

The Woodworker's Journal

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18th Cent. Pine Table

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- **6 Holiday Gifts to Make and much more...**

Shoptalk

Late last winter, when we decided to include the Aeolian harp in the May/June '78 issue, we were a bit concerned that readers might experience problems in finding the required tuning pins. So, before starting the construction of the prototype harp, we set out to see if those particular pins were easily obtainable. Our definition of "easily obtainable" is if you can walk into a store in most small towns and buy what you need over the counter.

There's a small music store in a neighboring town of about 16,000 population, and we reasoned that if we could just walk in and buy the pins, most of our readers could do the same elsewhere.

Well, we did just that. Walked in and asked for a dozen auto-harp or zither tuning pins, and the proprietor didn't bat an eye. He went into the back room and came out with a plastic bag full of pins.

As we recall, they were about 15 cents apiece, and we were just a bit surprised that we had such an easy time getting them. So we gave the green light to the harp project.

Months later, a reader calls and tells us that he likes the harp and would like to mass-produce them for sale by mail order. There's only one problem however. None of the music stores in several large cities he's visited have the pins. Worse still, he was unable to locate a distributor. Can we help?

We mumbled something about contacting a manufacturers representative dealing with Japanese machine shops and suggested he line up a cheap foreign source. But that's hardly good advice for the readers who just want to build one or two harps.

Anyway, we're sorry if you've had trouble getting pins. We know that woodworkers are an inventive lot and most will devise some sort of ingenious substitute if necessary. We've been thinking along the lines of using fillister head screws. The only problem with substitute pins is that they have to be drilled with a rather small hole to take the guitar strings.

We think that we've lined up a pretty good collection of interesting projects for this issue, and hope that you'll like them. The six gifts are a lot of fun to make and incidentally, make darn good items for sale to gift shops.

We've been meaning to make a new tapering jig to replace our old nicked up one and now we're glad we procrastinated because Don Kinnaman's latest contribution is a real improvement over most of the jigs we've seen. From a safety standpoint, we've never been too secure using the standard type of jig, and this one is the safest we have seen yet. It's a really worthwhile addition to your shop.



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LETTERS

Has anyone pointed out that if the Shaker lantern is made to the design in Vol. 2, No. 3, and made for a candle, there is no way the dovetail slide with socket attached can be gotten out under the frame at the bottom of the door? L. Swenson, Glenwood Springs, Co.

You're right about the lantern slide. We failed to point out that the candle socket should be doweled and left unglued so the whole assembly can be removed. The original lantern was made with the door extending down to the slide as you suggested.

Can you tell me where I can find plans for a music box? D. Cannon, Union City, Cal.

Albert Constantine & Sons, Inc., 2050 Eastchester Rd., Bronx, NY, 10461, offers plans for a "musical jewel box" that measures 4 1/2" x 7" x 10". Also, Craft Patterns, 2200 Dean St., St. Charles, Ill., 60174, sells a Music Box Brochure for the price of 25 cents. Perhaps that may have something you're looking for.

I'm looking for a pattern for a fire-place bellows. N.B., Atlanta, Ga.

Try the book "Building Early American Furniture" by Joseph Daniele, published by Stackpole Books, Harrisburg, Pa. On page 69, there's a plan for a colonial bellows.

Do you know where I can get 2 lbs. of 1/4 inch #20 brads or nails, or how close can you come to it? G. Filber, Racine, Wis.

I gather that your problem is not one of finding the right brad, but rather in getting a large quantity at a reasonable price. Most building supply centers sell small quantities packaged in plastic tubes.

You might write to a manufacturer to find out if they will ship a supply to you or to your local hardware dealer. Locally, our nails and brads are made by the W.W. Cross Company, Jaffrey, NH, 03452.

I came across your pine gun cabinet in the Sept/Oct '78 issue, and have a hint that may help, someone, and that is after finish sanding is done, stain all parts of a paneled door assembly. If the panel shrinks, it will not show unstained areas later...such as white lines around the rails and stiles. Thanks for a fine magazine. John Bonato, Vineland, NJ.

Thanks for your suggestion John. We agree that it's a good procedure to follow and deserves mention. In fact, back in our Jan/Feb '78 issue, we suggested this in our directions for the Colonial Dry Sink project.

The Beginning Woodworker

MITER JOINTS

Miter joints are angled butt joints that hide the end grain of the joined parts and present a rather neat and decorative appearance. The miter joint is found in both traditional and contemporary furniture, and is commonly used as the joint between cabinet sides and top and on frames that are added to the fronts of cabinets to carry a door or perhaps a speaker grill. Cornice and base moldings on traditional furniture are generally mitered where sides join front, and of course, most picture frames consist of four mitered joints.

Since these joints are basically decorative, they are generally in full view, and nothing looks worse than poorly fitted miter joints. On naturally finished or stained and varnished furn-

iture, the joints are either perfect or perfectly horrible; there's really no middle ground or satisfactory way to patch them up. Packing tinted plastic wood into a bad joint is a devious measure regularly employed by confirmed wood-butchers, and on rare occasions by very desperate craftsmen.

There are all sorts of variations of the miter joint; many of which are actually combinations of joints such as mitered rabbit joints, mitered half-laps and even mitered dove-tails. The beginning woodworker should concentrate his or her efforts on becoming proficient in the layout and cutting of simple splined or doweled miter joints before tackling the more exotic variants.

Continued on next page

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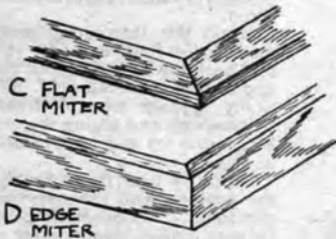
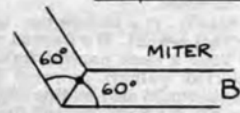
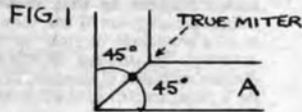
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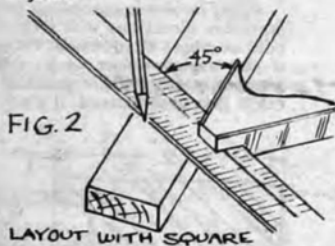
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Beginning Woodworker (Cont'd)

Two parts, meeting at an angle, whether acute or obtuse, are correctly said to be mitered, though a mitered joint that results in a right angle is generally referred to as a "true" miter (Fig. 1 A&B).

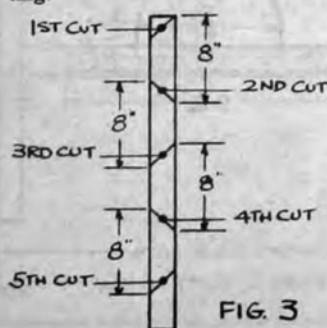


A true miter, or any other kind for that matter, may be either flat or on edge. (Fig. 1 C&D) Both types, when held only with glue, are very weak as the end wood sucks up the glue causing a "starved" joint. For very light work, it is possible to overcome this problem by first "sizing" the mating faces with a couple of coats of thinned glue; thus sealing the end grain to some extent. Generally though, you should plan on using some additional method of strengthening the joint.

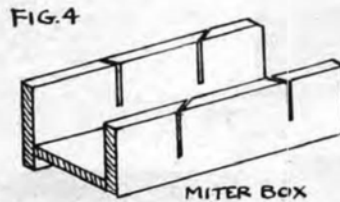


Before getting involved in a discussion of fastening methods, let's go over the basic procedures for cutting true miter joints; either flat or on edge. To construct a flat frame with mitered corners, first dress the stock to required dimensions. If the frame is to be carefully fitted inside a cabinet, or used as a facing around the front edge, it's wise to dress the stock slightly oversize with respect to width and length. After the frame is assembled, it can then be planed down to an exact fit.

The combination square is invaluable for laying out 45 degree or true miter cuts. Use the square as shown in Fig. 2, scribing the cutting lines with a knife blade or sharp pencil. Measure the length of each part of the frame along the edge of a single stick of dimensioned stock, and make the cuts in the sequence shown in Fig. 3 where, for example, the four sides of an 8 inch square frame are laid out for cutting.



For well fitted joints it's best to use a fine tooth back saw and some sort of jig to help guide the blade. A hardwood miter box (Fig. 4) can be made or purchased at most any hardware store. Note that one side of the box forms an extension which enables the box to be clamped in the bench vise while the cut is being made.



Test mating pieces by holding them together against the inside corner of a framing square (Fig. 5). You'll easily see if any slight adjustments are necessary to close the joint perfectly along its full length.

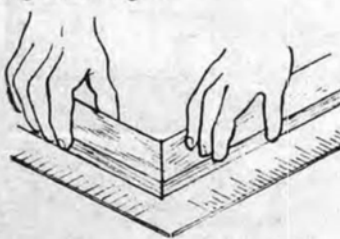


FIG. 5 TESTING JOINT WITH FRAMING SQUARE

If you lack power equipment, flat miters can be accurately planed as they were 200 years ago, with the aid of a shooting block jig (Fig. 6). Clamp the piece firmly to the jig and take very fine cuts with a sharp plane. Plane both pieces equally, a little at a time until the joint is tight. Mark the pair such as "A-A" for identification, and follow this same procedure for the remaining pieces.

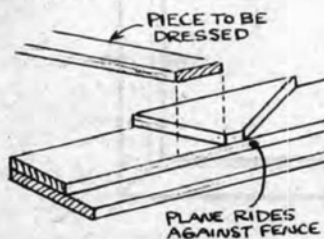


FIG. 6 MITER SHOOTING BOARD

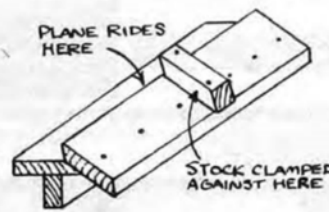
When a four-sided mitered frame is being made, you may find that no matter how carefully you made your cuts, the final joint may be slightly off. This is because of an accumulation of tiny errors caused by inaccuracy in cutting, and also possibly an error in the square itself.

A neat way to correct this final joint is to clamp both pieces together at the correct angle, and flat to a scrap board then carefully saw down through the joint. This will usually suffice to bring the pieces together.

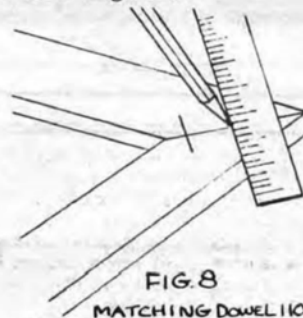
Edge miters (Fig. 1D) can also be cut with the miter box if the box is deep enough to accommodate the width of the piece to be mitered. It's relatively simple to incline the blade of a table or radial saw to accurately cut a bevel along the edge of a wide board or piece of plywood, but accurate cuts in wide stock are a bit difficult to do with a handsaw. The best approach is to scribe the cut around all four surfaces of the board, then clamp or tack hardwood strips on each side of the scribed line to serve as guides for the blade. The finished cut will be a bit rough and should be planed down with a sharp block plane. Again, a centuries old jig, sometimes referred to as a donkey's

ear shooting board (Fig. 7), is used to plane the sawed surface to a smooth and accurate surface.

FIG. 7 DONKEY'S EAR SHOOTING BOARD

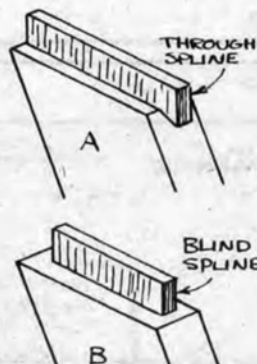


As mentioned earlier, miter joints held solely with glue are generally unsatisfactory for most work, and additional fastening is required. Most miter joints; either flat or on edge, are reinforced with splines or dowels. The method of doweling flat miters is similar to that used in edge-to-edge joining of boards. Bring the two mating parts together and make two pencil marks across both parts (Fig. 8). Use a square to carry these lines across the cut ends of the parts. Gauge center lines, clamp the pieces in the vise and bore the dowel holes using a doweling jig. Insert scored and glued dowels and clamp the joint both crosswise and lengthwise.



If a spline is used, it can run the full width of the joint or only partway across so it is hidden from view (Fig. 9 A&B). This latter is referred to as a "blind" spline and is generally used in fine work such as clock cases. When cutting spline grooves, fit the joint and

FIG. 9 SPLINED MITERS



gage for the groove, marking both sides from the face side of the piece to make sure that the grooves are perfectly aligned on both parts.

Rip both sides of groove with the blade cutting in the waste wood and remove the waste with a chisel. A spline groove width of 1/4 inch is about right for 1/4 to 1 inch thick stock. Make the spline from hardwood, with the grain running across the width, or use a piece of plywood. (Fig. 10)

Try for a snug fit of the spline in its grooves and cut the spline so it is about 1/16 inch less in width than the combined depths of the grooves.

Blind spline grooves can be started with a handsaw, but most of the groove length will have to be chiseled

out. Bore a succession of overlapping holes and finish off with a chisel.

Edge miters can be splined, but grooving by hand is difficult because of the cross-grain. A bench or radial saw makes the job simple, but if you have only hand tools, doweling is the most practical means of fastening edge miter joints. Clamping is also easier as the dowels prevent the joint from sliding when the clamps are applied.

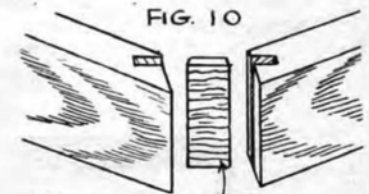


FIG. 10 GRAIN RUNS ACROSS SPLINE

Adequate clamping of some mitered joints can be a problem, especially when more than four parts are joined to form angles greater than 90 degrees; as in straight and tapered columns used as planters, waste-baskets or lamp bases. Generally webbed belt clamps or lengths of stout rope can be used to distribute even pressure. Woodworkers can be quite ingenious in devising various fixtures to solve a particular problem. The ability to improvise with the equipment on hand is a most valuable asset and one worth cultivating.

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Stereo-End Table



Here's a contemporary furniture design that can be used to really compliment your stereo equipment, or if you prefer, it can easily be adapted to create a stylish end table.

The stereo speaker wings have an added feature in that they can be folded up and out of the way if space is at a premium in your home or apartment. No matter which way you choose to make it though, it's sure to be a most useful and attractive piece of furniture.

