SECTION II—*Cabin Cruisers*

SEA BABE

By WILLIAM D. JACKSON, N.A.

Craft Print Project No. 210

STATEMENT OF USES

USES: Sports cruiser for extended trips in protected waters, hauling water skiers or aquaplanes and trolling or deep-water fishing.
LENGTH: 15 ft.
BEAM: 6 ft. 4 in. over all.
DEPTH: Forward 33 in., Aft 21 in.
WEIGHT OF HULL: 450 lb.
CAPACITY: Sleeps two persons for overnight cruising or seats four persons.
CONSTRUCTION: 3/8-in. and 1/4-in. plywood over single-curved bottom.
SPEEDS: Evinrude or Johnson 25.....32 mph
Mercury 16 .....25 mph

CRUISING comfort plus runabout speed are packed into 15-ft. *Sea Babe*. For extended cruising along river and lake routes, winding through the many picturesque canal routes, or for short week-end hops that require frequent launching and beaching, you'll find *Sea Babe* easy to handle and economical to run. With the motor removed, she weighs only 450 lbs., and her 15-ft. hull handles easily on a 2-wheel trailer.

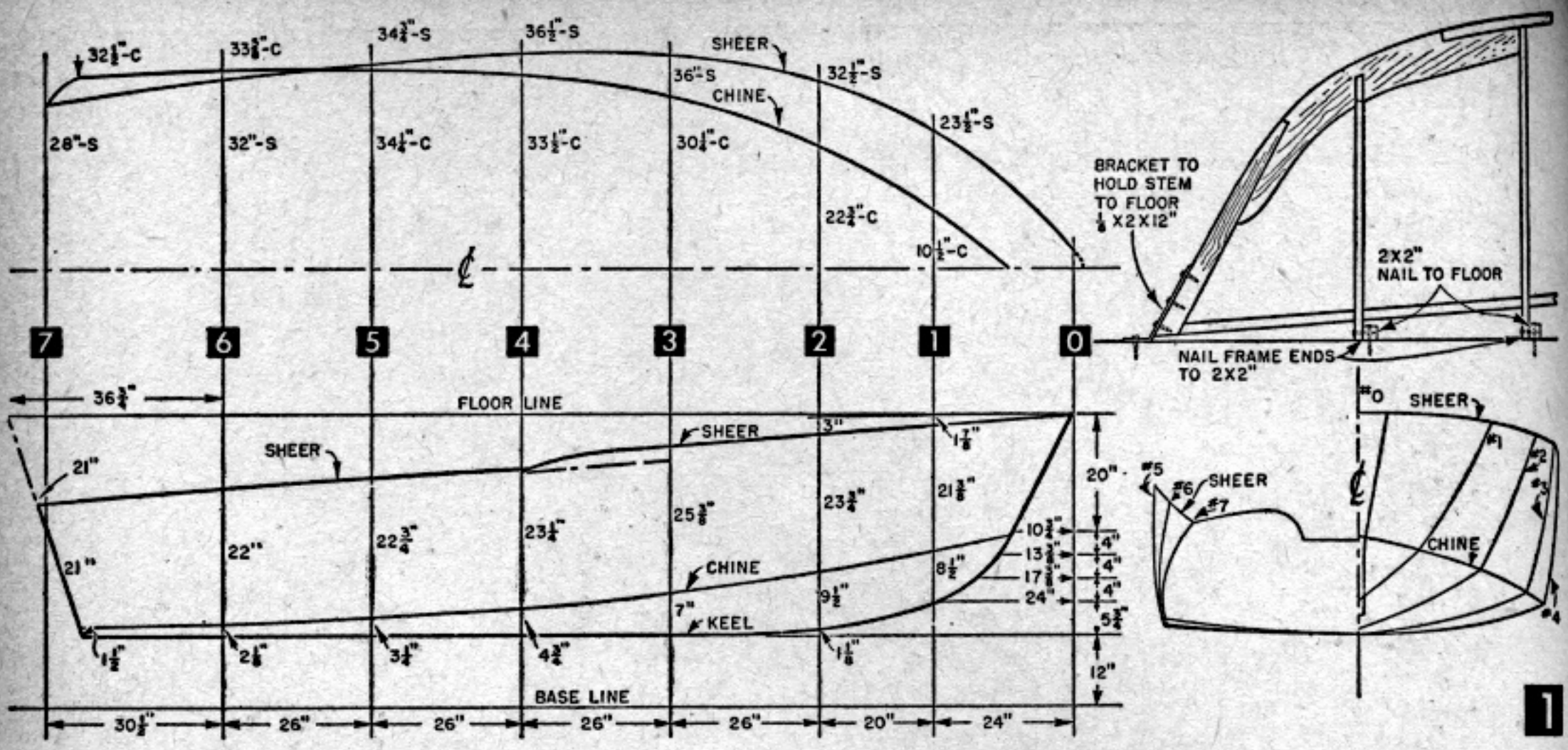
And performance! The light weight and the advanced design of the hull bottom practically eliminate power-wasting spray, and boost *Sea Babe's* speed 2-5 *mph* over most outboard cruisers powered by identical motors. Trussed keel construction builds in strength without weight. She rides softly and without pounding. With motor attached, she floats in only 2 in. of water.

