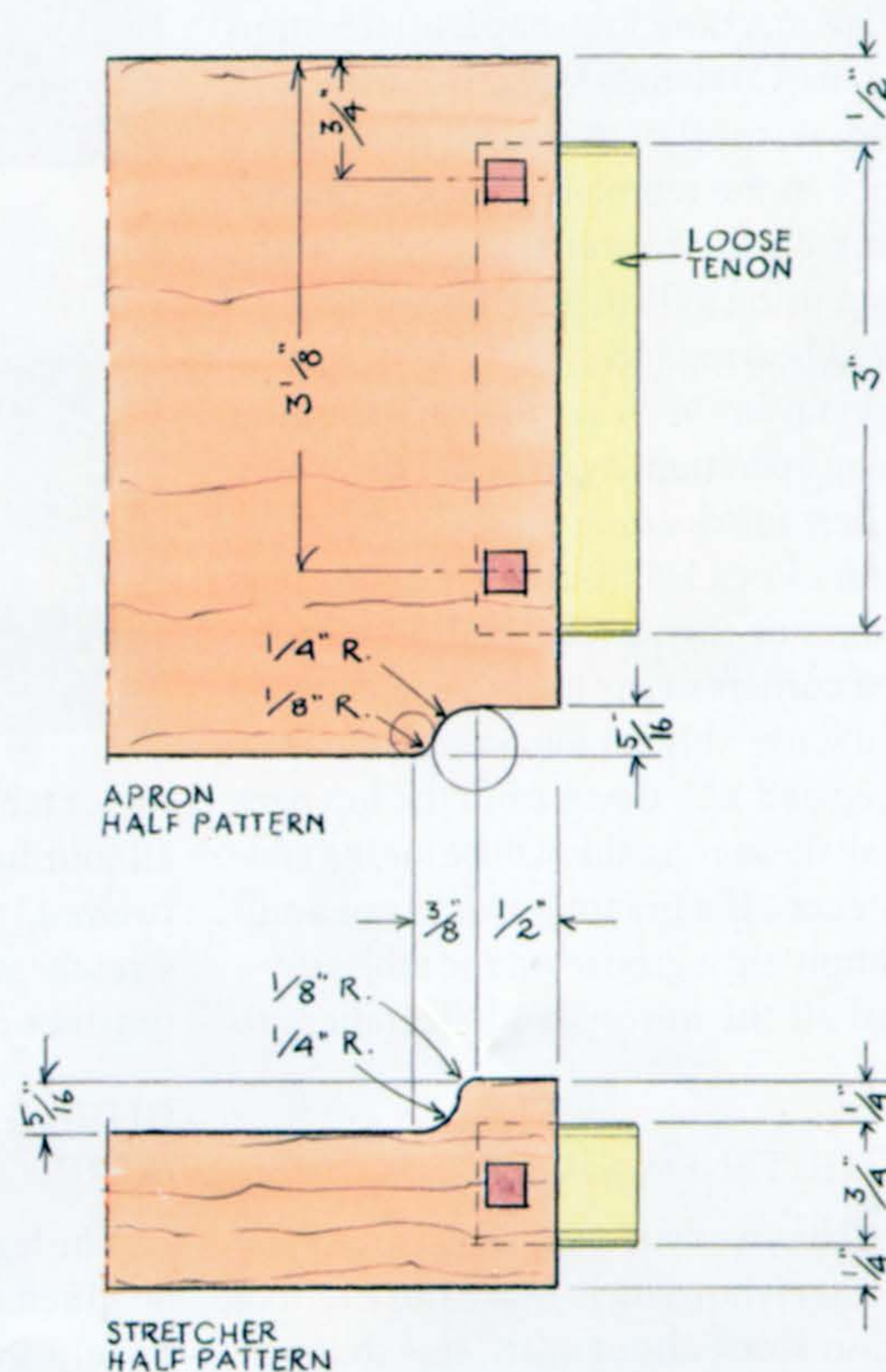
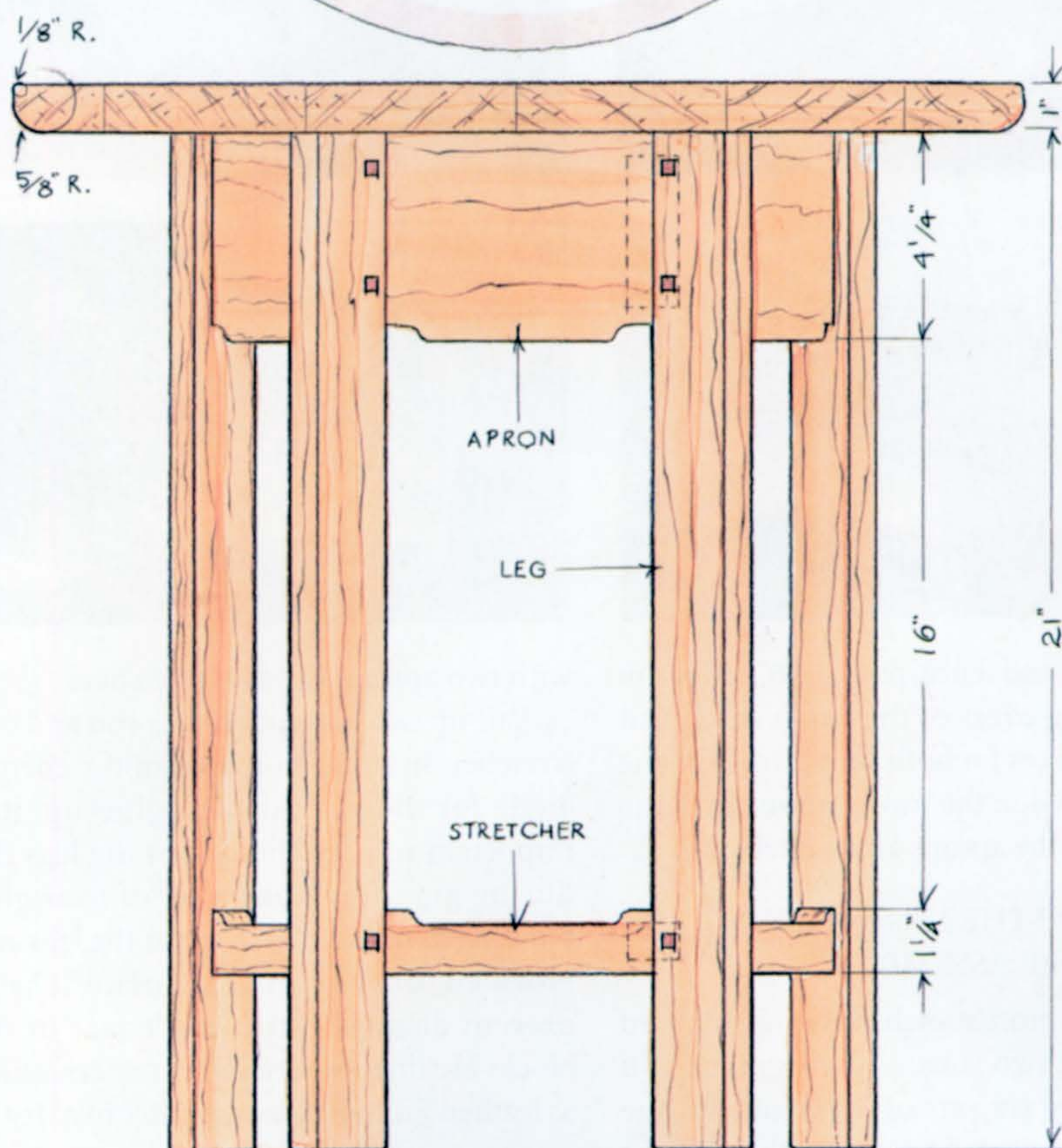
