

This is the cruiser built by F. O. Gottschalk of Columbus, Nebr., from the plans and instructions given in this article. He made a few minor changes such as adding a ladder to the top of the cabin and a canopy.

## "SPORTSMAN" Building an 18-Foot Cruiser

### Craft Print Project No. 78

**USES:** Adapted to any waters anywhere. Fast, stable and seaworthy. General purpose cruiser for overnight cruises with added convenience of in-board motors. For in-board motors 15 to 90 hp. speeds 10 to 40 mph.

**LENGTH:** 18 ft. 9 in.

**BEAM:** 6 ft.

**DEPTH:** 3 ft. 6 in.

**WEIGHT Complete:** 1700 lbs.

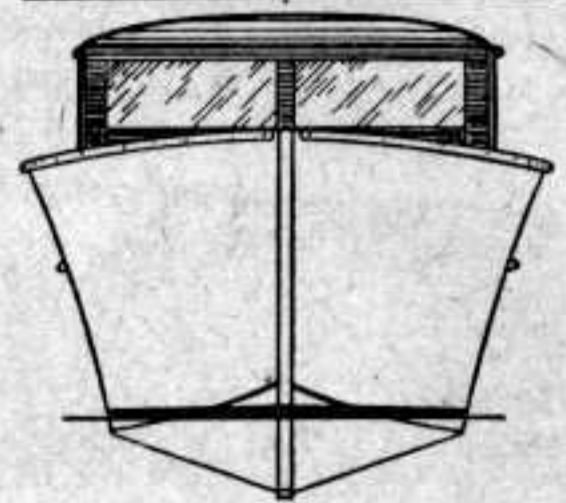
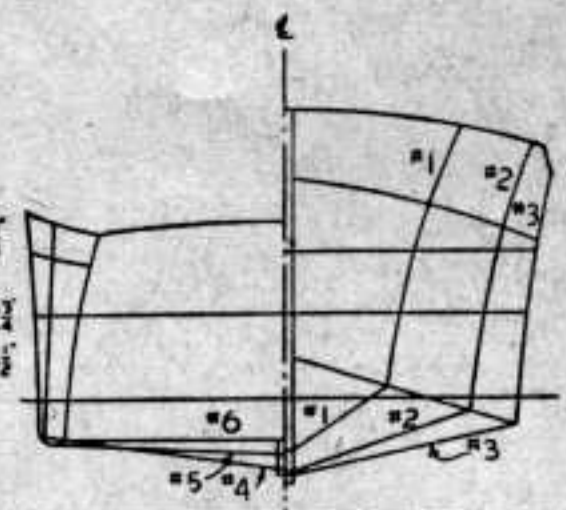
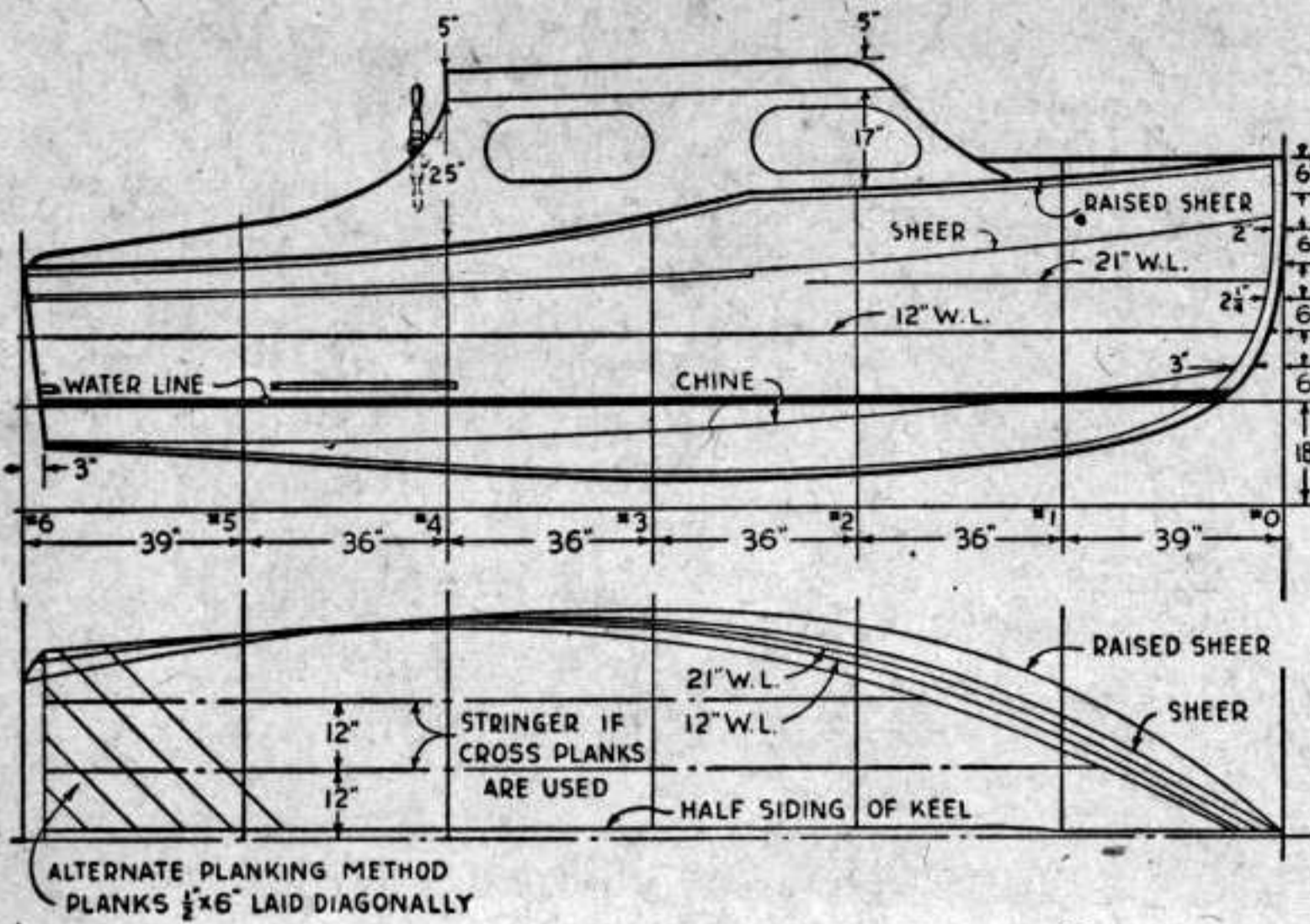
**SEATING CAPACITY:** 4 persons.

