

Disclaimer

© 2012 Delta Power Equipment Corporation. All Rights Reserved

This Old Workshop, in cooperation with Delta Power Equipment Corporation ("Delta"), is delighted to provide this digital reissuing of the historic *Deltagrams* produced from the 1930s through the 1970s. Each issue is presented by permission of Delta, and distributed and archived by This Old Workshop. The *Delta*gram publications are copyrighted materials. Delta is the sole owner of these publications. Reproduction of any articles, images or instructions contained in them requires the express written permission of Delta or its legal representative.

These *Delta*gram publications are presented solely as historic archival materials and are not intended to be used as instructional information. Techniques and practices described or depicted in these publications may no longer be consistent with accepted practice, and, in some cases, may be considered hazardous with a potential to result in serious personal injury or property damage. For the safety of you and those around you, we encourage you to comply with all warnings and instructions provided in connection with your products, including but not limited to any warning labels and operator manuals.

By using or possessing these *Delta*gram publications, you agree to hold Delta and This Old Workshop harmless against any liability based upon their content. Any advertisements or offers contained within these issues are discontinued and will not be honored.

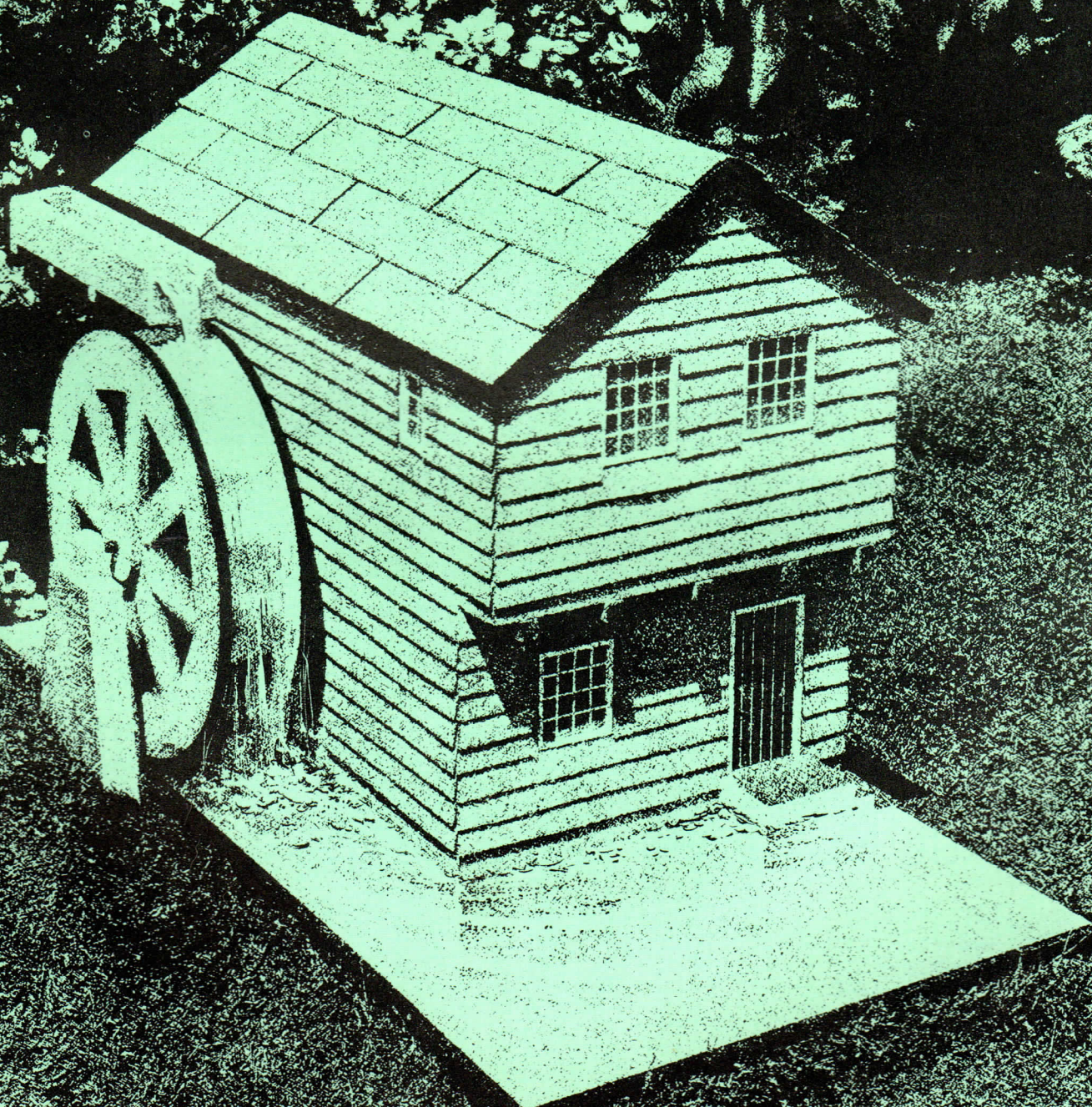
flying chips

MAY-JUNE 1970

30c

FEATURING:

- ☐ WATER WHEEL MILL
- ☐ CHINA CABINET



What about
my
three-piece
spring
outfit

I only
have eyes
for mine



THE BASIC SHOP

Handles more than 80% of all
woodworking jobs—
from sawing, through
planing to drilling.



4" Jointer Model 37-269
Radial Drill Press Model 11-269
10" Motorized Saw Model 34-302

**BUY ALL
3 TOOLS
AT ONE
LOW
PRICE**

REG. \$497.05
you pay . . . \$433.50
you save . . . \$63.55

**Spring...
for Rockwell
Power Tools**

flying chips

A. M. Warkaske—Editor

Terrence M. Mahoney—Managing Editor

Mel Rigot—Associate Editor

Vol. 38 Issue No. 3 May-June 1970

Rates: 30 cents Per Copy



1 year (6 issues) \$1.75

3 years (18 issues) \$4.00

5 years (30 issues) \$6.00

Foreign countries add 50 cents per year extra for postage and handling.

This is a Rockwell publication written and edited for the home shop owner by the Power Tool Division of the Rockwell Manufacturing Company.

Every attempt is made to satisfy the needs of the home shop owner for a well rounded selection of project material and crafting tips. The Flying Chips is published six times a year. Subscriptions may be purchased from your authorized Rockwell Power Tool Dealer or direct from the Advertising Department of the Power Tool Division of Rockwell Manufacturing Company, 400 North Lexington Avenue, Pittsburgh, Pa. 15208.

NOTE: When changing your address be sure to give us the expiration date marked on the back cover of the magazine and also your old and new address. Allow four weeks for the first copy to reach you at the new address.

All correspondence regarding projects and editorial material should be addressed to the editor of the Flying Chips, A. M. Warkaske, Power Tool Division, Rockwell Mfg. Co., 400 N. Lexington Ave., Pittsburgh, Pa. 15208.

© Rockwell Manufacturing Company, 1970

Dear Reader:

With the thoughts of a long hard winter fading from memory, summer is just around the corner. Don't look now... but the days are getting longer. Spring clean-up jobs are just about finished, so more and more people will spend their time outdoors enjoying the sun.

The Water Wheel Mill featured in this issue will add a spark of beauty to your garden. This model is a fairly accurate copy of an old Tennessee grist mill. Power for the mill is supplied by a small electric re-circulating pump that keeps a gentle stream of water flowing over the wheel. You'll be able to spend many peaceful moments in your garden with the restful sound of a water wheel in the background.

Another project that should prove useful in the coming months is the suggested designs of rustic signs on page 81. These signs are easy to make. Your choice of wood will enhance both the signs and posts. White birch with its natural bark, certain types of evergreens with the bark removed, not to mention wood grains that show handsomely when cut or stained.

Just a reminder... with vacation time almost here, don't forget to take a camera during your travels, you may see something you would like to build. Here's where a camera comes in handy. Take several photos of the subject at different angles. Make a sketch and indicate as many dimensions as possible. For a few minutes spent, you'll have both the lasting memories of an enjoyable vacation and visual plans to build a project.

A. M. Warkaske
Editor

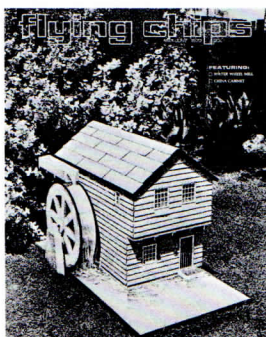
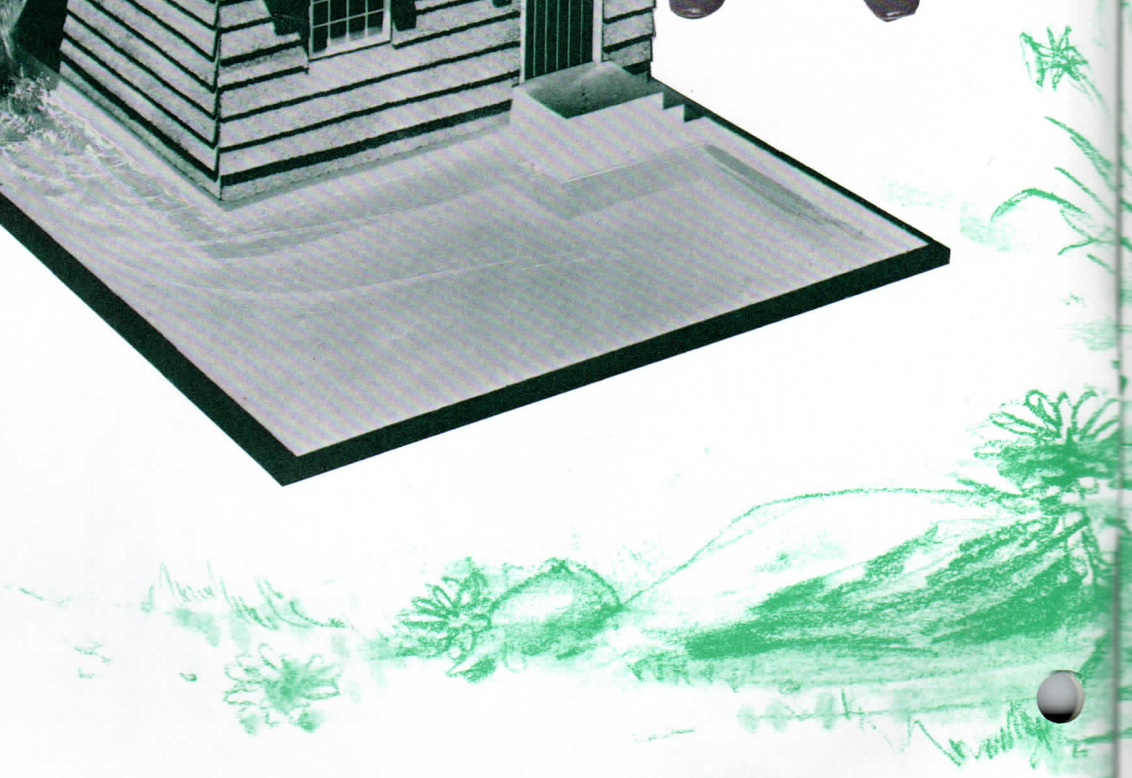
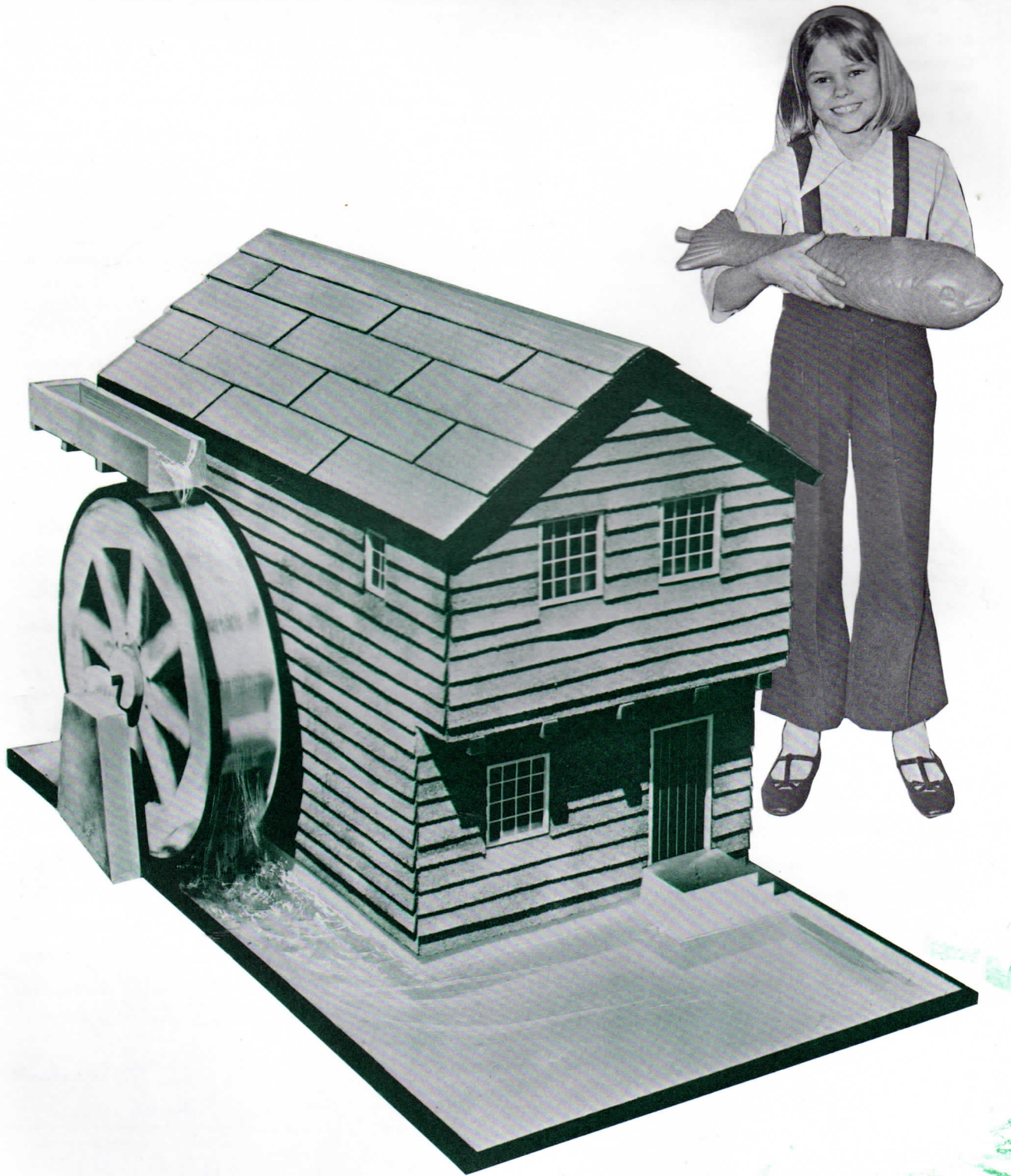


TABLE OF CONTENTS

	Page
Water Wheel Mill	60
China Cabinet	68
The Delta Citation [Larry Shrode]	70
Musical Motif Wall Plaques	74
Modern Desk Unit	77
Rustic Signs	81
Flying Chips & Reader's Comments	82
Craftsheet	83



WATER WHEEL MILL

Relaxing, peaceful, melodious

If you're the sort of person who likes to walk in the woods and listen to the gentle sound of water flowing down a stream, this water wheel mill in your garden should help you unwind from the hustle-bustle of daily life.

The water wheel on this mill can be powered with a small electric circulating pump as shown in the drawings. If you are fortunate to have a steady flowing spring in your garden, the wheel can be propelled year round without any attention, except for an occasional oiling of the pillow block bearings.