The low silhouette and sporty lines make you think *Sea Babe* is bigger than her 15-ft. length. In the 7-ft. cockpit, there's plenty of room for fishing plus two chairs, one for the skipper. The simple framework and plywood planking make her easy to build, so let's get started.

Frames are oak between the chines with spruce, hemlock or fir (in that order of preference) above the chines. The heavier oak is used where extra strength is required, at keel joint out to chines. Lighter spruce from chines up, keeps total weight down and the center of gravity low without weakening construction. Since these frames form a developable bottom surface, don't attempt to lengthen the design—choose another boat instead. To lengthen a boat like *Sea Babe* requires a completely new set of drawings from stem to stern.

No building form is needed because *Sea Babe* is built upside down with extra length on the frames nailed to the floor at the proper frame spacing (Figs. 1 and 5). When the hull is finished and ready to turn over, simply saw frame extensions flush with sheer of hull.

Building the frames begins with laying them out full size on red rosin paper (available at your local lumber dealer) from the measurements shown in Fig. 1. Also lay out the stem (Fig. 2). Curves along bottom of frames #4 through #7 are true radii and must be drawn with a beam or trammel compass. Other bottom curves can be drawn with a batten. Either cut out these full-size patterns and mark around them or use a toothed wheel similar to a dressmaker's scriber



to transfer the outlines through the pattern onto the oak for bottom members or spruce for upper parts. Leave the extension on the side pieces for anchoring to floor. Mark the exact location of the sheer clamp on these side pieces.

The transom, or frame #7 (Fig. 3), is built up from a piece of ¾-in. plywood with ¾-in. oak frames glued and screwed to it. Place a ¾-in. plywood spacer between the oak frame at center of transom (Fig. 7) and cover with motor support plate made of ⅜-in. plywood (Fig. 4A). Any of the following glues can be used where glue is called for in construction: *Elmer's Waterproof, Penacolite G-1124* or *Weldwood*. Screwfasten transom frame around plywood; size and spacing of fastenings are shown in Table A.

Frames forward of the transom are reinforced at the chine joint with a ⅜-in. plywood gusset glued and nailed or screwed. A curved filler piece between the gussets reinforces the joint. On frame #4, glue and screwfasten a ⅜-in. plywood partial bulkhead to both sides of the frame. Fit and set in a triangular block at the chine joint, glued and screwfastened to both partial bulkheads. Frames #2 and #3 are made with separate pieces between keel and chine and are joined together with a ¼-in. plywood gusset glued and screwfastened. Frame #1 may be made from spruce in only two pieces jointed together with a gusset across the bottom as with frames #2-#3. Include the deck beam and sheer clamp gussets on frame #1.

The stem is next with the lower part made from three layers of ¾-in. plywood glued together and held with Jorgensen C-clamps while the glue sets. Upper part of the stem can be spruce or hemlock plank tapered as shown in Fig. 2. Coat contact surfaces of the upper and lower part of the stem with glue and bolt together.