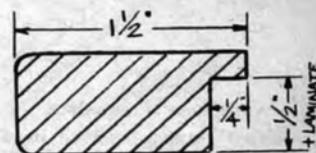
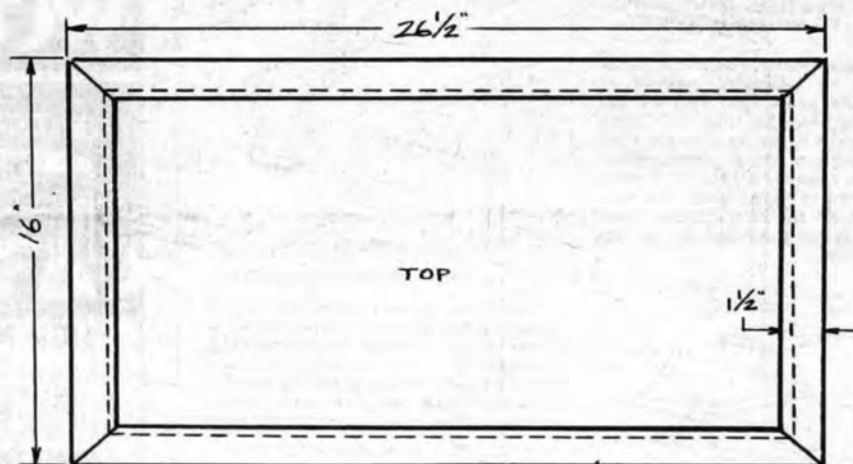
Ideally, you should use hardwood for this project. We wanted our table to have a dark natural finish so we selected walnut; however birch or maple would also be fine choices, especially if a light, natural finish is desired.

Begin this interesting project by making the four legs (A), the front and back top rails (B), and the front and back bottom rails (C). Referring to Fig. 2, make the table front frame by doweling and gluing the two front legs to the top and bottom front rails as shown.

Make the back frame by repeating the process with the two back legs and top and bottom back rails. Next, on each frame; layout, mark and cut the $1\frac{1}{4}$ inch radius, the $2\frac{1}{4}$ inch width and the foot taper.

The top should be made next. Note that it is basically a mitered frame (D) rabbeted to take a plastic laminated or veneered $\frac{1}{2}$ inch plywood panel. Start making the top by cutting the plywood (E) to size. We used black plastic laminate to cover the top surface of our table. Plastic laminate is available in a wide range of solid colors and simulated wood grains, and can provide an attractive, easy-care finish; particularly for a contemporary piece such as this.

Apply laminate according to manufacturers directions and trim off excess at edges of plywood. Of course, if you enjoy veneer work, this is a good opportunity to practice your craft. If veneer is used, it's advisable



DETAIL A
FRAME RABBET

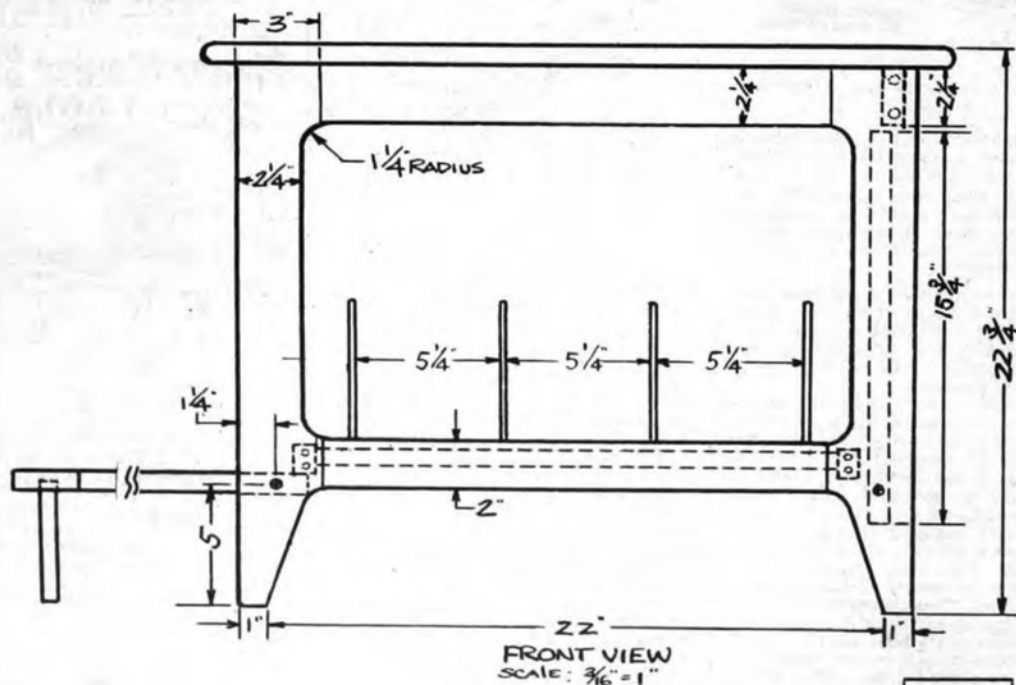
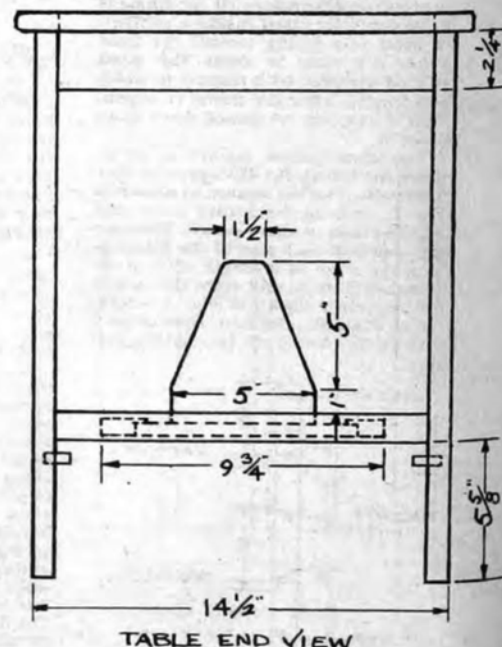


FIG.1



to veneer the underside of the panel with a lesser grade of veneer to equalize stresses.

The mitered and rabbeted frame (D) is made from 1 inch stock, ripped to a width of 1½ inches. Refer to Fig. 1 and Detail A for frame dimensions. We used a blind doweled miter joint at each corner, to provide added strength. You'll want an attractive joint here; one that's clean and tight, so make measurements and cuts with special care. If you have a miter box, this is the time to use it, or refer to *The Woodworker's Journal*, Vol. 1, No. 1 for a tablesaw miter cutting jig. Glue and clamp frames and secure laminated panel with finishing nails driven at an angle, up through panel and into frame. It's best to drill undersize pilot holes for the nails.

The bottom shelf (record rack) can be made next. The record dividers may be eliminated if you plan to use this piece as an end table. Cut the ½ inch plywood (F) to size. Referring to Fig. 1, rout ¼ inch wide x ¼ inch deep x 5 inch long grooves across the plywood, as shown. A router makes an easy job of this, but a bit of patience and a sharp chisel will also yield good results.

Apply veneer or laminate, and use a sharp knife to score and trim away the excess along edges and covering the grooves. Make the rabbeted front and back frame rails (G), and the two lower end frame rails (H).

Now referring to Fig. 1, dowel and glue the lower end frame rails to the front and back rails. After this frame has been clamped and allowed to dry, set the panel in place and fasten from bottom as you did with the table top.

Cut the record dividers to size as shown in Fig. 1 and glue them into place. The left and right upper end rails (I) can now be cut. These can be set aside until you begin final assembly.

The folding stereo speaker wings can now be built...unless the piece is to be used as an end table. Refer to Figs. 2 and 3 for all details and dimensions. Use ¼ inch by 1½ inch dowels to strengthen all joints.

Before assembly, apply a generous radius (see Detail B) to all edges marked with a check (✓) in Fig. 2. This radius helps to give the table its clean lines so use care here.

After careful sanding, the table is ready for assembly. Referring to Fig. 2, drill dowel holes in the front and back frames and rails H and I. Glue the four ½ inch pivot pins into the frames but do not glue the ends that insert into speaker wings. The wings must be free to pivot so that, if desired, they can be folded up and out

of the way.

Perhaps the easiest way to assemble the table is to lay the back frame assembly on its side, then fit up and glue one end of each upper end rail (I). Then add the record shelf assembly. Next, slip one end of each speaker wing on to the pivot pins. Take the front frame assembly and lower it onto the mating parts. Use a pipe clamp at each joint and allow to dry overnight.

The top can be joined by centering it on upper rails and fastening from underneath with six 2 inch x #8 rh wood screws as per Fig. 2. The bottom of the rails must be counterbored with a ¼ inch drill.

Finish sand all surfaces, paying particular attention to the radius be-

tween legs and rails. Thoroughly dust all parts with a tack rag, or go over the table with a vacuum cleaner dusting attachment.

An oil finish, such as Watco Danish Oil is both appropriate and easy to apply. This is a deep penetrating oil and resin sealer-finish, available in natural or dark finish. The natural oil contains no pigments and will not color the wood. Apply according to directions on the label.

Tung oil is another penetrating oil finish that can be applied with a brush or rubbed on with a cloth. It's available in both clear and colored finishes. As always, apply according to the manufacturer's directions.

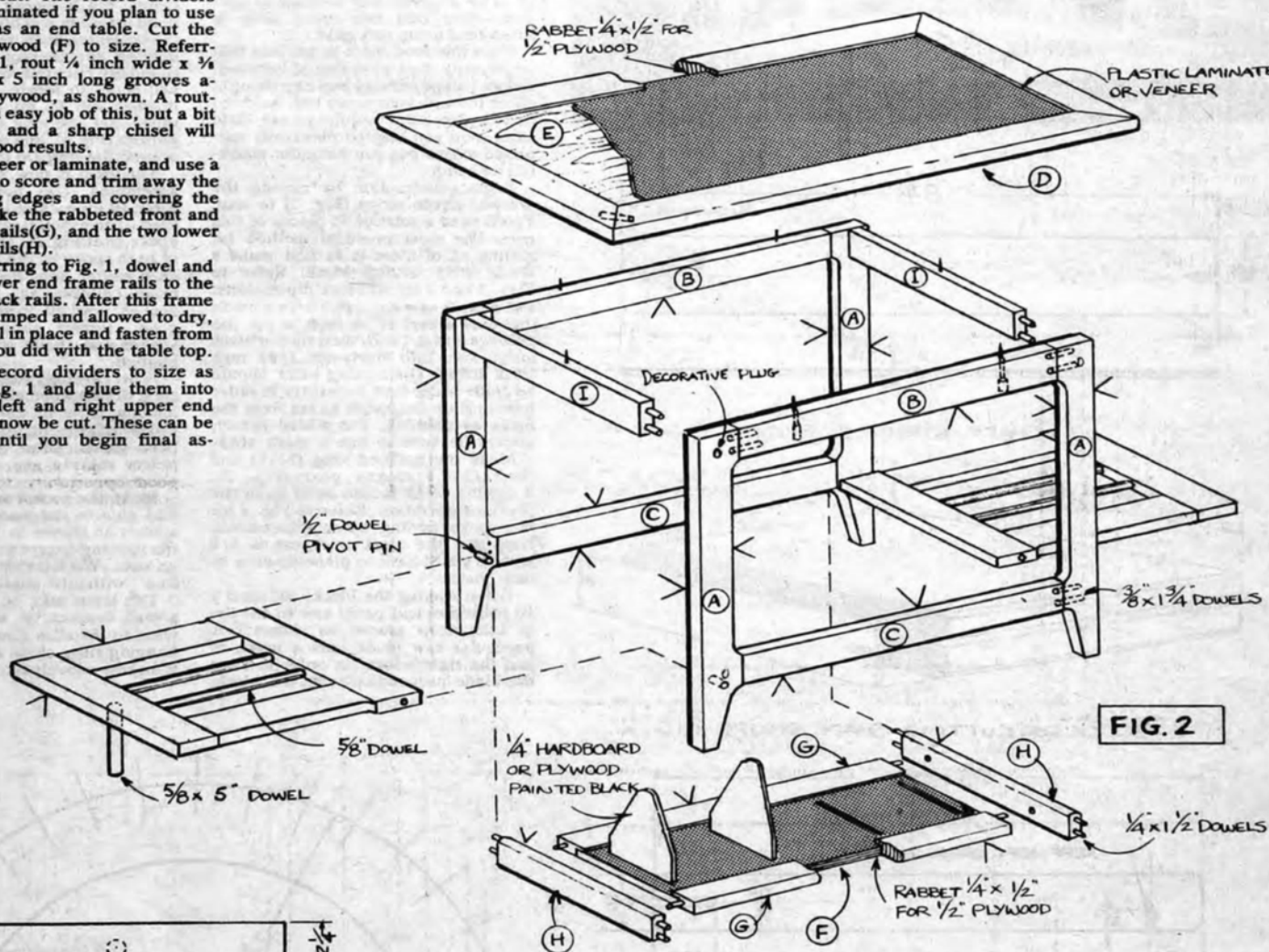


FIG. 2

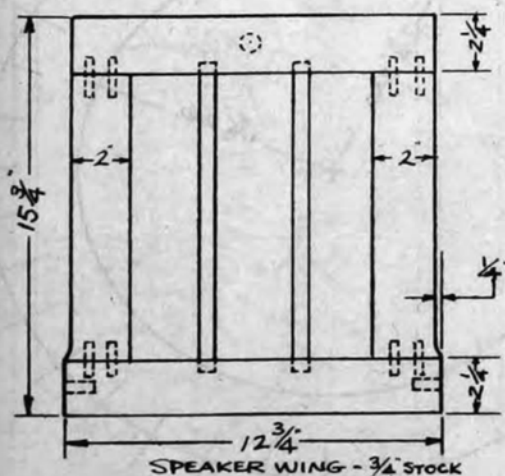
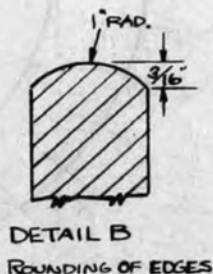
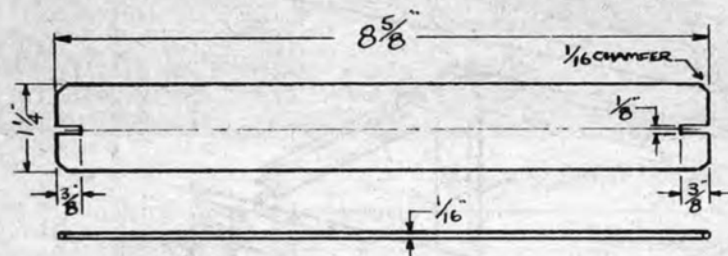
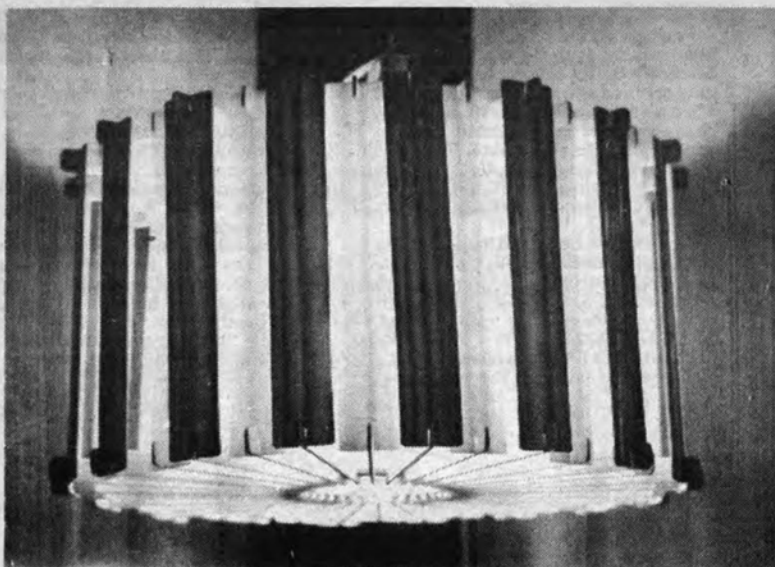