**CONSTRUCTION:** Sawed wood frames, carvel batten planked sides, lapped bottom.

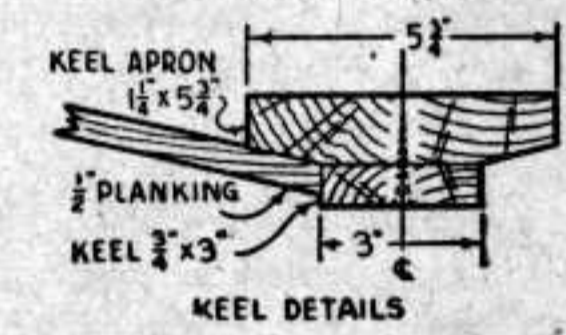
**TYPE:** Semi Vee bottom, planing type cruiser.

"SPORTSMAN" is a unique cruisette having a combination of runabout and cruiser features, but is well adapted for day cruising or short trips almost anywhere. Its closest approach in a similar craft ashore is the house trailer, but unlike this mode of travel, "Sportsman" is a self-contained, seaworthy, open-water craft for week-end cruises or short overnight fishing trips that will accommodate a pal or the "missus." It may be transported by trailer wherever desir-

Parts	Pieces	Finished Dimensions
<b>Planking</b>		
Side Strakes .....	12	8" to 10" widths
Bottom Strakes .....	10	8" widths
All Planking to be 1/2" thick, free from imperfections, although a few knots less than 1 1/2 in diameter are permissible. Alternate planks may be butted and short lengths used. Use 3/4" butt blocks.		
Kind of wood: Mahogany, cedar, cypress, white pine, or fir.		
<b>Keels</b>		
Keel .....	1	3/4" x 3" x 16' (Oak)
Keel Apron .....	1	1 1/4" x 5 3/4" x 16'
Chines .....	2	3/4" x 2 1/2" x 18'
<b>Clamps</b>		
Sheer Clamp .....	2	1/2" x 2" x 20'
Beam Clamp .....	2	3/4" x 2" x 20'
Battens .....	10	1/2" x 1 3/4" (to follow planking)
<b>Frames</b>		
Bottom .....	4	3/4" x 3 3/4" x 12'
Sides .....	4	3/4" x 3 1/2" x 12'
Floors .....	1	3/4" x 6" x 12'
Intermediate Frames .....		3/4" x 2" (to fit position)
Kinds of wood: Oak, fir, or yellow pine.		
<b>Decking</b>		
Fore and Aft .....	1	3/8" x 3" T. & G. Canvas Covered, or 5/16" Thickness Resin Bonded Marine Plywood, Canvas Covered
Roofing .....	2-4' x 8'	1/4" Resin Bonded Marine Plywood
Cabin Beams .....	12	3/4" x 2" x 6'
Sheer Moulding .....	2-19'	1 1/4" Half Round Moulding
Cabin Sides and Ends 1-4' x 8'		1/2" Mahogany, 3/4" Redwood, or 3/8" Resin Bonded Marine Plywood
Deck Beams .....	2	3/4" x 12" (to fit position) (Oak, fir, or yellow pine)
Stem .....	1	2 1/2" x 8" x 4' (Oak)
To be sawed to shape and jointed as shown.		
Transom .....	3	1 1/4" x 12" x 6' (Mahogany, fir)
Cabin Carlins .....	2	3/4" x 2" x 7' (Fir, spruce, or yellow pine)
Cabin Coaming .....	2	1/2" x 8" x 14' (Mahogany, white pine, spruce, fir)
Breast Hook .....	1	1 3/4" x 12" x 2' (Oak)
Floor Beams .....	12	3/4" x 2 1/2" (to fit position) (Fir, spruce, yellow pine)
Flooring .....	To fit	5/16" Resin Bonded Marine Plywood



CUT NOTCHES ON EACH SIDE OF KEEL FOR LIMBER HOLES TO DRAIN



STATION	#0	#1	#2	#3	#4	#5	#6
HEIGHTS ABOVE BASE							
KEEL		0-9-7	0-6-4	0-6-0	0-7-2	0-9-4	0-11-2
CHINE	1-8-0	1-7-6	1-4-2	1-2-0	1-0-7	1-0-0	1-0-0
SHEER	4-2-1	3-9-5	3-6-6	3-4-5	3-3-2	3-2-3	3-1-6
RAISED SHEER	5-0-0	4-9-2	4-7-1	4-2-6	3-9-6	3-7-3	3-6-2
HALF BREADTHS							
RAISED SHEER	0-1-2	2-2-4	3-0-4	3-3-2	3-2-0	2-10-1	2-3-3
SHEER	0-1-2	1-9-3	2-8-6	3-1-3	3-1-5	2-10-3	2-5-0
21" W.L.	0-1-2	1-7-2	2-7-7	3-1-2	3-1-0	2-10-6	2-6-3
12" W.L.	0-1-2	1-5-1	2-5-6	3-0-3	3-1-4	2-11-2	2-8-0

OFFSETS GIVEN IN FEET, INCHES, AND EIGHTHS TO OUTSIDE OF PLANKING. LINES TO BE LAID DOWN FULL SIZE AND ALL MEASUREMENTS VERIFIED. HEIGHTS FROM BASE LINE - HALF BREADTHS FROM CENTERLINE.