Before setting any of the frames in position, notch them for the keelson (Fig. 6). Also cut limber holes. Layout on your work floor, or a 2x4 frame, if you're working on a concrete base-

MATERIALS LIST—SEA BABE

Plywood (Exterior or Marine Grade AA)

No.	Description	Use
2	⅜" x 4 x 10' fir	bottom planking, seats
1	⅜" x 4 x 6' fir (3-ply)	
2	⅜" x 4 x 8' fir	bunks, gussets, cockpit floor
2	⅜" x 4 x 10' fir	sides
4	¼" x 4 x 8' fir	sides, seats, cabin top
1	¾" x 4 x 8' fir	transom, stem bottom, seats
2	¼" x 4 x 8' mahogany	decking, cabin sides, trim

(Check mahogany plywood for thick outer layer. Much of this plywood has thin outer plies with thick inner ply that is weak, and is likely to break after a few hours.)

Lumber

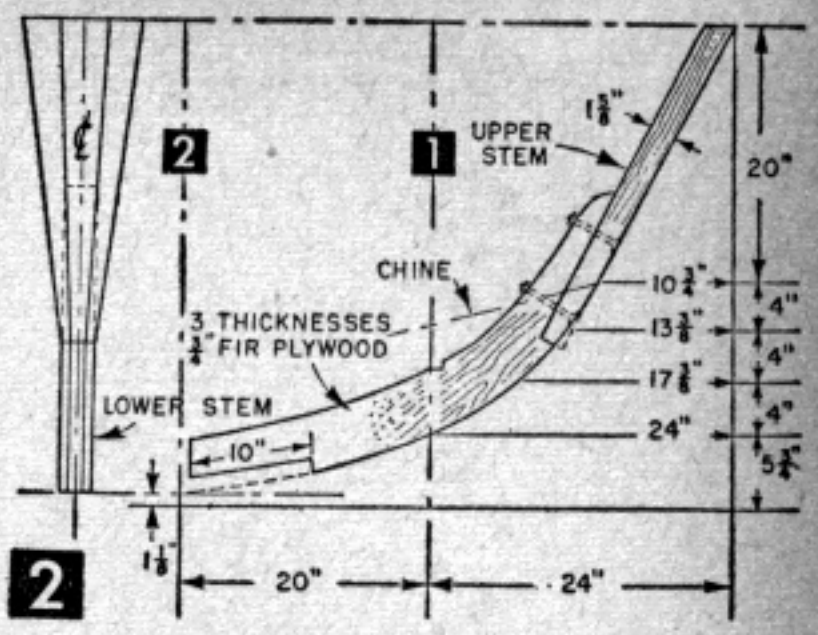
1	⅞ x 4" x 12' oak	keelson
1	½ x 1¼" x 5' oak—tapered pc	outer keel
2	¾ x 2½" x 14' fir	seats
2	¾ x 2" x 16' oak	chines
2	¾ x 1¼" x 16' spruce	clamps
1	¾ x 12" x 12' oak	bottom frames, transom framing
3	¾ x 6" x 12' spruce or fir	side frames
1	¾ x 12" x 14' spruce	beams, deck battens, coamings, cabin beams and uprights
1	1⅝ x 10" x 3' hemlock, fir	upper stem
2	¾ x 1¼" x 16' spruce, fir	side battens
4	¾ x 1⅜" x 12' oak	bilge keels
2	¾ x 2" x 12' oak	bilge battens
2	¾ x 1⅜" x 12' oak	bilge battens
1	½ x 6" x 12' mahogany	moldings
1	⅞ x 6" x 6' mahogany	spray rails
1	2 x 10 x 18" oak	transom knee
1	1⅝ x 9½" x 5' spruce	cabin beam
2	1⅝ x 1⅝" x 12' fir	berth supports
1	1⅝ x 1⅝" x 16' fir	seats
1	2 x 4" x 8' fir	cabin carlins
1	2 x 4" x 14' spruce or fir, cut as needed	keel trussing