FIG. 3

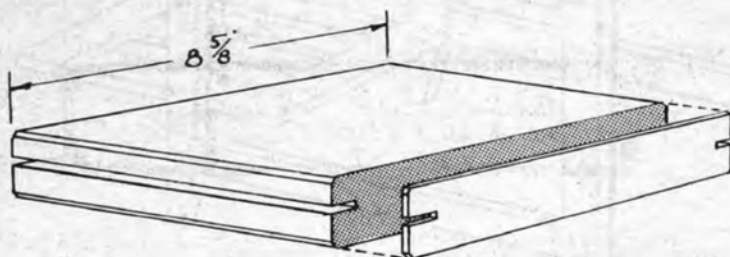
DETAIL B
ROUNDING OF EDGES

BILL OF MATERIALS

A Leg	1" x 3" x 22"	(4 required)
B Top Rail	1" x 2½" x 18"	(2 required)
C Bottom Rail	1" x 2" x 18"	(2 required)
D Mitered Frame Assembly		(1 required)
E Plywood Top	½" x 13½" x 24"	(1 required)
F Plywood Bottom	½" x 7¼" x 18½"	(1 required)
G Frame Rail	1" x 1½" x 18½"	(2 required)
H End Frame Rail	1" x 1½" x 13"	(2 required)
I Upper End Rails	1" x 2¼" x 13"	(2 required)



SHADE STRIP - 36 REQ'D FIG. 1



BLOCK FOR CUTTING SHADE STRIPS FIG. 2

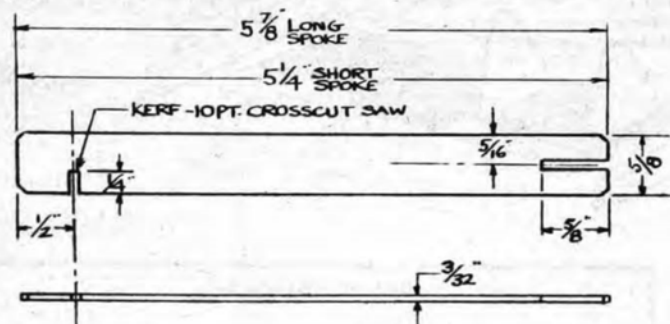
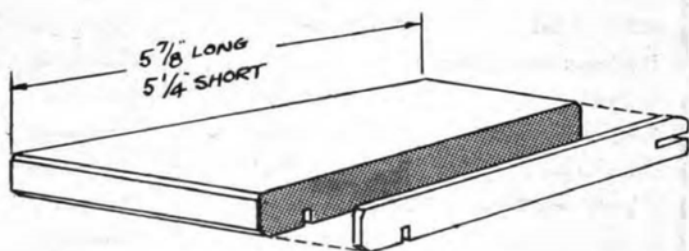


FIG. 3 SHORT & LONG SPOKES - 36 EACH REQ'D



BLOCK FOR CUTTING SPOKES FIG. 4

Contemporary Lamp

This is a lamp project that truly has a great deal to offer. It's rather unusual in design, interesting to build, and beautiful to look at. The vertical shadings of alternating dark and light wood are created by light reflecting off the inside surfaces of clear pine...although at first glance, one would suppose that two different types of wood were used. The overall effect is quite striking.

Another appealing feature of this project is that the entire lamp required only a small amount of wood, and that helps to keep costs down to a minimum. In fact, this could very well be an excellent item to produce for profit. Conceivably, it can be sold either as a kit or as a completely assembled product. Note that the entire lamp is assembled using only glue.

Since the wood must be cut into thin strips, only clear pine should be used. Before you go out and buy any though, check through your scrap bin. As mentioned, the lamp requires very little stock, and you may be pleasantly surprised to find out you have the materials on hand.

Begin construction by cutting the notched shade strips (Fig. 1) to size. You'll need a total of 36 pieces of this part. The most practical method for cutting all of them is to first make a shade strip cutting block. Refer to Figs. 1 and 2 for all block dimensions. Use a table saw equipped with a blade that cuts a kerf of 1/4 inch to cut the grooves on each end, then rip the block lengthwise into thirty-six 1/16 inch thick strips. The cutting block should be made wider than necessary in order to help keep the hands as far from the blade as possible. For added safety, always be sure to use a push stick.

Make the notched long (5 7/8") and short (5 1/4") spokes next (Fig. 3). A cutting block is also used as in the previous operation. Refer to Fig. 4 for the spoke cutting block dimensions. Note that the block thickness is 5/8 inch so you'll have to plane down a 3/4 inch board.

When making the block, we used a 10 point crosscut panel saw to cut the 1/4 inch deep groove as shown. This particular saw blade cuts a notch of just the right width. In order to keep the blade perpendicular to the block,

it's best to clamp a couple of guide strips on each side of the cut line.

Use the table saw to make the 5/8 inch deep back groove wide enough to accept 1/4 inch plywood. If you have a narrow saw blade, you may find it necessary to make two passes to get the proper kerf width.

After the spoke cutting block has been completed, cut the spokes to a width of 3/32 inch, using the same procedure as was used for the shade strips. Thirty-six pieces of each length spoke are needed.

Next, cut the upper and lower center rings (Fig. 5) from 1/4 inch plywood. Cutting a circular shape such as this is best done with a drill press and fly-cutter, but a coping saw and a little hand finishing will do as well.

The center rings must now be evenly divided and marked at 36 points around the circumference. These points will serve to locate where the spoke notches will fit up for proper alignment. Set the ring on the full scale pattern (Fig. 5), and mark the 36 points around the ring. Do this for both rings.

The lamp is now ready to be "dry" assembled. (Do not use glue yet) First, fit up each of the shade strips to each corresponding long or short spoke. (Ref. Fig. 7). Then fit up the end of each spoke to the marked points on each center ring. Proceed around the rings, alternating long and short spokes, until all 36 shade strips are in place. Before gluing, make sure all spokes and shade strips are properly aligned.

Now, carefully run a narrow bead of clear drying wood glue along each joint making sure to keep everything in proper alignment. After all parts have been glued, allow to dry thoroughly before making any attempt to move the lamp.

Make the socket mounting bracket, and glue to the underside of the top spokes as shown in Fig. 6. Assemble the lighting fixture as shown and tighten nuts. We felt that the lamp looked fine without shellac or varnish.

The lamp may be suspended from a wall bracket, in which case you'll want to install a line switch. With a hanging ring, chain and ceiling plate, it makes a lovely fixture.

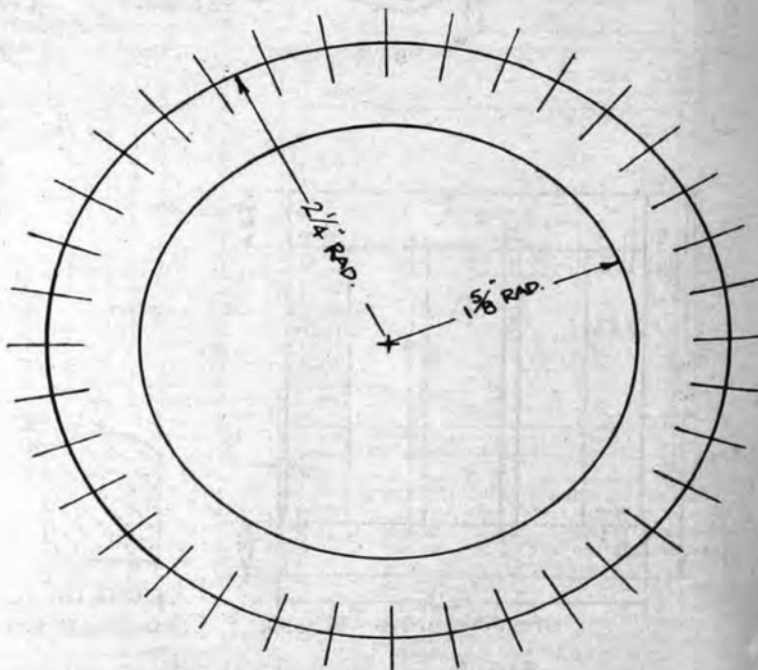
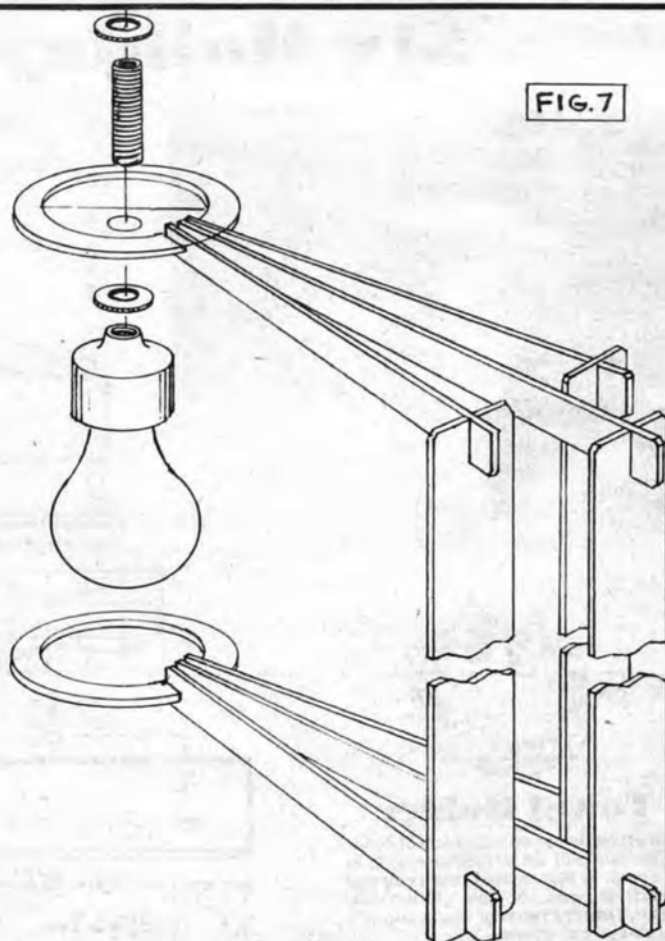
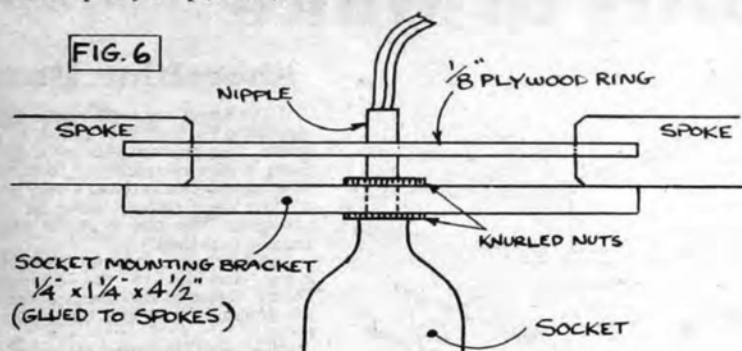


FIG. 5 UPPER & LOWER RING (ACTUAL SIZE)

Contemporary Lamp (Cont'd)



Restoring Antiques

By John W. Olson

Some Repair Kinks

A spinning wheel with 7 of its 12 spokes broken off at the hub suggested that perhaps one of the most perplexing problems in amateur antique restoration is how to effectively repair broken spindles and turnings.

A really strong repair required that a dowel be inserted, accurately centered, to join the broken parts. The classical procedure by which a chair rung or turning can be accurately centered drilled is to very carefully locate the center of the spindle at each end and then drill the broken end on the drillpress or lathe.

With a lathe center or conically pointed bolt or rod accurately located beneath the spindle of the drillpress or, with the center in lathe tailstock ram and a drill mounted in the drill chuck, the tail end of the spindle is held on the center and the broken end drilled. However, this method presents several problems. Accurately locating centers requires special tools, and the average bit suitable for drilling wood isn't suitable for drilling a wooden spindle lengthwise. They tend to follow the grain, which is seldom parallel to the centerline of the spindle. It should also be noted that it is next to impossible to accurately drill a spindle lengthwise using freehand methods. Fortunately, a simple jig can solve these problems.

Straight spindles, such as chair rungs present fewer problems than intricate turnings, and a jig to drill them lengthwise is easily made. The cross sectional illustration (Fig. 1) shows the principle.

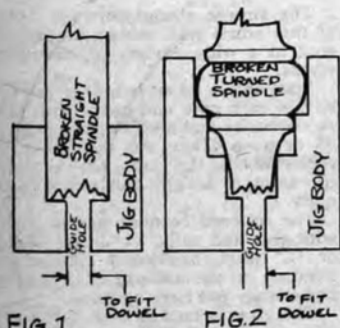


FIG. 1

FIG. 2

Drill a block of hardwood with a hole the size of the spindle, that partially penetrates the block, and is met with a guide hole the size of the desired dowel, drilled accurately, on centers, from the other side. This jig can be made on the drill press or lathe. If neither is available, a portable drill stand or a dowsing device of suitable proportions might be substituted. Even a jig made hit or miss freehand is preferable to no jig at all. If the jig is to be used 3 or 4 times, the very hardest wood should be used, and for re-

peated use, an effort should be made to insert a metal bushing, preferably steel, in the guide hole. The dowel hole should not be more than one half the diameter of the spindle, and should penetrate both pieces of the spindle, beyond the break, a distance equal to at least 3 and preferably 4 or more times the diameter of the dowel.

An intricate turning or tapered spindle requires a slightly different approach as shown in Fig. 2. Preparation of the stepped hole requires careful measurements of the various diameters, and is best done with calipers. An inexpensive vernier caliper should be part of every restorer's tool kit. The vertical distances equal to the depths of the various steps, must also be carefully measured, and as carefully drilled. An easy substitute method for determining diameters and distances is to use a drill gage or to match various size drills to spindle diameters by eye, and using these same drills, make holes in a thin board. Then measure the distance the spindle projects through the hole and add the thickness of the board as shown in Fig. 3.