DETAILS OF FRAME FLOOR

KEEL

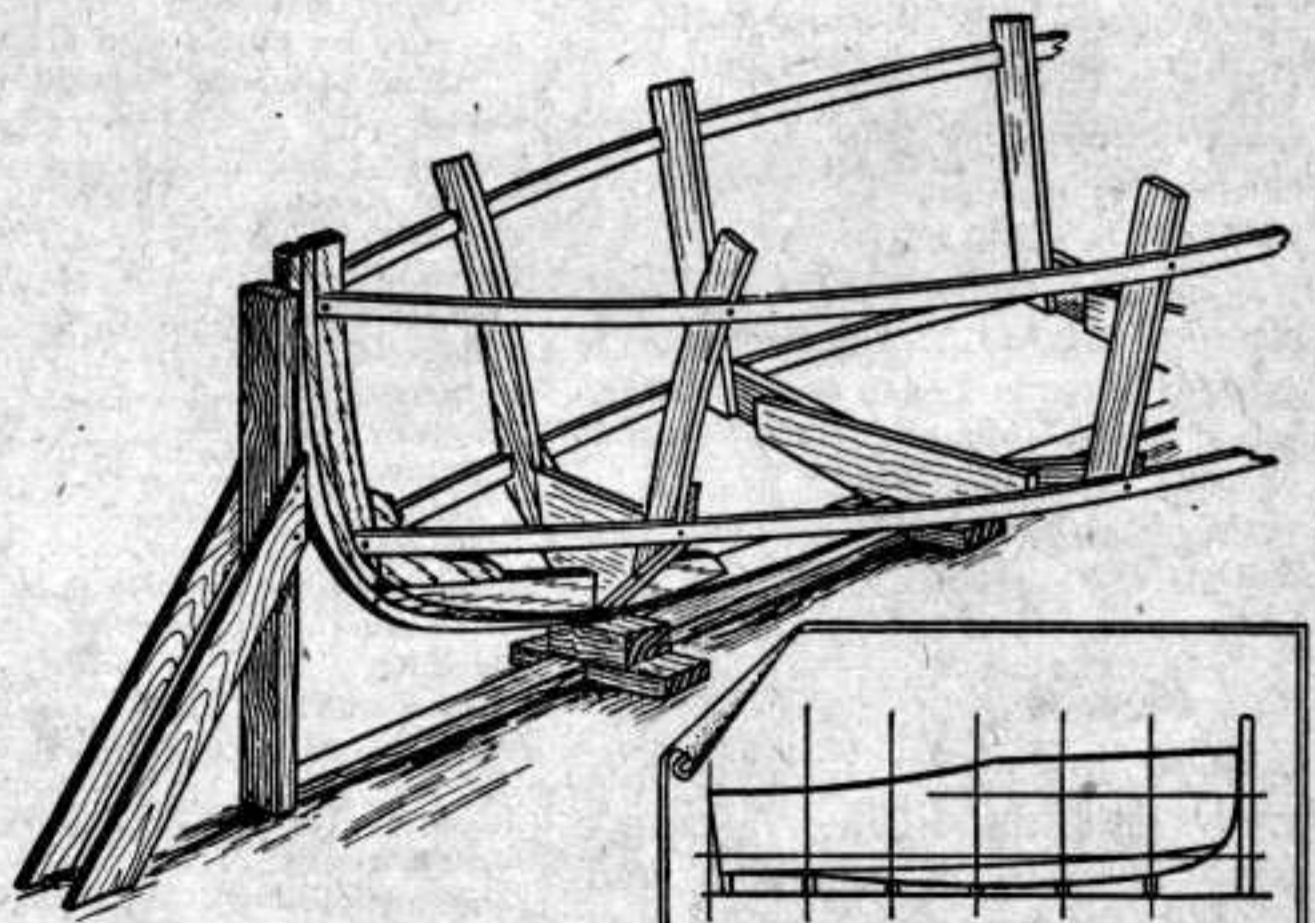
CHINE ATTACHES TO STEM BEHIND RABBET

KEEL DETAILS

able. Designed to be powered with high speed converted auto or marine engines from 15 to 90 hp., "Sportsman" will go places in a hurry and provide protection during inclement weather. It would be difficult to find a trimmer and more attractive cruiser.