The project is made of waterproof or exterior plywood. All important dimensions are given in the line drawings. Parts for the mill are cut to shape and assembled with butt joints using waterproof glue and 6d resin or cement coated flat head nails. Refer to Figs. 9, 11 and 12 for details on assembling the various sections of the unit.

Water wheel sides are cut from $\frac{1}{2}$ " plywood. The spoke effect is made by laying out the $\frac{1}{2}$ " and $\frac{3}{8}$ " holes as shown in Fig. 6. By tacking both wheel pieces of stock, they can be drilled and sawed out at the same time, photo No. 1. Spoke sections are

cut on the scroll saw with a $\frac{1}{8}$ " jeweler's blade on the scroll saw, photo No. 2. Outside circles are cut on the band saw, photo No. 3. Two $\frac{3}{4}$ " thick by $2\frac{1}{2}$ " diameter spacer collars are required. One of the collars has a hole drilled in the edge for a screw, see detail in Fig. 6. Wheel spacer blocks X-2 and X-3 are assembled to the wheel stock as indicated in Fig. 8. Assembled water wheel is mounted on the shaft inserted through the pillow blocks, Figs. 13, 14 and 16. Trough and brackets are shown in detail in Figs. 2 and 10. Be sure to use a support block "O" on the front end of the pond bottom piece, Fig. 1.

The landing platform on the front of the wheel house, the door, window and beam "P" are given in detail in Figs. 4 and 5 of the line drawing. Study the various assembly details as indicated in Figs. 8 through 13.

After the project has been finished with the composition roof covering and the water well thoroughly coated with outdoor enamel or tar, insert the recirculating pump as shown in Fig. 16. The clear plastic tubing is installed with a clamp on the tube that regulates the flow of the water.

You can obtain the electric pump, hose, pillow blocks and collars from Wickmann House, P. O. Box 501, Chatsworth, California 91311.

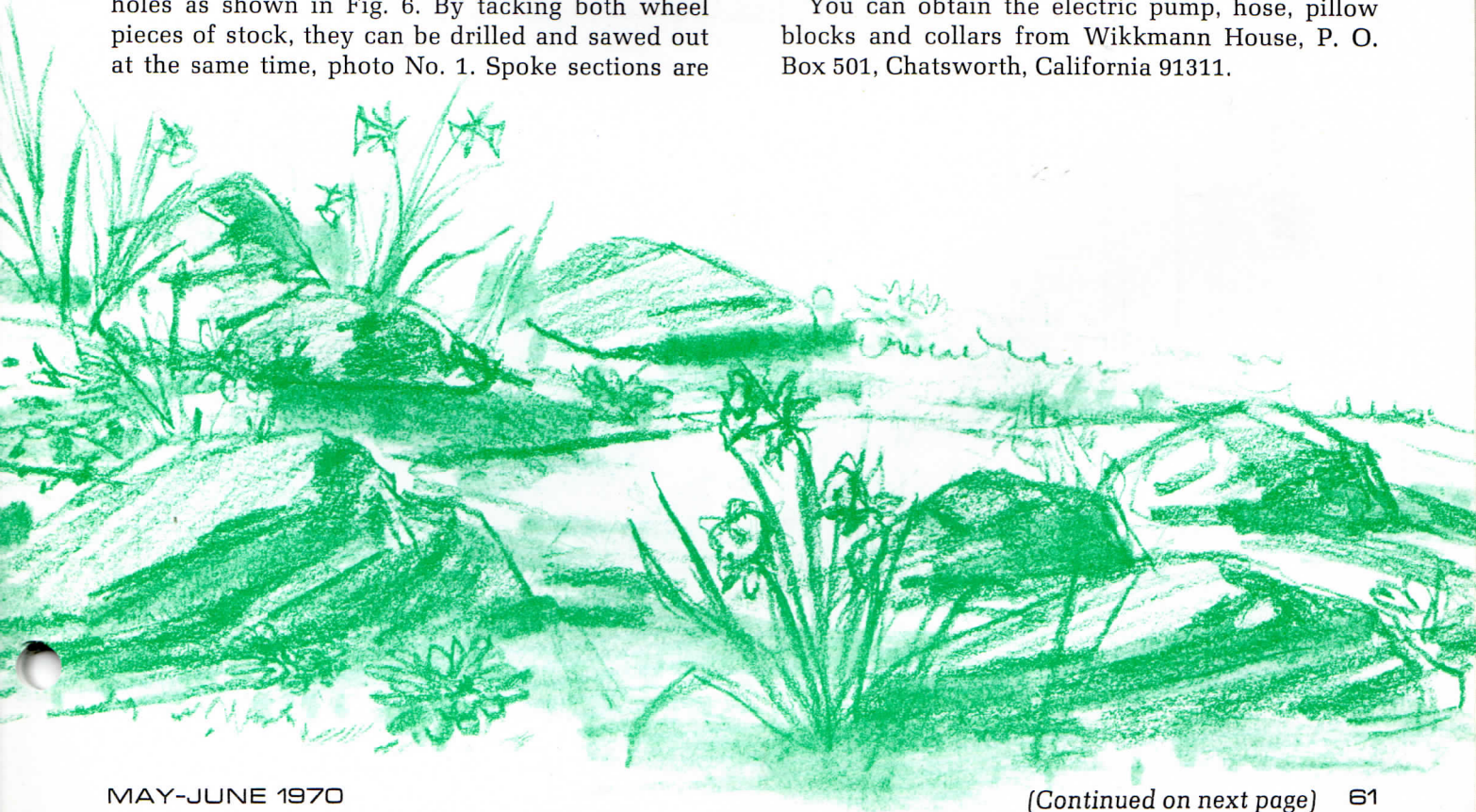


FIG. 4

DOOR DETAILS [ⓧ]

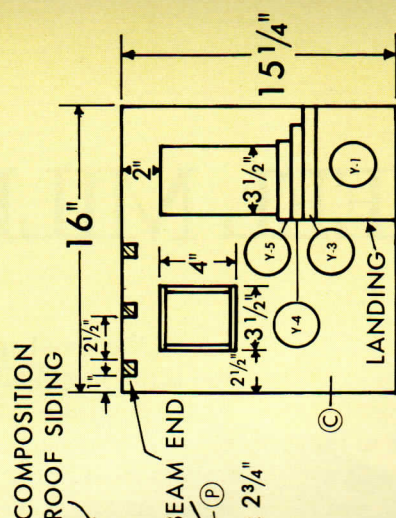


FIG. 5

DOOR LANDING DETAILS

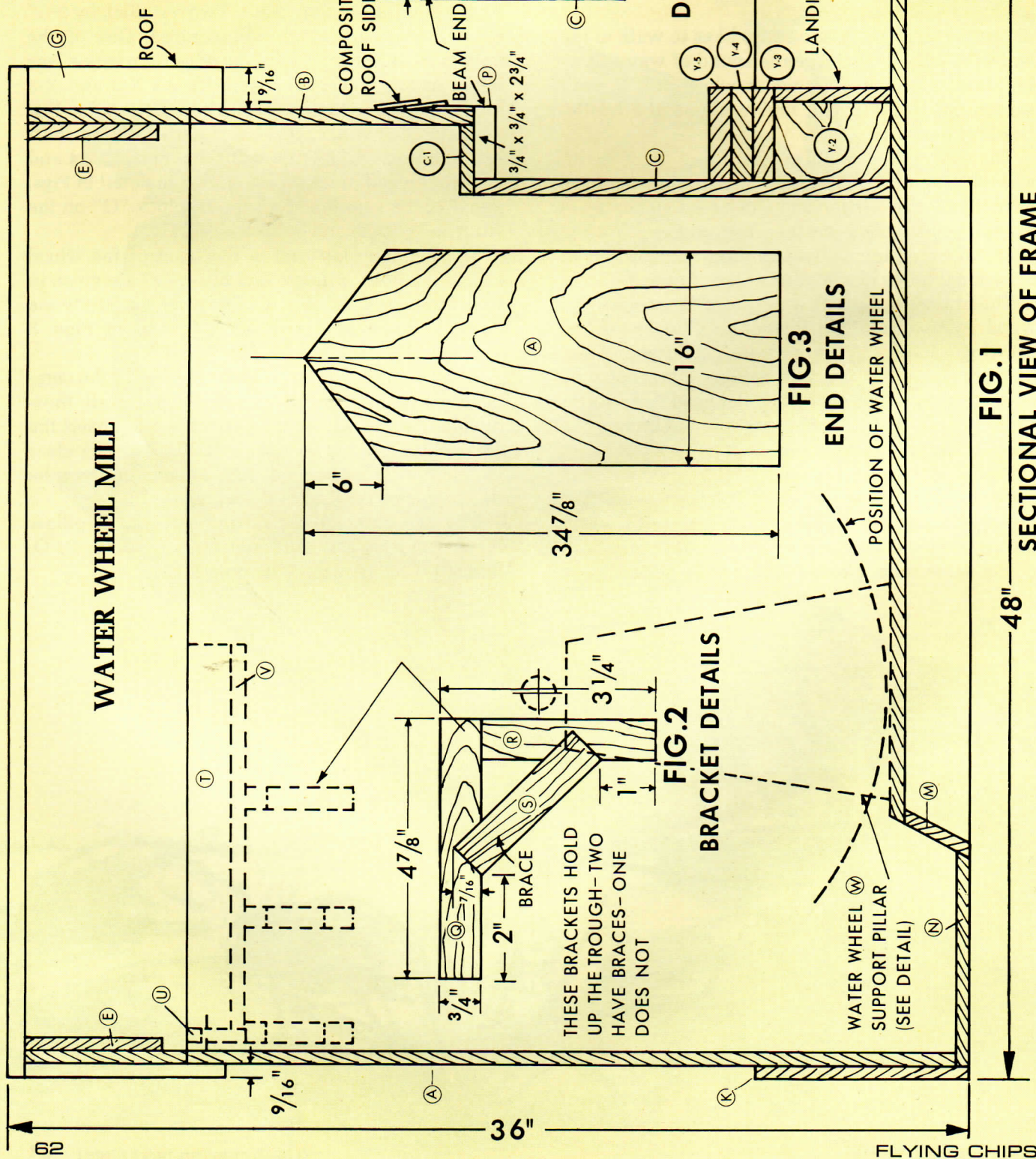
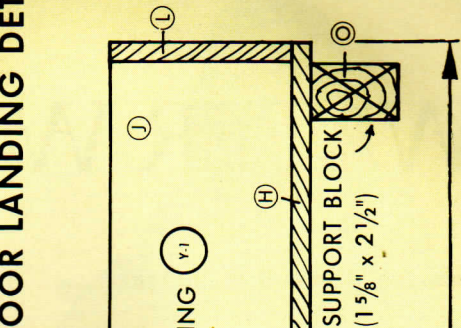
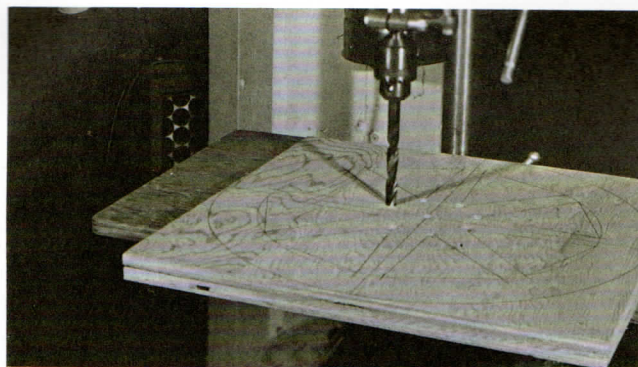


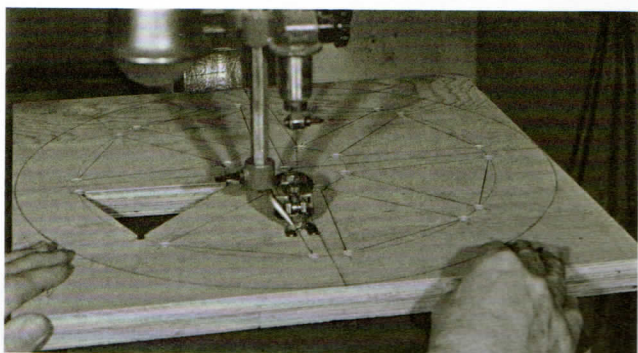
FIG. 1

SECTIONAL VIEW OF FRAME

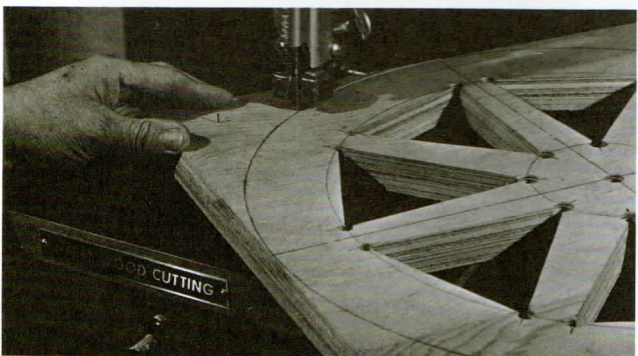
WATER WHEEL MILL



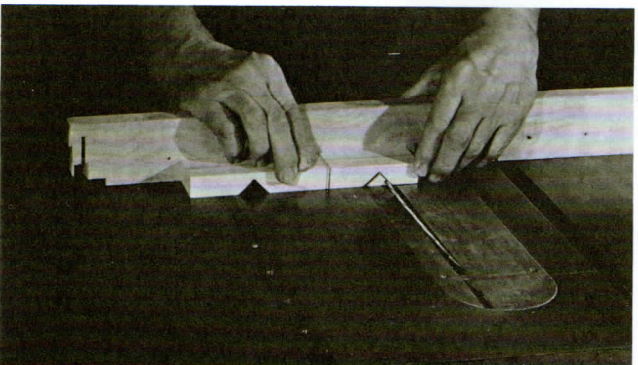
1. Before the spoke openings are cut out, $\frac{3}{8}$ " and $\frac{1}{2}$ " holes are bored at the same time on the drill press by tacking both pieces together with brads.



2. After boring, the spoke sections are cut out on the scroll saw using a No. 92 jeweler's blade. Run the saw about 1250 R.P.M. or second slowest speed.



3. With the pieces still tacked together, cut the outside circle on either the scroll saw or band saw.



4. The trough bracket pieces "Q" and "R" are V-notched on the circular saw by tacking enough stock to make up two brackets.

