

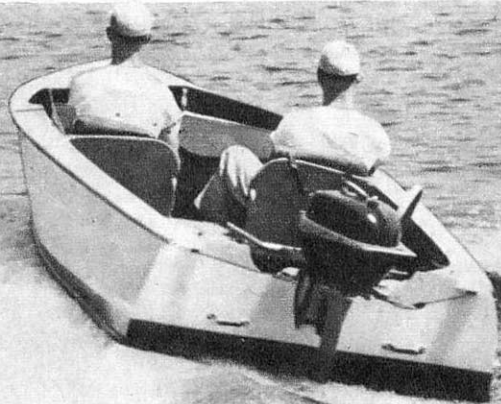
how to build **MERRY MAID**

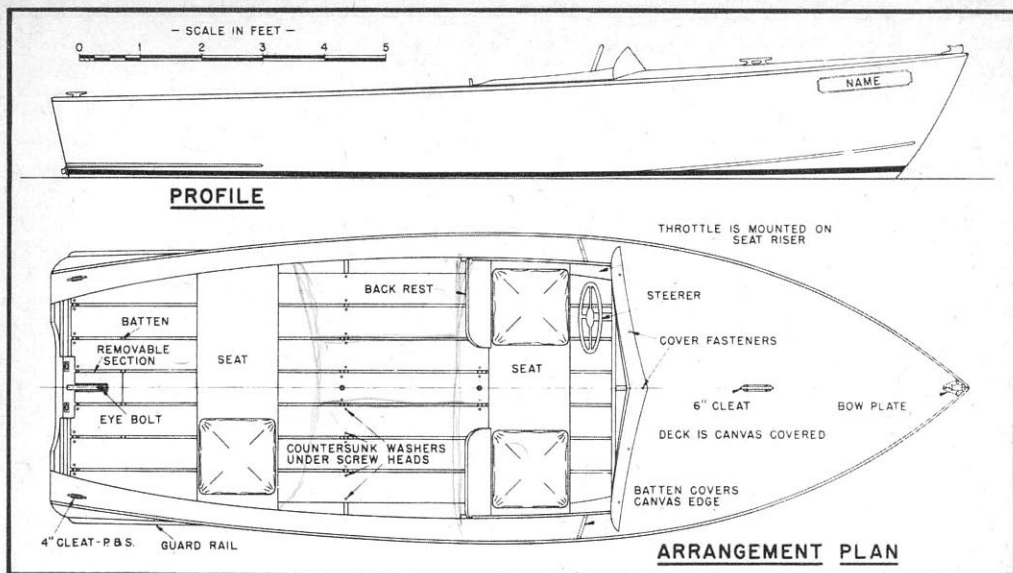
*Plywood 15-ft. runabout. Displacement: 910 lbs.
Beam: 5 ft. For 10 to 16-hp. motors. Speed: 20 mph.*

By Charles M. Ungerbuehler, Yacht Designer

MERRY Maid was designed for the man who desires a roomy little runabout capable of good speed and having rough-water ability. With her graceful, sweeping sheer, she is a saucy little packet. She has completely pleased her original owner and may interest those of you who desire an inexpensive, easily built boat.

Powered with a Mercury Super Ten and carrying two passengers, the prototype ran from Seaford, Del., to Nanticoke, Md., and return, a distance of approximately 80 miles, in 4 hours and 15 minutes without ever having had the motor wide open. Under way, *Merry Maid* runs cleanly at either high or low





speed, banks beautifully, and has sufficient stability, despite her light weight, to allowing a couple of passengers to sit on the side decking without fear of being tossed overboard. The boat is large enough so the passengers sit down in it rather than on it.

Now let's get on with the construction. First there is a job you must do and do right. This is laying down the lines full size. The time spent doing this job will be well repaid later on.

