

Solution

A 16-FT. PLYWOOD SAILING SCOW

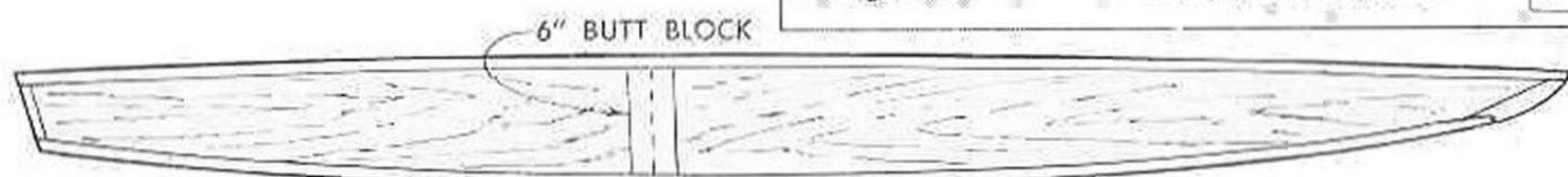
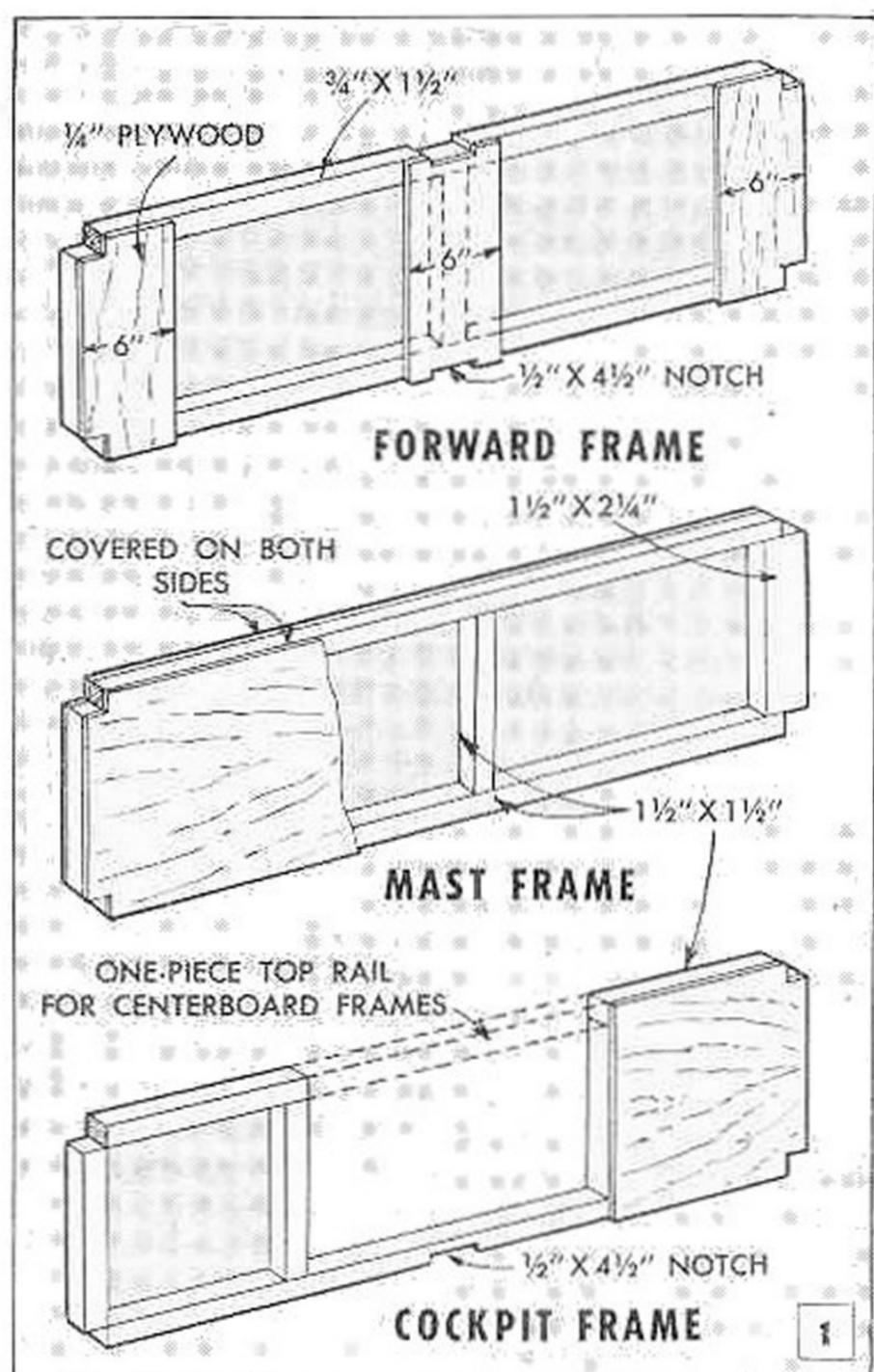
DESIGNED especially for those who want a practical, unpretentious sailboat which is easily and quickly built at low cost, Solution is simply a scow with hull refinements that enable it to carry a 21½-ft. stepped mast and about 140 sq. ft. of sail. The plywood bottom curves in a long, unbroken sweep from the stem block to the transom, while the sides curve out to the beam width back of midships and then fair in to the transom in a smooth, flat curve. Because of these construction refinements, the hull rides easily and planes smoothly when you pick up a good breeze on the long reach of the tack. The unbroken curve at the gunwale adds to its trim, seaworthy appearance.