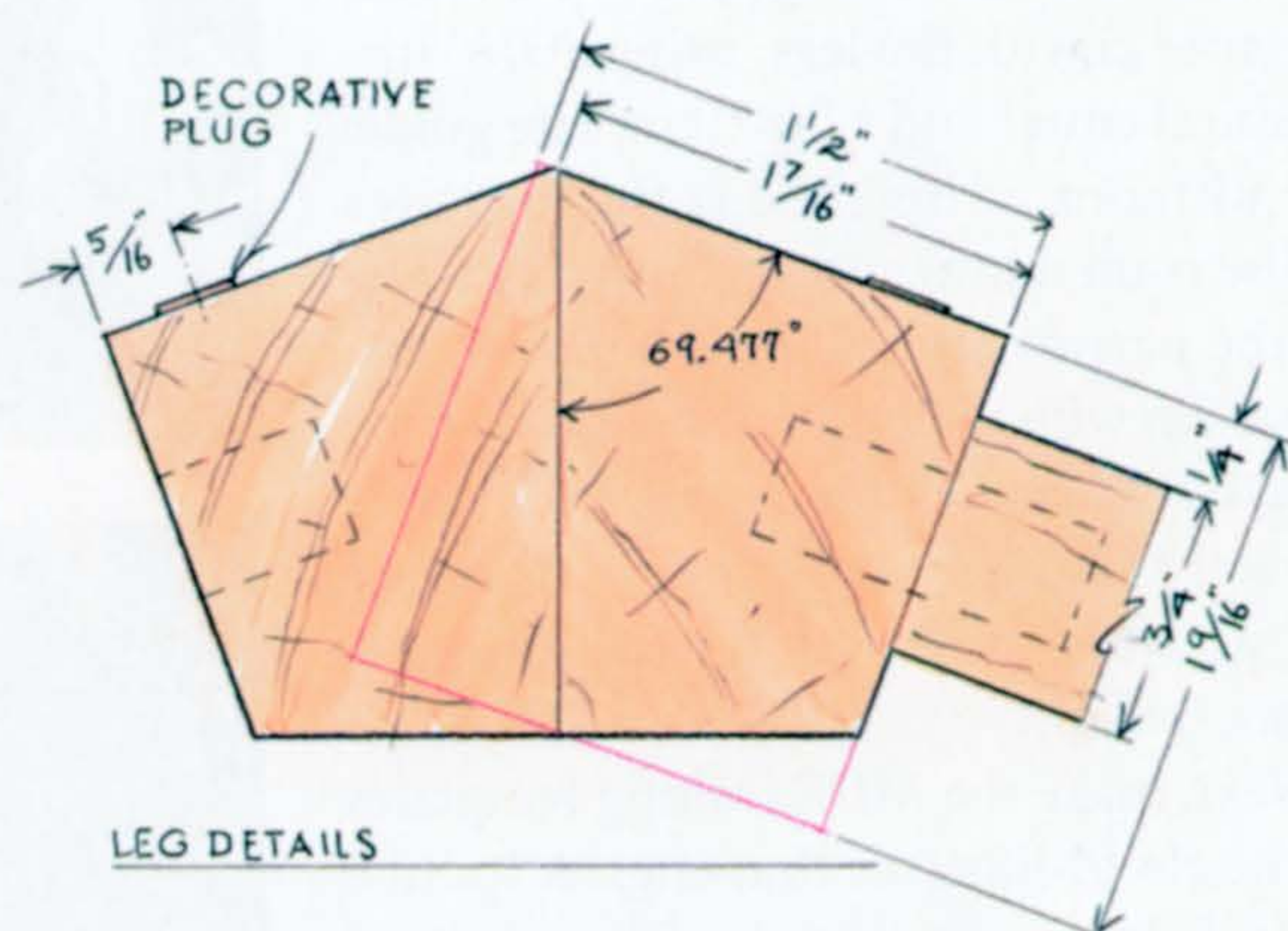
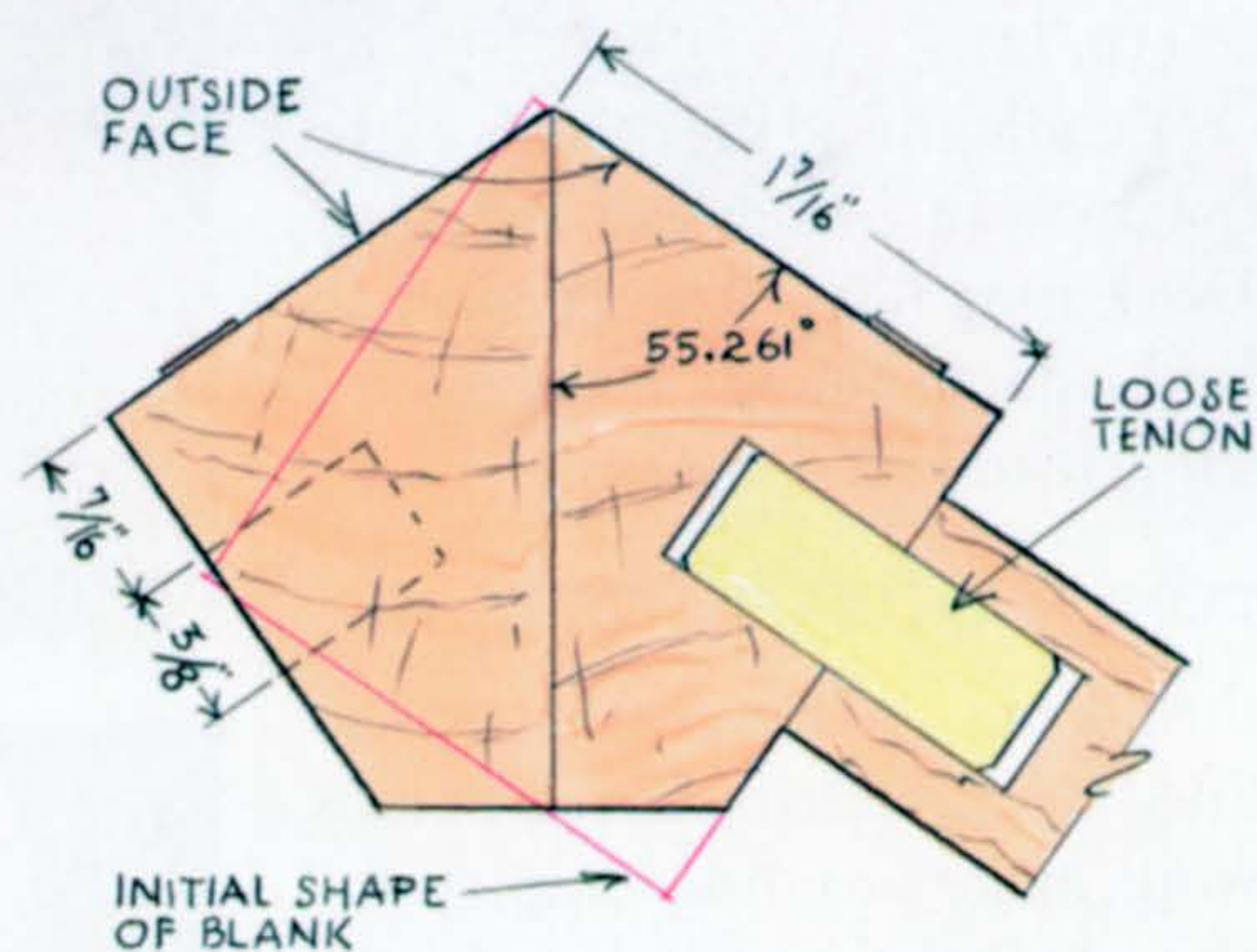