On edge-butteted sheets of Beaverboard, strike in a straight line. This serves as the base for the profile and the center line for the plan, one drawing being superimposed on the other. Draw each section on a separate piece of heavy paper. The frames will be made up directly on these section drawings, so draw in all construction on each.

The boat can be built over a rigidly braced form cut to the shape of the top edge of the keel batten and notched for the frames at the proper intervals. Or it can be built by extending the side frames to the inverted building base line. In either case, be sure that the base you build from is straight and perfectly level and that all the frames with the exception of the transom stand perfectly plumb to this base at the proper spacing. A spreader should be fastened to the head of each frame at the sheer as it is made and marked with a center line. These center-line marks must all line up after the frames are erected on the keel batten.

Specifications and Instructions

Keel. White oak, $\frac{3}{4} \times 2$ in.

Keel Batten. White oak, $1 \times 3\frac{1}{2}$ in. Fasten to keel with $1\frac{1}{2}$ -in. No. 8 screws on 4-in. centers.

Stem. White oak, 2 in. thick, molded as shown.

Stem Knee. White oak, 2 in. thick, molded as shown.

Lower Stem. White oak, 2 in. thick, molded as shown. Secure stem, stem knee, and lower stem together with six $\frac{1}{4}$ -in. carriage bolts. Fasten to keel assembly with three $\frac{1}{4}$ -in. carriage bolts. Set bolt heads in counterbores and plug them. Install three white-pine stopwaters, as shown, in the joints where they pass the rabbet. Fit cheek pieces to bolster out the back rabbets to take the planking. These are shown in a detail.

Floor Timbers. White oak, $\frac{3}{4} \times 2$ in. above top of keel batten. To be 16 in. long in after frames. Forward, the lengths must reduce because of the angle of the bottom. Secure each timber to the keel batten with one $\frac{1}{4}$ -in. carriage bolt.

Bottom Frames. White oak, $\frac{3}{4}$ in. thick, 2 in. wide at keel, $2\frac{1}{4}$ in. wide at chine. Fasten each to its floor timber with six $\frac{1}{4}$ -in. machine bolts with washers under both heads and nuts. Fasten each to the keel batten with two $1\frac{1}{2}$ -in. screws. Cut limber holes, 1 in. in diameter, in the bottom frames and floor timbers as shown.

Side Frames. White oak, $\frac{3}{4}$ in. thick, 2 in. wide at head, $2\frac{1}{4}$ in. wide at heel. Secure

each side frame to its bottom frame with two 1/4-in. machine bolts with washers under both heads and nuts.

Chines. White oak, 3/4x1 3/4 in., notched into side frames and transom frame and boxed into stem. Fasten with one 1 3/4-in. screw at each joint.

Stringers and Sheer Battens. White oak, 1/2x1 1/2 in., notched into side frames and transom frame and boxed into stem. Note that bottom stringers end at frame No. 5. Secure with one 1 1/4-in. No. 10 screw at each joint.

Transom. Of 3/4-in. plywood. Fit framing, motor board, and cleats as shown. Add plywood gussets at the chines. The fastenings are 1 1/4-in. No. 10 screws. Secure transom to keel assembly with a knee that is securely bolted in place.

Side Planking. Of 1/4-in. plywood. A 4x16-ft. panel when ripped diagonally will plank both sides. From 12 in. aft of frame No. 5 to the stem, the bottom planking does not lap the side planking, but butts against it. Clamp the side planking in place, mark at sheer and chine, remove, and rough cut. Carefully prepare for the butt joint mentioned above. Coat all faying surfaces with glue and fasten the planking in place, using 3/4-in. screws on 2-in. centers into the frames, chines, and stem and 5/8-in. screws on 3-in. centers into the stringers. There should be a double row of fastenings at the transom. Carefully trim along the chines from 12 in. aft of frame No. 5 to the stern to take the bottom planking.

Bottom Planking. Of 1/4-in. plywood. Apply and fasten in same manner as side planking. Slightly countersink all fastenings in side and bottom planking, fill with a putty such as Duratite, and sand smooth.