Miscellaneous

1 gr	⅞" #6 fh screws	6 doz	1¾" #8 fh screws
4 gr	1" #8 fh screws	4 doz	2" #10 fh screws
4 doz	1½" #8 oval head screws	1 qt	Kuhls Bedlast
1 gal	Kuhls Brushlast—Under coat for painting		
1 qt	glue—Elmer's Waterproof, Weldwood or Penacolite G-1124		
1	Streamlined bow handle		
2	aluminum or chromium plated bronze lifting handles		
1	running light red and green		
2	trailer windows—windshield—(O. S. Keene Machine Co., P.O. Box 70, Middlebury, Ind.) size 1 x 16 #552-1604		
1	Plexiglas or Lucite for side windows—20 x 30 3/16" or ¼"		
2	step plates, aluminum or bronze		
2 qts	white Firzite		
1½ qts	Condon's Boat Life		
1 lb	spackle compound		
2	ventilators—ornament only		
1	steering wheel and steering gear—wire rope, blocks		
8	¼ x 2¾" carriage bolts		
12	3/16 x 2" rh stove bolts and washers		
1	windshield assembly and Plexiglas—for atop cabin		

TABLE A—SCREW AND BOLT SCHEDULE

Joint	Size	Type	Number or Spacing
transom frame	#8 x 1½"	fh screws	3" staggered
frames #4-#7, chine gussets	1¼" #6 x ⅞"	galv. shingle nails	six, both sides
frames #2½ #3 chine gussets	#8 x 1½"	fh screws	six each side
stem joint	¼" x 4"	carriage bolts	2/joint
keel to frames	#10 x 2"	fh screws	2/joint
chines to frames	#10 x 2"	fh screws	1/joint
clamps to frames	#8 x 1¾"	fh screws	1/joint
battens to frames	#8 x 1¾"	fh screws	1/joint
outer frame to transom	#10 x 2"	fh screws	3"
keel inserts to keel	#8 x 1¾"	fh screws	4/joint
triangular reinf. blocks at keel	1¼"	galv. shingle nails	2/joint
floor batten to frames and keel blocks	#8 x 1¾"	fh screws	6"
planking	#8 x 1"	fh screws	2"
outer stem	#10 x 2"	fh screws	four
bottom spray battens	#8 x 1¾"	fh screws	4"
#2 deck beam	#10 x 2"	rh bolts	2/end
deck batten	#8 x 1¾"	fh screws	2/joint
side deck			
support gussets	#10 x 2"	rh bolts	2/joint
coaming to gussets	#8 x 1¾"	fh screws	2/joint
side decking	#8 x 1¾"	fh screws	4"
fore decking	#6 x ⅞"	fh screws	3"
cabin fore uprights to transverse member	#8 x 1¾"	fh screws	3/joint
deck to transverse member	#6 x ⅞"	fh screws	2"
upright to fore cabin beam	#8 x 1¾"	fh screws	4/joint
cabin carlins	#8 x 1¾"	fh screws	2/joint
cabin deck batten	#8 x 1¾"	fh screws	2/joint
cabin top	#6 x ⅞"	fh screws	3"
cabin sides	#6 x ⅞"	fh screws	3"
cabin side joint	#6 x ⅞"	fh screws	six
sheer moldings	#8 x 1½"	oval head screws	6"
cockpit floor	#8 x 1"	fh screws	3"
bunk supports	¼" x 2¾"	carriage bolt	1/joint
bunk floor	#8 x 1"	fh screws	3"
hand rails	#8 x 1¼"	fh screws	3 to each rail washer on head
cabin top mold	#6 x ¾"	oval head screw	6"
side windows	#10 x 1"	rh stove bolts	