Inexpensive and practical conversion kits are available for properly converting Ford Model A or V-8 engines to marine use. Such an engine should provide ample power for "Sportsman." Most of the lightweight marine types which are preferred by many will do the same. Whatever power is used will depend upon the builder's preferences. Other cruising conveniences may be built into the cabin as time and circumstances permit. However, the plans and instructions as given here should enable those who have already attained some mechanical skill to build a craft that will be a delight to construct and a pleasure to own.

All ordinary carpenter's tools and about a half dozen or more 6 or 8-inch "C" clamps will be necessary in the construction. To begin building "Sportsman" will require somewhat different



DETAIL OF FRAME SET-UP

procedure than the simpler boats, but this fact should cause no difficulties if each step is carefully performed.

The first item will be to draw the lines of this hull out full-size on large sheets of paper. The full-size layout will indicate any unfairness or uneven points, as a light batten sprung around all points of measurement will indicate any unfairness or lumpy spots, which are made uniform

and even. As the lines are drawn to the outside of planking, it will be necessary to deduct the thickness of planking from line measurements to indicate frame dimensions. This full-size layout not only affords a better understanding of the boat as a whole, but enables patterns to be made of all frames and stem. With the full-size paper patterns of frames and stem drawn from the corrected layout, lay the frame material upon the patterns so as to conform to outline, saw to shape, and reassemble frame parts on pattern, securing keel joint with a  $\frac{3}{4}$ " x 6" x 20" floor piece screw-fastened, while joints at chine are bolted together with carriage bolts. A coating of casein glue on all adjoining surfaces will not only waterproof but strengthen all joints. The intermediate frames are not inserted in construction until the hull has been planked.

The stem is built up as shown, joining the parts with a knee, the whole bolted together with  $\frac{1}{4}$ -inch carriage bolts, the heads being cut as shown and countersunk into stem. Coat stem joints with marine glue before fastening. If the rabbet in the stem presents difficulties, simply cut this rabbet about half the depth required, set up, and (with all frames in place) a batten the same thickness as planking will show the proper depth of rabbet at every point. Temporarily set all frames and the stem in place aligning as shown in the measurements on plan, bend a light batten around edges, mark on edges the correct bevel each must be cut, and trim edges accordingly.

The hull will be built right side up. Bolt the two keels to floors of frames at intervals indicated with  $\frac{1}{4}$ -inch carriage bolts, and using a level floor as a base line, measure up to each frame setting blocks at proper heights as given on line drawings. The frames should then be plumbed, aligned, and if possible the top sides of all frames nailed to rafters of building or other-

wise secured. Be careful about aligning and securing frames as the performance and appearance of the finished boat depends upon a perfectly aligned framework.

