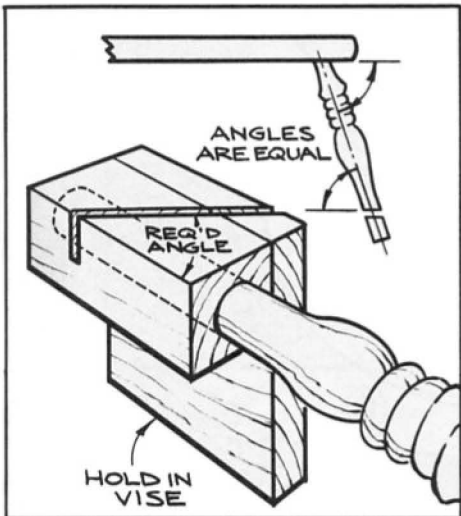


scrap pieces. I also have an assortment of dowel stock.

To store this stock so that each piece can be easily located and removed, I use three pieces of 2 in. grid mesh wire, each piece hung from under a wooden shelf by a pair of cup hooks. It's a system that is inexpensive, easy to make, and works quite well.

Donald K. Johnson, Honolulu, Hawaii

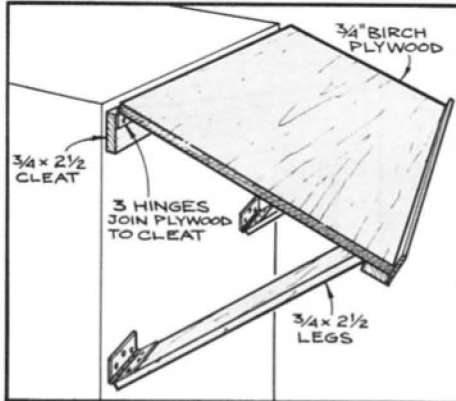
The jig shown below will enable you to uniformly cut off four or four hundred stool legs at the required angle. Just bore a hole big enough to take the



leg, through a block. Lay out the angle required by the splay of the leg and slot block with a backsaw. A backboard screwed to the block holds the jig securely in the bench vise as you make the cut.

Like many woodworkers, I have the problem of having limited space in my workshop. Because of this fact, I've had to, in the past, deny myself the luxury of a drafting table.

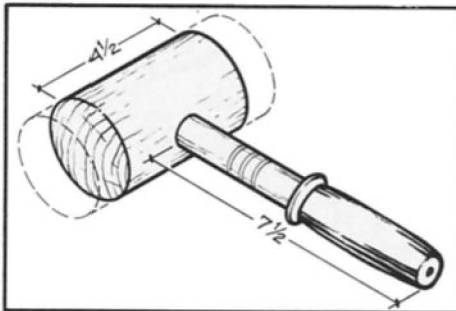
To remedy that problem, I added a space saving, fold-away drafting table



at one end of my workbench. When not in use, the legs simply fold under the plywood, allowing it to lay flat against the bench.

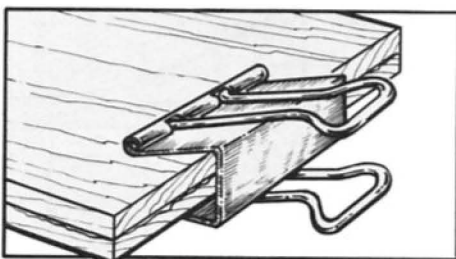
Steve Snodgrass, Montezuma, Ind.

Old croquet mallets make excellent wooden mallets for the workshop. Trim the ends to make the mallet



about 4 1/2 in. long, and cut the handle to around 7 1/2 in. And I find a bicycle grip, added to the handle, will make it easier to get a good hand grip.