Chine Caps. White oak, 1/4x1 in., glued and screwed to corners of chines to cover planking joints. Bevel top edges and fair bottom edges flush with bottom planking. Do not round off aft of frame No. 3 or speed will be reduced. The boat is now ready to be turned over.

Deck Beams. White oak, 3/4 in. thick, 2 in. wide after cutting to radii sufficient to

give the desired rise. Fasten each to the head of each frame with two 1 1/4-in. No. 10 screws. Fasten intermediate beams to short sections of framing that are secured to sheer battens and planking. Gradually diminish the cambers of the short side beams as you work aft so the side decking will properly fair into the transom top.

Dash. Mahogany, 3/4 in. thick. Fasten to deck beam No. 4.

Breasthook and Knees. White oak, 1 in. thick. Secure at stem, dash, and transom with 1 1/2-in. No. 10 screws.

Carlings. White oak, 3/4x1 1/4 in., fastened to knees and beams with 1 1/2-in. No. 10 screws.

Fairleads. Pieces of copper tubing, 1/2 in. in diameter, set in suitable holes bored in the side frames, flared both ends. Line them up to allow the steering cable to run in as straight a line as possible. Install housed sheaves at the transom to allow the cable to make the turns to the motor arms.

Deck Partner. White oak, 5/8x3 in. Let into deck beams, box into breasthook, and secure at each joint with two 1 1/4-in. No. 8 screws.

Coamings. Plywood, 1/4x3 in. Run from transom to dash and secure to carlings with 3/4-in. screws.

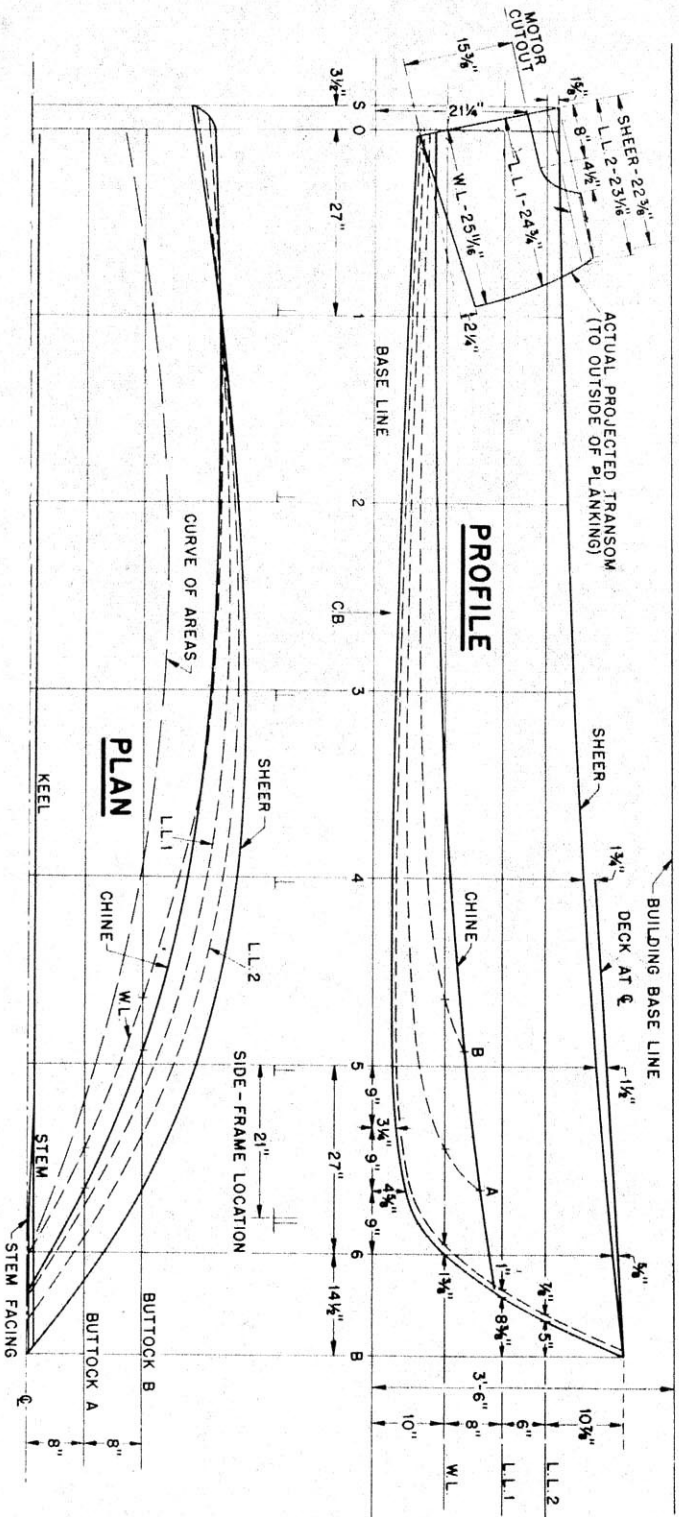
Decking and Planksheers. Of 1/4-in. plywood. Deck can be in two pieces joined at the partner. Planksheers butt against deck at the dash. Secure to beams with 3/4-in. screws on 4-in. centers. Round off inner edges of planksheers except in way of the cockpit facings.