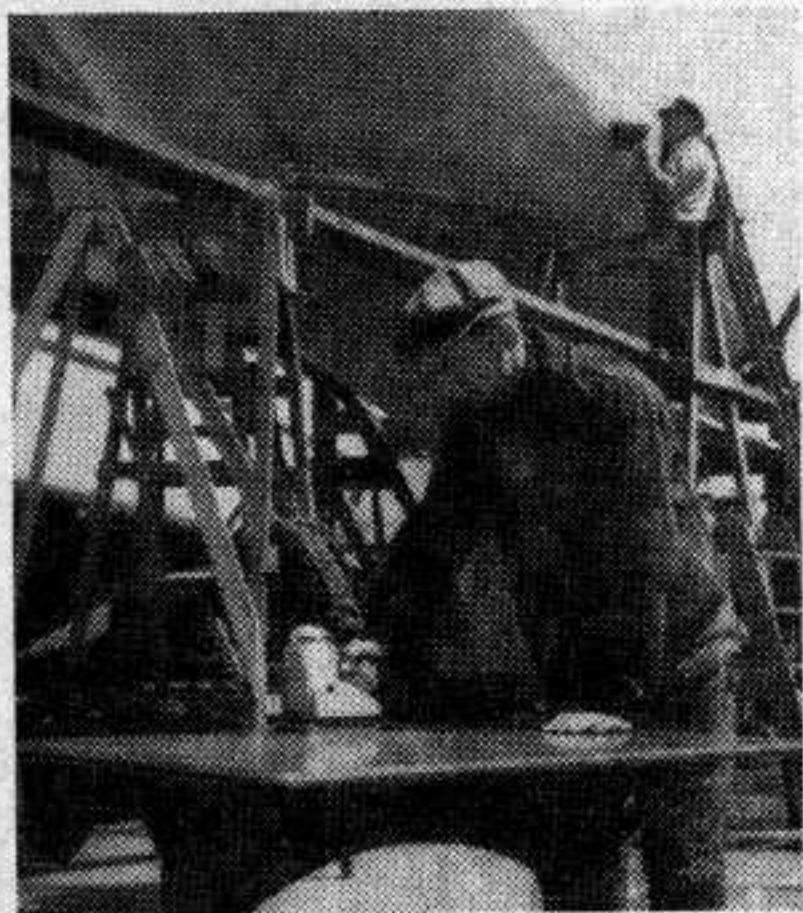
The chines are now bent in place, being secured with clamps and fastened to each frame with a  $2\frac{1}{2}$ " No. 10 f.h. screw. Cut chine ends to fit in transom frame only, fasten and bevel ends to fit against stem, just behind rabbet, fastening similarly.

The sides will be planked first, and for this purpose divide each side frame into five or six equal spaces as the case requires. These equally spaced marks are lined up and battens notched into frames so plank edge or joints come on center of batten. After the first plank next to the sheer has been attached, the shape of the remainder is found by bending a light plank about  $\frac{1}{4}$ " x 4" around hull, and measurements taken from it to plank edge. These measurements when transferred to plank material indicate the correct shaping of each plank. Drill lead holes for all fastenings and fasten planking to frames with  $1\frac{1}{4}$ " No. 8 f.h. screws and to battens with 1" No. 7 f.h. screws, spacing fastenings about two inches apart. Before attaching planking to chines, battens, stem and transom, coat it with marine glue, and lay strips of muslin upon coated area and fasten. There is no caulking in side planks but instead of butting planks tightly together, insert one or two strands of lamp wicking dipped in marine glue between all plank edges.