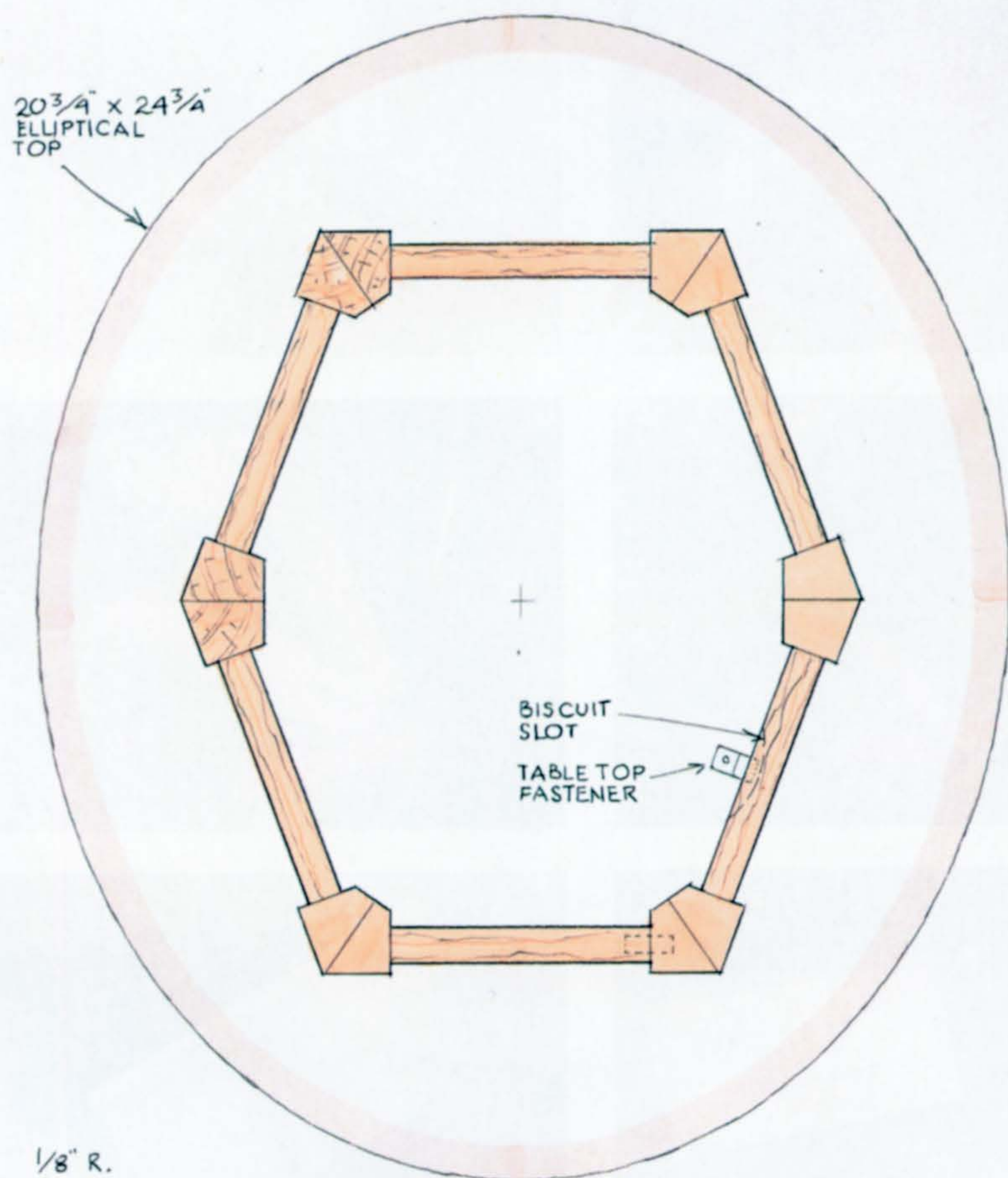
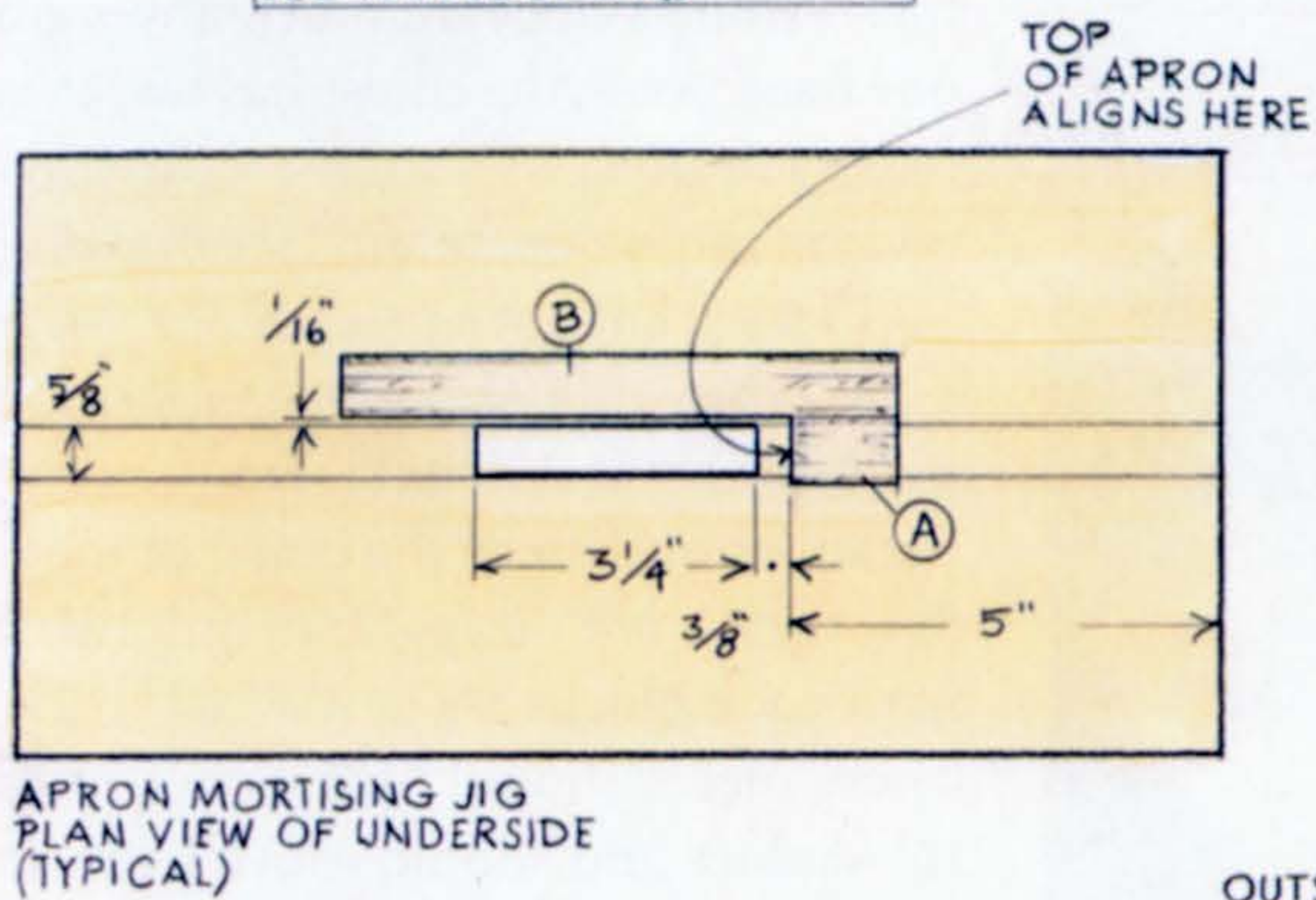