Selected fir or spruce is used for the frames, and all fir plywood used in the hull should be of the waterproof marine grade. The solid stock for the

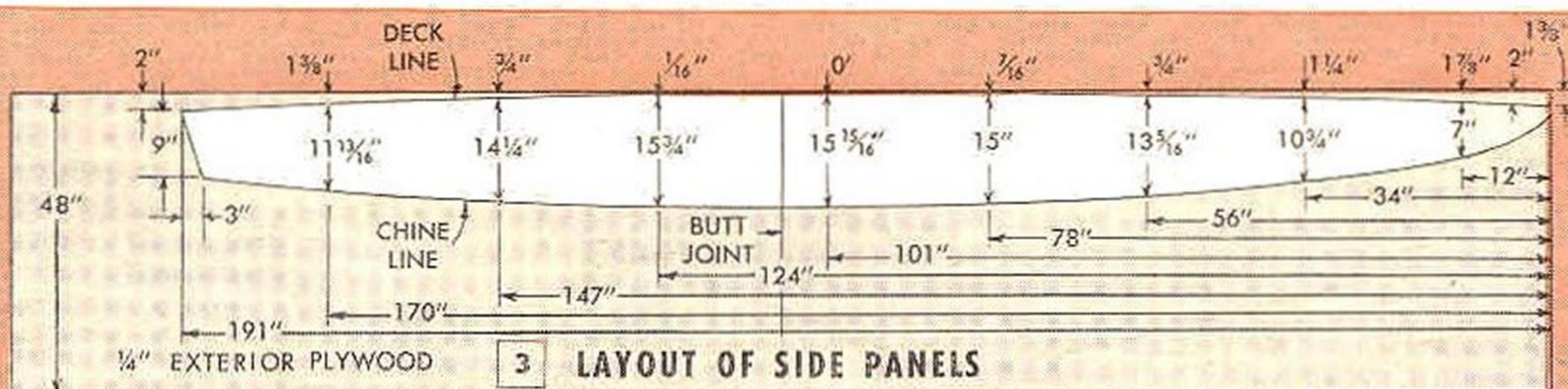
structural members should be clear and straight grained.

The first step is to lay out and cut the side panels, Fig. 3. Note that both side and deck panels are cut from four 4 x 9-ft. sheets of $\frac{1}{4}$ -in. plywood. To lay out the sides of the hull, two sheets are laid on the floor, end to end, and marked according to the drawing. Stations for the eight frames also are marked. The deck panels, Fig. 4, are laid out from the waste plywood after cutting the sides. To do this, it is necessary to flip over the panels, end for end. Being made up of two separate pieces, the deck and side panels are butted together and joined with butt blocks, as indicated, gluing and screwing them in place. Be sure to assemble the side panels so that one is right hand and the other left. After the glue is dry, clamp the panels together and plane the edges so that both units are identical in size and shape.

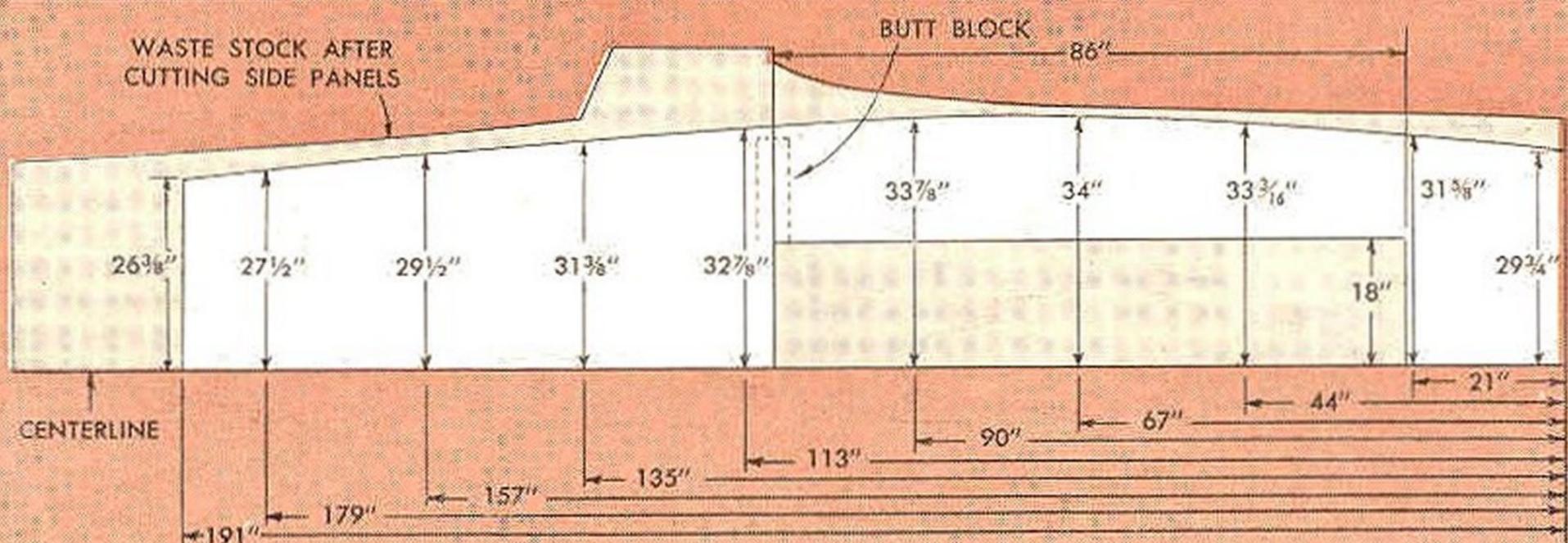
Fig. 1 details assembly of the frames. Scrap plywood left from the panels is used to serve as gusset plates in covering the frames. In the case of the mast frame, both sides of the frame are completely covered to give sufficient strength to support the mast. The headstay frame is a solid 8-in. board, notched top and bottom. Note that