TO MEASURE DEPTHS FOR STEPPED JIG

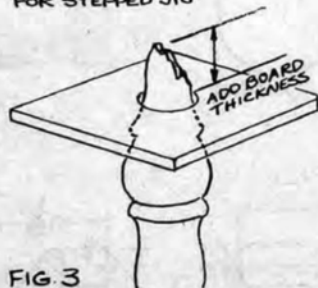


FIG. 3

Drilling the steps accurately requires positive depth control. It's possible to do satisfactory work by marking the drill and being careful to stop at the required depth. A better method is to use a homemade drill stop. A small block of hardwood, 3/4" thick and 1" square, is drilled through the center of the 3/4" thickness with the required drill size. To secure the stop to the drill bit, a hole is drilled into the side of the block so that it penetrates the bit hole on center. A small bolt of suitable size will cut its own threads in the hardwood and act as a set screw.

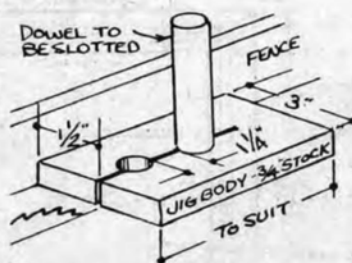
Liquid yellow or white glues are satisfactory for assembling the dowel and drilled spindle. If, however, you find that your hole is off center, and must be reamed oversize, epoxy glue will still make a strong, neat appearing repair. In any case, it will probably be necessary to sand the surface of the repair to bring both ends into perfect alignment. A touch-up with stain, spray can and a coat of wax and the repair will be difficult to spot.

Shop-Tips

When your project requires the slotting of rungs, or the upper ends of chair or stool legs in order to fit hardwood wedges, this little jig will aid in quickly and accurately cutting the slots.

Draw a center line from A to B on the jig body, then drill holes in the diameters most frequently needed. To use, set the fence of the bench saw 1 1/2 inches from the blade, hold the part to be slotted in the proper hole, and feed safely through the blade.

Ferry Palmer

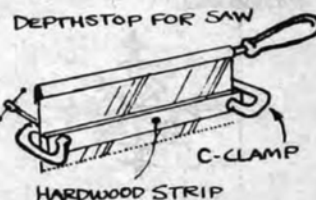


SLOTING JIG

Before testing a stain on a sample scrap of wood, be sure to give the sample the same amount of sanding that the project itself will receive. Stains tend to show up darker on unsanded surfaces.

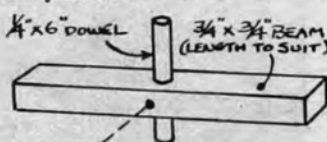
Those new styrofoam paint brushes are very handy for applying stains and urethane finishes. No more loose brush bristles getting into the finish.

When it's necessary to make a number of cuts to the same depth, a hardwood strip clamped to the saw blade will make an effective stop. This kink is especially handy when cutting dovetails, tenons, etc. John Olson



Here's a useful depth gauge that will help insure uniformity of depth when lathe turning wooden bowls. The hole in the beam must be of a size to be self-threaded by a round-head machine screw of about 5/8" length.

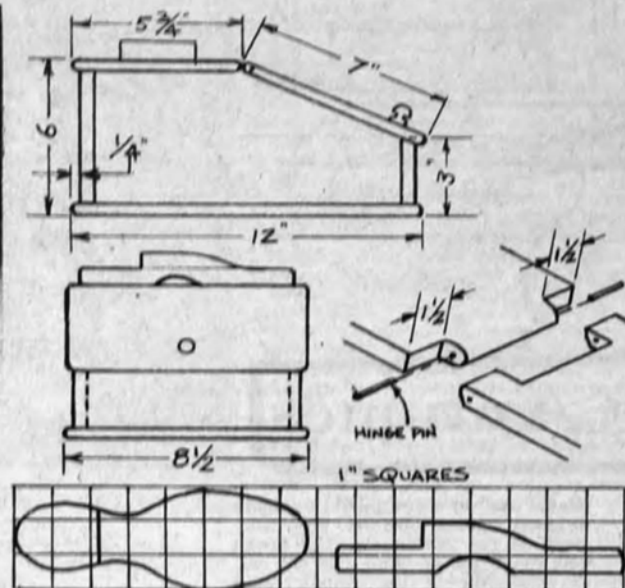
Ferry Palmer



5/8" MACHINE SCREW SIZED TO FIT HOLE - LOCKS DOWEL AT DESIRED DEPTH

A piece of an old hacksaw blade with the teeth ground off makes a real handy spatula for spreading glue, applying plastic wood and similar tasks. Mount the prepared blade in a wooden handle and secure it with epoxy, automobile body compound or with a wedge. John Olson.

Six Holiday Gifts to Make



Shoeshine Box

If you know someone who's forever searching for their shoe polish or shoe brush, then perhaps this is the gift for them. It provides plenty of room for all shoe accessories and has a very practical foot stand to help make for easier polishing. The box is made entirely from 1/2 inch pine.

Cut out the top, bottom, back, front, sides, and lid to the dimensions shown. Refer to the detailed drawing for dimensions of the hinge connections.

Glue and clamp two pieces of 1" x 3" x 8" to form the block for the foot stand. Allow to dry completely, then follow the shoe pattern to cut out.

Assemble all components with glue and finishing nails. The knob was carved by hand. Use hinge pins for the lid, as shown.

Sand all surfaces completely, stain to suit, and apply two coats of varnish. Rub the final coat down with 4/0 steel wool.



Towel Holder

An attractive pine paper towel holder like this will be a welcome gift in any home. In fact, most homes can put several to use...in the bathroom, garage, laundry room or workshop it's a very handy accessory.

Make the back bracket first, cutting it from 1" stock to the dimensions shown. Give a generous chamfer to the outside edge before sanding all surfaces smooth.

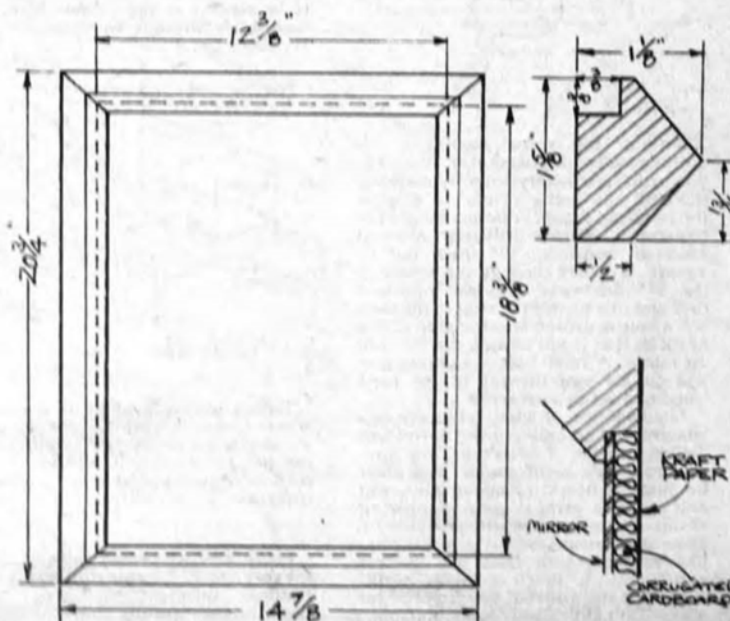
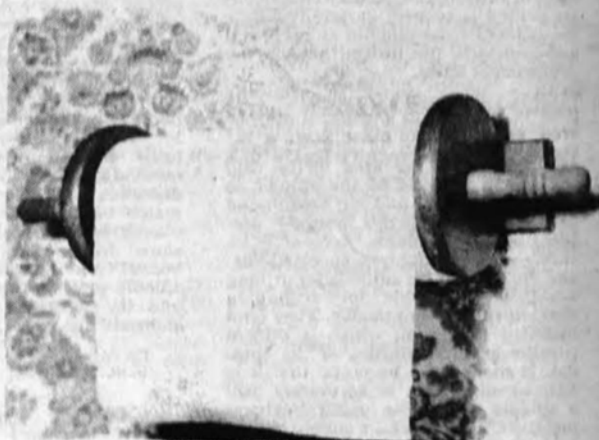
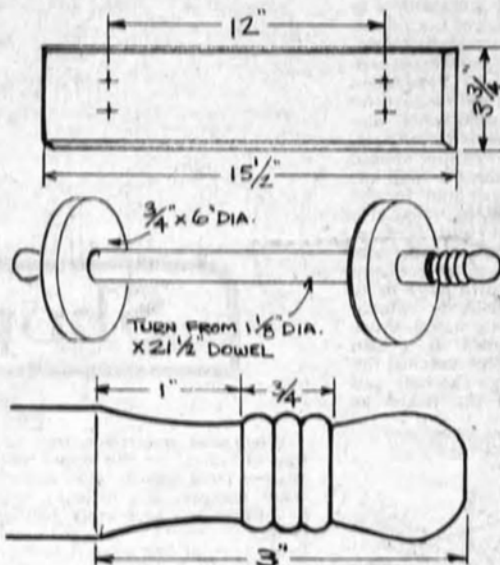
Cut out two 3/4" x 6" diameter hubs and bore a 1 1/4" center hole. File all rough edges and sand smooth.

Turn the 1 1/4" diameter center shaft to the profile shown.

Use 4 flat headed wood screws to attach the two hubs to the back bracket at the location shown.

Drill mounting holes to suit.

Final sand all surfaces, stain, and apply two coats of polyurethane satin varnish. Rub down the final coat with 4/0 steel wool.



Pine Mirror Frame

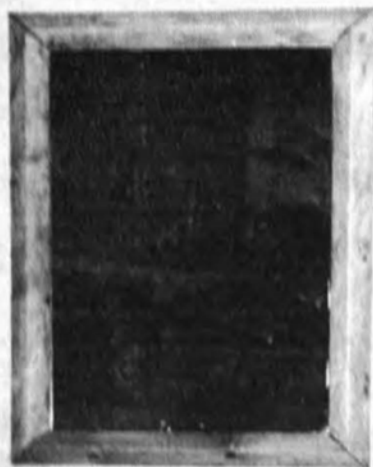
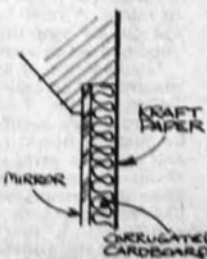
The simple straightforward design of this small wall mirror lends itself well to a wide variety of decorating styles.

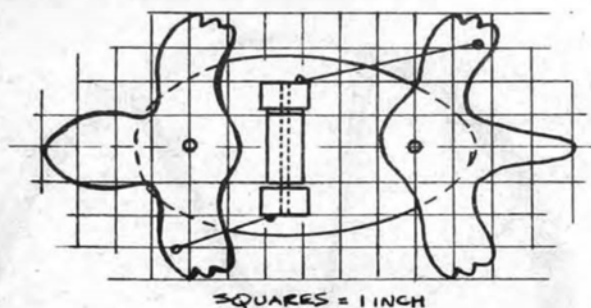
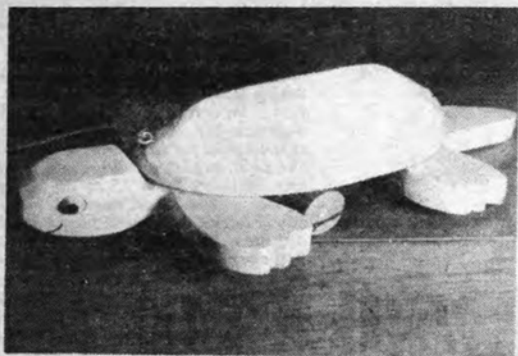
Start with a 6 foot length of 5/4 inch by 1 1/4 inch pine and bevel both sides as shown by inclining the saw blade to 35 degrees. Then cut the 3/4" x 1/4" rabbet to hold the glass, before cutting the stock to length and mitering the ends.

The mitered corners can be joined with glue and nails, 1/4" blind dowels, or 1/4" thick hardwood splines, depending on the amount of equipment and energy you have on hand.

The glass is backed with hardboard, corrugated cardboard, or plywood held in the rabbet with about 8 small brads pushed into place with long-nose pliers.

Although not necessary, a kraft paper dust cover makes a nice finishing touch and can be easily applied. Refer to the Jan/Feb '77 issue of The Woodworker's Journal for details on how to apply a dust cover.





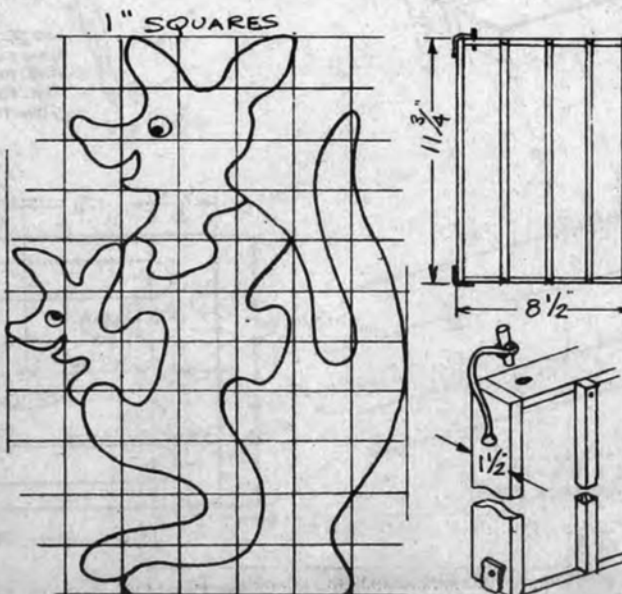
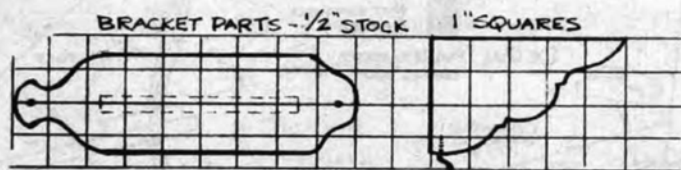
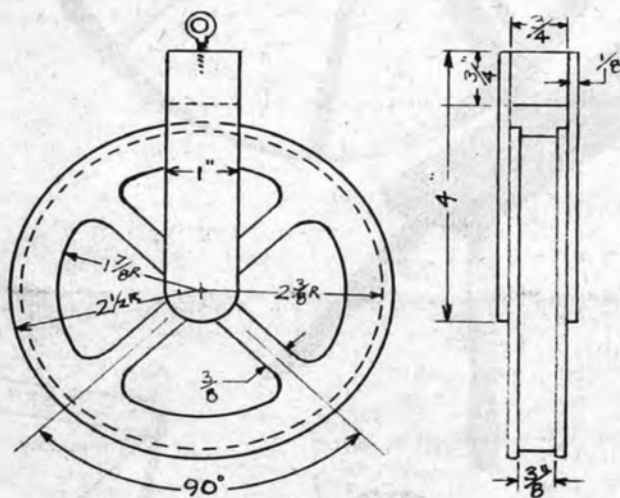
Pulley Planter

This delightful plant bracket can be used to display almost any small potted houseplant. It's made entirely of pine and can be built in just a few hours' time.