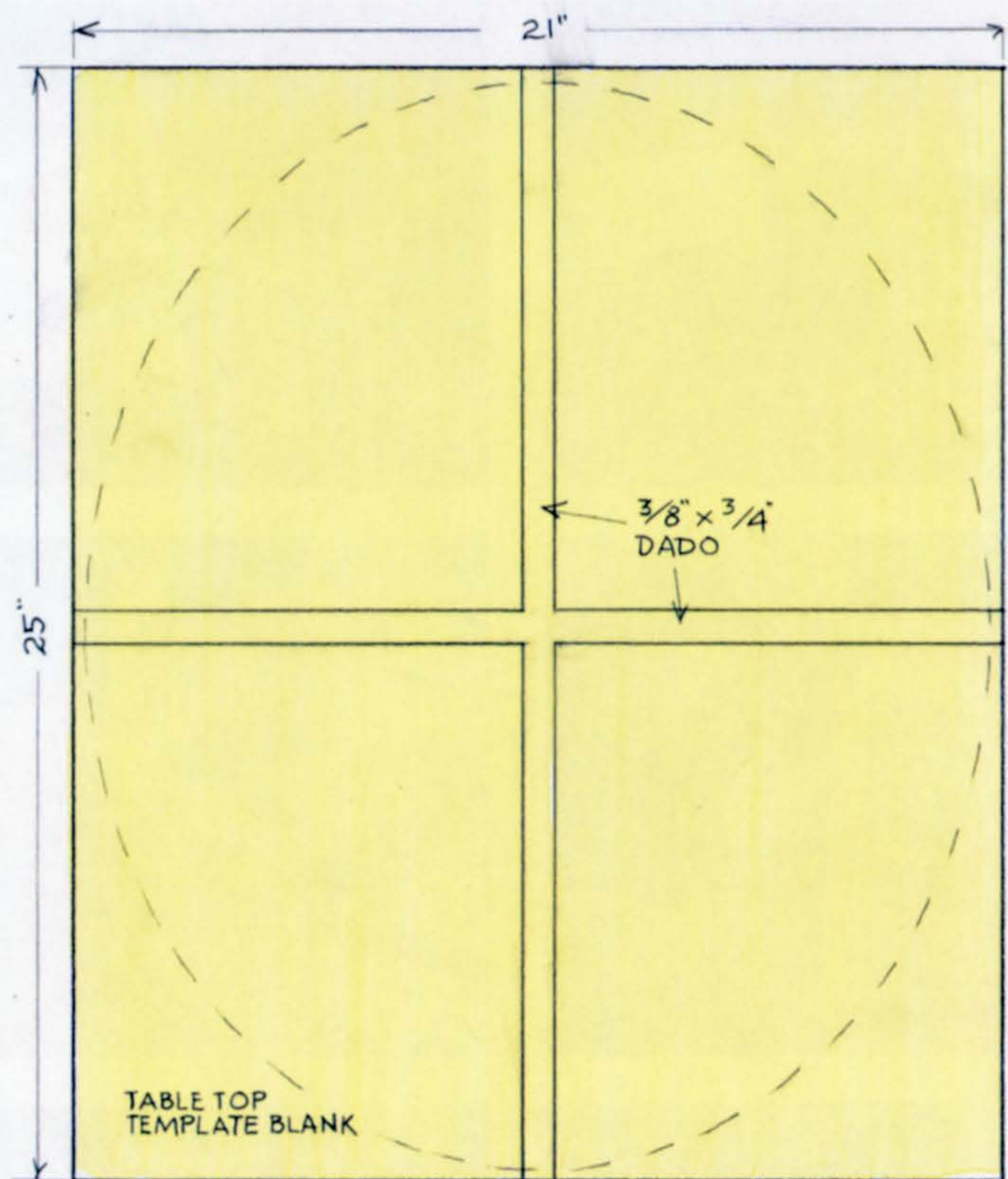
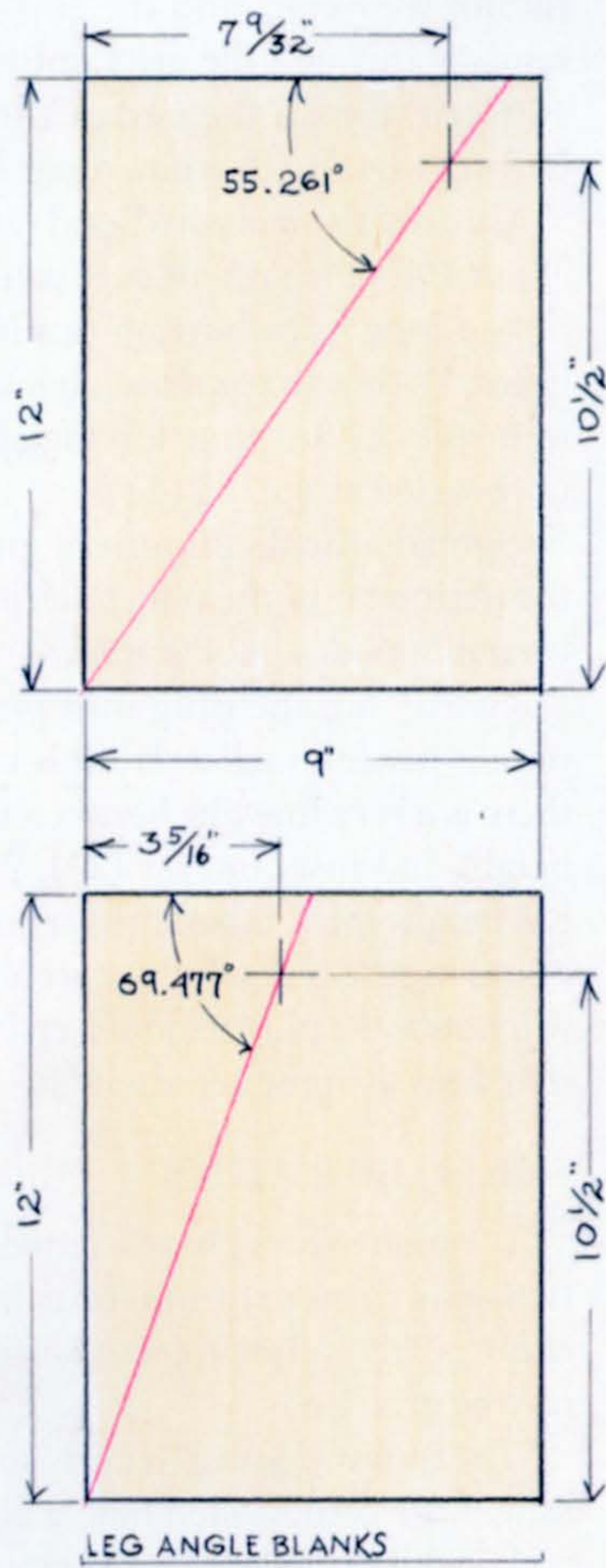