2 SIDE-PANEL ASSEMBLY



3 LAYOUT OF SIDE PANELS



4 LAYOUT OF DECK PANELS

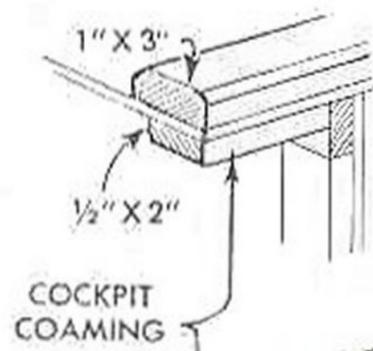
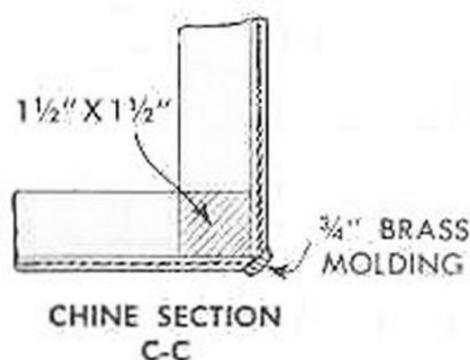
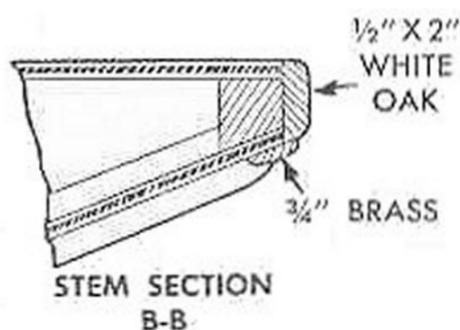
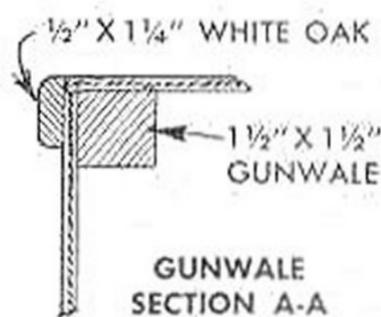
the mast frame is not notched for the keelson, and that the cockpit frames are left open at the top. All frames are notched squarely at the corners for chines and gunwales, but it should be remembered that, both forward and aft, the chines as well as the gunwales actually meet the notches at a slight angle because of curvature of the parts at these points. For this reason, the edges of the fore and aft frames, including the faces of the notches, must be faired (planed) so that the plywood panels fit the chines and gunwales on a flat plane. Use a block plane and fine wood rasp for this job.