Refer to the drawing and cut both bracket parts from $\frac{1}{2}$ " stock. If $\frac{1}{2}$ " pine is difficult to purchase in your area, you'll have to plane down a $\frac{3}{4}$ " board. Smooth all rough edges with a file and sandpaper. Now attach the arm to the bracket back with two $\frac{7}{8}$ " #5 flat headed wood screws. The dotted line on the back shows the location of the arm.

Cut the pulley to a diameter of 5", mount the disc in a lathe and cut a $\frac{3}{8}$ " groove (as shown) with a parting chisel. Lay out and cut all 4 spokes, then sand all surfaces thoroughly.

Use $\frac{1}{4}$ " stock to cut the 1" wide x 4" long yoke strips. Now cut the $\frac{1}{4}$ x $\frac{1}{4}$ support block. Glue and clamp the yoke strips to the pulley wheel and support block and allow to dry overnight. Attach a screw eye to the support block top and to the end of the bracket arm. Sand all surfaces, and finish to suit.



Kangaroo Puzzle

This is a jigsaw puzzle that young children are certainly going to enjoy taking apart and putting together.

Trace the pattern on a 7" wide x 11" long block of $1\frac{1}{4}$ " (actual) thick pine. Using a jigsaw, carefully cut along all lines, as shown.

Build the cage from $\frac{1}{4}$ " stock referring to the dimensions shown. Use glue to fasten all joints. A narrow strip of leather tacked in place serves as the bottom hinge. Another narrow strip of leather fastened to a peg is used to "latch" the cage shut.

Re-assemble the kangaroo in order to give the outside flat surfaces a good sanding.

Use paint or a felt tip pen to create the eyes.

We didn't apply any finish to our happy marsupials, choosing instead to leave them in their natural state.



Shaker Wool Wheel Part II

by Bud Kronenberg

Editor's Note: In Part I of the Sept-Oct '78 issue, the drawing of the table and wheel on page 8 shows the wheel post raked forward at an angle which is measured as 15 degrees, but was incorrectly labeled as 30 degrees. Mr. Kronenberg, who is not responsible for the error, advises that the post angles on old wheels varied considerably from 15 to 30 degrees. In the event some readers have already bored the wheel post hole at 30 degrees, the table can still be used; however, a 33 1/2 inch post will have to be made to prevent contact of the wheel with the table. The 30 inch post can be salvaged by turning it down for a spindle post.

With the wheel post inclined at 30 degrees, it will also be necessary to alter the angle of the spindle post, raking it closer to the wheel. The main point to be kept in mind is that the length of the drive band, from pulley to wheel, should be at least 32 inches. The scale drawing on this page shows a typical relationship between wheel, posts and drive band length.

Those readers who are unable to obtain and bend 1/2 or 3/4 inch steel rod for the hub axle can substitute a 3/4 inch diameter hardwood axle which fits a hole in the wheel post and is secured with a dowel pin.

The last issue of *The Woodworkers Journal*, covered the building of the table, legs, wheel and wheel post. This issue covers the spindle, spindle post and tension devices. It is necessary to be able to adjust the tautness of the drive-band for the best operation of any spinning wheel. This is accomplished by a tension device which changes the distance between the great wheel and the spindle head.

A novice woodworker can make a simple tension device without using

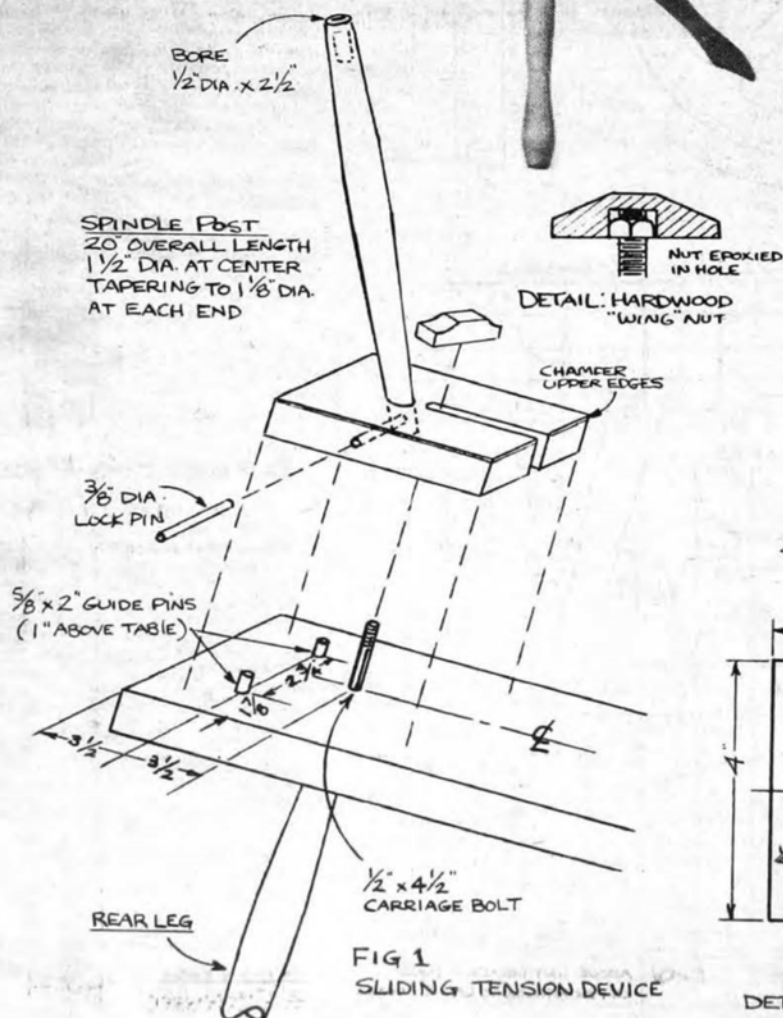
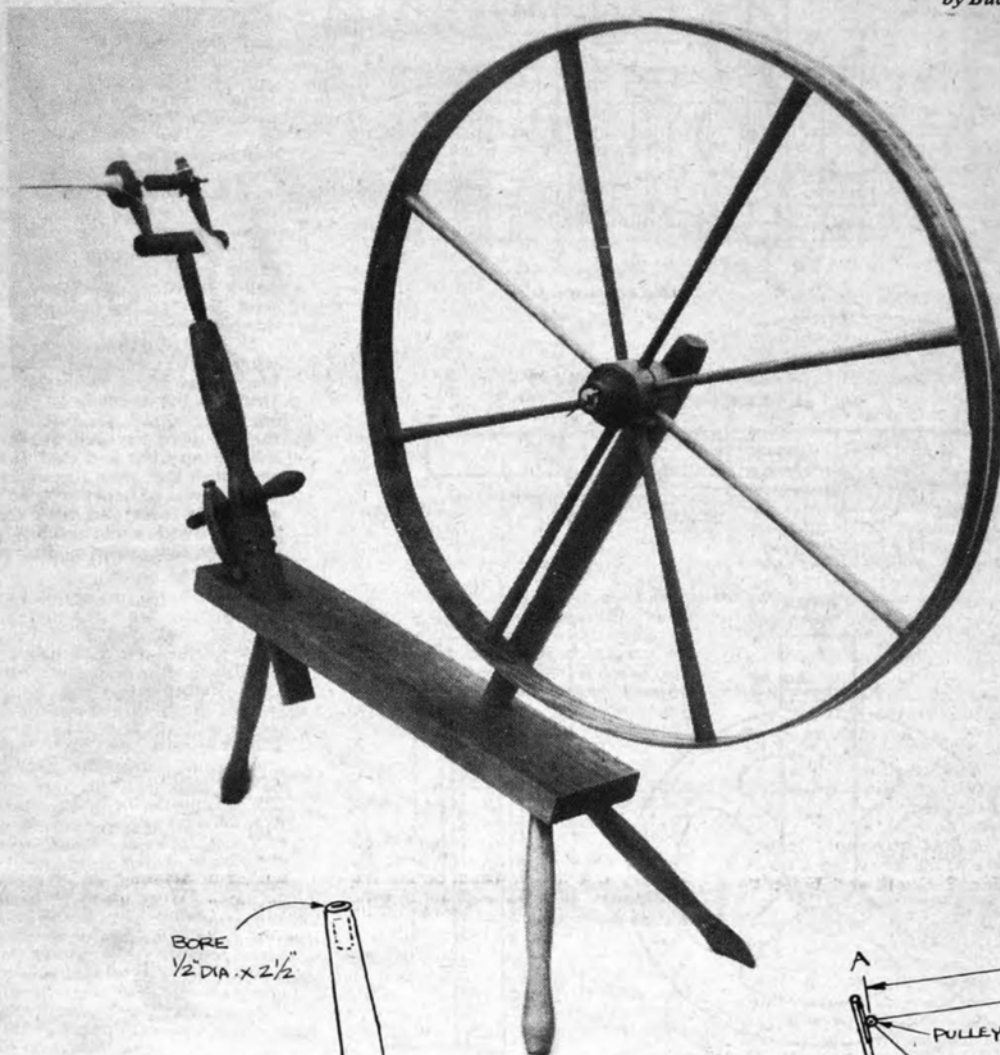
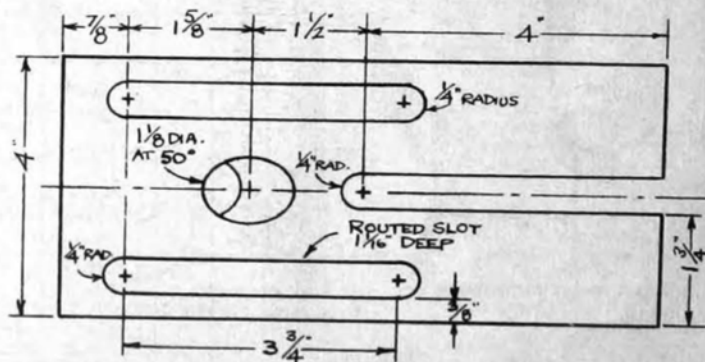
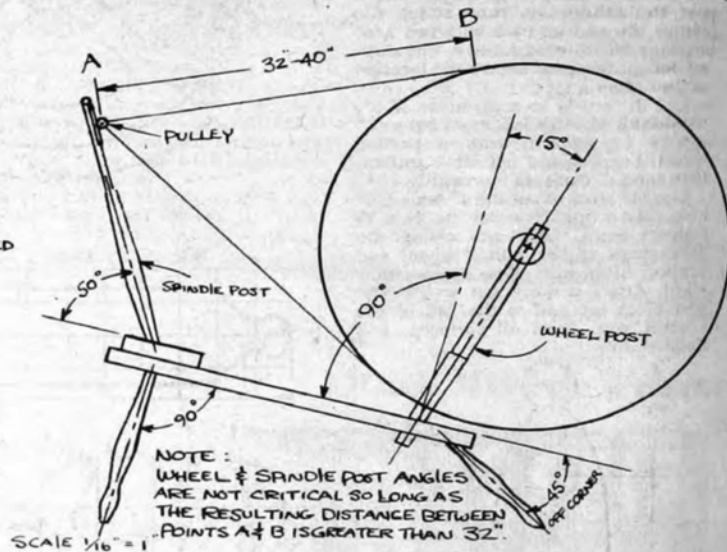


FIG 1
SLIDING TENSION DEVICE



DETAIL: LAYOUT OF SLIDING SPINDLE BASE
SCALE: 1/2" = 1"

a wood threading kit, and it will still be authentic in appearance and work properly. The easiest to make of all tension devices is the sliding type (Fig. 1). The spindle post is mounted on a sliding rectangular piece of wood. This piece is guided, along the length of its movement, by two wood dowels. A 1/2 inch carriage bolt, available in most hardware stores, comes up through the wheel's table, and through the slot in the sliding spindle post holder.

The thread end of the bolt receives a nut, concealed and imbedded in a wooden turn nut. By sliding the tension assembly back and forth, the tension on the drive-band will be changed and can be secured at any position by tightening the wood wing nut. The 1/2 inch bolt should not appear above the nut, but should be totally concealed to the viewer.

A more challenging woodworking job is involved in making the tension device shown in Fig. 3. The spindle post is wedge shaped, starting where the wood tension screw goes through it, and down to its lower section that goes through the table. It is pivoted on a dowel in the table so it can go forward and backward. The hole that receives the screw in the post is not threaded, but large enough for the screw to turn freely. The knob handle is larger than the hole, preventing it from going through. However, the tension part behind it is threaded. By turning the screw, the post will change position - tightening or loosening the drive-band.

The easiest spindle head for a novice to make, is called a Bat's Head (Fig. 2), and can be made without a lathe. It will be perfectly authentic in design, because they were used throughout the colonies. A piece of 1/4 inch wood is cut into a circle about 4 inches in diameter. It is mounted on a 1 inch dowel which in turn fits into a hole in the end of the spindle post. Braided corn husks, or strips of leather, formed into loops, serve as bearings for the metal spindle which can be made from 3/16 inch metal rod, by filing a taper to its extended end.

Between the bearings, a pulley, with three or more grooves, is mounted on the spindle shaft. To the shaft's left is a disc, about the size of a poker chip. This acts as a yarn retainer.

That's all there is to it, but one more comment...don't be afraid to use braided corn husks for the bearings. I've had wheels in my shop with the original corn husk bearings that have lasted for over a hundred years.

Somewhat more difficult to fabricate is the spindle head shown in the photograph of the finished wheel and detailed in Fig. 4. Basically, this consists of a 1/4 inch dowel, tapered on its lower end for a force fit into the spindle post, and tenoned and pinned into a cylindrical cross-piece. This cross-piece or mother-of-all, as it's called, is drilled to receive two shaped uprights called maidens, which are tenoned into the mother-of-all, and drilled to receive loops of braided corn husk which serve as bearings. The metal spindle shaft and pulleys can be the same as those used for the Bat's Head assembly.

The Minor's Head is for the more advanced woodworker to tackle. Again, the horizontal piece is called the mother-of-all, and the two uprights are the maidens. As you can see from the pulley arrangements in Fig. 6, it accelerates the speed of the spindle which makes for faster spinning.

The drive-band from the great wheel goes around the upper pulley at the right. It has three or more grooves to serve as an alignment adjustment without always having to move the wheel post. A small drive-band goes around the larger top pulley, and around a smaller pulley with two or more grooves on the spindle shaft.

It's necessary to have a means of adjusting the tension on the small drive-band. To accomplish this, the mother-of-all is threaded to receive the maidens. A 1/2 inch threading kit can be used to do the threading. The top 1/2 inch of the maidens are separate pieces with a male peg that fits into a hole in the top of the maidens. This allows the maidens to be screwed up and down without the top pieces, or short axle, turning.

This small drive-band should be about the size of household twine, and the great wheel band can be cotton chalk line. Both will work better if given a beeswax treatment.