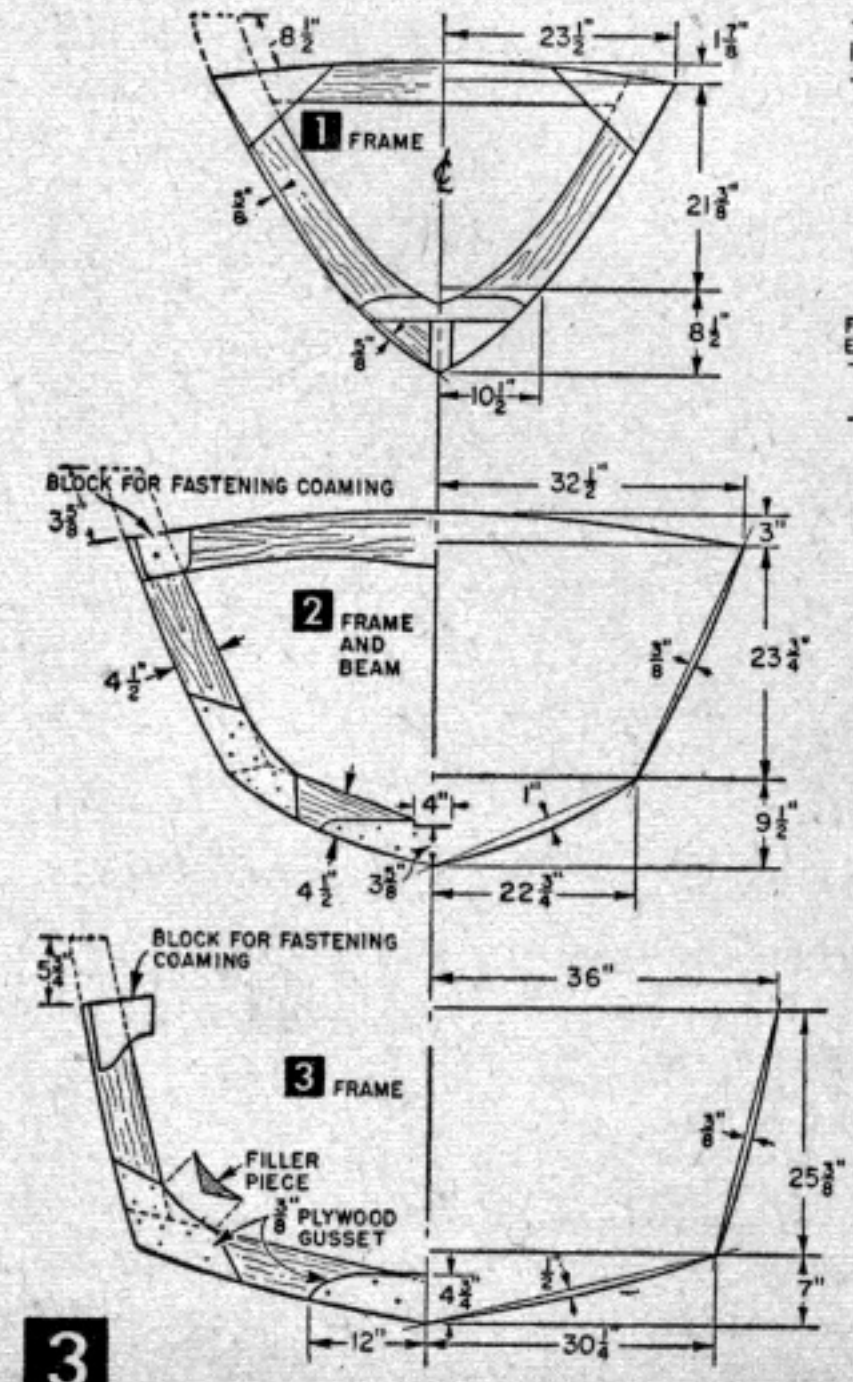
Top widths upper stem: overall, 9½ in.; center piece, 4 in. Lower stem center stock: 1¼ in.