BILL OF MATERIALS

NO. OF PIECES	NAME	SIZE
1 "A"	Mill Frame End (Back)	$\frac{1}{2}$ x 16 x $34\frac{7}{8}$
1 "B"	Mill Frame End (Front-Top)	$\frac{1}{2}$ x 16 x $16\frac{1}{2}$
1 "C"	Mill Frame End (Front-Bottom)	$\frac{1}{2}$ x $15\frac{1}{4}$ x 16
2 "D"	Mill Frame Side	$\frac{1}{2}$ x $28\frac{7}{8}$ x 32
1 "C-1"	Mill Pond Filler Strip	$\frac{1}{2}$ x $2\frac{1}{2}$ x 16
2 "E"	Roof Guide Plates	$\frac{1}{2}$ x 5 x $11\frac{1}{2}$
1 "F"	Roof Board	$\frac{1}{2}$ x 12 x $35\frac{1}{2}$
1 "G"	Roof Board	$\frac{1}{2}$ x $12\frac{1}{2}$ x $35\frac{1}{2}$
1 "H"	Pond Bottom Board	$\frac{1}{2}$ x $23\frac{1}{2}$ x $38\frac{1}{2}$
1 "I"	Pond Side	$\frac{1}{2}$ x 8 x 47
1 "J"	Pond Side	$\frac{1}{2}$ x 5 x $16\frac{1}{2}$
1 "K"	Pond End (Back)	$\frac{1}{2}$ x 8 x 9
1 "L"	Pond End (Front)	$\frac{1}{2}$ x 5 x $24\frac{1}{2}$
1 "M"	Pond Upright	$\frac{1}{2}$ x $3\frac{3}{8}$ x $7\frac{1}{2}$
1 "N"	Pond Bottom	$\frac{1}{2}$ x $7\frac{1}{2}$ x 8
1 "O"	Pond Support Block	$1\frac{5}{8}$ x $2\frac{1}{2}$ x $23\frac{1}{2}$
5 "P"	Beams	$\frac{3}{4}$ x $\frac{3}{4}$ x $2\frac{3}{4}$
3 "Q"	Bracket (Top Piece)	$\frac{3}{4}$ x $\frac{3}{4}$ x $4\frac{7}{8}$
3 "R"	Bracket (Back Piece)	$\frac{3}{4}$ x $\frac{3}{4}$ x $3\frac{1}{4}$
2 "S"	Bracket Braces	$\frac{3}{4}$ x $\frac{3}{4}$ x 3
2 "T"	Trough Sides	$\frac{1}{2}$ x $1\frac{1}{2}$ x $14\frac{7}{8}$
1 "U"	Trough End	$\frac{1}{2}$ x $1\frac{1}{2}$ x 2
1 "V"	Trough Bottom	$\frac{1}{2}$ x 3 x $14\frac{7}{8}$
1 "W"	Support Pillar	$1\frac{5}{8}$ x 8 x 12
2 "X-1"	Water Wheel Sides	$\frac{1}{2}$ x 18 x 18
20 "X-2"	Water Wheel Spacers	$\frac{1}{2}$ x $1\frac{1}{2}$ x 3
8 "X-3"	Water Wheel Cleats	$\frac{1}{2}$ x $1\frac{1}{2}$ x $5\frac{9}{16}$
2 "X-4"	Water Wheel Hubs	$\frac{3}{4}$ x $2\frac{1}{2}$ x $2\frac{1}{2}$
1 "Y-1"	Landing (Front)	$\frac{1}{2}$ x $4\frac{1}{4}$ x $6\frac{1}{4}$
1 "Y-2"	Landing (Side)	$\frac{1}{2}$ x 3 x $4\frac{1}{4}$
1 "Y-3"	Bottom Step	$\frac{1}{2}$ x $3\frac{1}{2}$ x $6\frac{1}{4}$
1 "Y-4"	Second Step	$\frac{1}{2}$ x $3\frac{1}{2}$ x $5\frac{1}{4}$
1 "Y-5"	Top Step	$\frac{1}{2}$ x $3\frac{1}{2}$ x $4\frac{1}{4}$
1 "Z"	Door	$\frac{1}{2}$ x 3 x $6\frac{1}{2}$
Approx.		
8 Feet	Window & Door Trim	$\frac{1}{4}$ x $\frac{3}{8}$
	Composition Roofing (about 30 lb. weight)	
	Recirculating Pump	
3 Feet	Plastic Hose & Clamp (to fit pump)	
2	Pillow Blocks	
2	Collars $\frac{1}{2}$ " Diameter Hole	

WATER WHEEL MILL

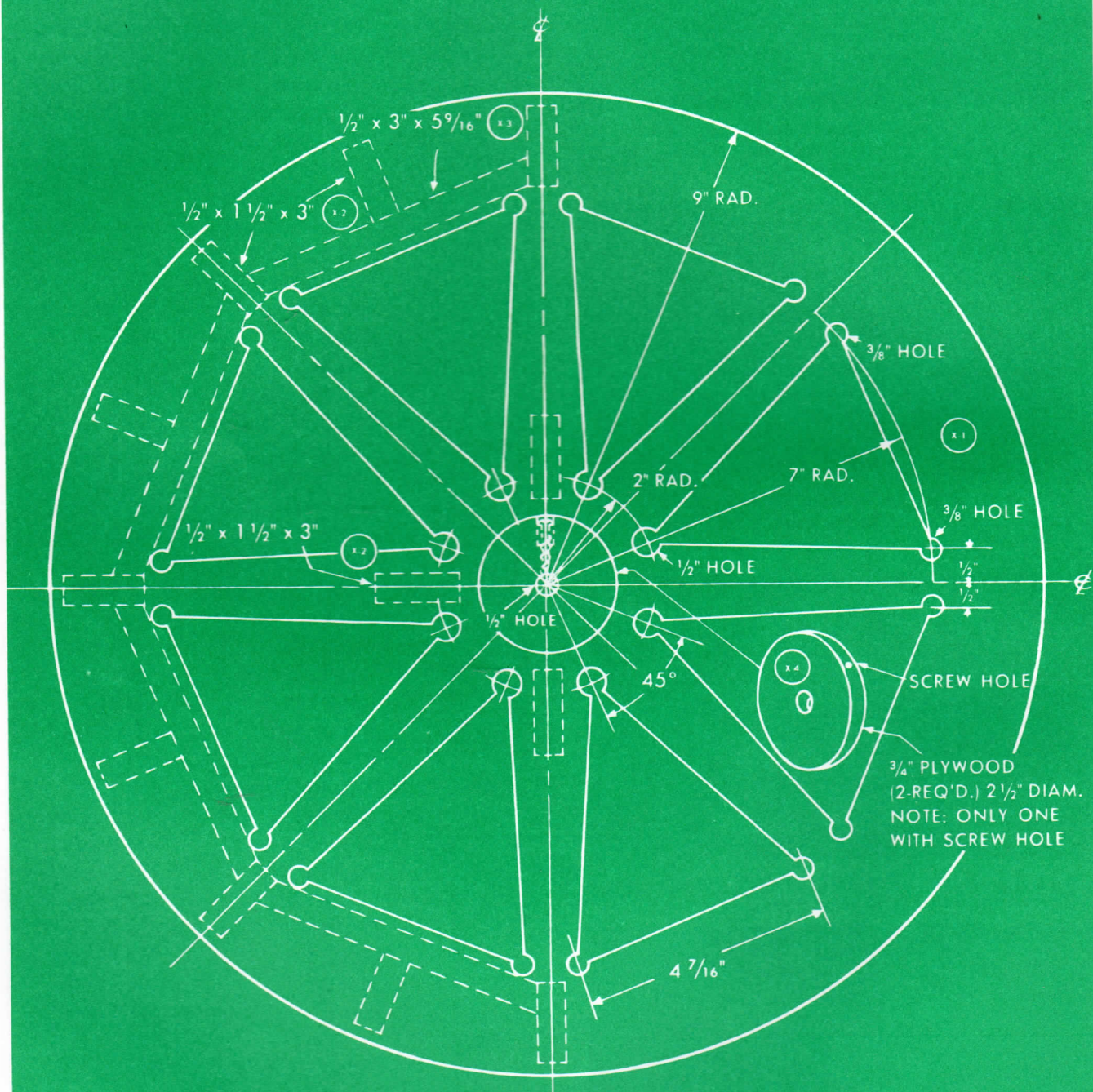
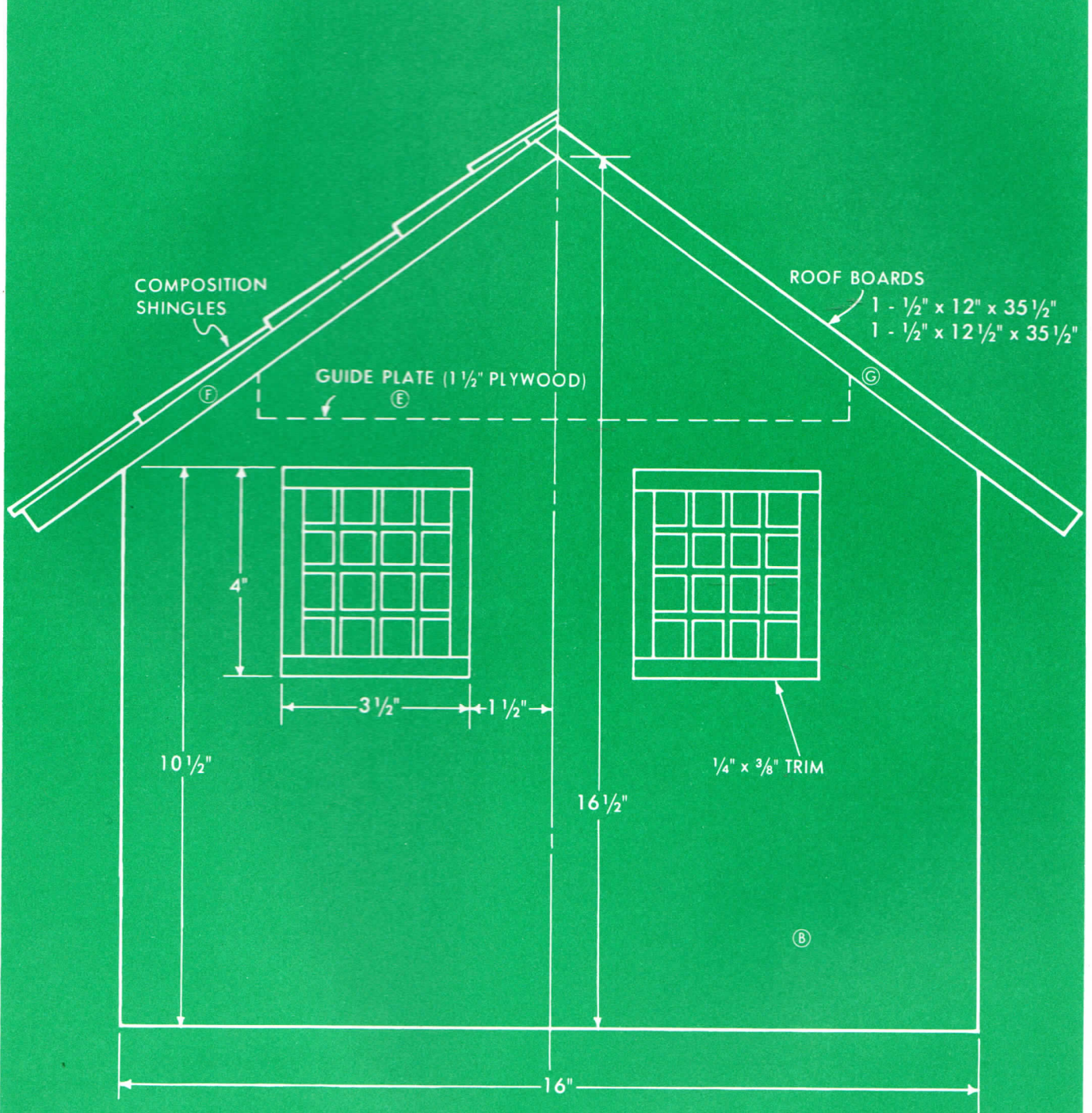