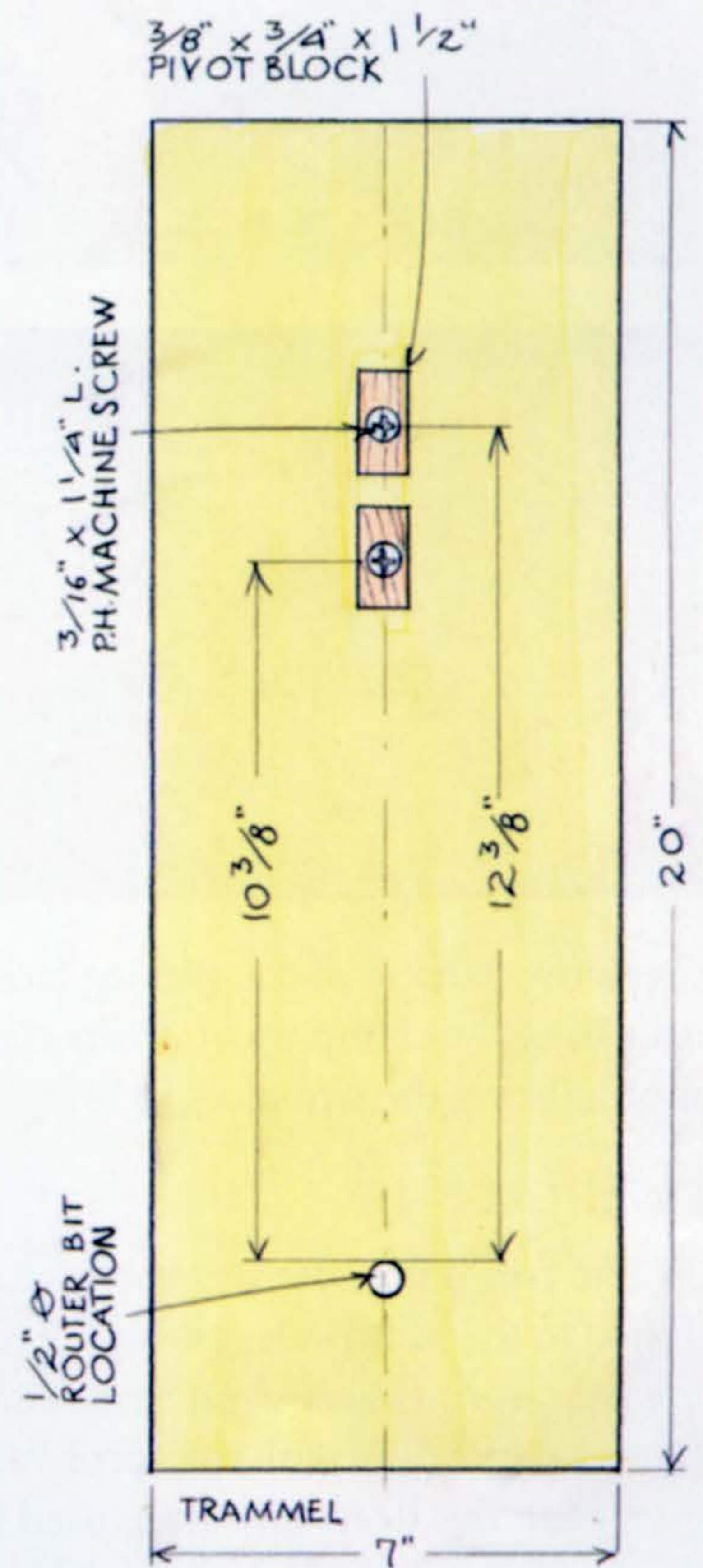
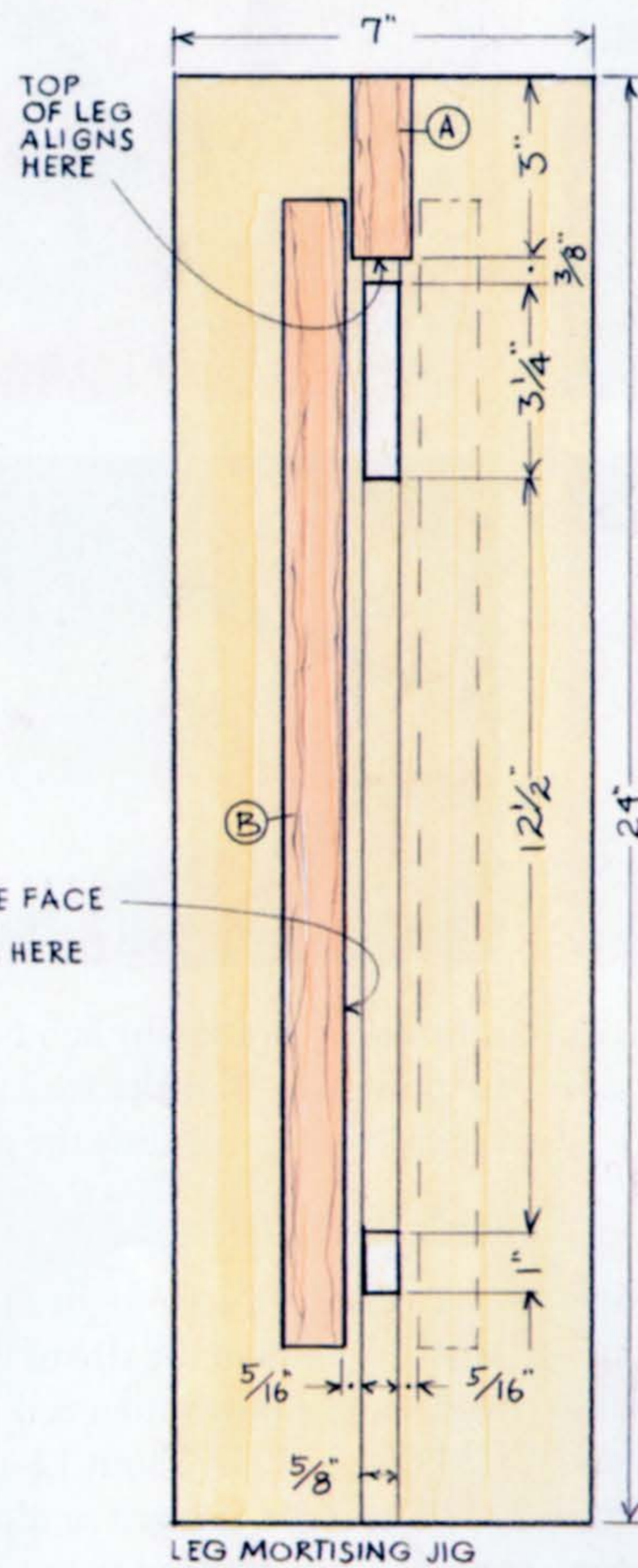