With the frames completed, chines and gunwales are next fitted to the inner surfaces of the side members of the hull. Notice in Fig. 2 that these conform to the shape of the sides and are fitted with a nose block at the stem and a vertical cleat at the transom.

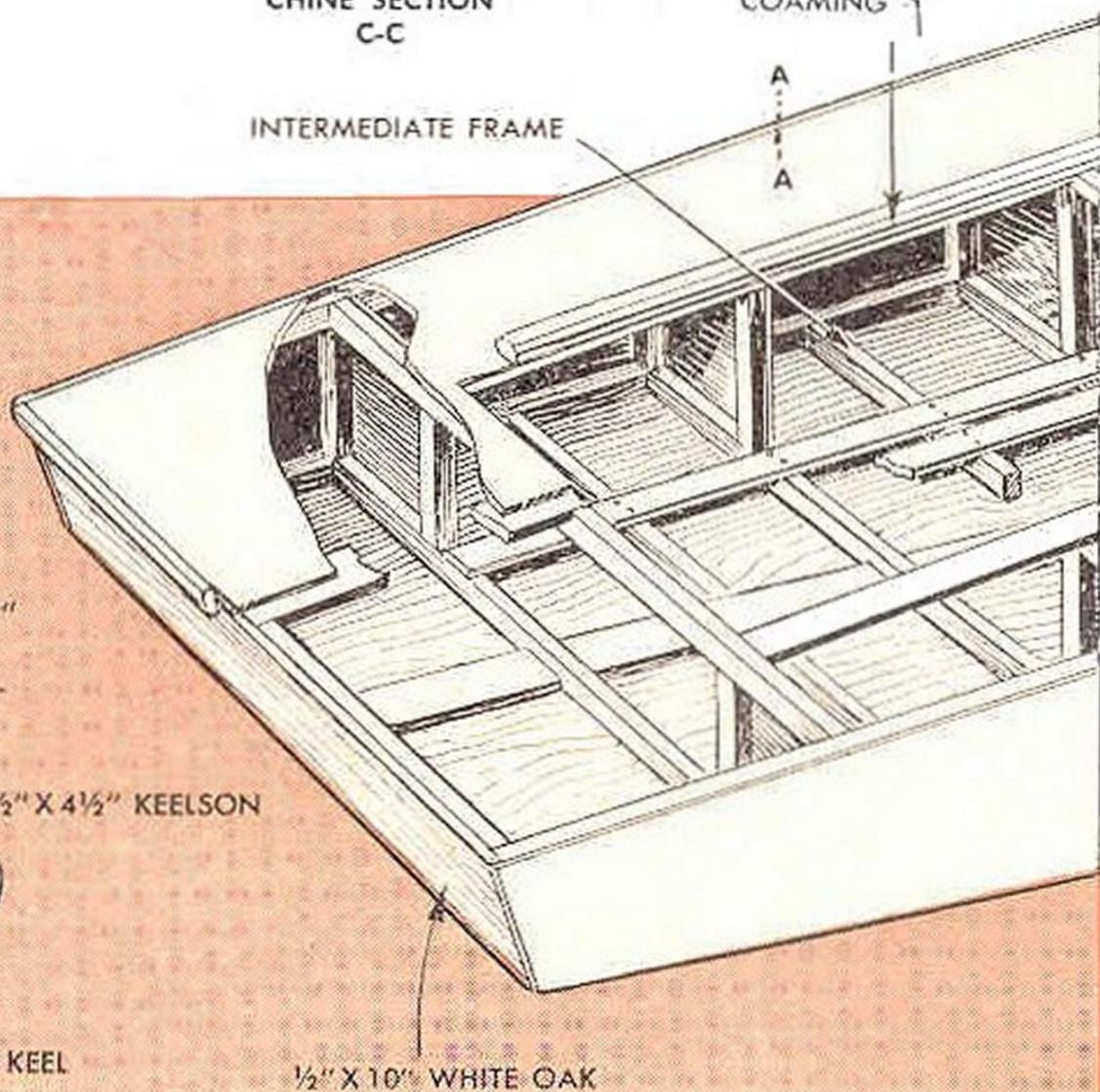
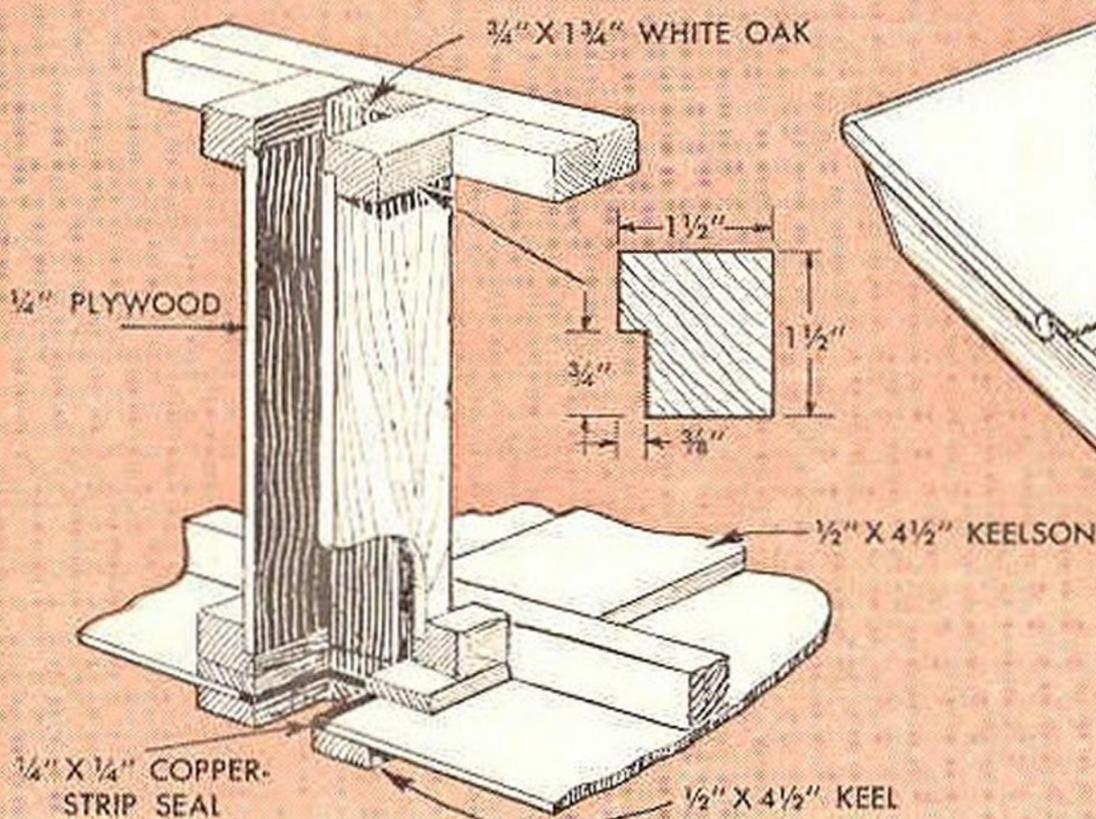
Now, temporarily assemble the sides of the hull to the deck. The side panels are forced to take the curve of the deck panel by drawing in the ends with bar clamps or a twisted rope loop. The lower edges of the panels are held the correct distance apart by clamping a strip across the width