FIG.6
WATER WHEEL DETAILS

WATER WHEEL MILL



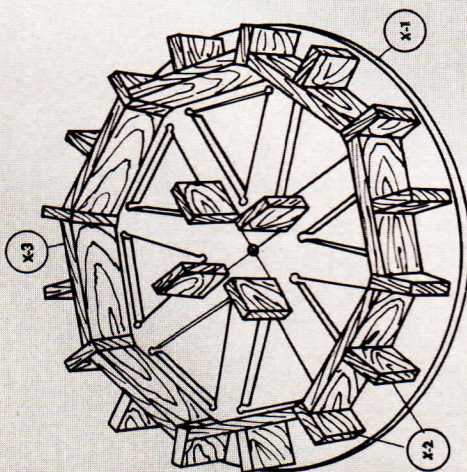


FIG. 8
ASSEMBLED WATER WHEEL

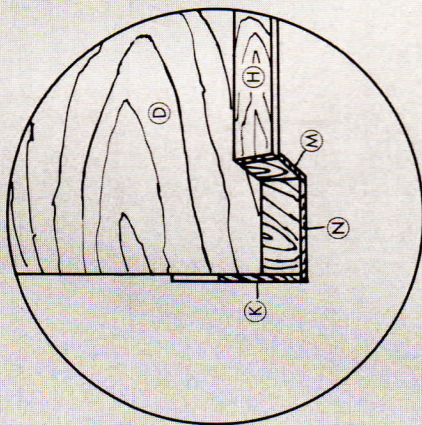


FIG. 9
PUMP WELL

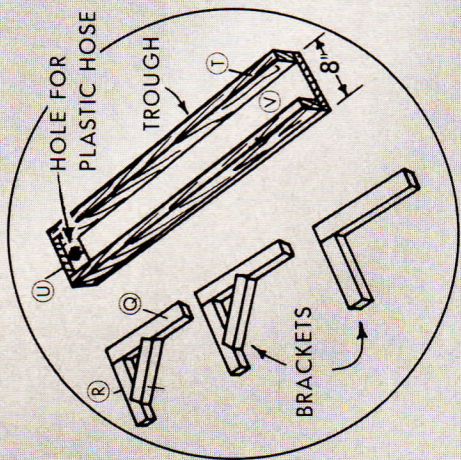


FIG. 10
TROUGH & THREE HOLDING BRACKETS

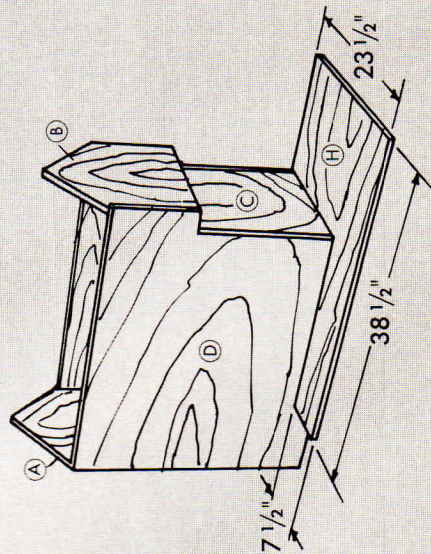


FIG. 11
MILL FRAME WITH BOTTOM OF POND

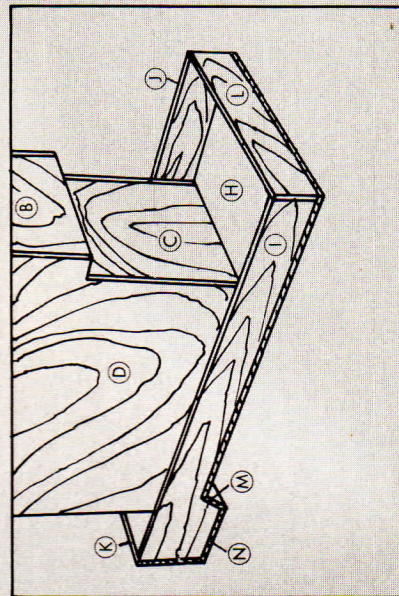


FIG. 12
PUMP POND ASSEMBLED

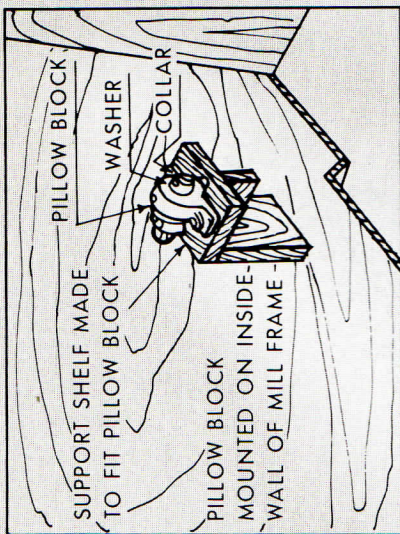


FIG. 13
PILLOW BLOCK MOUNTED
ON SUPPORT SHELF

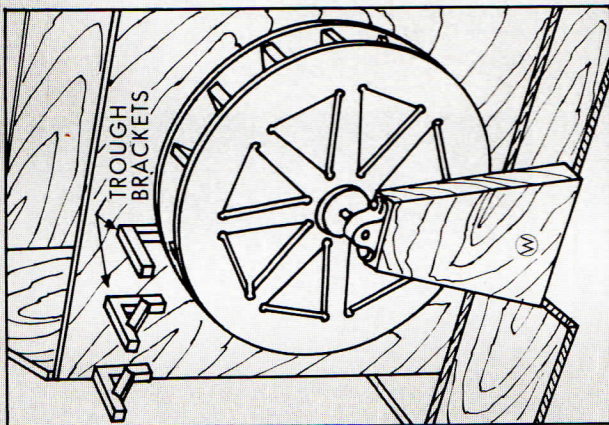


FIG. 14
WATER WHEEL IN POSITION

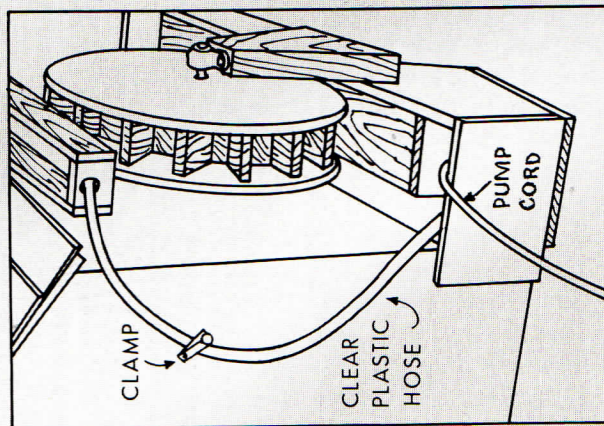


FIG. 16
BACK VIEW OF WATER WHEEL

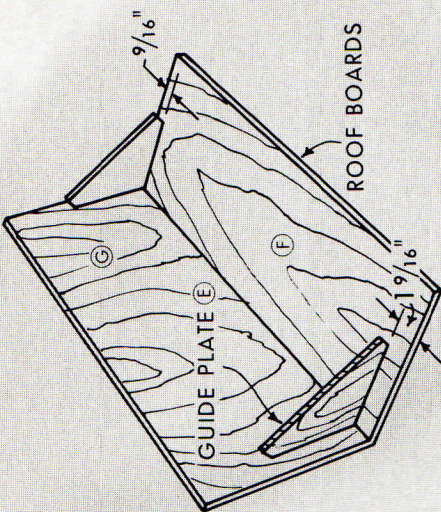


FIG. 15
ROOF OF MILL

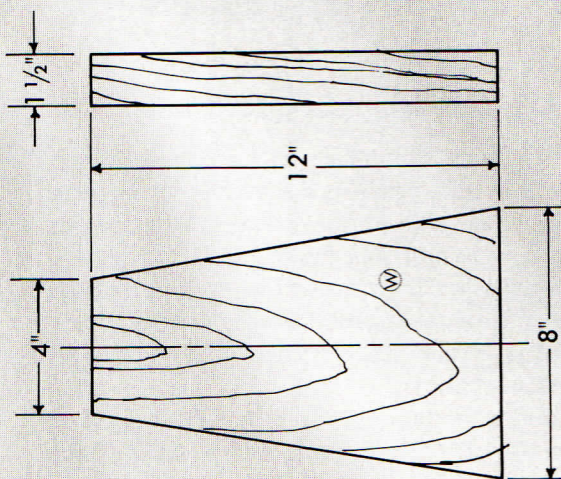


FIG. 17
PILLOW BLOCK SUPPORT PILLAR

If you prefer the ease of tracing the parts for this issue's project from full-size pattern sheets, send \$1.00 for the pattern number you want to:

Steve Ellingson
U-Bild Enterprises
Van Nuys, California 91409

Project	Pattern	Price
Water Wheel Mill	456	\$1.00

WATER WHEEL MILL

CHINA CABINET

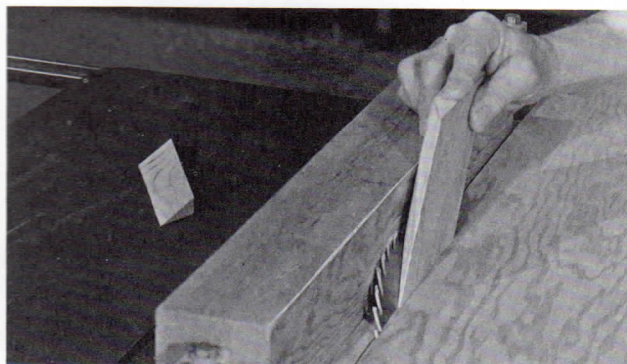
Use it any way you want

Although designed primarily to hold china, this cabinet could readily serve as a bookcase or storage cabinet. One of the side compartments in the bottom section of the cabinet has been converted into a liquor dispenser (see feature photo). The center section has four drawers for storing linens and silverware. There is ample space in the upper section to display your best china.

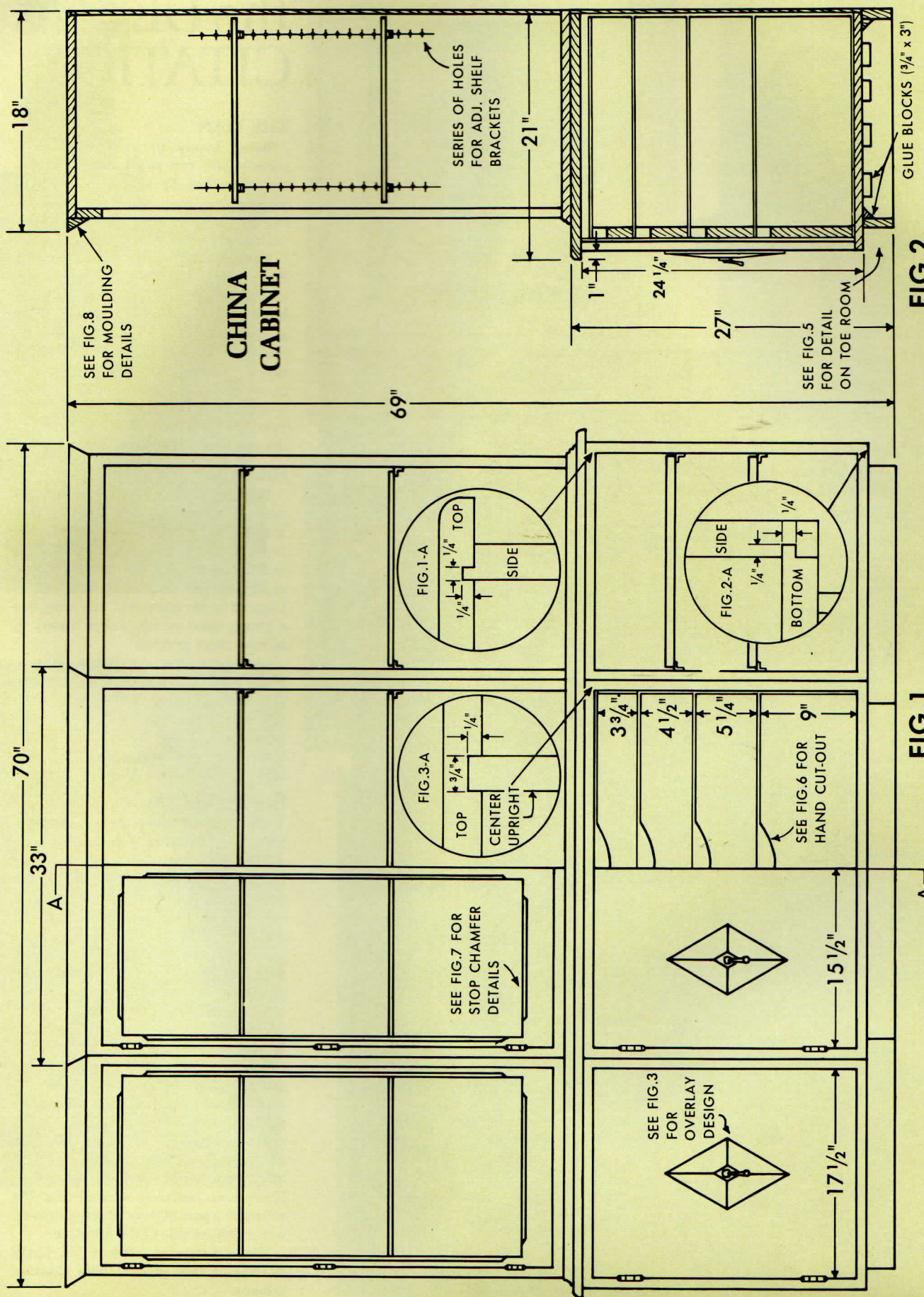
The cabinet is made in two sections, with most of the parts made of $\frac{3}{4}$ " lumber cored plywood. Base sides are cut to width and length. If you decide to use the tongue and groove joints as indicated in Figs. 1-A and 2-A, be sure to allow an additional $\frac{1}{4}$ " to the length of the stock. Assemble the sides and uprights to the top and base with glue and 6d finishing nails. Note that the uprights are set into the full width dado grooves made in the top and bottom boards, Fig. 3-A. Base frame is made of $\frac{3}{4}$ " x 2" stock and offset to the contour of the cabinet and assembled with butt joints. Front and sides of frame are set back $1\frac{1}{2}$ " for toe room. Glue blocks keep the assembled base true and sturdy. The back panel also keeps the cabinet rigid. The four drawers in the center section are made with tongue and groove joints. Hand cut-outs on the drawer fronts are cut out on the band saw, Photo No. 2. Note: if metal extension drawer slides are used, drawers will have to be made 1" narrower than the opening (see Fig. 6) to allow $\frac{1}{2}$ " clearance between the drawer side and cabinet upright sides. Drawer fronts are $\frac{3}{4}$ " thick, sides and back are made of $\frac{1}{2}$ " stock and bottoms are $\frac{1}{8}$ " hardboard. The optional overlay trim used on the four bottom doors is shown in detail in Figs. 3 and 4. Bevel cuts on the trim pieces are made on the circular saw after the pieces have been cut to a diamond shape. The blade is set at 25 degrees to make the bevel cuts, Photo No. 1. After sanding to a smooth finish, glue and nail the overlays on the center of each door.

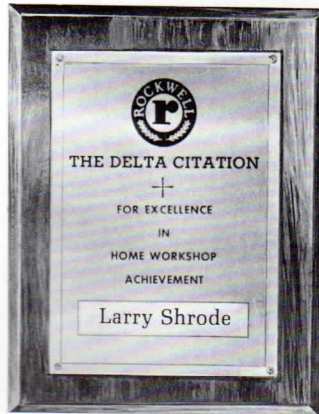
Joints on the top section framework are made identical to the ones used on the base cabinet. The four glass doors are assembled with either dowels or mortise and tenon joints. Stop chamfers on the outside face of the doors are made after they have been glued together, Fig. 7. Top trim moulding is made on the circular saw by tilting the blade arbor approximately 29 degrees, Fig. 8 and Photo No. 3.

The cabinet can be finished natural with two sealer coats of white shellac followed by a coat of satin finish varnish. You could finish it to match the present trim in your dining room.



1. After the door trim overlays are cut to shape, they are bevel cut on the circular saw with the arbor tilted 25 degrees.





the DELTA CITATION

THE MAN

Being happy in your work is a prerequisite for any worthwhile accomplishment. From the fine projects pictured on these pages, it can be assumed that Mr. Larry Shrode is happy with his woodworking hobby.

The Shrodes make their home in Evansville, Indiana. Mr. Shrode is employed as a salesman for the Westinghouse Electric Supply Company. After a hard day on the road, Mr. Shrode finds that working in his shop is a great way to unwind. Although his interest in woodworking dates back to boyhood days, it's only been in the last ten years that his hobby has blossomed to the extent represented by these photos.

HIS SHOP

Backing up Mr. Shrode in his endeavors is a well-equipped shop, Photo #1. In his shop he has a Rockwell Delta 9" table saw, a Rockwell Delta radial drill press, a 4" jointer, 12" disc sander, router and many hand tools. Located in his basement, the shop has a garage door which makes it easy to remove large projects.

Mr. Shrode also maintains a library of woodworking books and magazines. Included in the library are several of Rockwell's "Getting The Most Out Of" handbooks. These books provide the inspiration and know-how that goes into every one of Mr. Shrode's projects.

HIS PROJECTS

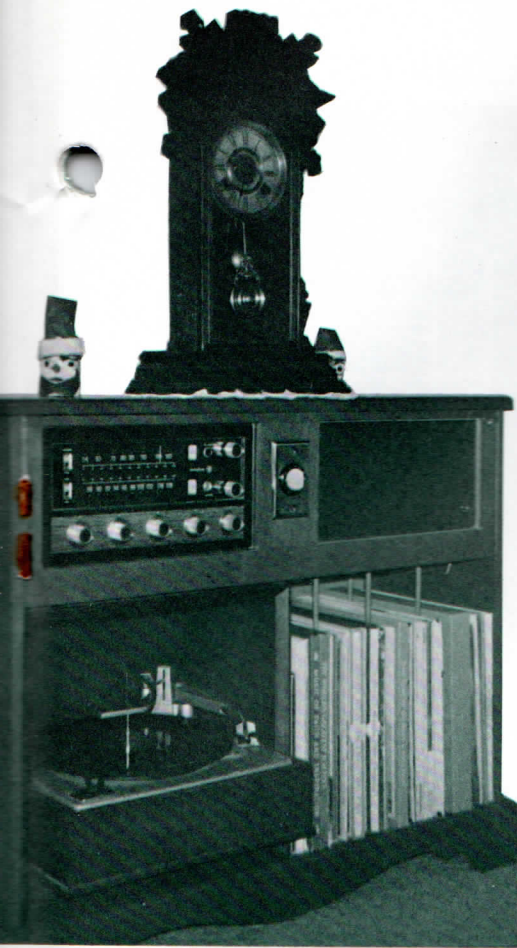
Mr. Shrode's first project was the baby bed (Photo #2) he built for his daughter. A remodeling job was next on the list—kitchen cabinets for his wife, Photo #3. Photos #4 and #5 are matching cabinets for a stereo system and color television. Both are made of $\frac{3}{4}$ " solid cherry. As Mr. Shrode's daughter grew up, he felt that she needed a larger bed and dresser. Photos #6 and #7 show the results of his efforts. The wash stand in Photo #8 is made of birch. It has a Micarta top and is finished with a teak stain. Photo #9 shows a very ambitious project—a 15' by 20' room addition. The room addition has cherry panelled walls, acoustical tile ceiling and a plank type tile floor. To give the room the warmth of a family room, a wood burning fireplace was installed. Completing the setting is a pair of matching bookcases, one on either side of the fireplace.

We're happy to present Mr. Larry Shrode as this issue's Delta Citation winner.