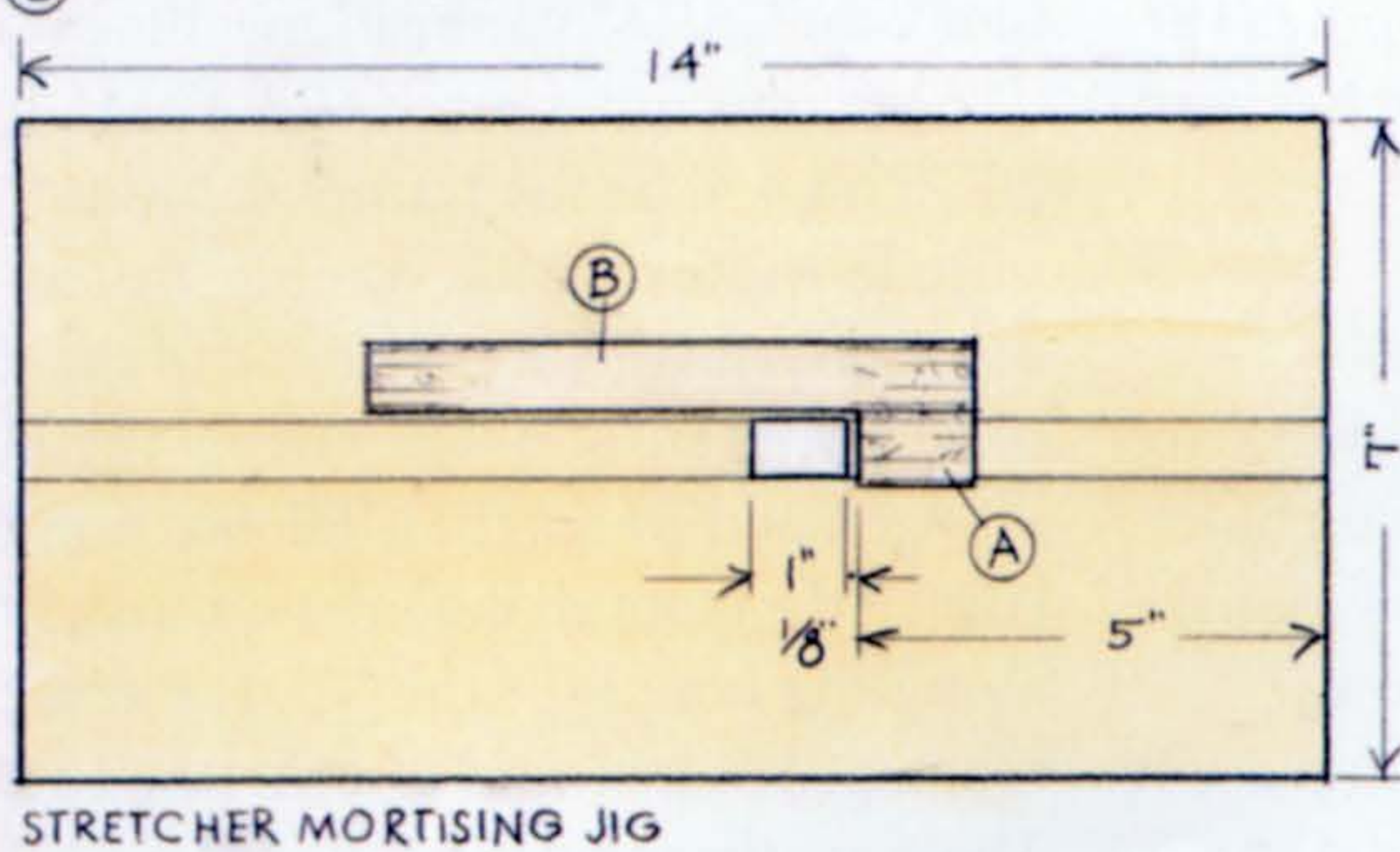
# GREENE & GREENE TABLE