Deck Covering. Of 8-oz. canvas, in one piece, cemented to deck. Turn edges down over dash and sheer and secure with closely spaced copper nails. Cover edges of canvas on the planksheers with small battens, as shown. After laying, apply one thin coat of canvas cement and two thin coats of marine paint. Be sure that all deck fastenings are puttied before canvas is laid.

Cockpit Facing and Splash Board. Mahogany, 1/2 in. thick, shaped as shown. Secure face pieces through coamings into carlings with 1-in. screws, counterboring

At rest, Merry Maid floats on an even keel with the outboard in place and two passengers aboard.





CHARACTERISTICS

LENGTH OVER ALL _____ 15'-0"
 LENGTH ON WATER LINE _____ 13'-6"
 BEAM _____ 5'-0" DRAFT _____ 7"
 DISPLACEMENT _____ 910 POUNDS
 CENTER OF BUOYANCY _____ 11" AFT OF STA 3
 BLOCK COEFFICIENT _____ 43 %
 PRISMATIC COEFFICIENT _____ 76 %
 FINENESS COEFFICIENT _____ 79 %
 MOMENT TO TRIM 1" _____ 75 FOOT-POUNDS
 POUNDS PER INCH IMMERSION _____ 244 POUNDS
 AFTER-BODY DIHEDRAL _____ 170 DEGREES
 RECOMMENDED POWER _____ 10 TO 16 H.P.
 HULL WEIGHT _____ 275 POUNDS