1

3



4



8



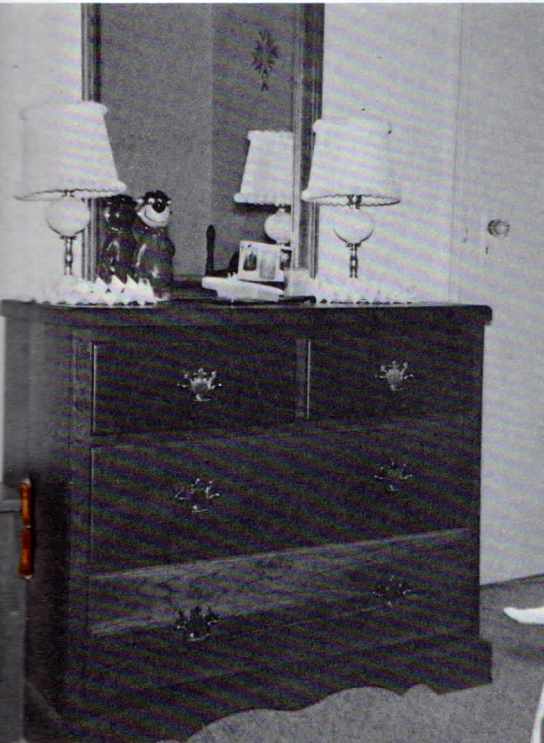
2



6

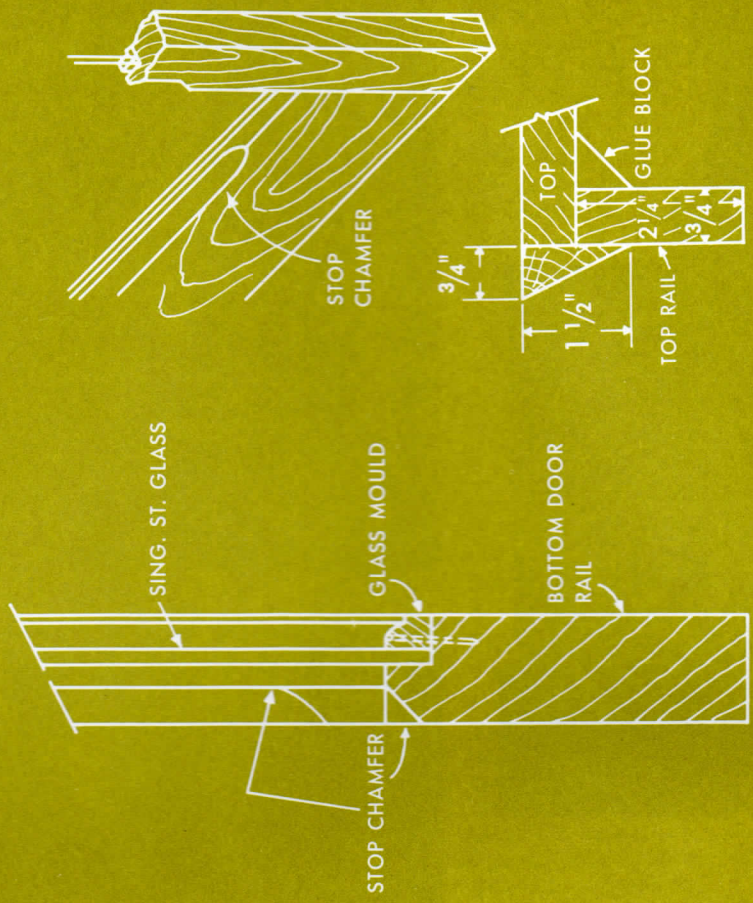
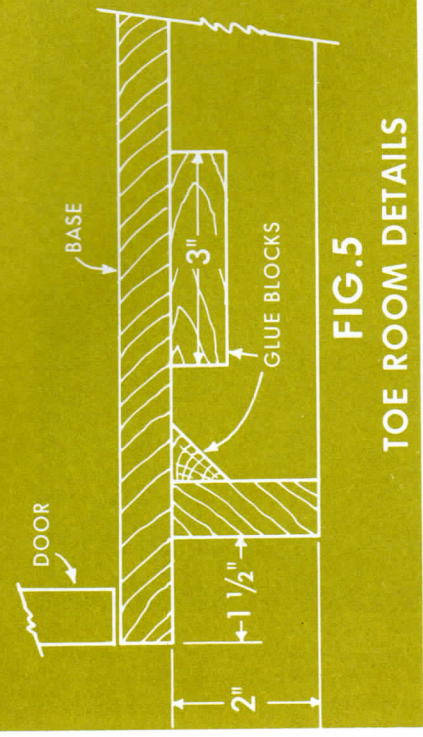
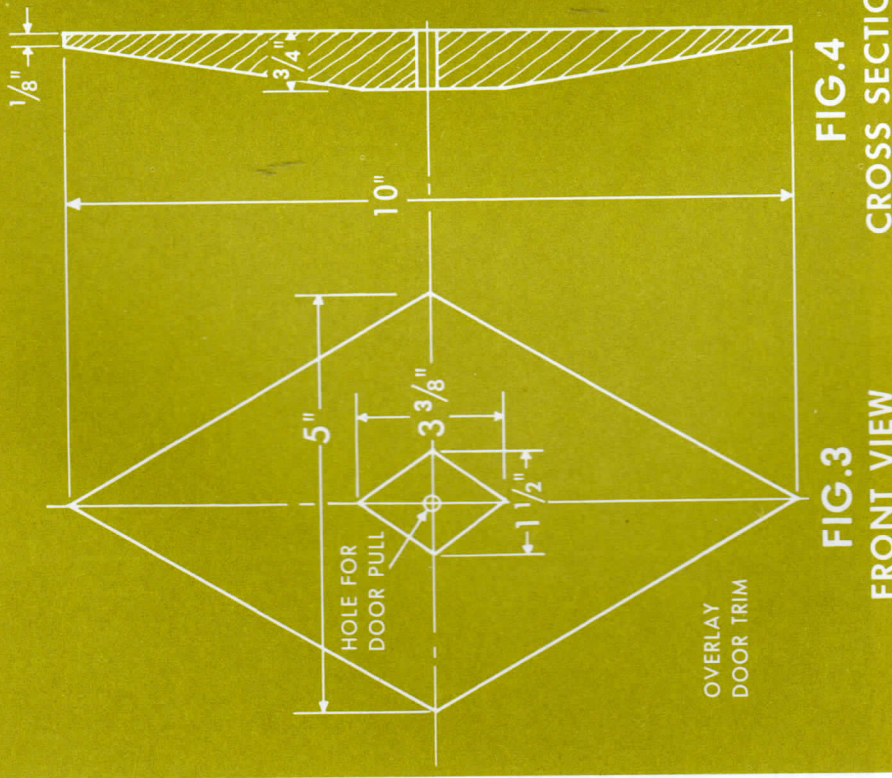
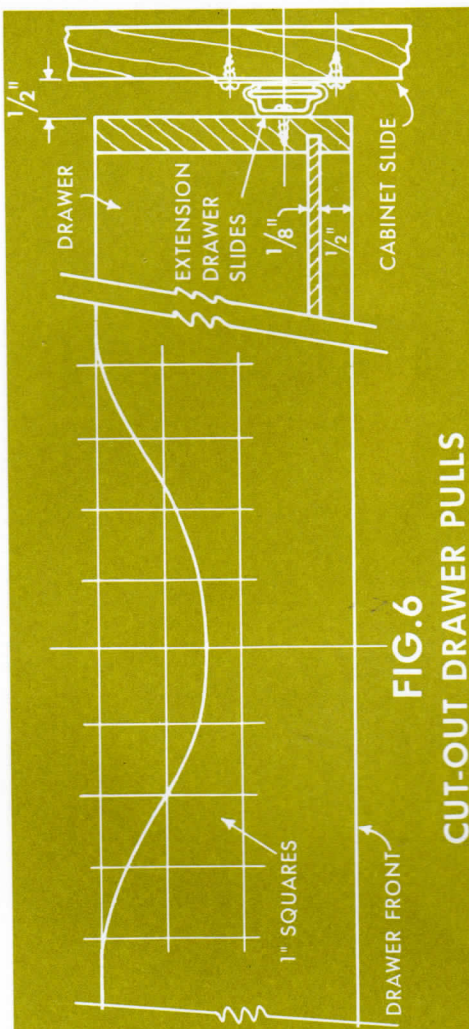


7



9





BILL OF MATERIALS

BASE SECTION

NO. OF
PIECES

NAME

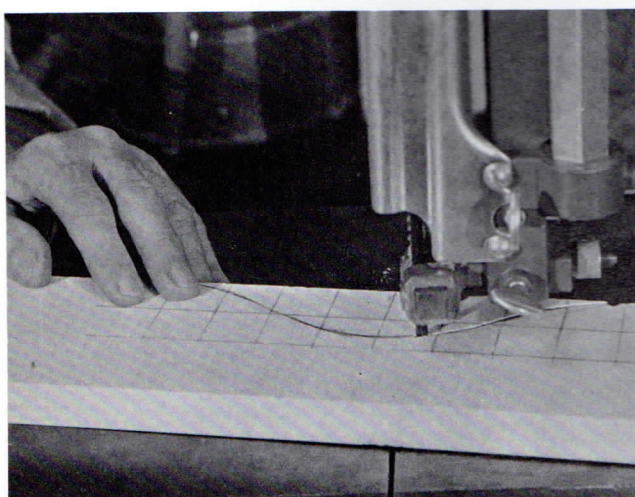
SIZE

2	Sides	$\frac{3}{4}$ x $16\frac{1}{4}$ x $24\frac{1}{4}$
2	Center Section Sides	$\frac{3}{4}$ x $19\frac{1}{4}$ x $24\frac{1}{4}$
1	Top	$\frac{3}{4}$ x 21 x 72
1	Bottom	$\frac{3}{4}$ x 20 x 70
2	Doors (Side)	$\frac{3}{4}$ x $17\frac{1}{2}$ x 23
2	Doors (Center)	$\frac{3}{4}$ x $15\frac{1}{2}$ x 23
4	Door Overlays	$\frac{3}{4}$ x 6 x 10
1	Back Panel	$\frac{1}{4}$ x 24 x $71\frac{1}{2}$
4	Shelves	$\frac{3}{4}$ x 19 x $17\frac{1}{4}$
2	Base Rails (Front & Back)	$\frac{3}{4}$ x 2 x 66
1	Base Rail (Front)	$\frac{3}{4}$ x 2 x $28\frac{1}{2}$
1	Base Rails (Side)	$\frac{3}{4}$ x 2 x $12\frac{3}{4}$
2	Base Rails (Sides)	$\frac{3}{4}$ x 2 x $1\frac{1}{2}$
1	Drawer Front	$\frac{3}{4}$ x 9 x 31
1	Drawer Front	$\frac{3}{4}$ x $5\frac{1}{4}$ x 31
1	Drawer Front	$\frac{3}{4}$ x $4\frac{1}{2}$ x 31
1	Drawer Front	$\frac{3}{4}$ x $3\frac{3}{4}$ x 31
2	Drawer Sides	$\frac{1}{2}$ x 9 x 19
2	Drawer Sides	$\frac{1}{2}$ x $5\frac{1}{4}$ x 19
2	Drawer Sides	$\frac{1}{2}$ x $4\frac{1}{2}$ x 19
2	Drawer Sides	$\frac{1}{2}$ x $3\frac{3}{4}$ x 19
1	Drawer Back	$\frac{1}{2}$ x $8\frac{3}{8}$ x $29\frac{1}{2}$
1	Drawer Back	$\frac{1}{2}$ x $4\frac{5}{8}$ x $29\frac{1}{2}$
1	Drawer Back	$\frac{1}{2}$ x $3\frac{7}{8}$ x $29\frac{1}{2}$
1	Drawer Back	$\frac{1}{2}$ x $3\frac{1}{8}$ x $29\frac{1}{2}$

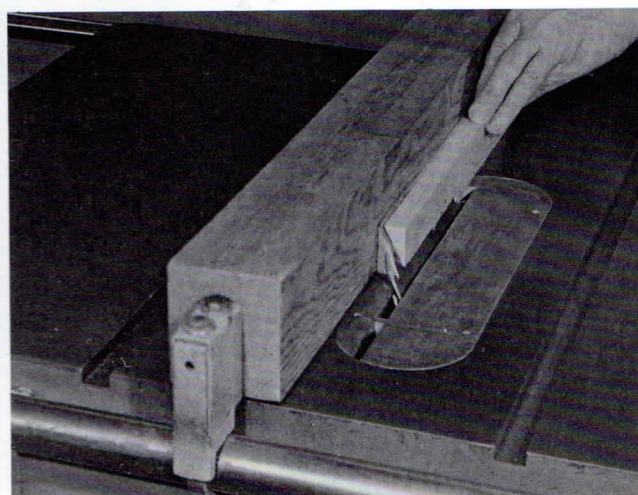
4	Drawer Bottoms	$\frac{1}{8}$ x $18\frac{3}{4}$ x $29\frac{1}{2}$
4 Sets	Extension Drawer Slides	
16	Shelf Supports	
4	Door Pulls	
4	Door Catches	

TOP SECTION

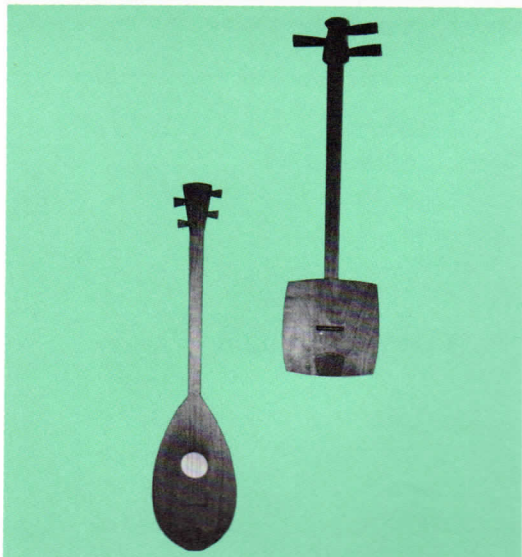
2	Sides (Ends)	$\frac{3}{4}$ x $13\frac{3}{4}$ x 41
2	Sides (Center Section)	$\frac{3}{4}$ x $16\frac{1}{4}$ x 41
1	Top Board	$\frac{3}{4}$ x $17\frac{1}{4}$ x $68\frac{1}{2}$
1	Bottom Board	$\frac{3}{4}$ x 18 x 70
2	Top Rails (Side Section)	$\frac{3}{4}$ x $2\frac{1}{4}$ x $17\frac{3}{4}$
1	Top Rail (Center Section)	$\frac{3}{4}$ x $2\frac{1}{4}$ x 30
1	Back Panel	$\frac{1}{4}$ x $41\frac{3}{4}$ x 68
8	Door Stiles (Side and Center Section)	$\frac{3}{4}$ x $1\frac{1}{4}$ x $38\frac{1}{4}$
2	Top Rails (Side Section)	$\frac{3}{4}$ x $1\frac{1}{4}$ x 16
2	Bottom Rails (Side Section)	$\frac{3}{4}$ x $2\frac{1}{2}$ x 16
2	Top Rails (Center Section)	$\frac{3}{4}$ x $1\frac{1}{4}$ x $13\frac{3}{4}$
2	Bottom Rails (Center Section)	$\frac{3}{4}$ x $2\frac{1}{2}$ x $13\frac{3}{4}$
4	Glass Shelves	16 x $29\frac{3}{4}$
2	Glass Shelves	$12\frac{3}{4}$ x $17\frac{1}{2}$
16	Shelf Supports	
12	Butt Hinges	$1\frac{1}{2}$ x $2\frac{1}{2}$
4	Door Catches	



2. Hand hole pull openings on the drawer fronts are cut on the band saw. Same design is used on all four drawers.



3. Bevel trim top mouldings are cut on the circular saw with the blade arbor tilted about 29 degrees. For a smooth cut use a hollow ground blade.



MUSICAL MOTIF WALL PLAQUES

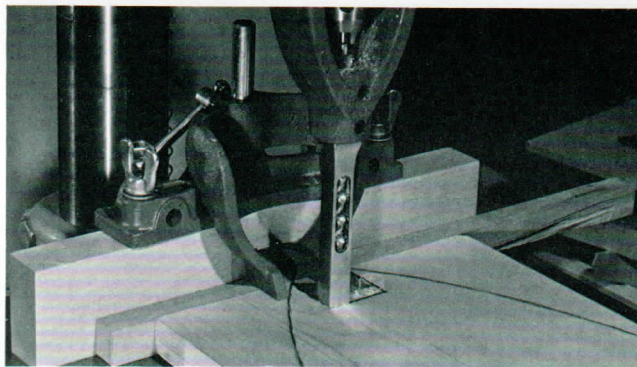
Design submitted by
MR. JAMES L. DeCECCE
Pittsburgh, Pennsylvania

In addition to producing beautiful sounds, musical instruments also lend themselves quite easily to fascinating designs. These musical motif walnut wall plaques make handsome conversation pieces for any home.