at a point directly under the deck butt block. In this way, the butt block and the strip act as spreaders which force the side panels to take a uniform bend in each direction from this point. When this is done, the frames can be fitted to the chines and gunwales individually.

After fitting the frames and the keelson, the bottom panels can be installed. First, turn the assembly over, place on a level floor and block up the stem and transom until these parts check square and true. Plane all exposed surfaces and edges so that the curves are uniform, then locate the bottom panels with the edges centering on the keelson. Plane the edges to get a tight fit. Remove the panels and apply marine glue to all joining surfaces. Then replace the panels in the order removed and fasten with screws driven in flush. After the glue is dry, attach the keel and turn the hull over. Remove the deck panel so that you can install the deck beams, intermediate frames and the filler block between the headstay and stem piece. After these parts are installed as in the cutaway view shown below, cut the opening for the centerboard and fit the parts of the centerboard well as



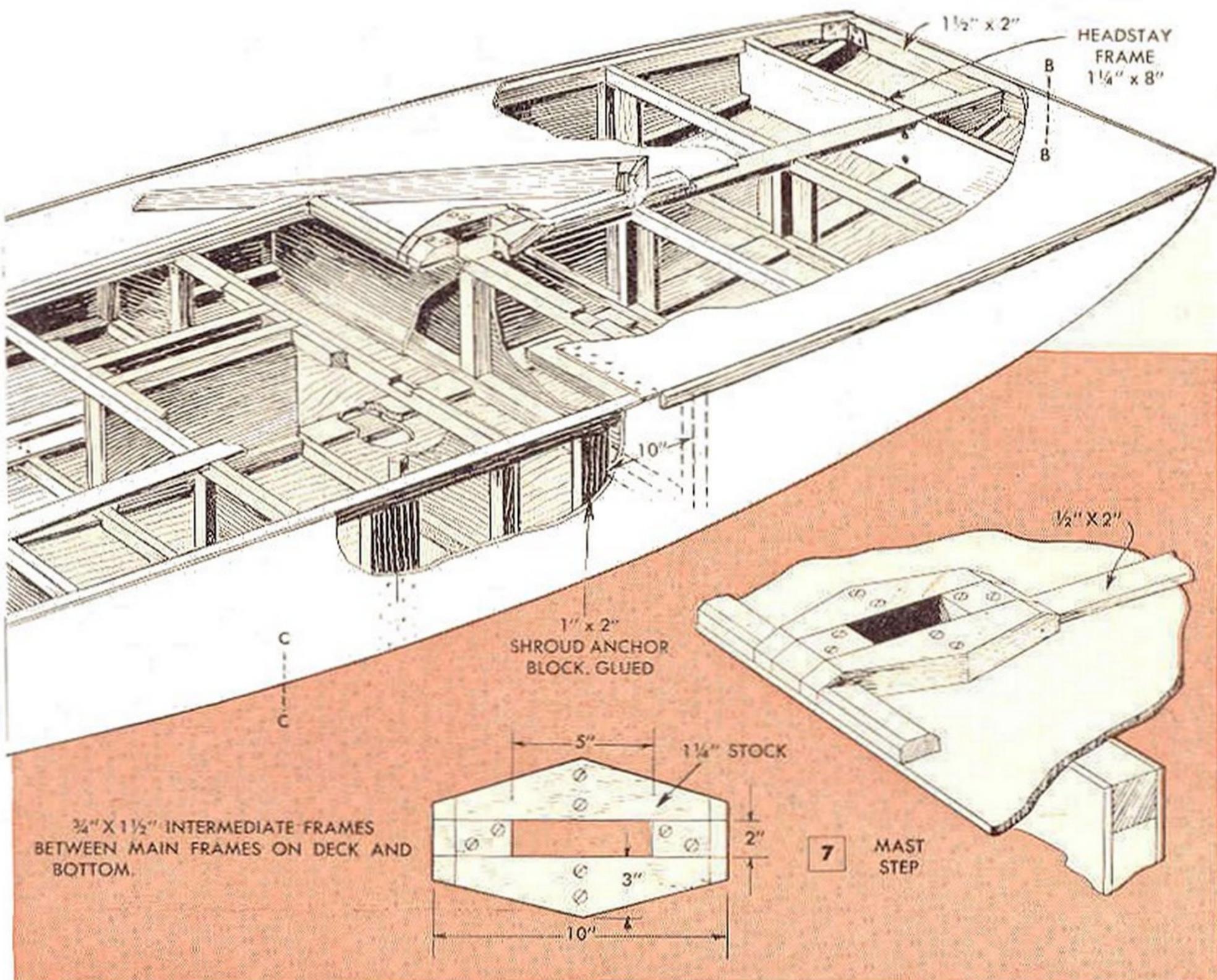
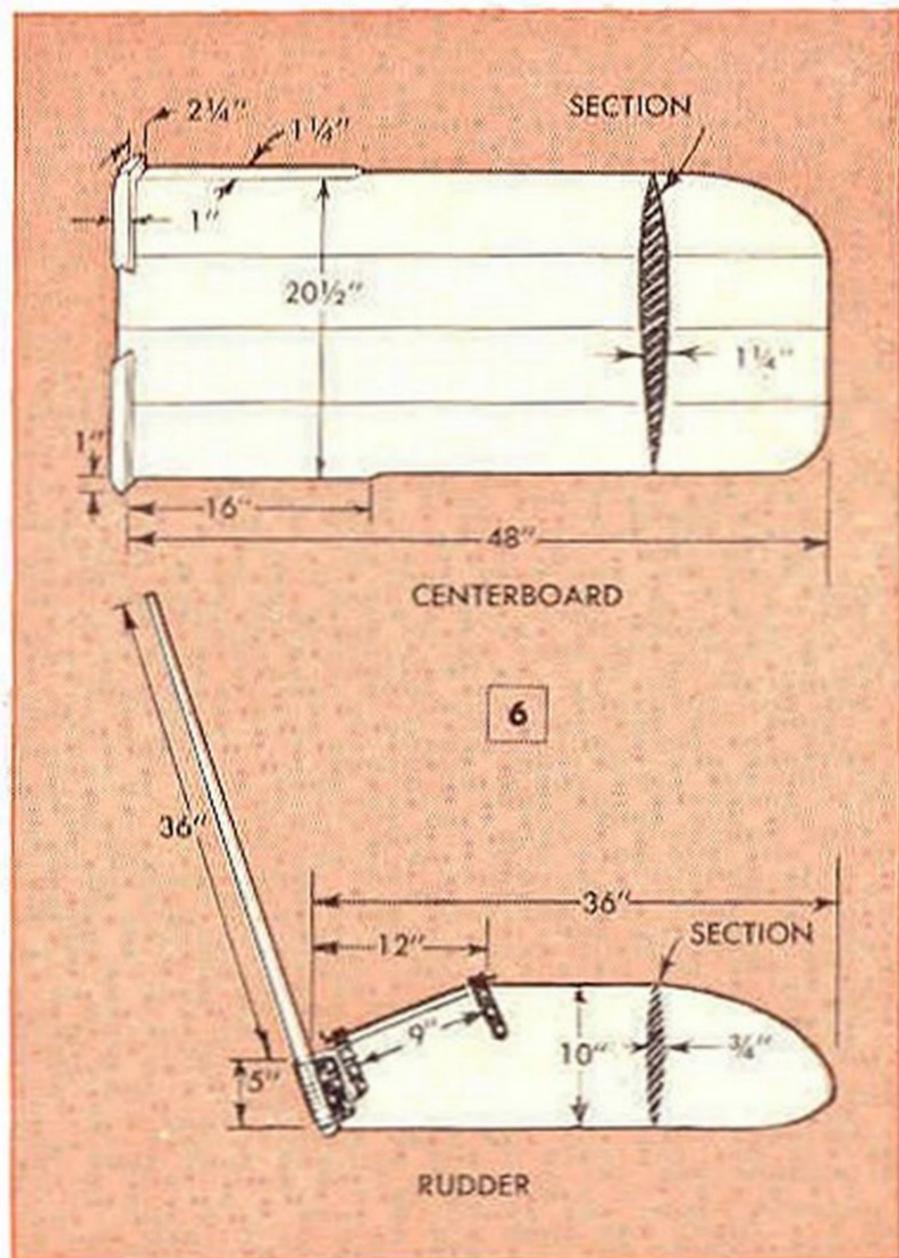
INTERMEDIATE FRAME