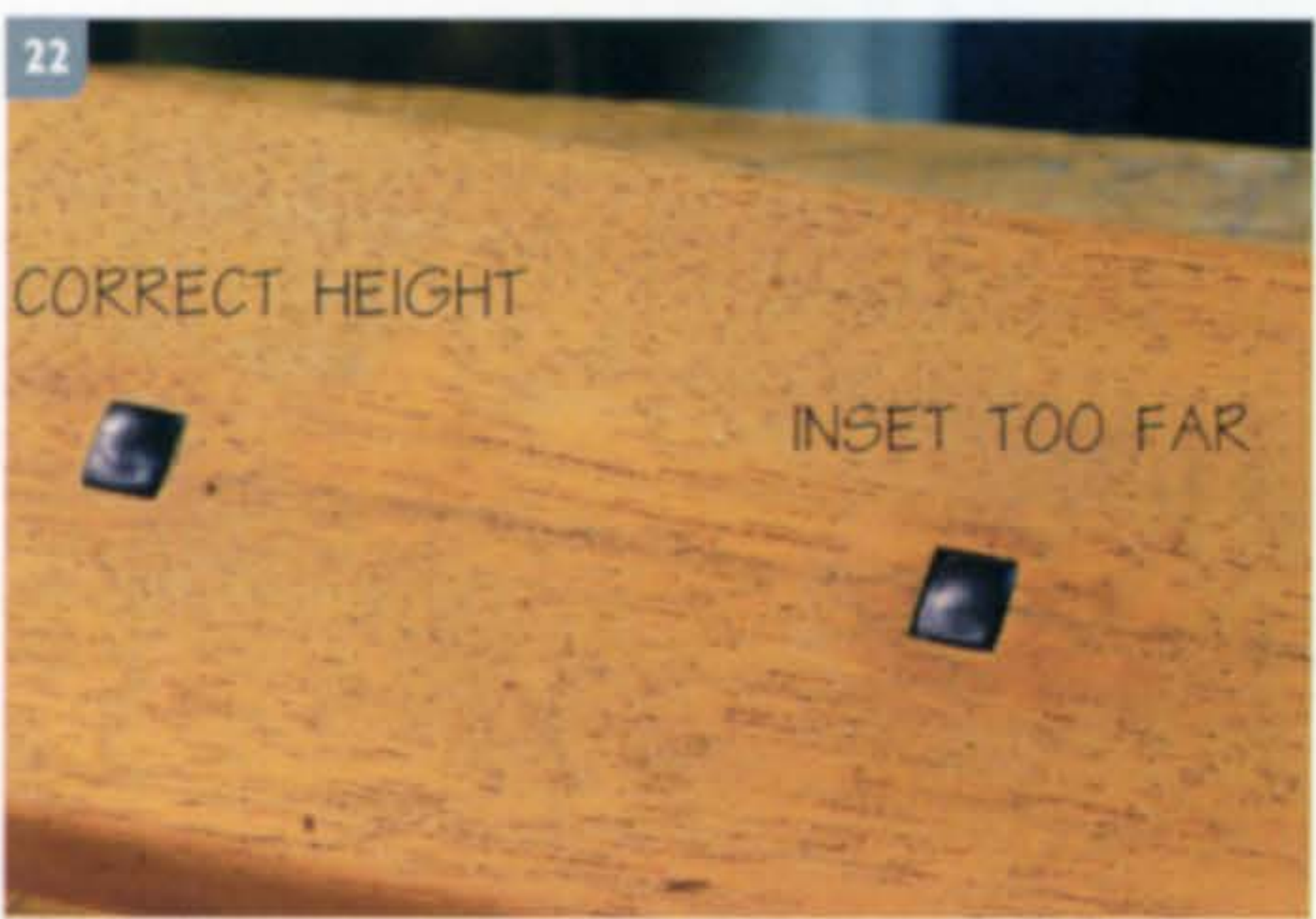
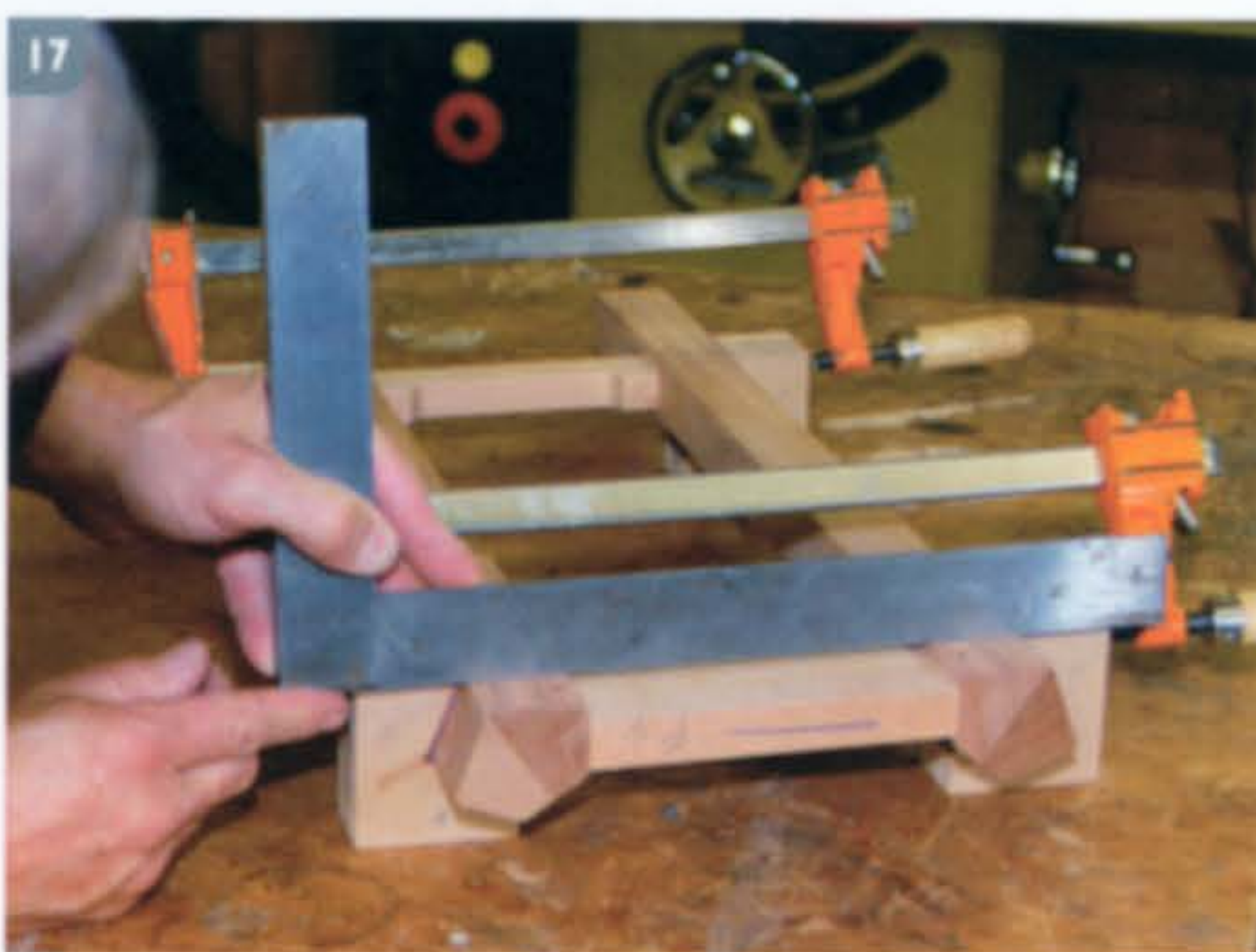