BODY PLAN

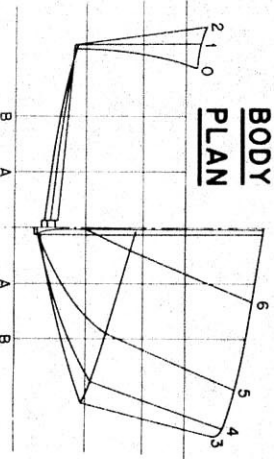
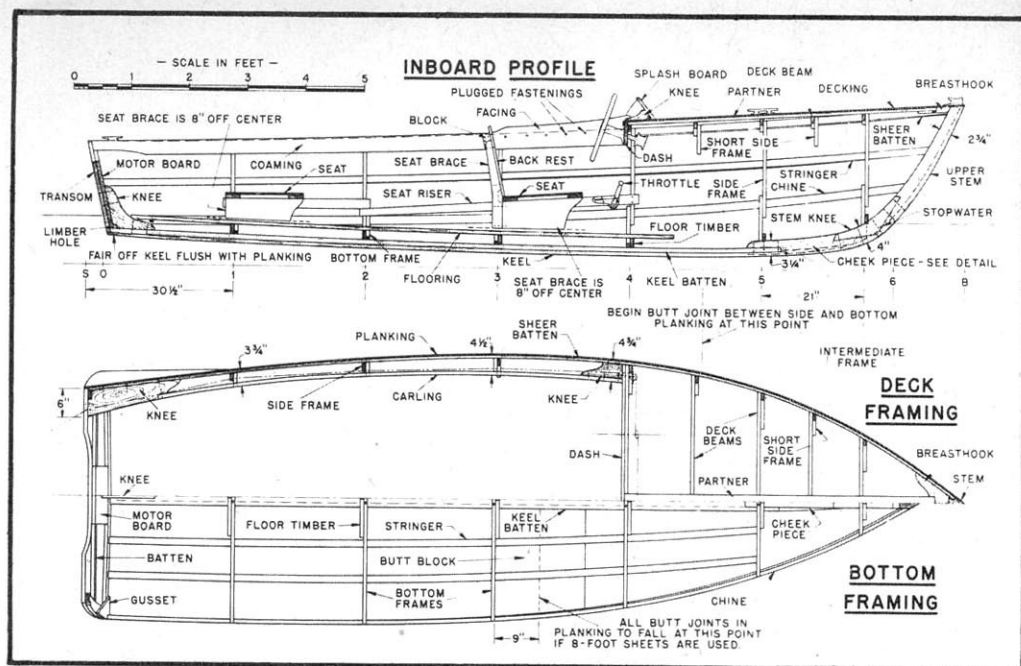


TABLE OF OFFSETS

DIMENSIONS GIVEN IN FEET, INCHES, AND SIXTEENTHS OF INCHES TO OUTSIDE OF PLANKING

STATION	0	1	2	3	4	5	6	
KEEL	0-5-12	0-4-11	0-3-13	0-3-2	0-2-13	0-2-13		
FAIRBODY	0-6-4	0-5-3	0-4-5	0-3-10	0-3-5	0-3-5		
CHINE	0-8-7	0-8-7	0-8-11	0-9-6	0-10-12	1-0-14	1-4-4	
SHEER	2-1-11	2-2-3	2-3-0	2-4-0	2-5-6	2-7-1	2-9-6	
BUTTOCK A	0-6-14	0-5-14	0-5-2	0-4-11	0-4-15	0-6-8		
BUTTOCK B	0-7-9	0-6-14	0-6-6	0-6-10	0-7-10			
FAIRBODY	0-1-0	STRAIGHT LINE					0-1-0	
CHINE	2-1-12	2-2-6	2-2-5	2-1-4	1-10-3	1-3-5	0-3-6	
W.L.	2-1-11						2-0-15	
L.L. 1	2-1-11						2-0-15	
L.L. 2	1-11-8						1-11-8	
SHEER	1-10-14	2-2-8	2-5-0	2-6-1	2-5-1	1-11-8	0-10-12	

LINES AND OFFSETS



and bunging with mahogany plugs. Slope the after ends and add blocks to provide slots for the seat backs. Support the splash board with a knee and deck battens and screw it to the ends of the face pieces.

Flooring. White pine, $\frac{3}{4}$ x6 in. Fasten to frames and floor timbers with $1\frac{1}{2}$ -in. No. 8

screws over brass countersunk washers. Provide a removable section at the stern, as shown.

Seat Risers. White pine, $\frac{3}{4}$ x2 in. Box into frames and fasten with two $1\frac{1}{2}$ -in. No. 10 screws at each joint.