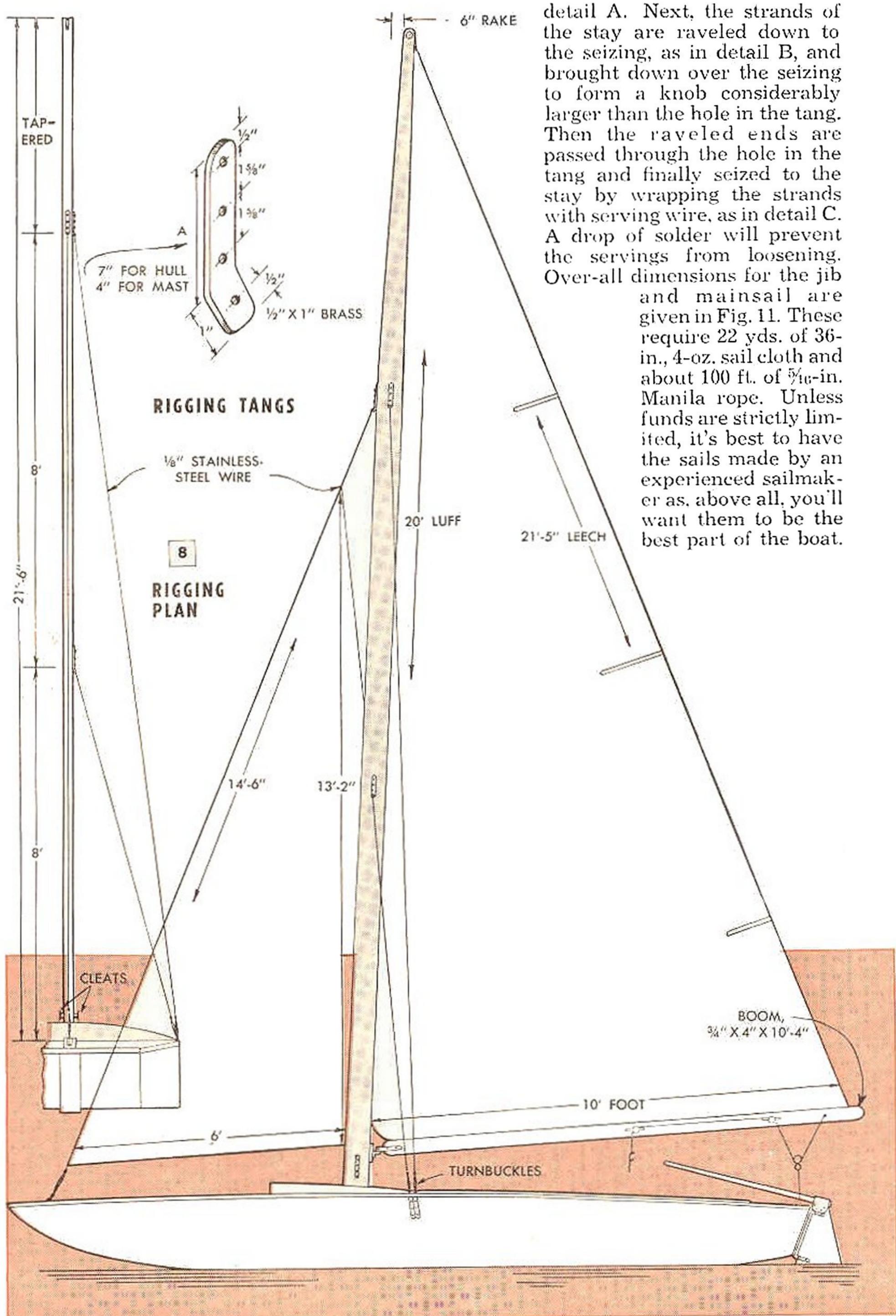


5 SECTION THROUGH CENTERBOARD WELL

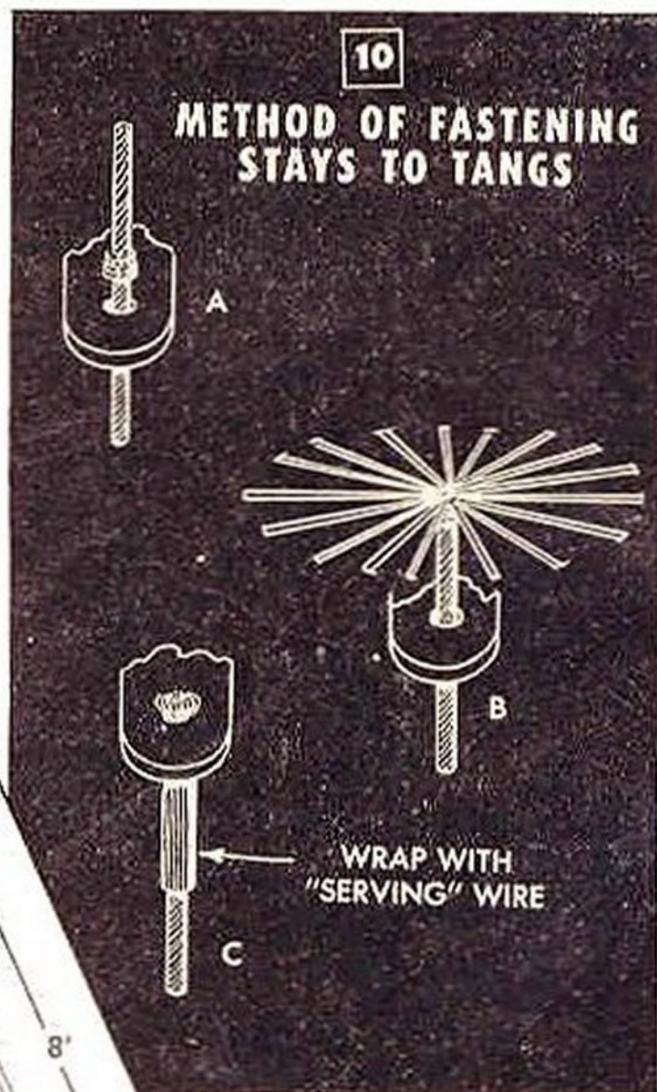
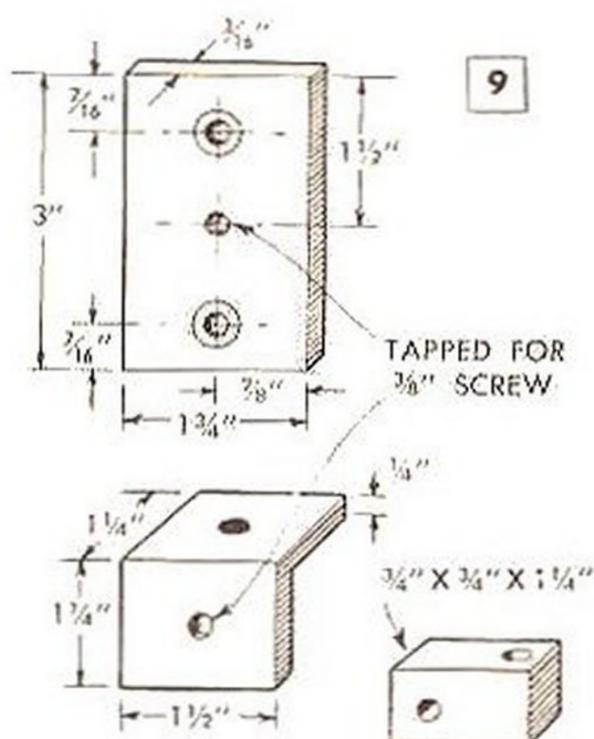
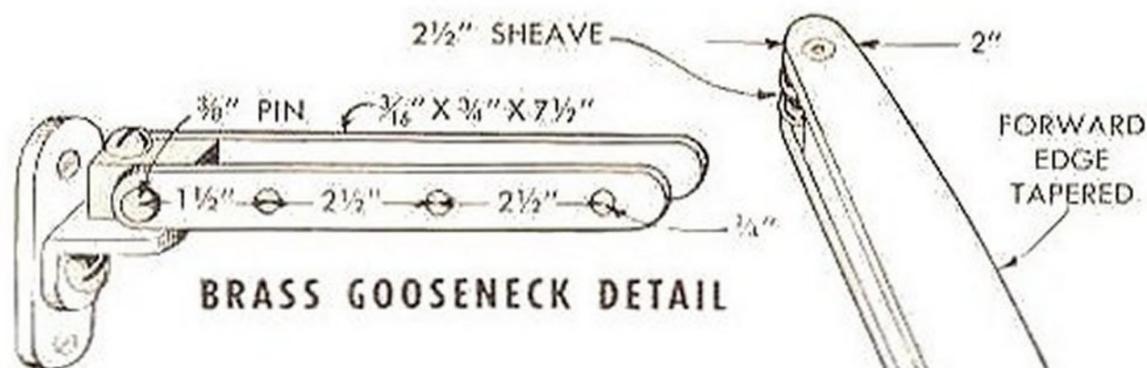
in Fig. 5. Special care must be taken to build a watertight joint around the lower opening of the well. Set all the joining parts in marine glue and be sure that all joints fit tightly. The copper sealing strip, Fig. 5, serves the dual purpose of providing a watertight seal at the joint and also protecting the wood against wear from the centerboard. Finish the hull by adding the oak transom, cockpit coaming, deck splashboards, mast step, Fig. 7, rudder and centerboard, Fig. 6, and the moldings and rub rails as shown in sections A-A, B-B and C-C, Fig. 5.

The mast, Fig. 11, is of box-section construction with filler blocks spaced as indicated. Sides of the mast are faced with $\frac{3}{8}$ -in.-thick stock, which is applied with cold resin glue. The mast has a 6-in. rake aft from a point 16 ft. above the deck. Figs. 8 and 10 show the method of attaching the mast stays to the mast and to the deck tangs. Fig. 9 details the gooseneck which carries the boom. To anchor each stay to the tangs, first insert the end through the hole in the tang and seize it tightly, using several turns of No. 16-ga. copper wire at a point about $1\frac{1}{2}$ in. from the end, as in