- (A) REGISTRATION BLOCK
- (B) REGISTRATION / CLAMPING BLOCK







check the flatness of the two leg faces (17). Adjusting the clamp up or down as needed should bring the two faces in line.

#### FINAL GLUE-UP

The two paired leg assemblies are now joined to the last two legs with the remaining four aprons and stretchers. Two band clamps—one even with the aprons and one even with the stretchers—are used for the final glue-up. As before, dry-fit the assembly first. If gaps appear during glue-up,

introduce vibration by lightly tapping (18). In most cases (if work to this point has been accurate) this will close the gap.

#### EBONY PLUGS

To ensure a crisp tight fit the plugs are  $1/64$ " larger than the size of the plug holes. Mill some ebony into a rod  $17/64$ " square ( $.265$ " x  $.265$ ") by about 12-15" long.

Place some 150-grit sandpaper on a soft spongy surface. Sand the end of the ebony rod using a circular motion (19). The aim

is to achieve a uniform, slightly-pillowed surface with a consistent shoulder. Be careful not to over-round the end. Continue sanding through the grits until you reach 400-grit. Finish the end of the rod on a buffing wheel with white rouge (20).

Cut off the polished end, along with about  $1/4$ " of length. Be sure your plugs are not so long as to bottom out in the plug holes. With a sharp chisel, back bevel the four sides of the plug, leaving about  $1/16$ " un-beveled at the top (21).

Spread a small amount of glue around the perimeter of the plug hole; a small finish nail makes a good applicator.

Gently tap the plug into place with a plastic-headed mallet. Do this carefully—there is a very fine line between the correct height and inset too far (22). Experience has taught me it is better to err on the side of leaving the plug a bit too proud. Your eye will notice the plug set too deep long before it notices the plug set too high.

#### THE ELLIPTICAL TOP

For many years I have wanted to build a two-axis router trammel for making an ellipse. This is the project that finally gave me the excuse.

The trammel set-up is fairly simple but a little more complicated than a circle trammel—while a circle trammel moves around one fixed point, the ellipse has two axes and two foci, both of which are in constant motion during operation (see drawing).

To start, cut out a piece of  $3/4$ " MDF 21" x 25". This will become the elliptical template. Machine a dado down the center of the length and down the center of the width  $3/4$ " wide x  $3/8$ " deep. Next, mill two small hardwood blocks  $3/8$ " x  $3/4$ " x  $1-1/2$ " long. These pieces should fit flush to the top of the dados and should move freely in the dados but without any slop. Pre-drill and countersink through the center of each block for a  $3/16$ " panhead machine screw.

Next, cut out a piece of  $3/4$ " MDF 7" x 20". This will be the trammel. Mount your plunge router with a double-fluted  $1/2$ " diameter straight bit to one end of the trammel, centered at  $3-1/2$ " from the sides. Plunge-cut through the MDF. Starting at the edge of the plunged hole, draw a straight line along the length of the MDF. Put a cross mark at  $10-3/8$ " and another at  $12-3/8$ ". These are the major and minor axes. Drill a  $3/16$ " hole at the two cross mark locations.



Attach the small hardwood block pieces to the trammel with 3/16 x 1-1/4" long pan-head machine screws. Position the hardwood block further from the router in the longer (major axis) dado and the other block in the shorter (minor axis) dado (23).

Practice running the trammel through the dados. It should run smoothly. If not, lightly and carefully sand the width of the blocks. Put a small chamfer on the leading corners to aid the transit through the cross-over in the jig. When the operation is smooth, machine the ellipse in the template, taking small bites and several passes (24).

Select the material for the top with grain match in mind. Flatten all the boards and plane to thickness. Layout the boards in order and fine tune the grain match. On the first board mark an "X" and on the second an "O"; continue marking all the board with alternate "X"s and "O"s.

Joint the edges of all the boards with an "X" face in to the fence and all the boards with an "O" face out away from the fence. This will compensate for any inaccuracy in the jointer fence.

Re-position the boards together and place the template on top. Trace the outline of the ellipse onto the boards (25). This will aid in correct positioning of the boards during glue-up. Next machine the boards for #20 biscuits spaced 7"-8" apart, making certain not to place a biscuit too near the traced outline. The biscuits are primarily for alignment. Use four straight edge clamping cauls (two on top, two directly underneath) lined with plastic tape (as a glue resist) to make certain the top stays flat during glue-up (26).

Once out of the clamps the top can be leveled with a scraper and sanded to 120-grit. Next re-trace the ellipse on the top and bandsaw to within 1/8" of the line. Attach the template to the underside of the top; fasten it with three screws, making sure they fall inside the perimeter of the aprons.

Using a flush trim bit with a top-mounted bearing, rout the top to final size (27). On the bottom side of the top put a 5/8" roundover and on the top side put a 1/8" roundover.

Finish sand the top to 220-grit.

## THE FINISH

In a well-lit area, inspect both the base and the top for scratches, glue-ooze and any other defects. Raise the grain on the base and the top with a damp sponge. When



thoroughly dry, knock down the raised fibers by lightly sanding with 320-grit (28).

To color the wood I use Liberon English Brown Mahogany #43 (water-base aniline dye) [available from Wood Finish Supply in Fort Bragg, California; (707) 962-9480; [www.finishsupply.com](http://www.finishsupply.com)]. Follow the mixing instructions on the 1-ounce packet, then further dilute that mixture 12:1 with distilled water. Apply the dye with a terry cloth-covered sponge (available where most paint supplies are sold). With a little practice an even amount of dye can be applied using hand pressure. Two or three light coats are preferable to one heavy coat. Avoid flooding an area to the point of pooling up. It is difficult to gauge the darkness of the final finish. For that reason it is advisable to dye a few pieces of scrap along with the table. After each coat of dye apply top coat to a scrap piece to determine the finished shade.

For the top coat I like General Finishes'



Arm-R-Seal satin finish. The Arm-R-Seal is a wipe-on/wipe-off polyurethane finish. Apply about 4-5 coats to the base and about 5-7 coats to the top. Wipe the Arm-R-Seal off thoroughly after each coat. To avoid runs use an air nozzle to blow out the excess finish from corners and crevices.

## FINISHING UP

Attach the top to the base with metal table top fasteners (29). Attach 3/4" round felt feet pads to the bottom of the legs. To finish the finish, I give the table a light coat of "Conservator's Wax," available from Lee Valley.

*Darrell Peart is a woodworker in Renton, Washington with over 30 years experience in commercial and custom furnituremaking. He is the author of Greene & Greene: Design Elements for the Woodshop, released in April 2006 by Linden Publishing. His website is: [www.furnituremaker.com](http://www.furnituremaker.com).*