Seats. Of $\frac{1}{4}$ -in. plywood, framed up as

BILL OF MATERIALS

(Approximate Quantities Required)

Specify that all materials are to be used for boatbuilding. All plywood is to be exterior grade. All wood is to be air-dried to a maximum of 15 per cent moisture content. All hardwood is to consist of first, second, and select grades only. All softwood is to consist of A and B grades only.

Flywood

3 panels, $\frac{1}{4}$ " x 4'-0" x 16'-0" or 6 panels, $\frac{1}{4}$ " x 4'-0" x 8'-0"
1 panel, $\frac{1}{2}$ " x 18" x 3'-0"
1 panel, $\frac{3}{4}$ " x 24" x 5'-0"

White Oak

2 pieces, S45 $\frac{1}{4}$ " x 1", 16'-0" long
8 pieces, S45 $\frac{1}{2}$ " x $1\frac{1}{2}$ ", 16'-0" long
1 piece, S45 $\frac{5}{8}$ " x 3", 6'-0" long
2 pieces, S45 $\frac{3}{4}$ " x $1\frac{1}{4}$ ", 9'-0" long
2 pieces, S45 $\frac{3}{4}$ " x $1\frac{3}{4}$ ", 16'-0" long
1 piece, S45 $\frac{3}{4}$ " x 2", 12'-0" long
45 sq. ft., S25 $\frac{3}{4}$ ", random widths and lengths
1 piece, S45 1" x $3\frac{1}{2}$ ", 12'-0" long
1 piece, S25 1", 8" wide, 3'-0" long
1 piece, S25 2", 6" wide, 6'-0" long

Mahogany

1 piece, S25 $\frac{1}{2}$ ", 6" wide, 12'-0" long
1 piece, S25 $\frac{3}{4}$ ", 6" wide, 6'-0" long
2 pieces, 1" half-round, 16'-0" long

White Pine

1 piece, $\frac{1}{2}$ " doweling, 12" long
8 pieces, S25 $\frac{3}{4}$ ", 6" wide, 10'-0" long

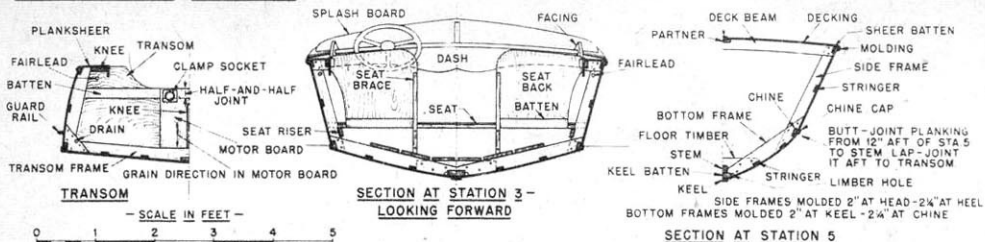
Fastenings

60 bronze or brass $\frac{1}{4}$ " x 2" machine bolts
8 bronze or brass $\frac{1}{4}$ " x 3" carriage bolts
8 bronze or brass $\frac{1}{4}$ " x 4" carriage bolts
76 nuts for above
136 washers for above
4 gross $\frac{5}{8}$ " No. 6 flathead wood screws, brass or bronze
8 gross $\frac{3}{4}$ " No. 7 flathead wood screws, brass or bronze
2 gross 1" No. 8 flathead woodscrews, brass or bronze
5 dozen $1\frac{1}{4}$ " No. 8 flathead wood screws, brass or bronze
1 gross $1\frac{1}{4}$ " No. 10 flathead wood screws, brass or bronze
1 gross $1\frac{1}{2}$ " No. 8 flathead wood screws, brass or bronze
8 dozen $1\frac{1}{2}$ " No. 10 flathead wood screws, brass or bronze
3 dozen $1\frac{3}{4}$ " No. 10 flathead wood screws, brass or bronze
 $\frac{1}{2}$ pound $\frac{3}{4}$ " copper nails
7 dozen No. 8 countersunk brass washers