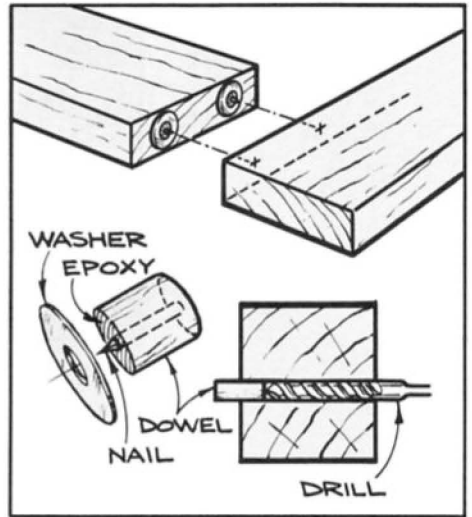
Walter C. Lesniewski, Bethel, Conn.



In a pinch, those heavy spring paper clips (sometimes called binder clips) can be used for light-duty clamping jobs.

To insure that a wood screw stays permanently in place, add a drop or two of epoxy glue to the hole before driving the screw.

If you are looking for something to do some rainy evening, you may want to consider making a set of dowel center markers. They are handy to have because they insure accurate dowel joints with a minimum of layout work.



The dowels are fitted with common nails which are glued (with epoxy) into drilled holes so that the sharpened point protrudes about 1/16 in. The holes should be sized for a snug nail fit. To center drill the dowels accurately, drill a hole (the same diameter as the dowel) through a block. Tap the dowel in, then run the drill in from the other side. Insert the bit just far enough to mark the centerpoint. With this centerpoint as a guide, bore the hole for the nail.

You will have to sand the dowels enough so that they can be easily inserted and removed from the holes. If you have a lathe, you can turn your own dowels from hardwood and shave them down for a perfect slip fit. A thin washer is glued (with epoxy) to the end of the dowel to prevent it from being pushed too far into the hole.

The Woodworker's Journal pays \$25 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 redraw all sketches so they read only backward and complete.

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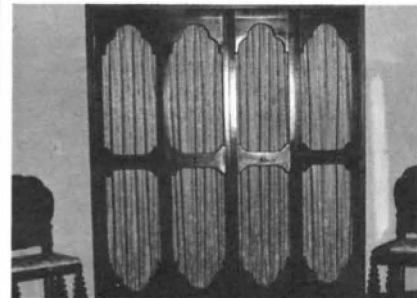
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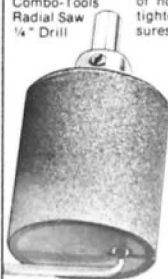
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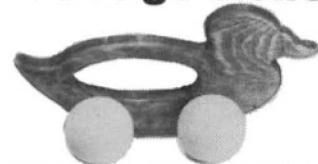
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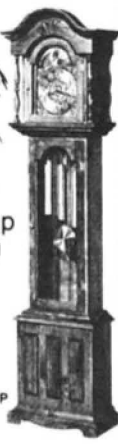
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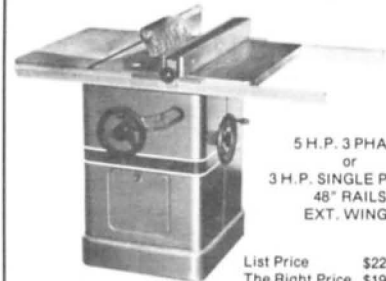
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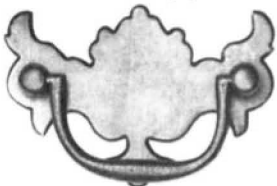
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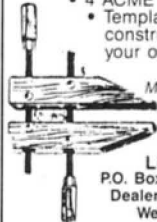
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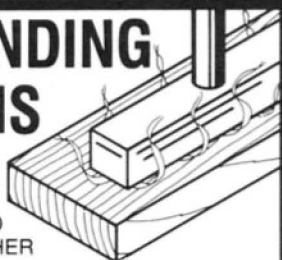
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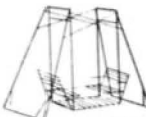
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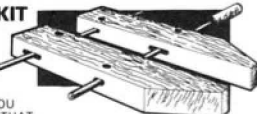
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