The coloring and type of finish is a matter of personal preference, but I like the old formula of a third boiled linseed oil, turpentine, and dark vinegar. It's a good treatment for the wood because it replaces natural oils and doesn't just coat the surface. It penetrates into the wood where it does a better preservation job, and is easily repaired with just another application. Start out with one application a week for a month, and

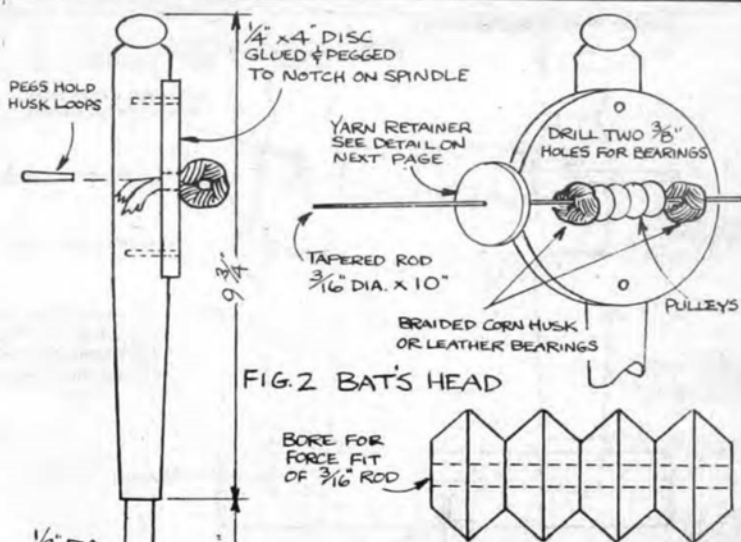


FIG. 2 BAT'S HEAD

PULLEY DETAIL: (ACTUAL SIZE) SHAPE FROM HARDWOOD USING LATHE & SPEARPOINT OR SKEW CHISEL -OR SHAPE FROM 1" DOWEL WITH TRIANGULAR FILE.

from then on about once a year. The other old formula of applying boiled oil once a day for a week, once a week for a month, and once a month for a year is too fast a build-up. If you want a specific color, you can use prepared stains, or mix them yourself with artist's oil paints diluted with boiled linseed oil and turpentine.

It's much easier to learn how to spin from a good book than to try to teach yourself. I'd suggest reading Paula Simmon's book *Spinning and Weaving with Wool*, published by Pacific Search Press, 715 Harrison St. Seattle, WA 98109, which details the techniques of spinning on a wool wheel. It's well worth studying.

A prime prerequisite in spinning is to have your fibers properly prepared before starting. One way is to use carders which look like curry combs. The fibers are teased and foreign particles are brushed out. Fibers

are pulled between the two cards until they are teased and organized properly, then flicked off and rolled on the leg to make a "rolag". These are finger thin rolls that are then spun. Before attempting to spin on your beautiful new wool wheel, tie a leader of rough yarn on the spindle. This should be about three feet long. Spinning is done off the tip of the revolving spindle. Start the wheel in motion and you'll see the leader start to twist. The prepared fibers are fed into the twisting leader until they are caught in the twist. Then it's a matter of drawing the fibers out to be spun. When about three feet of yarn has been spun, it can be stored into a cone shape by bringing the yarn around to a 90 degree angle to the spindle. This will cause it to wind around the spindle.

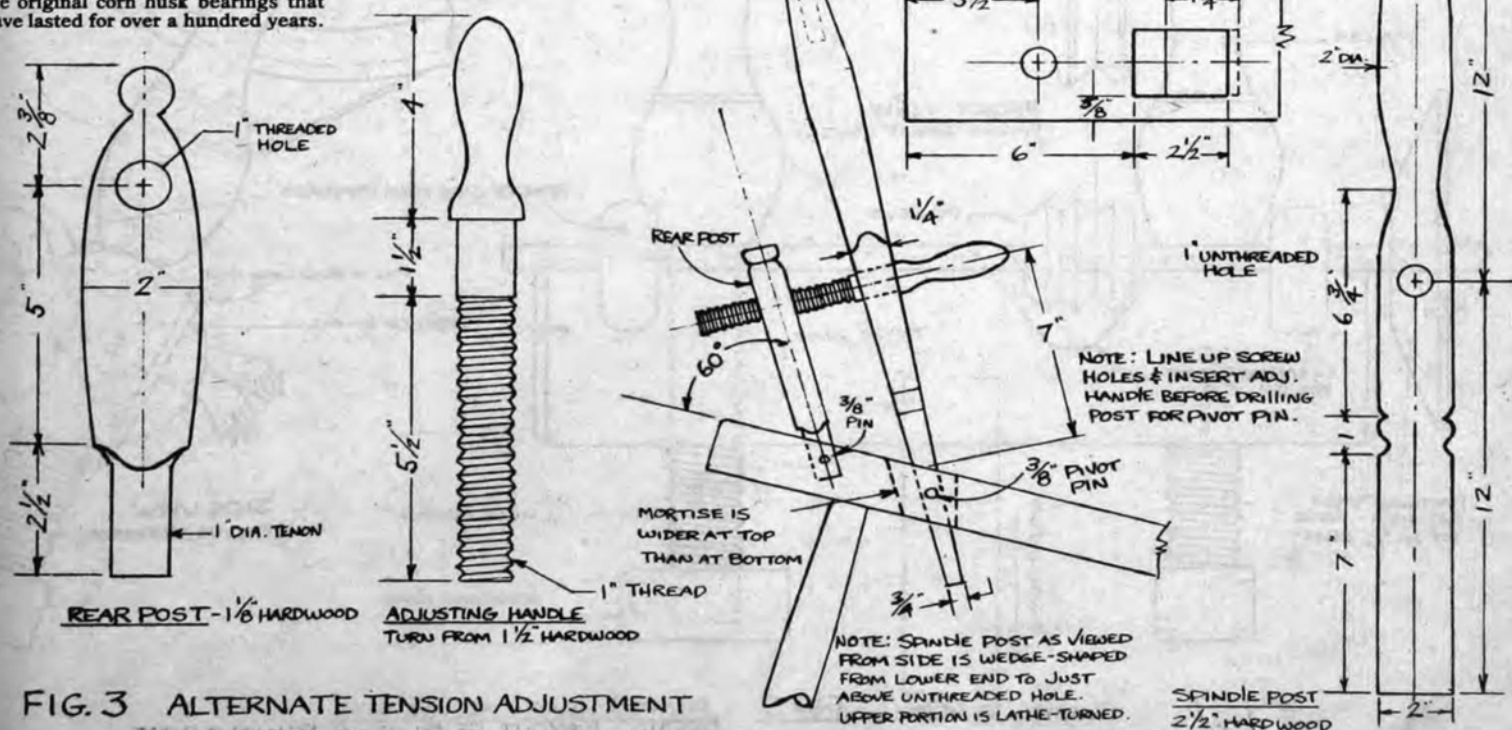


FIG. 3 ALTERNATE TENSION ADJUSTMENT

Shaker Wool Wheel (Cont'd)

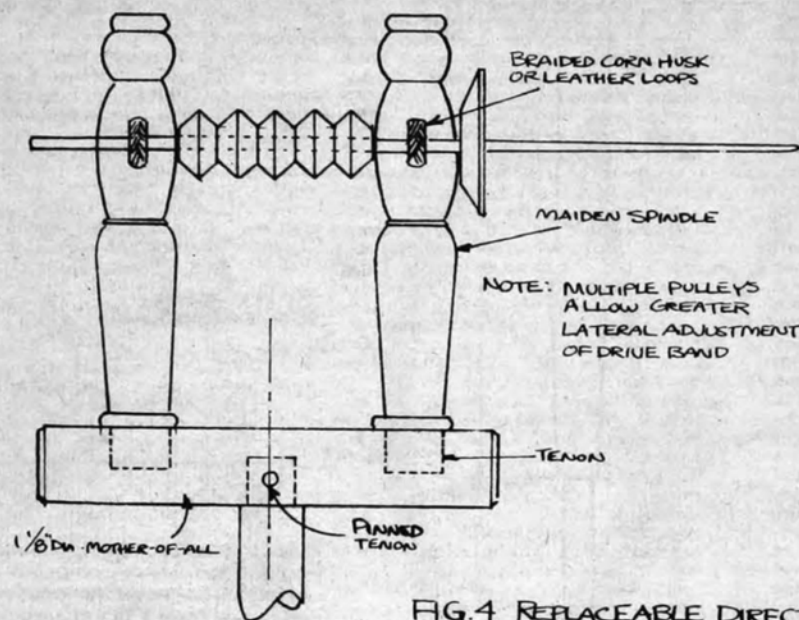


FIG. 4 REPLACEABLE DIRECT DRIVE (1/2 ACTUAL SIZE)

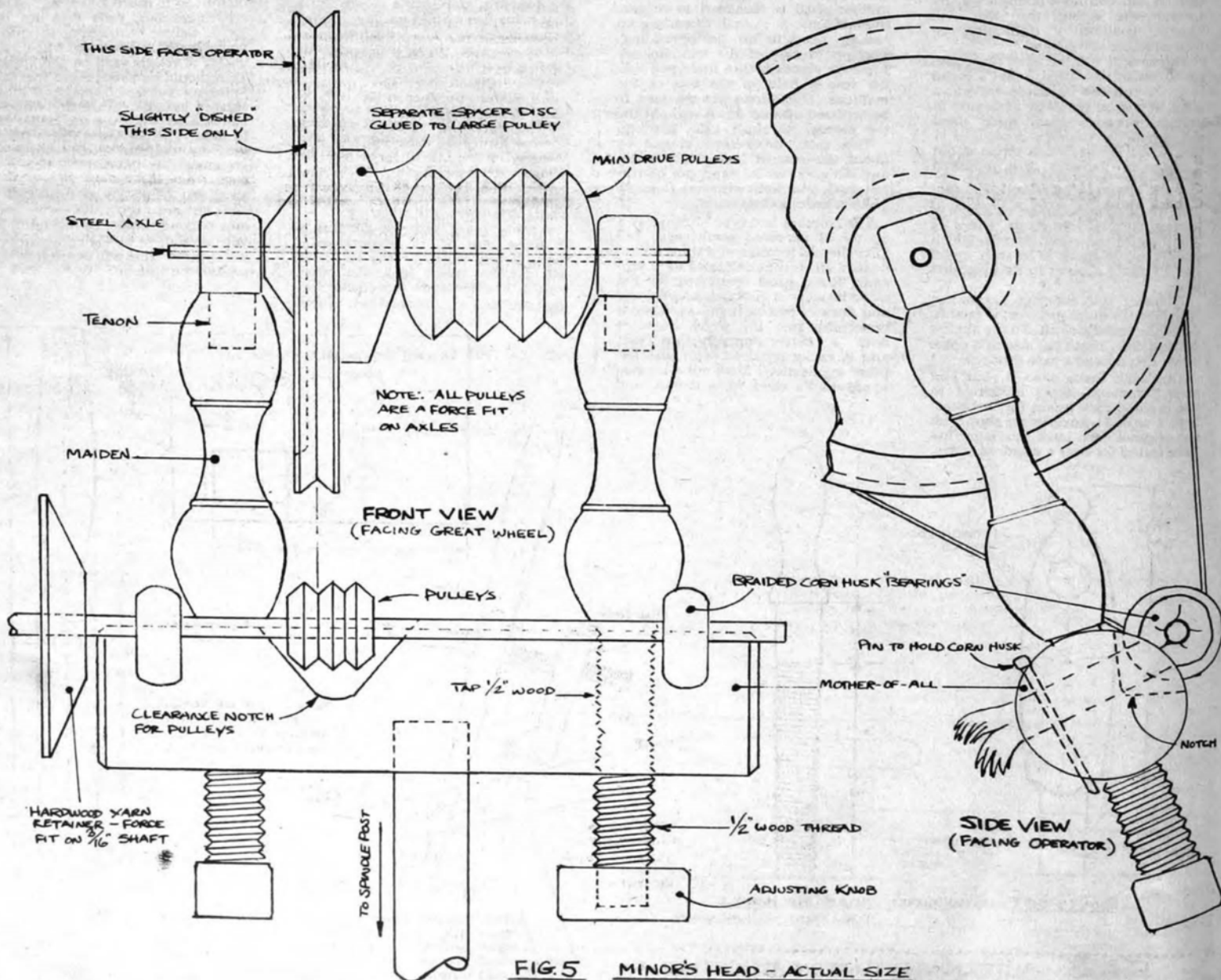
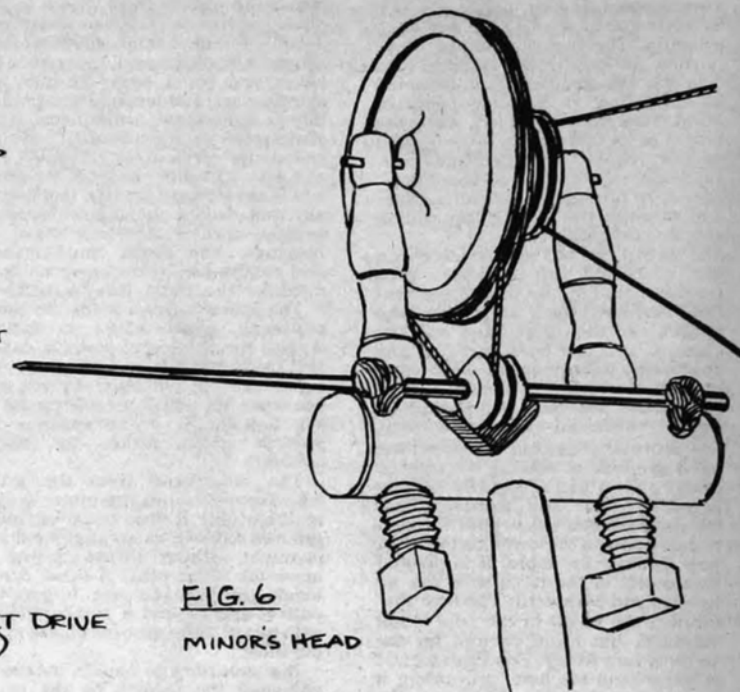
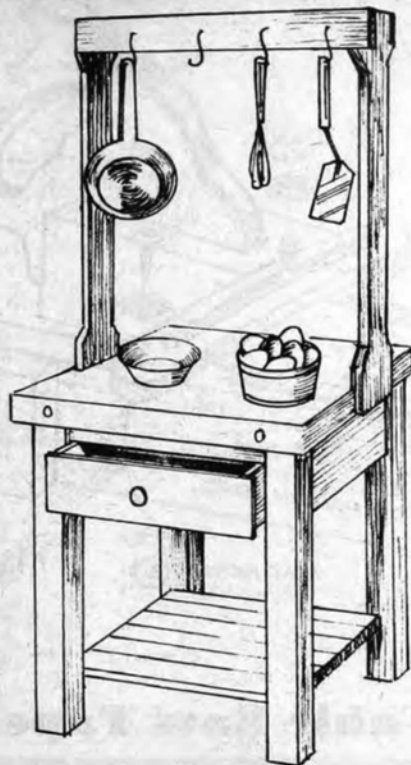


FIG. 5 MINOR'S HEAD - ACTUAL SIZE

Chopping Block Table



This good-looking chopping block table features a cutlery drawer, double utensil rack and storage shelf. The top consists of 28 lengths of hard maple, laid on edge, glued and bolted. Maple, poplar, clear fir or even pine can be used for all other parts.