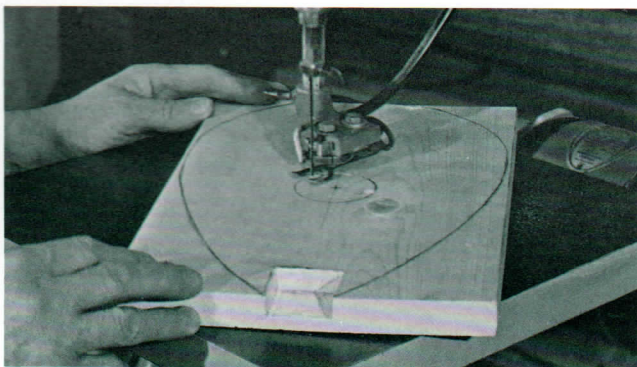
Lay out the sounding box and head block using the squares method as indicated in Figs. 1 and 3. Mortise both the sounding box and head block to accept the fingerboard. See Figs. 1, 2, 3, 4 and Photo No. 1. Cut the 2" hole, Fig. 3, Photo No. 2, on the scroll saw. Drill $\frac{1}{2}$ " holes in the head block for the keys, Photo No. 3. Rough cut the sounding box and head block on the band saw. The outer edge of the sounding box is finished to a 2" radius.

The keys, bridge and string holder are cut to size as indicated in Figs. 1 and 3. Note, the key end which fits into the head block is $\frac{1}{2}$ " diameter and $\frac{3}{8}$ " long, see Fig. 1A.

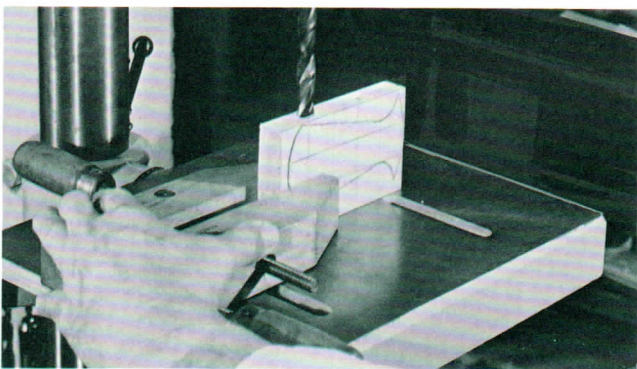
Assemble all pieces with glue and sand with 4/0 and 6/0 garnet paper. For a satin finish, use Watco Danish Oil Finish.



1. Square groove in sounding box is made on the drill press by making a series of $\frac{1}{2}$ " mortises on the drill press fitted with a $\frac{1}{2}$ " mortise chisel and bit.

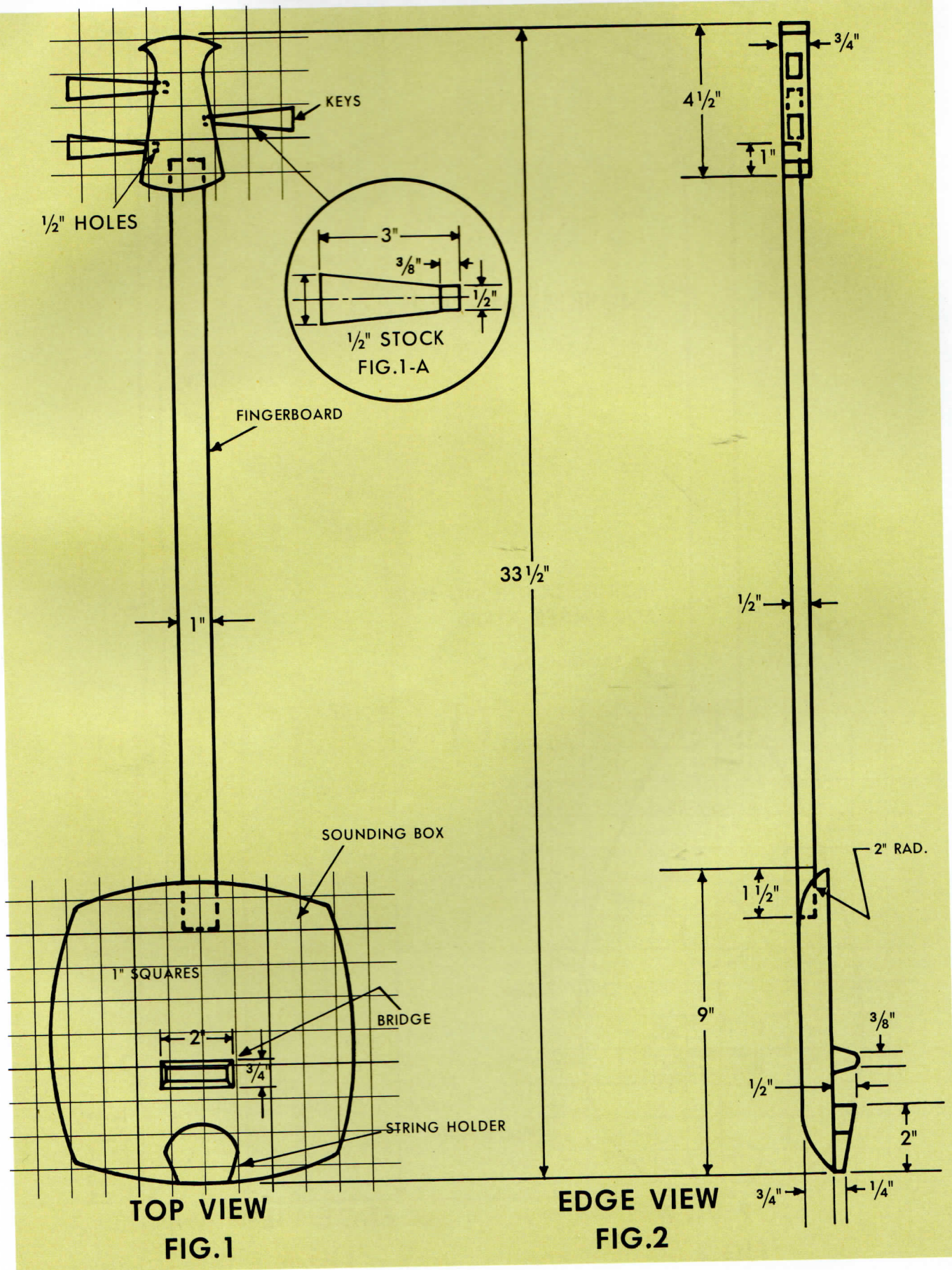


2. If a 2" spur bit is not available, it can be cut on the scroll saw using a No. 92 jeweler's blade.

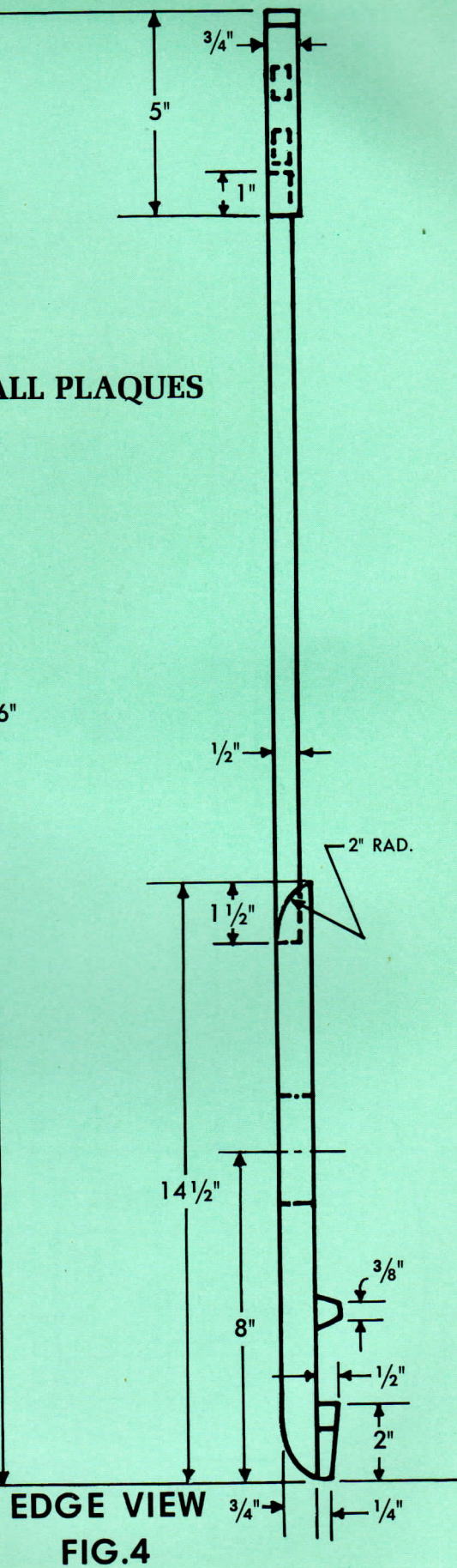
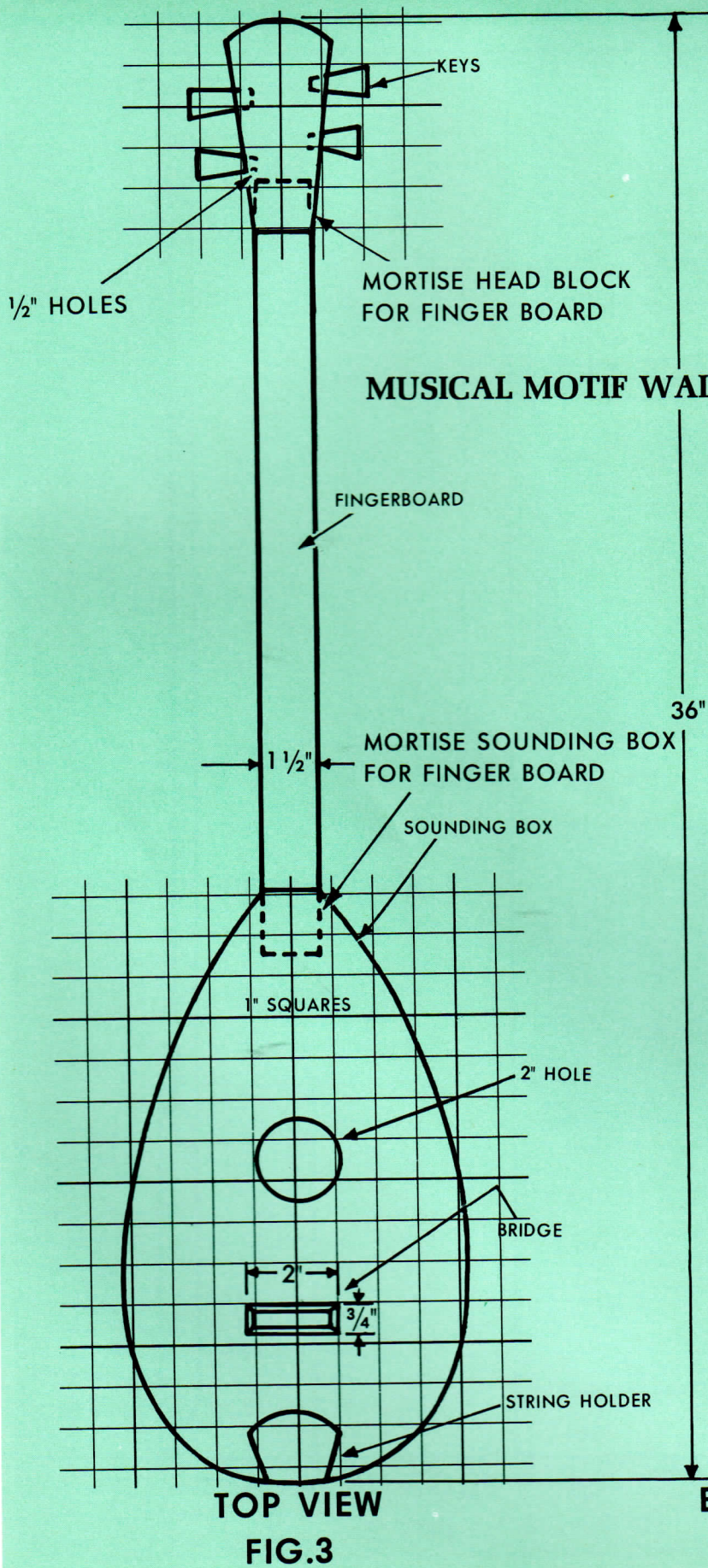


3. Holes for the turn keys on the head blocks are bored on the drill press with a $\frac{1}{2}$ " machine spur bit. All holes are drilled to the same depth.

NO. OF PIECES	NAME	SIZE	NO. OF PIECES	NAME	SIZE
1	Sounding Box	$\frac{3}{4} \times 9 \times 9$	1	Sounding Box	$\frac{3}{4} \times 8\frac{1}{2} \times 14\frac{1}{2}$
1	Fingerboard	$\frac{1}{2} \times 1 \times 26\frac{1}{2}$	1	Fingerboard	$\frac{1}{2} \times 1\frac{1}{2} \times 19$
1	Head	$\frac{3}{4} \times 2\frac{3}{4} \times 4\frac{1}{2}$	1	Head	$\frac{3}{4} \times 2\frac{1}{2} \times 5$
3	Simulated Keys	$\frac{1}{2} \times \frac{3}{4} \times 3$	4	Keys	$\frac{1}{2} \times \frac{3}{4} \times 1\frac{3}{4}$
1	Bridge	$\frac{1}{2} \times \frac{3}{4} \times 2\frac{1}{2}$	1	Bridge	$\frac{1}{2} \times \frac{3}{4} \times 2$
1	String Holder	$\frac{1}{2} \times 2\frac{1}{2} \times 2$	1	String Holder	$\frac{1}{2} \times 2 \times 2$



MUSICAL MOTIF WALL PLAQUES





Design submitted by
MR. DAVID L. ANGEL
Dover, Ohio

MODERN DESK UNIT

This modern desk is designed for the high school student. Your son can help you with this project by turning the legs on the lathe while you build the framework, and your daughter can put her artistic talent to work on the ceramic or tile inlay panel on the side of the desk.