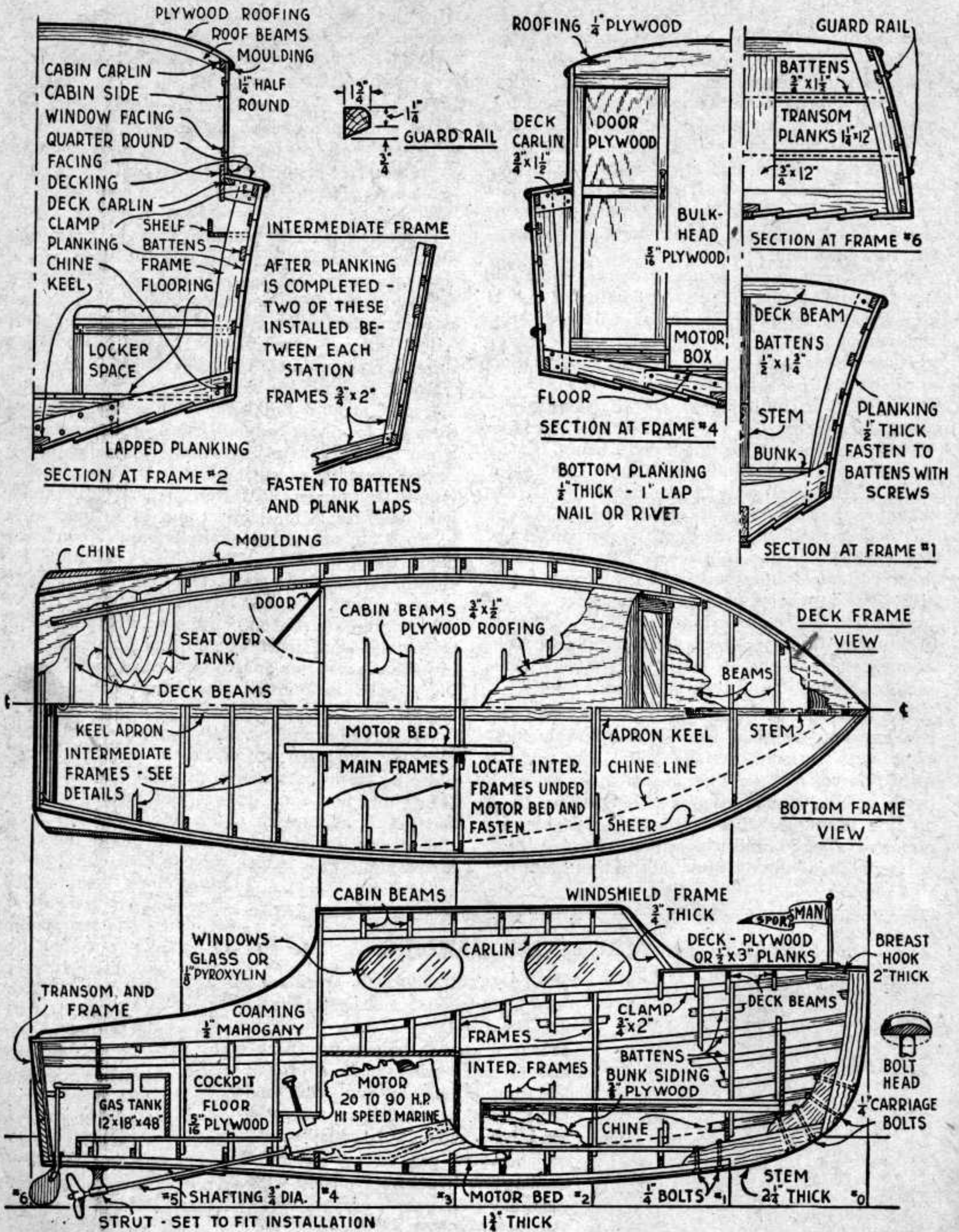
When ready to plank bottom, remove hull from blocking and turn upside down. As before divide the space between chines and keel at No. 4 frame into five equal spaces, but instead of batten seams here, each plank edge will lap over the edge of its neighbor one inch. Make the garboard plank first (plank next to keel) fitting one edge along keel while the outer edge is straight. The remainder of planks out to the chine will then run in straight lines. Each plank is notched into frame and fastened with  $1\frac{1}{4}$ " No. 8 f.h. screws spaced about two inches apart while the plank laps are fastened together with copper rivets or clinched wrought iron or copper nails. Before attaching coat all laps and adjoining surfaces with marine glue, lay thin muslin strips on coated area, coat again and fasten piece in place, wiping off excess glue with a gasoline soaked rag.