Begin by hand or power jointing 28 pieces of $\frac{3}{4}$ x 2 x 21 inch maple for the top. Lay 26 pieces flat, with ends carefully aligned and with a framing square, scribe a line across all pieces, $2\frac{1}{2}$ inches in from each end to locate holes for the $\frac{3}{4}$ inch threaded rods.

Using a $\frac{7}{16}$ inch auger and doweling jig, bore the two holes through all 26 pieces, taking care to keep all holes perfectly aligned. The two outer pieces are counterbored with a $\frac{3}{4}$ inch bit to a depth of $\frac{3}{4}$ inch; the remaining thickness is drilled through at $\frac{7}{16}$ inch as shown in the detail in Fig. 1.

Apply glue to all mating surfaces, thread the rods through and clamp together by placing lock washers and nuts on each end of the threaded rods. After the top has dried, it can be belted and flat and the four holes plugged with slices of $\frac{3}{4}$ inch dowel.

The legs can be either solid stock or glued up from two or more thicknesses, carefully jointed for an inconspicuous glue line. Cut three aprons (B&C) and upper and lower front rails (H&I), and join to legs using two $\frac{3}{4}$ x $1\frac{1}{4}$ inch dowels at each apron end, and one $\frac{3}{4}$ x $1\frac{1}{4}$ inch dowel at each rail end. Glue and clamp assembly.

Next cut the drawer rails (F). Note that these are notched at each end to fit around legs and butt against the aprons. Counterbore the drawer rails and fasten to aprons with three 2 x #8 ft screws per rail.

Cut two guide strips (G) to fit between front and back legs, butting against aprons and flush with inboard edges of drawer guides. Secure these with three $1\frac{1}{4}$ x #8 ft screws per guide.

In order to fasten the top, three $\frac{3}{4}$ x $14\frac{1}{2}$ inch cleats (D&E) are cut to it between the legs. Pre-drill and countersink for two $1\frac{1}{4}$ x #10 ft

screws up through each cleat as shown in Fig. 1. Cleats are fastened to aprons with three $1\frac{1}{4}$ x #8 ft screws per cleat. Triangular blocks are added to each corner of the frame to provide additional rigidity. Fasten these with glue and finishing nails driven into undersize pilot holes.

The parts for the upper utensil rack are next cut to size. Note that the up-rights receive $\frac{3}{4}$ x 2 inch rabbets to half-lap into notches cut in each side of the top slab. The upper ends of up-rights are notched to receive the $3\frac{1}{2}$ inch wide front and back pieces which are drilled for heavy wire "S" hooks.

The lower shelf consists of 7 lengths of $\frac{3}{4}$ x $1\frac{7}{8}$ x $17\frac{1}{2}$ inch stock resting on cleats which are screwed between front and back legs. Allow a $\frac{1}{4}$ inch space between slats, and fasten to cleats with a screw at each end.

The drawer front is rabbeted along the top and ends to receive the $3\frac{1}{4}$ inch wide sides. The bottom, which is of $\frac{1}{4}$ inch plywood, slides easily in grooves cut $\frac{1}{4}$ inch up from the lower edges of front and sides. The drawer back is glued into dados in the sides, and the bottom is nailed to it.

After the drawer is assembled, it should be inserted, and when the front is flush with upper and lower rails, short lengths of $\frac{3}{4}$ inch dowel (K) are glued into holes bored into rails, to serve as drawer stops.

Center the leg assembly upside down on the underside of the top and mark locations for eight screws to be driven up through cleats D&E and rail H into undersize pilot holes in the top.

Finish the top with either an application of warm salad oil, or better still, the special non-toxic finish made especially for salad bowls. The remainder of the table and rack should be given two or three coats of a urethane finish. Sand lightly and dust well between coats.

If you wish, casters can be added to the legs so that the unit can be moved about the kitchen where needed. In this case, it may be necessary to cut the legs a bit shorter.

A leg $2\frac{1}{4}$ x $2\frac{1}{4}$ x 29" (four)

B side apron $\frac{3}{4}$ x 6" x $14\frac{1}{2}$ " (two)

C back apron $\frac{3}{4}$ x 6" x $14\frac{1}{2}$ " (one)

D side cleat $\frac{3}{4}$ x $\frac{3}{4}$ x $14\frac{1}{2}$ " (two)

E back cleat $\frac{3}{4}$ x $\frac{3}{4}$ x $14\frac{1}{2}$ " (one)

F drawer rail $\frac{3}{4}$ x $1\frac{3}{4}$ x 17" (two)

G guide strip $\frac{3}{4}$ x 1" x $14\frac{1}{2}$ " (two)

H upper rail $\frac{3}{4}$ x 1" x $14\frac{1}{2}$ " (one)

I lower rail $\frac{3}{4}$ x $\frac{3}{4}$ x $14\frac{1}{2}$ " (one)

J triangular glue block (four)

K drawer stop $\frac{3}{4}$ inch dowel (two)

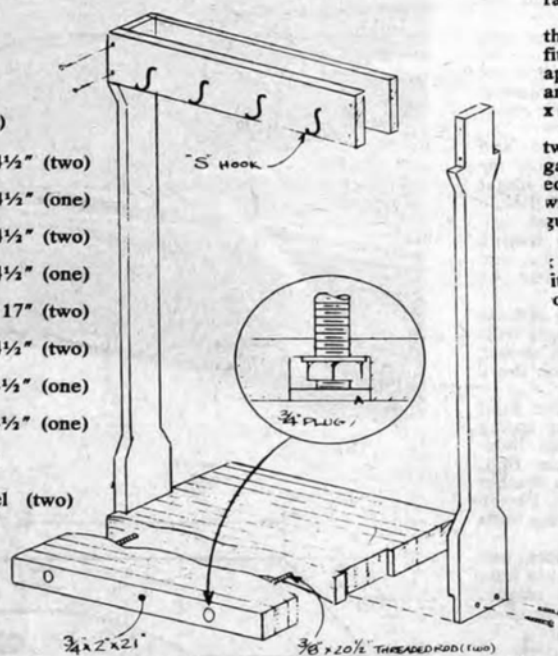
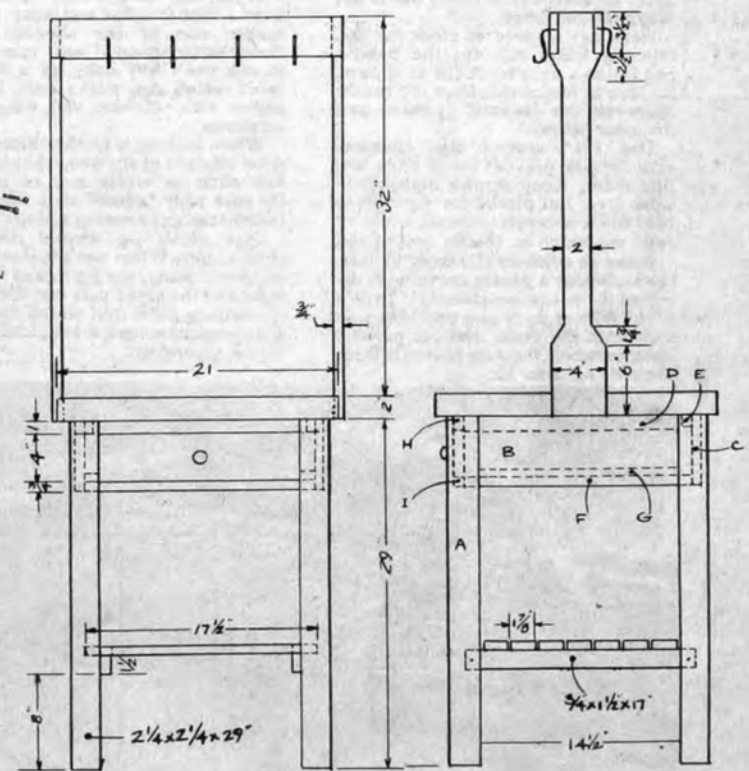
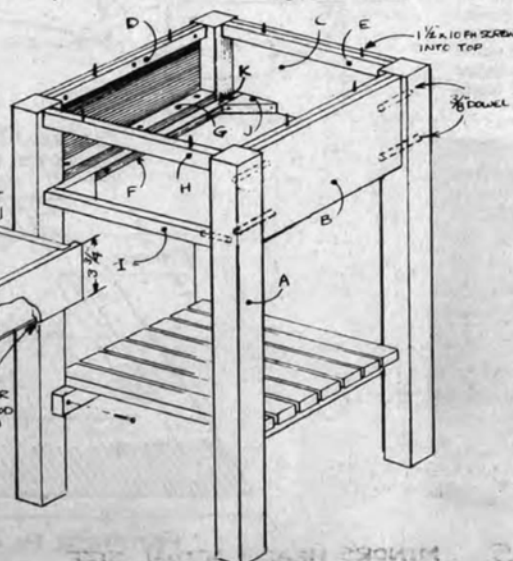


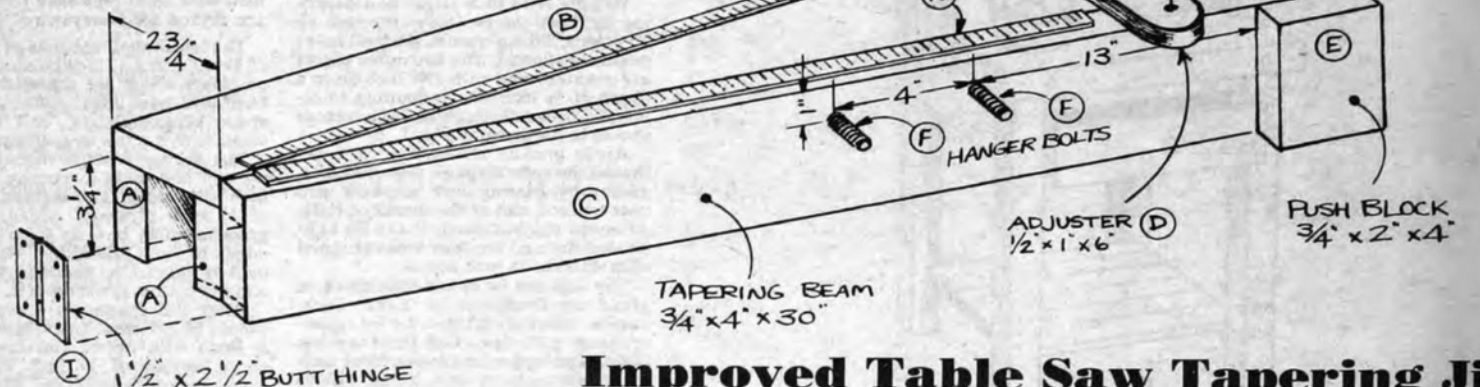
FIG. 1



Woodworker's Jigs

Don Kinnaman

A Main top (tunnel Piece)	$\frac{3}{4}" \times 2\frac{3}{4}" \times 30"$ (+)	1
B Sides (tunnel sides)	$\frac{3}{4}" \times 3\frac{3}{4}" \times 30"$ (+)	2
C Taper support	$\frac{3}{4}" \times 4" \times 30"$ (+)	1
D Angle adjuster	$\frac{1}{2}" \times 1" \times 6"$	1
E Push block	$\frac{3}{4}" \times 2" \times 4"$	1
F Hanger Bolts	$\frac{1}{4}" \times 2"$	3
G Push Handle	$\frac{3}{4}" \times 6" \times 6"$	1
H Yardsticks	$1\frac{1}{2}" \times 2\frac{1}{2}"$	2
I Butt Hinge		1 only



Improved Table Saw Tapering Jig

Over the past few years, several attempts have been made to improve on the basic tapering jig, but few have been as successful as this one. It is easily made, and possibly the safest square type tapering jig you can make. You know where your fingers are and there is little chance that the stock will slip out of line causing a scrapped cut. The original was made from alder and birch plywood, but any suitable wood can be used.

Cut two pieces for sides (A). The 30 inch length can be extended if you wish. Cut a couple of thicknesses of typing paper to act as shims and place between the sides and the ripping fence. Now cut a top (B) to form the "tunnel" which will ride the fence. This top is about 2 3/4 inch wide but your particular fence will determine the size. Clamp snug against fence and fasten with screws and glue. Be sure it slips freely but is not sloppy on the fence.

Next, cut a piece of stock for the tapering beam (C). On the handle end fasten a push block (E) as shown. Be sure to fasten this from the inside (between the "tunnel" portion and the taper beam).

Use 1/4 inch screws and countersink them to prevent blade from hitting them. Keep screws high above work area, but placed low enough to hold block securely. Mount a slip or solid pin hinge on the far end of jig.

Make an adjuster (D) from 1/2 inch stock. Layout a gentle curve with dividers (or it can be straight). Drill a 5/16 inch hole at each end and about an inch from the ends, and cut parallel lines between the two holes to form the slide adjuster bar.

Slide the tapering beam against the tunnel section, and mount adjuster using a 1/4 inch x 2 inch hanger bolt. Secure with washer and wing nut. *Editor's Note: The photos show the adjuster mounted with different hardware. However, the method given above and shown in the drawing will prove satisfactory.*

Yardsticks, cut lengthwise and mounted as shown will provide for accurate adjustments. You might want to use brass escutcheon pins to mark commonly used settings.

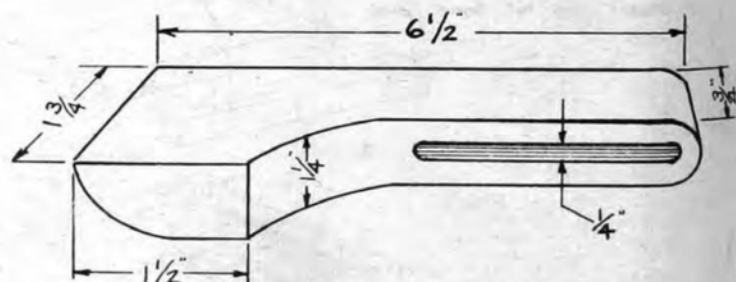
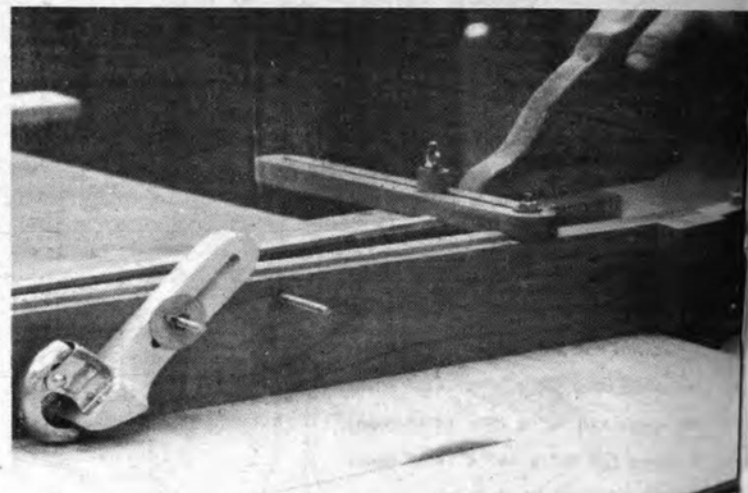
Make a push handle by tracing your favorite panel saw handle, and then rout all edges with a router and chamfering bit.