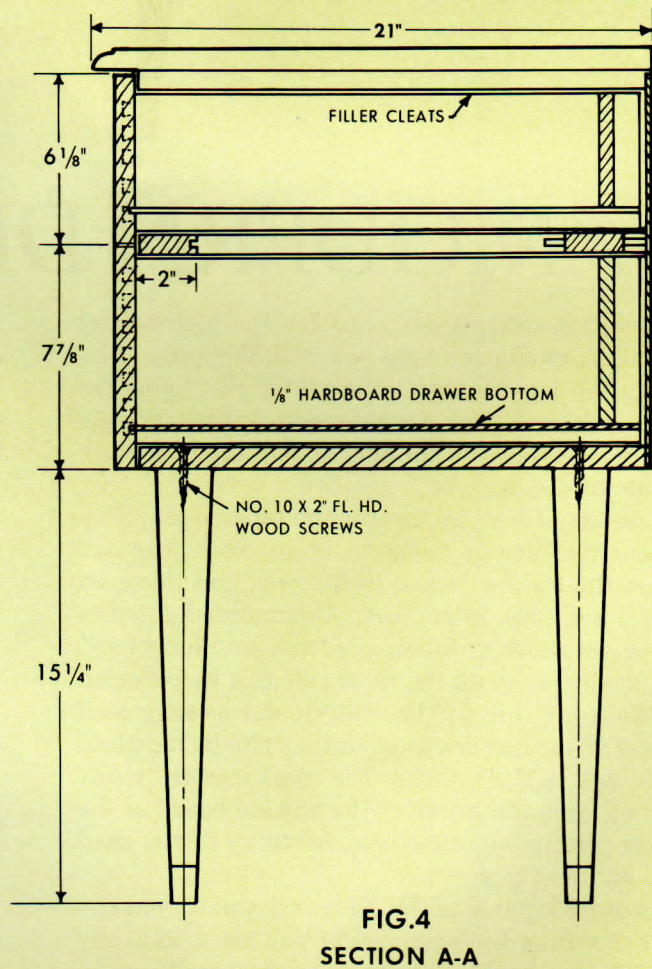
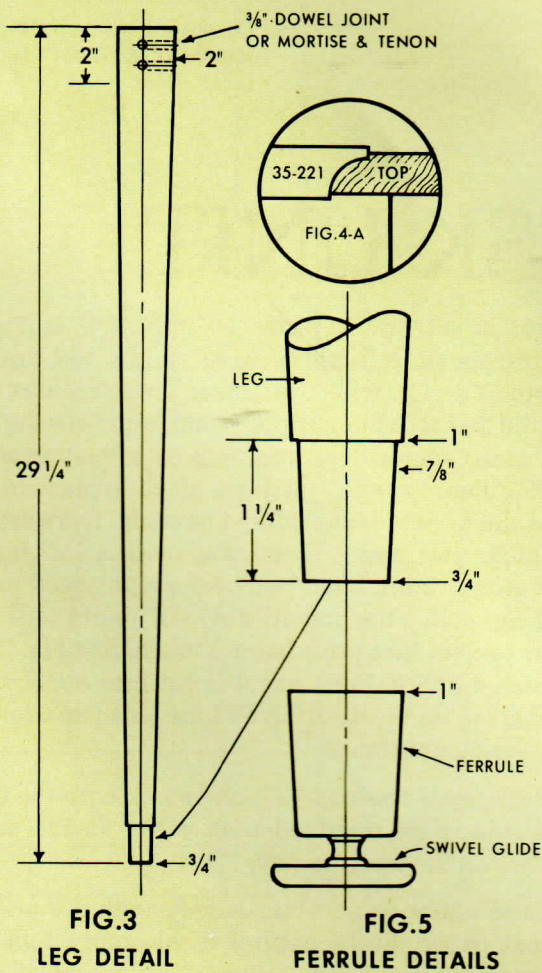
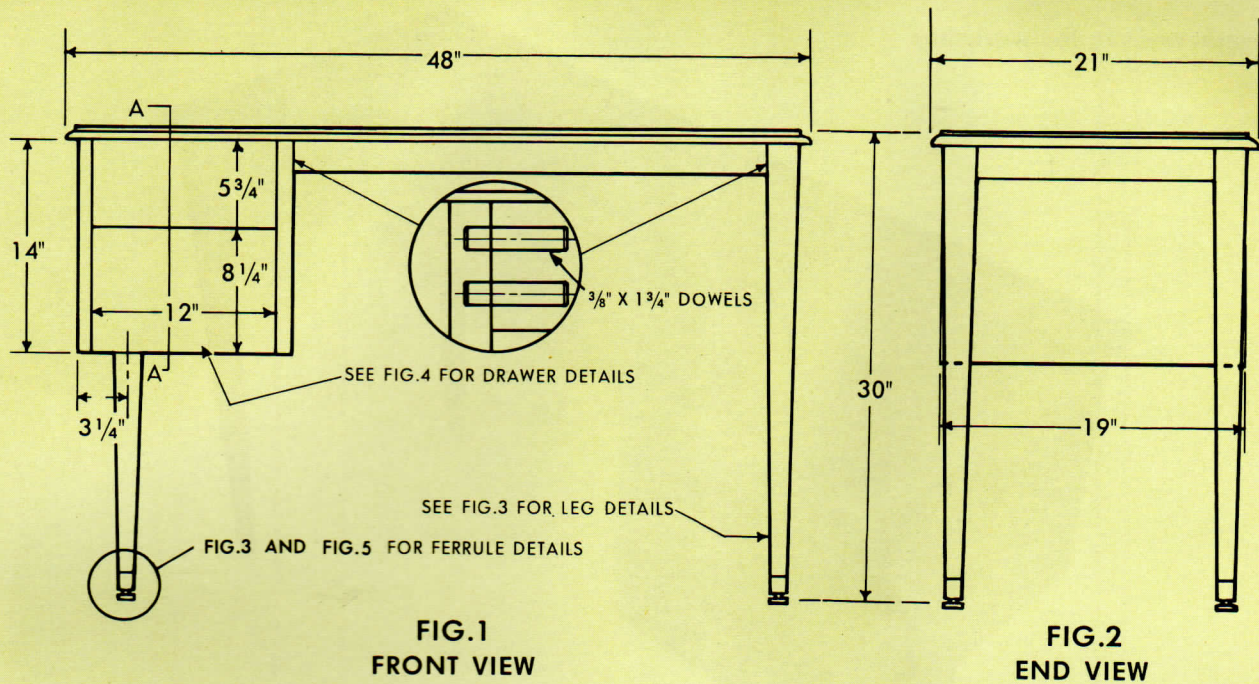
Begin the project by turning the tapered legs, Fig. 3. Legs are turned on the lathe, Photo No. 1. The two legs on the right side are $29\frac{1}{4}$ " long, and those on the left side are $15\frac{1}{4}$ " long. Commercial ferrules and swivel glides are available from your local hardware dealer. Legs on the right side can be doweled into the front, side and back stretchers as suggested in Fig. 3 of the line drawing, or they can be mortised for $\frac{3}{8}$ " x 1" x $1\frac{1}{2}$ " tenons. The short legs are screw fastened from the inside of the bottom board of the drawer compartment using a No. 10 by 2" flat head wood screw, Fig. 4.

The outside panel of the drawer compartment can be made with a tile insert, or if you are artistically inclined, you might want to put your scroll saw to use and make up an inlaid picture design panel. This

insert is set into a frame as indicated in Fig. 6. A drawer slide frame is used on the top drawer, Photos 2 and 3, while the lower drawer slides over a solid panel. This bottom panel supports the two left side tapered legs and acts as a dust panel as well. Filler cleats $\frac{3}{4}$ " thick are glued in place to prevent the drawer from riding unevenly. Drawers can be made the conventional way with a $\frac{1}{8}$ " tongue and groove joint, but if you own a high speed router and dovetail attachment, dovetail joints will give your project that professional touch. See Fig. 7 and Photos 4 and 5. Back panel is set into a $\frac{1}{4}$ " x $\frac{1}{2}$ " rabbet cut on the desk top and the side panels of the drawer compartment.

Desk top is made of $\frac{3}{4}$ " solid stock with the front and side edges moulded with a No. 35-221 set of cutters on the circular saw, Fig. 4-A.

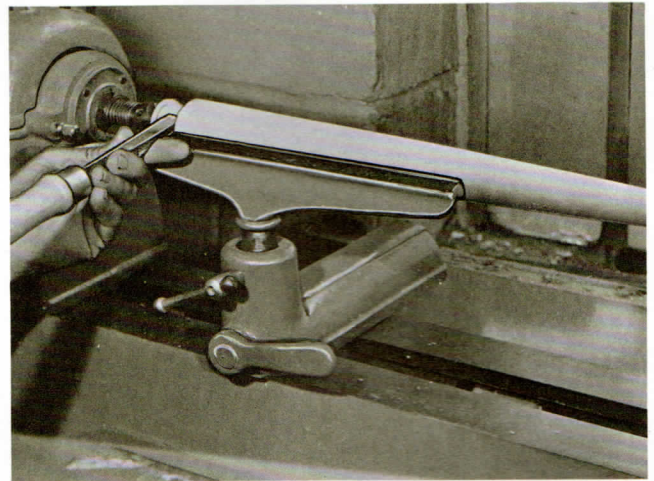
Sand entire project thoroughly with 3-0 and 6-0 garnet paper. For a natural finish apply two thin coats of white shellac followed by a coat of satin finish varnish.



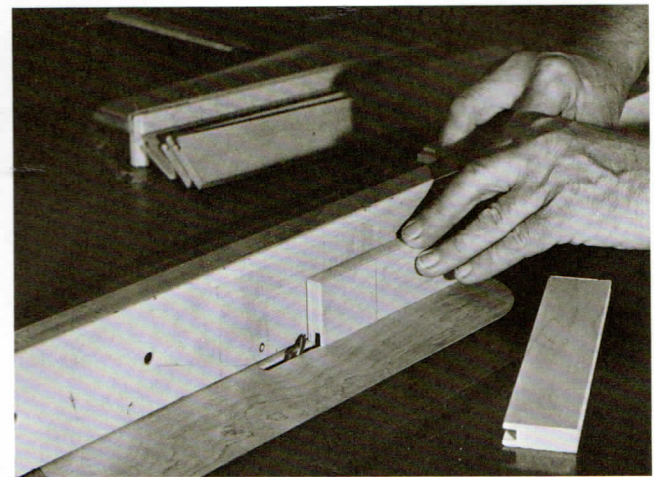
MODERN DESK UNIT

BILL OF MATERIALS

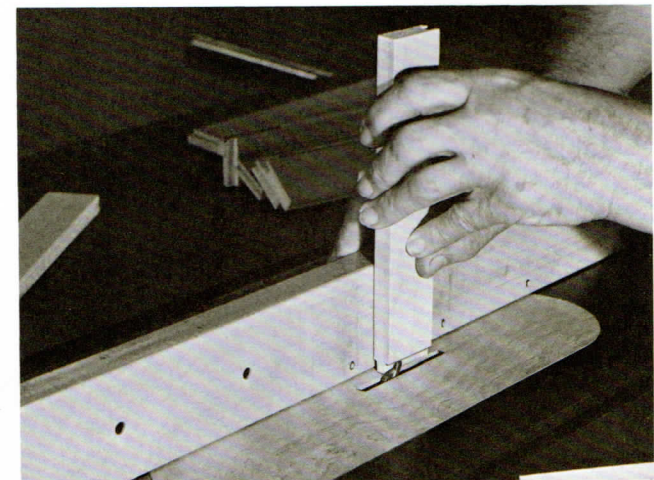
NO. OF PIECES	NAME	SIZE
2	Legs	2 x 2 x 29½
2	Legs	2 x 2 x 15¼
1	Side Rail	¾ x 2 x 15
2	Front and Back Rail	¾ x 2 x 29
1	Center Panel	¾ x 14 x 20¼
4	Stiles, Top and Bottom Rails (For End Panel)	¾ x 2¾ x 14
1	Plastic Insert	9 x 14
1	Bottom Panel	¾ x 12½ x 18
1	Back Panel	¼ x 13¾ x 18½
4 Lin. Feet	Glass Moulding (For End Panel)	¼ x ¼
2	Drawer Frame Side Rails	¾ x 2 x 14¼
1	Drawer Frame Front Rail	¾ x 2 x 12½
1	Drawer Frame Back Rail	¾ x 2 x 9
2	Drawer Support Cleats	¾ x 2 x 18¼
1	Drawer Front (Top)	¾ x 6½ x 12
1	Drawer Front (Bottom)	¾ x 7¾ x 12
2	Drawer Sides (Top)	½ x 5 x 18½
2	Drawer Sides (Bottom)	½ x 6¾ x 18½
1	Drawer Back (Top)	½ x 4¾ x 11½
1	Drawer Back (Bottom)	½ x 6½ x 11½
2	Drawer Bottoms	½ x 11½ x 18¼
1	Desk Top	¾ x 21 x 48
4	Leg Ferrules	
4	Leg Swivel Glides	
2	Flat Head Wood Screws	No. 10 x 2½



1. Legs are turned on the lathe. Bottom ends are turned down to take standard ferrules.



2. Stop mortises of the drawer slide frame are made on the circular saw using the two ¼" outside cutters of the dado head.

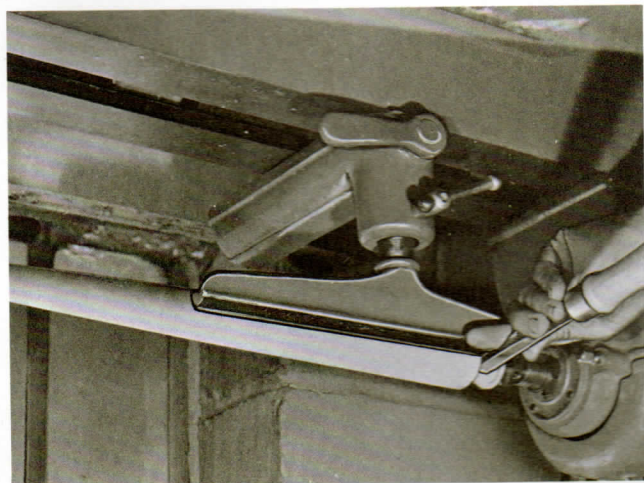


3. Short tenons of the drawer slide frame can be made in two operations with one ¼" outside cutter of the dado head or a regular combination blade.

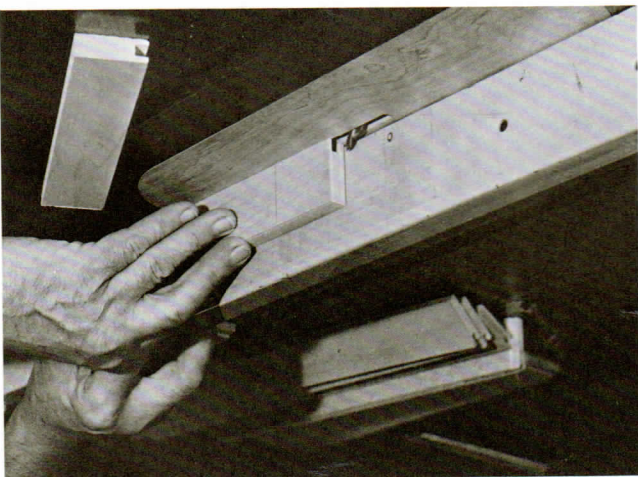
MODERN DESK UNIT

BILL OF MATERIALS

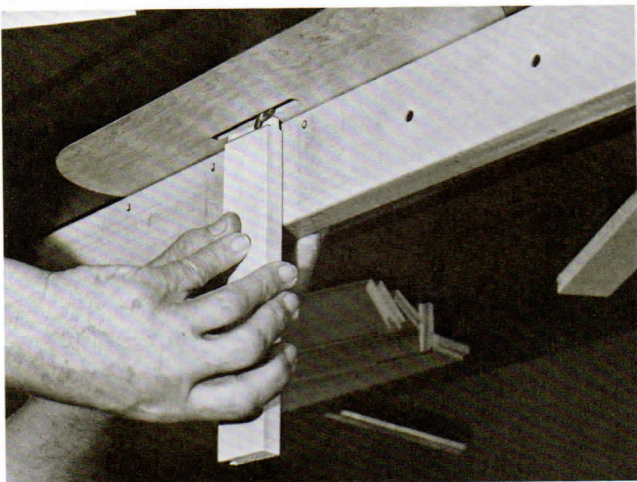
NO. OF PIECES	NAME	SIZE
2	Legs	2 x 2 x 29 1/2
2	Legs	2 x 2 x 15 1/4
1	Side Rail	3/4 x 2 x 15
2	Front and Back Rail	3/4 x 2 x 29
1	Center Panel	3/4 x 14 x 20 1/4
4	Stiles, Top and	3/4 x 2 3/4 x 14
1	Bottom Rails	9 x 14
1	Plastic Insert	3/4 x 12 1/2 x 18
1	Bottom Panel	1/4 x 13 3/4 x 18 1/2
1	Back Panel	1/4 x 1/4
4 Lin. Feet	Glass Moulding	3/4 x 2 x 14 1/4
2	Drawer Frame	3/4 x 2 x 12 1/2
1	Drawer Frame	3/4 x 2 x 9
1	Back Rail	3/4 x 2 x 18 1/4
2	Drawer Support	Cleats
1	Drawer Front (Top)	3/4 x 6 1/8 x 12
1	Drawer Front	3/4 x 7 7/8 x 12
2	Drawer Sides (Top)	1/2 x 5 x 18 1/2
2	Drawer Sides	1/2 x 6 3/4 x 18 1/2
1	Drawer Back (Bottom)	1/2 x 4 3/8 x 11 1/2
1	Drawer Back	1/2 x 6 1/8 x 11 1/2
2	Drawer Bottoms	1/2 x 11 1/2 x 18 1/4
1	Desk Top	3/4 x 21 x 48
4	Leg Ferrules	
4	Leg Swivel Glides	
2	Flat Head	No. 10 x 2 1/2
	Wood Screws	



1. Legs are turned on the lathe. Bottom ends are turned down to take standard ferrules.



2. Stop mortises of the drawer slide frame are made on the circular saw using the two 1/8" outside cutters of the dado head.