With hull planked,

## FOR FASTER AND BETTER SANDING



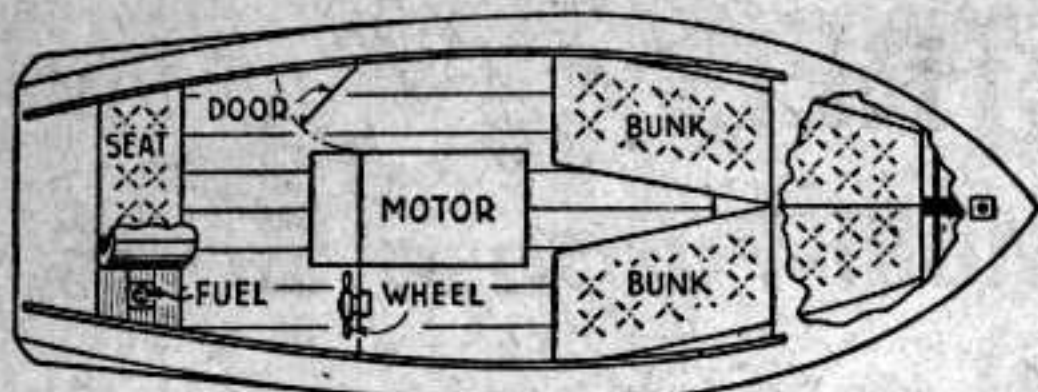
**O**LD-FASHIONED and expensive hand sanding methods are unnecessary when a new electric sander is used in boat construction, and in many other kinds of work too. It will "feather" spot jobs, remove paint or varnish or lacquer, sand bare surfaces, is suitable for scuff sanding and does a "block" sanding job free from scratches. It is sturdily built, easy to operate, uses standard abrasive paper, and runs on either A.C. or D.C. current. It can be used wherever there is an electrical connection. One hand can guide it in use. A 10-foot cord with a ground connection is included in the price.



turn it right side up and proceed to fasten the  $\frac{3}{4}$ " x 2" intermediate frames, two between every two main frames. Fasten with long screws through plank laps and battens. Joint at keel with  $\frac{3}{4}$ " x 3" x 18" strips screw-fastened.

The deck beams forward and aft should now be sawed to shape, being bolted or screw fastened

to frames. The side deck beams are next fastened in place, being merely  $\frac{3}{4}$ " x 3" straight pieces, bolted or screw-fastened to side frames. A  $\frac{3}{4}$ " x  $1\frac{1}{2}$ " deck carlin is notched into ends of side frames and after deck beams, and fastened with  $1\frac{1}{2}$ " No. 8 f.h. screws. To support all side beams and deck beams, a  $\frac{3}{4}$ " x 2" clamp piece



TOP VIEW OF CRUISER "SPORTSMAN"

is screw fastened just under each beam, fastening to frames.

The decking forward and aft may be either thin tongue and groove material, laid in white lead or better yet 5/16-inch Resin Bonded Marine plywood, covered with canvas, cemented in place. Canvas covering over plywood decks has many advantages, being both strong and watertight.

Building the cabin is the next step. The cabin sides may be either 1/2-inch thickness mahogany, 3/4-inch redwood, or 3/8-inch plywood—preferably one side mahogany. This is fastened as shown, the window openings cut, and sides braced until cabin beams are cut and fastened. First attach a 3/4" x 1 1/2" carlin below top of cabin side to support cabin beams and screw fasten the whole with 1 1/2" No. 8 f.h. screws. The cabin beams are cut not to a true circle but with a bulge towards the ends as shown. One beam will serve as a patten for the others. If this seems difficult, make the beams all to an even arc of a circle. The cabin top is 1/4-inch thick plywood screw-fastened in place and top covered with canvas cemented in place for a permanently waterproof job. The edges of canvas at side are covered with a small moulding.

The remainder of the work will depend upon the engine installed. The motor bed should be 1 3/4 inches thick however, notched into frames, and if possible, further strengthened with 2 x 4's bolted to both frames and bed.

The cabin ends, flooring, bunks and any other parts are best made from plywood as it adapts itself well to such construction, with little waste, is economical, and of great strength. Use the resin bonded waterproof variety.

Such parts as rudder, shafting, strut, stuffing box, are best purchased from any marine supply house. Buy to fit the motor installed.

The finish for "Sportsman" will depend upon materials used. However, there is nothing more attractive than a green bottom, red boot topping, white sides, buff decks and cabin top, with varnished cabin sides and trim work. Paint the inside three coats, and especially inside the cabin use a light color or white to aid visibility. Any part not mentioned in the article will be found indicated upon the plans and its attachment is obvious. If some point in the construction is not clear, drop a line to the editor. He will answer.

● Craft Print No. 78 in enlarged size for building the "Sportsman" is available at 25¢ each. Address Craft Print Dept. B-48, SCIENCE AND MECHANICS, 49 East Superior St., Chicago 11, Ill.