Provision was made for a definite non-slip hold down. Use hanger bolts set into the tapering beam as shown. They should be about 1 inch down from the top of the beam.

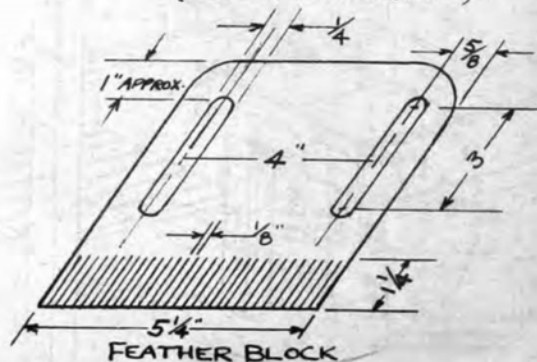
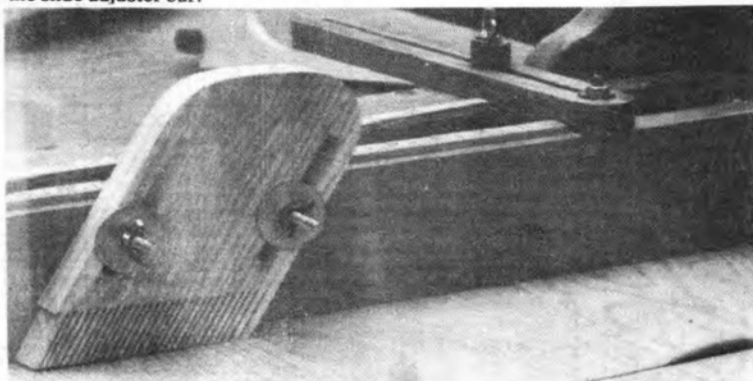
A screen door closer...the kind with a rubber roller and snap spring makes one of the slickest hold-down attachments you can find. If you can't buy one, try a feather block which also works well. Fasten either with washers and wing nuts as shown.

When making a feather block, use good straight grain wood that is flexible such as white ash or maple. Be sure your "comb" cuts are close together to get a spring action.

Give entire jig several coats of clear sealer. When one measurement has been made, the jig locked in position and the taper cut, use the same measuring point and widen to twice that amount to get a balanced taper on the second cut.



SCREEN DOOR BRACKET
(CURVES NOT CRITICAL)



18th Century Half-Round Table



This beautifully proportioned little table is a reproduction of an early 18th century piece and those who enjoy traditional woodworking will be pleased to note that there isn't a single nail or screw used in the construction. All joints are pegged as in the original. Clear pine was used for the original, but cherry or maple can certainly be substituted with equally pleasing results.

Begin by edge-joining two or more $\frac{3}{4}$ inch thick boards to form a rectangle of about $14\frac{1}{2} \times 28\frac{1}{2}$ inches. Lay out the half circle of the top and locate $\frac{1}{2}$ inch $\times$ $1\frac{1}{2}$ inch dowel pins at joints. Drive in glue-coated grooved pins and glue and clamp the boards together to dry overnight.

Cut two aprons and two front rails to width and lay out tenons on each end. The legs are ripped from thick stock and mortises are located so that rails and aprons will be set back $\frac{1}{4}$ inch from outer faces of legs.

It will be necessary to miter the apron tenons which enter the front leg so that they will just clear each other. Tenons on the rails are $\frac{1}{4}$ inch shorter than apron tenons and do not need to be mitered.

The back legs are notched to receive the back rails, and a bit of care is required here for a well fitted joint. The notches can be cut by mounting each leg in a V-block jig which is nothing more than two 45 degree beveled strips nailed to a base. Use this jig to hold the leg while you cut the notch with a dado cutter mounted on table or radial saw. The notch is

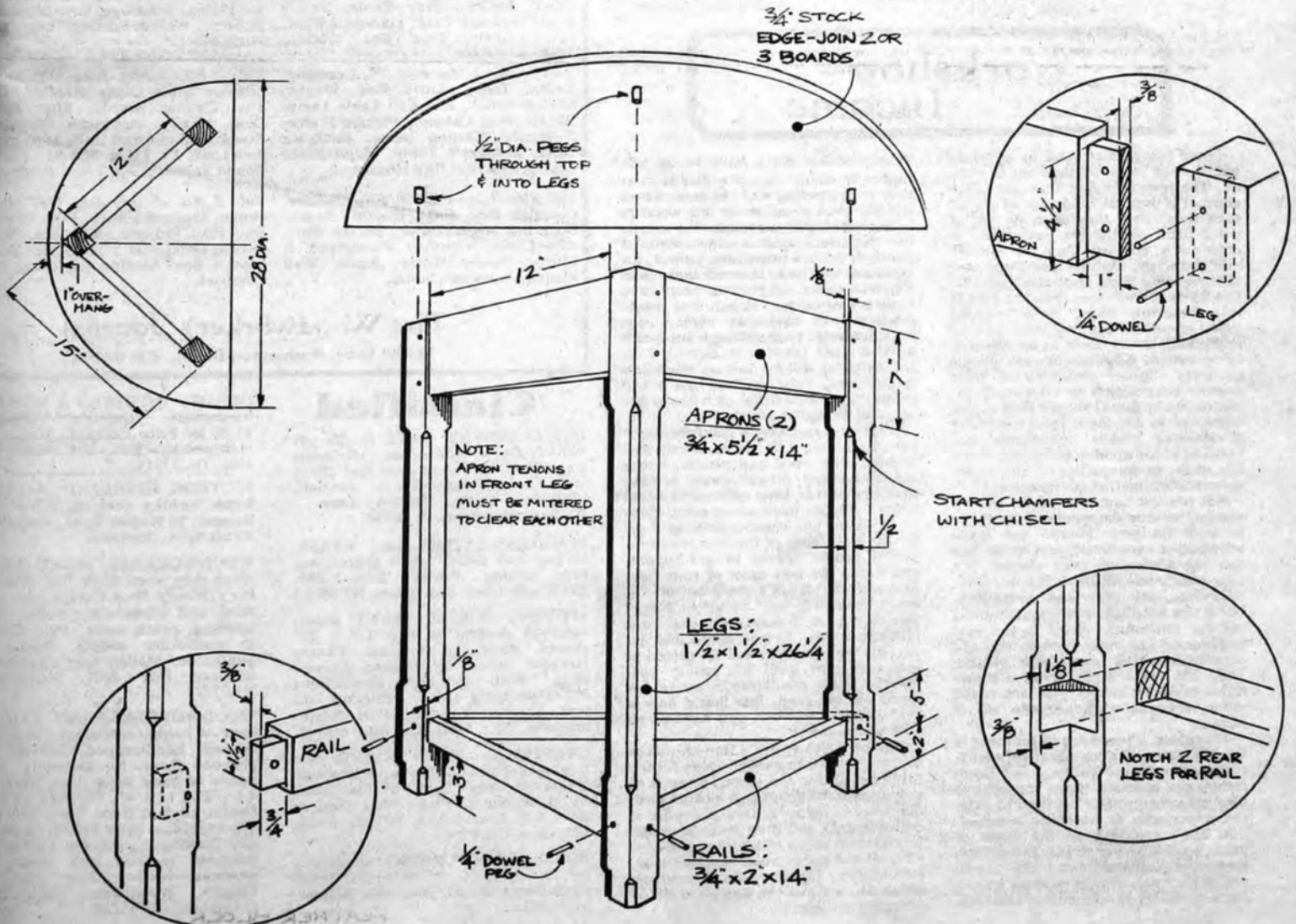
cut just deep enough to contain the rail with its edges flush with the leg surface. Cut the back rail longer than needed and later, when it is fitted into leg notches, it can be trimmed exactly flush.

Now lay out the chamfers on each leg. Use a chisel to start and stop each chamfer and remove stock in between with spokeshave or plane. Take care to keep chamfers uniform and cleanly cut, as they contribute considerably to the charm and light appearance of the table.

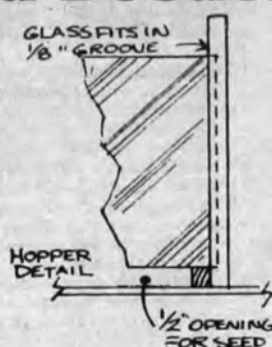
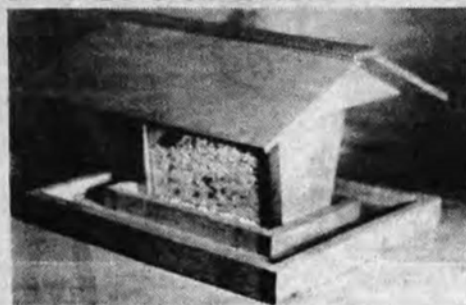
Dry fit legs, aprons and rails and draw joints closed with clamps while you drill 1 inch deep holes for $\frac{1}{4}$ inch diameter pegs. Cut pegs longer than needed and drive them in just far enough to lock the assembly together for fitting the top.

Next, drive a small brad into the top center of each leg and place leg assembly upside down on the underside of the top. When the top is centered, bear down on the legs and the brads will punch small holes in the top which serve as centers for $\frac{1}{2}$ inch dowel pegs driven through top and into legs.

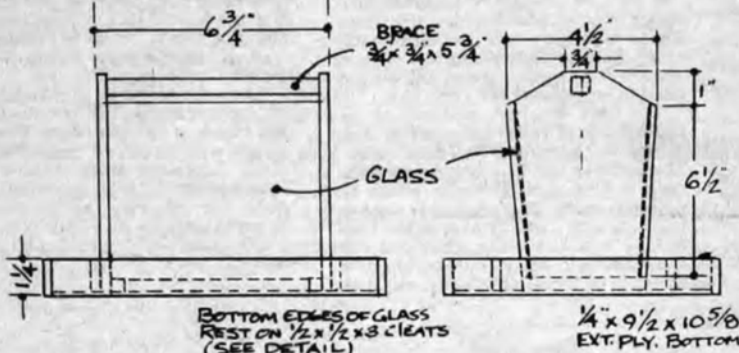
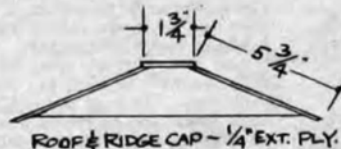
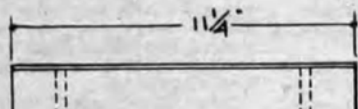
Disassemble table and finish sand all parts, taking care not to dub off the edges of the chamfers. The table shown was given one coat of Minwax Early American stain. This was allowed to dry for 24 hours. Final finish consisted of two applications of Minwax antique oil which is a penetrating-type finish and can be buffed to a soft luster.



Practical Bird Feeder



1/2" STOCK EXCEPT
ROOF & BOTTOM



BOTTOM EDGES OF GLASS
REST ON 1/2\"/>

1/4\"/>

Workshop Income

Charles Burke

Many things that used to be made out of wood are now made out of plastic. The reason is that they are much cheaper if they are made out of plastic than they are if they're made out of wood. The plastic raw materials, in most cases, cost less than the wooden raw materials, and the per-piece cost of fabricating them on a mass production basis is much less than the cost of manufacturing them from wooden parts: one-piece molding beats sawing and gluing hands down as an efficiency operation. Additionally, the plastic products' lighter weight and their greater adaptability to take-apart assembly make them cheaper to ship and store. All in all, then, the availability of cheaper plastic substitutes has knocked some wooden items out of the box as far as competing for the mass-merchandise market is concerned.

But you can turn the tables around and let the very cheapness of plastic go to work for you. Plastic has many advantages over wood, but wood has one big advantage over plastic. It's this: plastic has no class. It has utility, reliability, salability and versatility, but it has no class. It's good, but it's not the real stuff. Wood is the real stuff; wood has class. People will use plastic, but they don't like plastic. They like wood much better - sometimes even for things that are much more serviceable when made out of plastic.

Therefore, if you want to compete in the big market for comparatively inexpensive household gadgets and decorations and specialty items you have to play up your product's (wood's) relative superiority as hightone material. You can't compete on the basis of price, so don't even try. Instead, aim for snob appeal and uniqueness. Try to sell on the basis of your product's obvious superiority in appearance and feel.

Your products don't have to be any higher in utility than the plastic ones they're competing with. In many cases it's not even possible for the wood to be higher in utility, because the plastic has built-in physical characteristics (washability in a household utensil, for instance) that make it better than wood for certain jobs. All your products have to do is look better - richer, less mass-produced, of obviously higher construction cost. Your selling point won't be that your product is better; your selling point will be that your product is different. Your product won't sell despite its higher price - it will sell because of its higher price.

Right now you have a good chance to play up the big differences in look and feel between wood and plastic. There are now many plastic items around that have never been offered in wood before. People have never seen them in anything but plastic, so they'll go for the weirdness of the wooden item. Weird things appeal to gift-buyers, and that's the way most of your heylook-at-this-thing-it's-made-out-of-wood items will sell: as gifts. Therefore, you have to make sure that your fabrications are (1) well made and especially well finished and (2) priced at just the right level for casual gift-givers. I like the \$10-\$15 range for items of this type, but that's only a very vague guideline; you have to go with your market.

The best way to get a line on pieces that you can make as high-class substitutes for plastic (or metal) ones is to get out into the shops and look around. See what is being offered and what is being bought and then make your determination about which ones can sensibly be put out in wood and profitably sold by you. There are many products out there, and you can do a good job on a bundle of them.

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2. Mail Subscriptions.....	6,207	8,268
C. Total paid circulation (sum of 10B1 and 10B2).....	6,362	8,320
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E. Total distribution (sum of C and D).....	6,390	8,355
F. Copies not distributed		
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2. Returns from news agents.....	0	0
G. Total (sum of E, F1 and 2-should equal net press run shown in A) 9,075.....	9,075	11,500

I certify that the statements made by me above are correct and complete.

(S) James J. McQuillan, President & Publisher

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