3. Short tenons of the drawer slide frame can be made in two operations with one 1/8" outside cutter of the dado head or a regular combination blade.

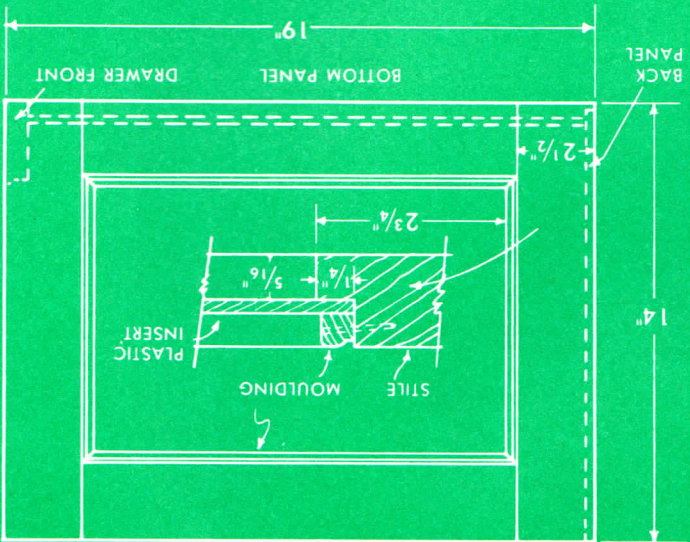


FIG. 6

END PANEL WITH PLASTIC INSERT

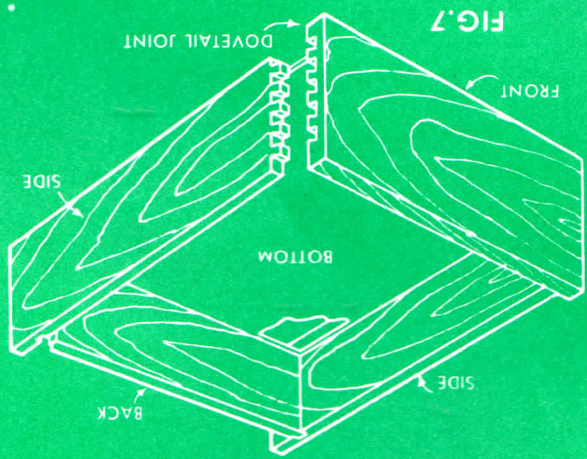


FIG. 7

DRAWER DETAILS

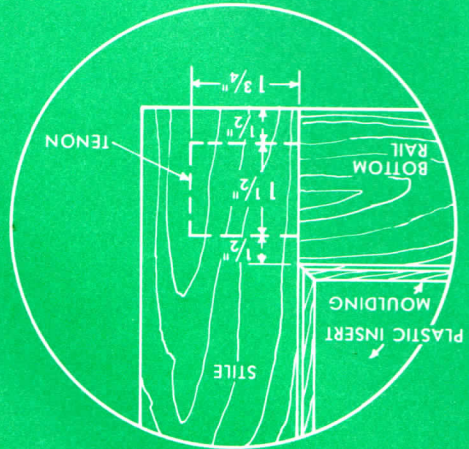


FIG. 8

MORTISE & TENON JOINT
(ON END FRAME ASSEM.)

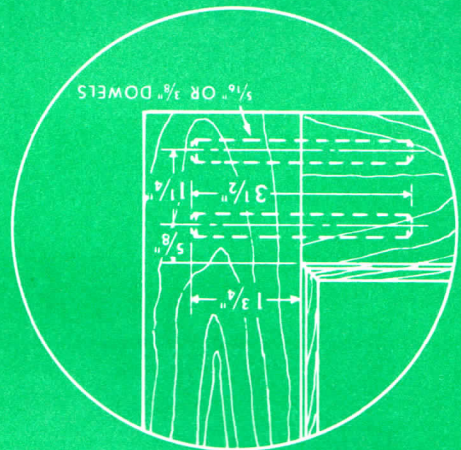


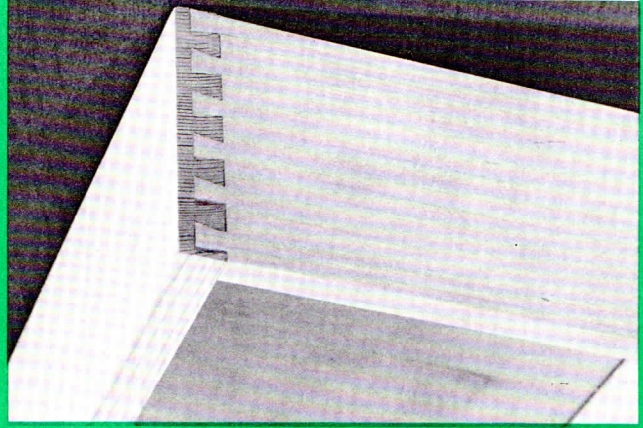
FIG. 9

DOWEL JOINT
(ON END FRAME ASSEM.)

4. Dovetail joints on the drawer fronts and sides are made at the same time using the dovetail jig and high speed router.



5. After the dovetail joints have been machined, they join together as shown.



RUSTIC SIGN PLAQUES

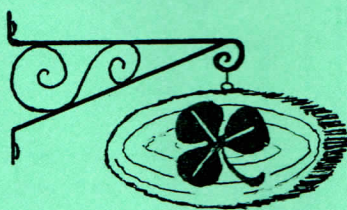
JOE B. KNOT

CHUCK WOOD

A. L. TWIG

WOOD CRAFT
CAMP

Ye Olde
Coffee Shopp



SUNRISE
LAKE
RESORT

DR. A. M. JONES

R. FIELDE

PRIVATE

RAINBOW
FALL

PLEASE

TURTLE
LAKE

CAMPFIRE GIRLS
5 MILES →

HALF LOG
RAISED
LETTERS

BIRCHWOOD
TRAIL

JACK
FORD
CHRIS
JILL
ROBIN
PAUL

flying chips & Reader Comments

FILE CARD INDEX

CANTON, SOUTH DAKOTA

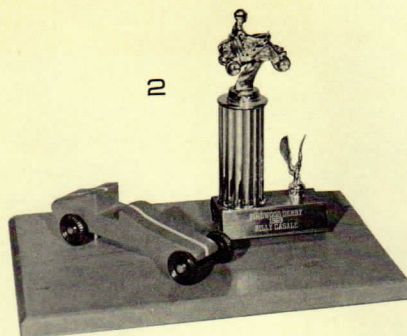
As each issue of the Flying Chips arrives, I index each project on a 3 x 5 file card. Each type of project is entered under major headings such as Bedroom Furnishings, Book and Magazine Racks, Bird Houses and so forth. Some of the projects are indexed more than once. Antique furniture is listed under Antiques as well as the type of project.

I have each issue cross indexed since Volume 19 and they are bound in large three-ring notebooks, Photo No. 1. I can usually find just the project my friends have in mind when we want to build that special gift.

Keep up the fine work of producing quality tools and plans for us to use.

R.S.T.

Thank you for your suggestion. I am sure our readers will find it helpful.



WINNERS

PITTSBURGH, PA.

The Pinewood Derby of Cub Scout Pack #620 Troop 79 has a grandfather-grandson team as winners. Mr. Tony Casale and his grandson, Billy, can be proud of their accomplishment. Their winning car and trophy can be seen in Photo 2.

The grid marks on the nested tables drawing in the January-February 1970 issue should be 1" instead of 1/2".

Sorry fellows—The Editor

SEWING CENTER

SUFFOLK, VIRGINIA

I am a retired person that has become interested in woodworking in addition to gardening.

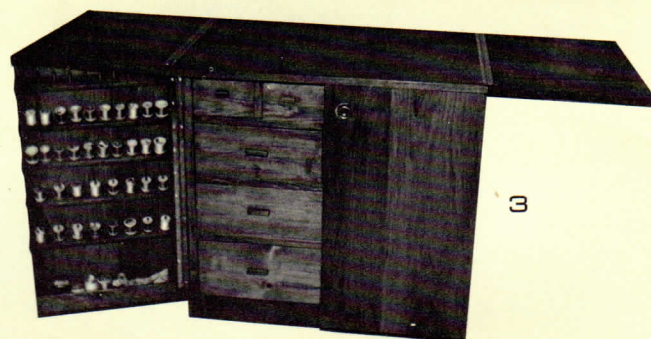
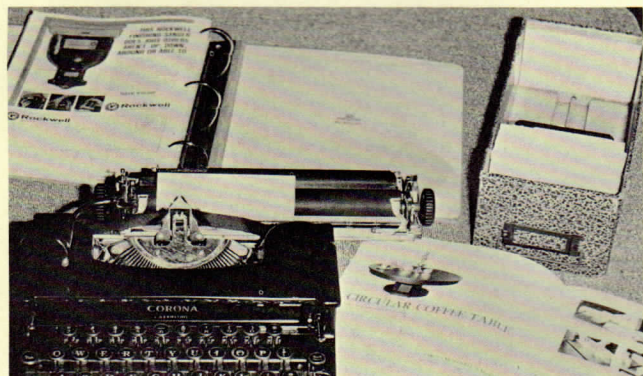
The March-April 1969 issue of the "Flying Chips" had pictures and plans for a sewing center to be constructed of plywood.

I constructed the sewing center with teak and white pine. All of the screws are attached from the inside. This is my first project from plans, and as the idea came from your magazine, I am sending you a snapshot of the completed project, Photo No. 3.

J.T.T.

Thank you for the snapshot of the sewing center constructed in your shop. You certainly did a nice job on this project and should be highly commended on your work.

The Editor



WHEELS FOR TOYS

JACKSON, MICHIGAN

Can you tell me where one could buy small wooden wheels of various sizes like the type used on toys. I have no equipment with which to make them myself. Any help you or your readers can give me on sources for this material will be very much appreciated.

Thank you
Mrs. G. L. W.

There are many firms who sell wheels made of wood, but they only cater to big volume buyers. You might try L. D. YODER, 3809 N. 26th Street, MILWAUKEE, WISCONSIN. Any suggestions from our readers will be welcome.

The Editor



SHOP HINTS

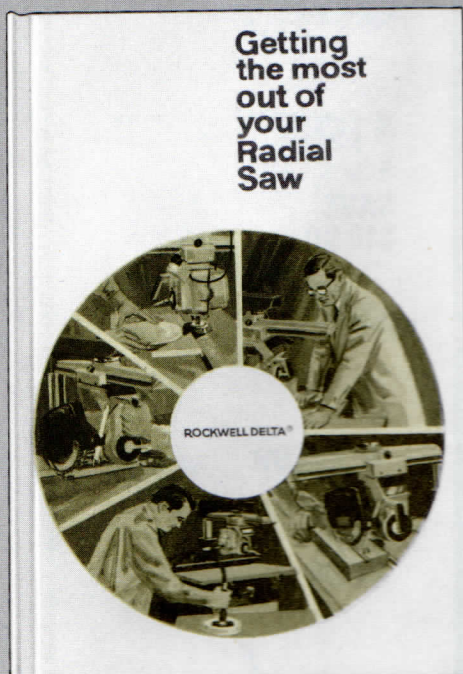
If you cut shallow grooves on the inside of glue blocks, they will do a much better job of reinforcing the furniture corners.

When driving screws, coat the threads with wax rather than soap. Wax is better as it keeps the screws from rusting.

A faucet washer on your drill bit keeps chuck from scarring fine wood surfaces. It also serves as a hole depth gauge if you watch closely so it isn't pushed up on the bit.

NEW!

the world's most
authoritative book for...



with more than 300 photos
and line drawings

only \$2.00

"Getting the most out of your Radial Saw" covers all phases of radial saw operation in the home workshop. Beautifully bound, this hard-cover handbook will be a valuable addition to your workshop library.

Money Order or Check Must Accompany Each Order.

Rockwell Manufacturing Company
Power Tool Division
400 N. Lexington Avenue
Pittsburgh, Pennsylvania 15208

Enclosed is my check or money order for \$...

Please send me
"Getting The Most Out Of Your."

Quantity	Book Title	Total
.....	Circular Saw and Jointer
.....	Drill Press
.....	Radial Saw
.....	Band Saw and Scroll Saw
.....	Shaper
.....	Lathe
.....	Abrasive Tools
.....	Router
	Total \$	

Name
Address
City State Zip Code



CRAFTSHEET

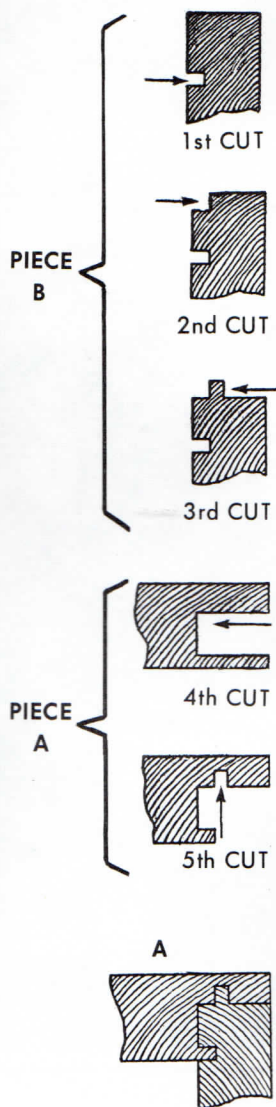
MISCELLANEOUS
JOINTS
SERIES NO. 5



LOCK CORNER JOINT

STEPS IN CUTTING A LOCK CORNER JOINT

The lock corner joint shown here is one of the better joints to use on chests and special boxes and cases for housing instruments and jigs. Box side "B" is made with a single blade as shown in 1st, 2nd and 3rd cuts. Side piece "A" is made in two operations. First cut can also be made with a single blade by making a series of cuts, (4th cut) followed by a single cut (5th cut) with the stock lying flat on saw table.



ASSEMBLED JOINT

flying chips SUBSCRIPTION BLANK

Mail to: Power Tool Division • 400 N. Lexington Avenue • Pittsburgh, Pa. 15208

Enclosed is my check or money order for ...
☐ 1 year (6 issues) \$1.75 ☐ 3 years (18 issues) \$4.00 ☐ 5 years (30 issues) \$6.00

Foreign countries add 50 cents per year extra for postage and handling.

Name

Address

City State Zip Code

Please Check ☐ New ☐ Renewal



quick 'n' easy

\$19⁹⁹
REG. \$29.99
**SAVE
\$10.00**

GATORTOOTH
HEDGE TRIMMER
(MODEL 35)



\$34⁹⁹
REG. \$39.99
**SAVE
\$5.00**

EDGER-TRIMMER
(MODEL 40)



**Spring...
for Rockwell
Power Tools**

ROCKWELL MANUFACTURING CO.
FACTORY SERVICE BRANCH
2755 N.E. BROADWAY
PORTLAND, OREGON 288-6888, 89