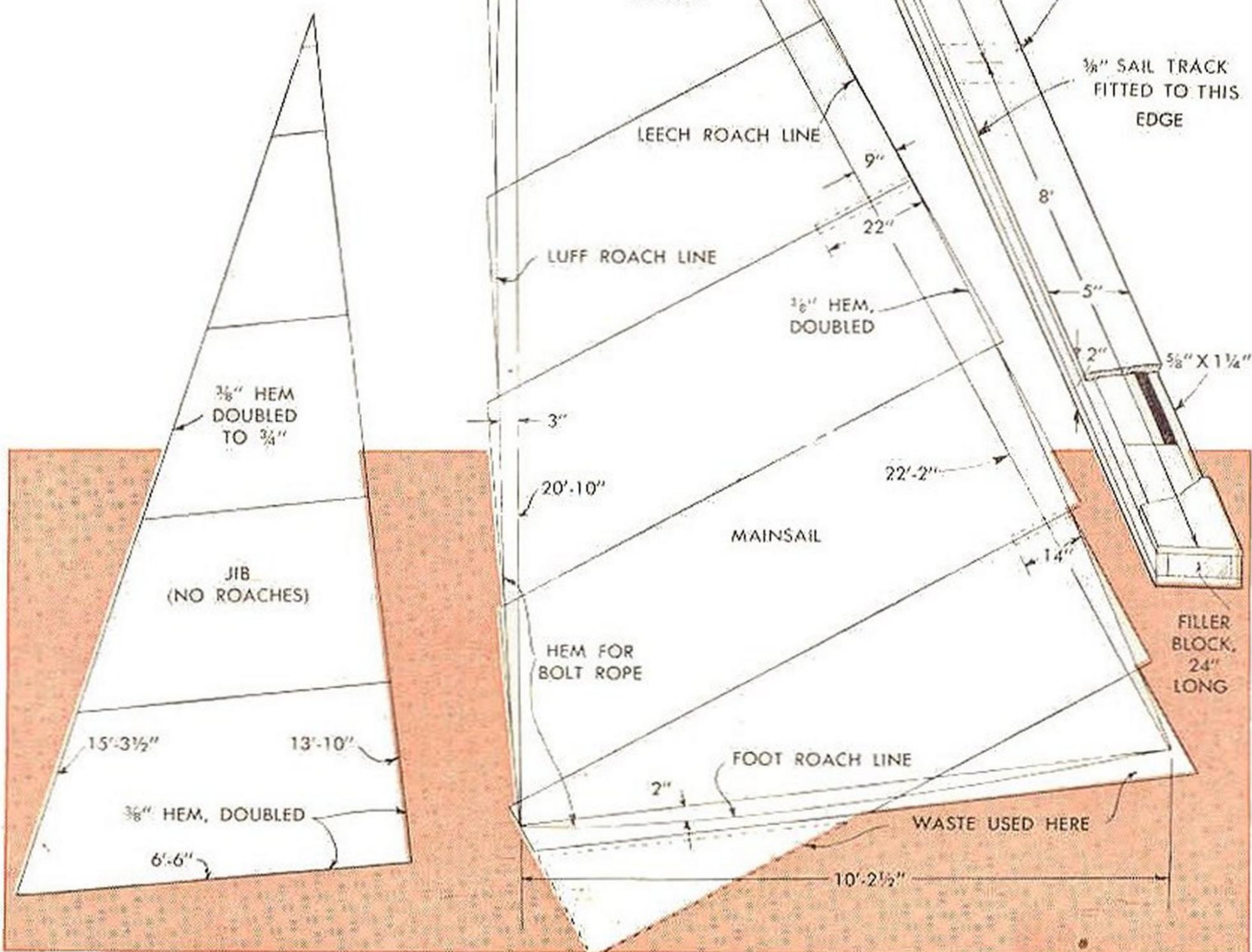


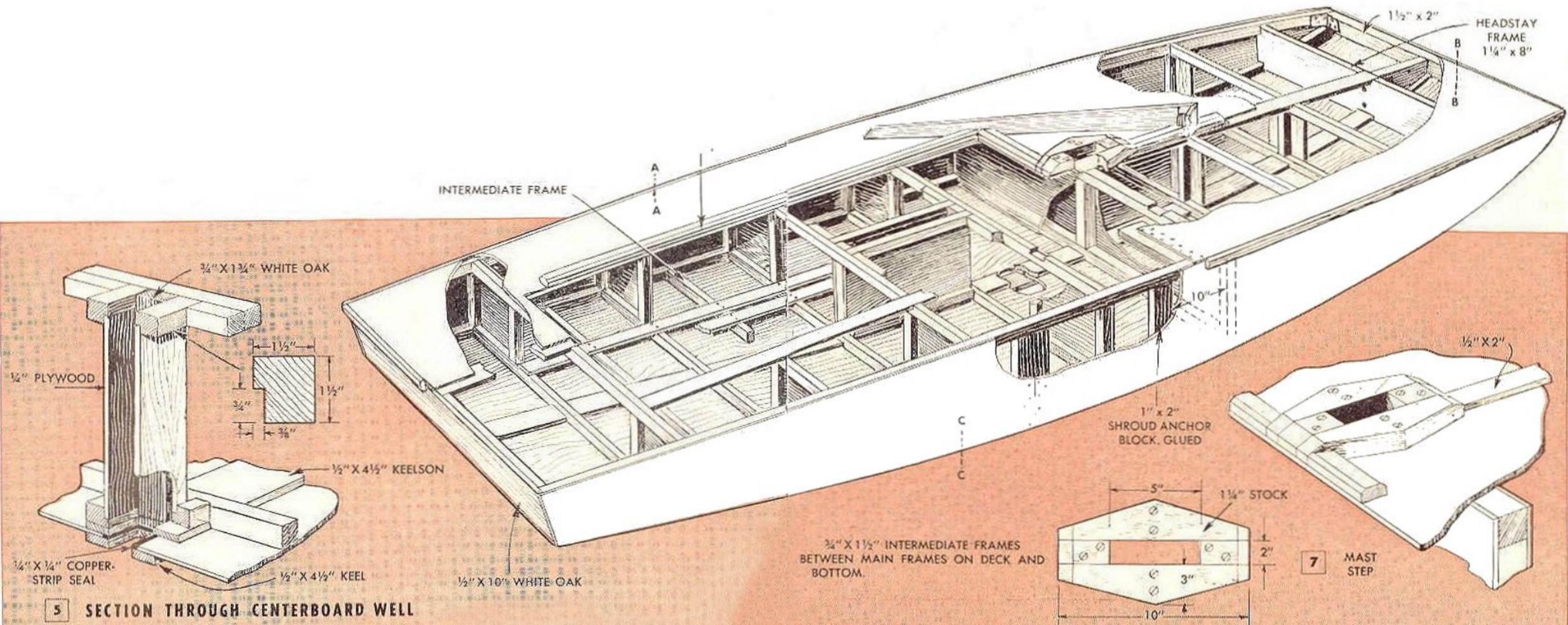


detail A. Next, the strands of the stay are raveled down to the seizing, as in detail B, and brought down over the seizing to form a knob considerably larger than the hole in the tang. Then the raveled ends are passed through the hole in the tang and finally seized to the stay by wrapping the strands with serving wire, as in detail C. A drop of solder will prevent the servings from loosening. Over-all dimensions for the jib and mainsail are given in Fig. 11. These require 22 yds. of 36-in., 4-oz. sail cloth and about 100 ft. of $\frac{5}{16}$ -in. Manila rope. Unless funds are strictly limited, it's best to have the sails made by an experienced sailmaker as, above all, you'll want them to be the best part of the boat.



11 MAST AND SAIL DETAILS





5 SECTION THROUGH CENTERBOARD WELL