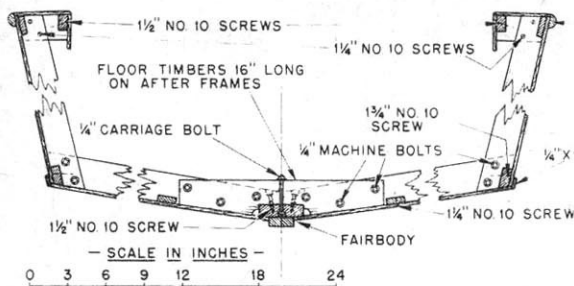
Miscellaneous

5 dozen $\frac{3}{8}$ " mahogany plugs
36 sq. ft. 8-oz. canvas
1 piece, $\frac{1}{2}$ " copper tubing, 24" long
1 piece, $\frac{1}{2}$ " brass stem band, 6'-0" long
1 quart liquid marine glue
 $\frac{1}{2}$ pint Cascophen glue, with catalyst
 $\frac{1}{2}$ pint Duratite putty
1 pint canvas cement
2 quarts plywood sealer, Firzite or equal
4 quarts marine paint in desired colors
2 quarts marine hard antifouling bottom paint
 $\frac{1}{4}$ pint boottopping paint

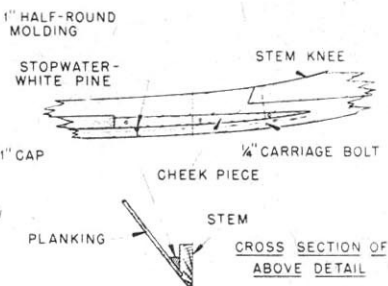
CONSTRUCTION SECTIONS



FRAME-AND-FASTENING DETAIL



STEM DETAIL



shown. Fasten seats to frames with glue and copper nails. Secure to risers with $1\frac{1}{2}$ -in. No. 10 screws. Provide braces to flooring of $\frac{3}{4}$ -in. white pine and braces to backs of $\frac{3}{4}$ -in. white oak.

Seat Backs. Of $\frac{1}{2}$ -in. plywood.

Moldings. Mahogany 1-in. half-round. Secure to sheer with closely spaced 1-in. screws. Fit light moldings at the junctions of cockpit facings and planksheers, fastening them in place with brass escutcheon pins.

Guard Rails. White oak, $\frac{3}{4}\times 1$ in. Fasten with screws into frames and with screws through planking into rails. Taper forward end and bevel upper and lower sides.

Paint. Prime all plywood with one coat of plywood sealer such as Firzite. Apply two coats of marine paint to interior, a prime coat and three coats of marine paint to topsides, and three coats of hard anti-fouling marine paint to bottom.

Merry Maid is light and small enough so she can be carried to the water on a two-wheel trailer.

Hardware. One No. 4 Whitkum steerer (Whitkum Co., Springfield, Mass.), one No. 9 Whitkum throttle, one $\frac{3}{8}$ -in. shoulder eye bolt, two bronze motor-clamp screw sockets, two $1\frac{1}{2}$ -in. swivel blocks, two housed fairlead blocks, 10 ft. of bronze Bowden wire and 28 ft. of $\frac{3}{16}$ -in. bronze-center tiller rope.

Equipment. One $4\frac{1}{2}$ -lb. Danforth anchor, 50 ft. of $\frac{3}{8}$ -in. anchor line, 25 ft. of $\frac{1}{4}$ -in. warp line, one bouyant-cushion life preserver for each passenger, and a canvas cover for the entire cockpit and motor. •

LARGE-SCALE PLANS

will greatly simplify construction. Send \$2.50 to MECHANIX ILLUSTRATED Plans Service, Fawcett Building, Greenwich, Conn. Please specify Plan No. B-198.

Under way, she trims nicely. Note that the wake is thrown well outboard so passengers stay dry.