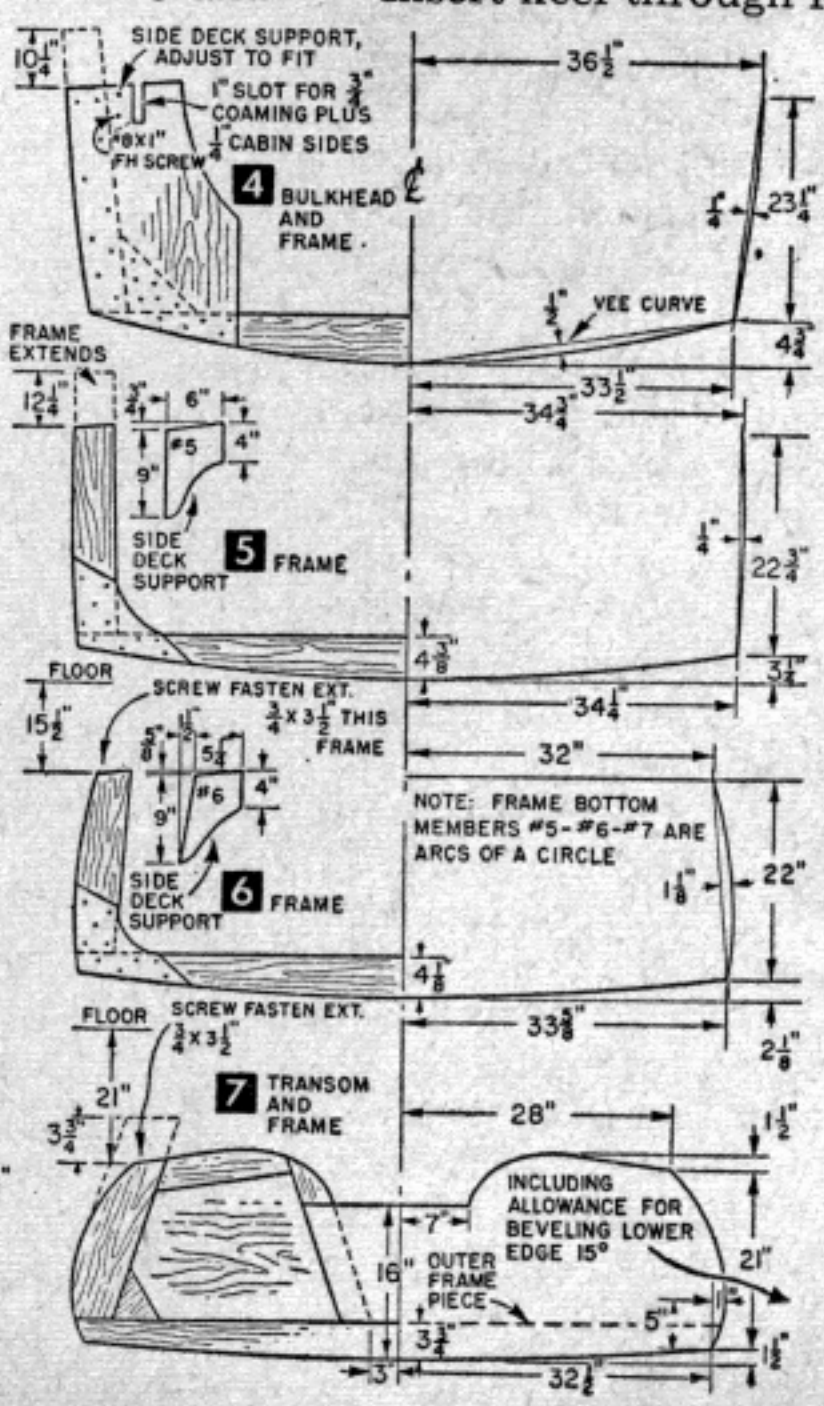
Edges of upper stem are beveled to angle of planking and notched for chine and sheer.

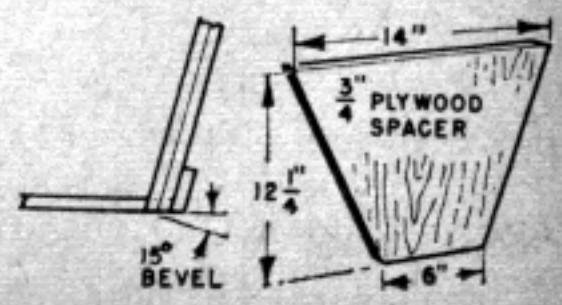
ment or garage floor, the exact spacing between frames. Nail 2x2's alongside each frame. Set the frames up temporarily and clamp them to the 2x2 blocks with a C-clamp only. To line up the frames, find the exact center of the transom, tie a string line to a nail at this centerline and run the string line forward. Center each of the frames using this string line as a centerline. When all frames are lined up with the centerlines directly over the string line, toenail the frames to the 2x2 blocks.

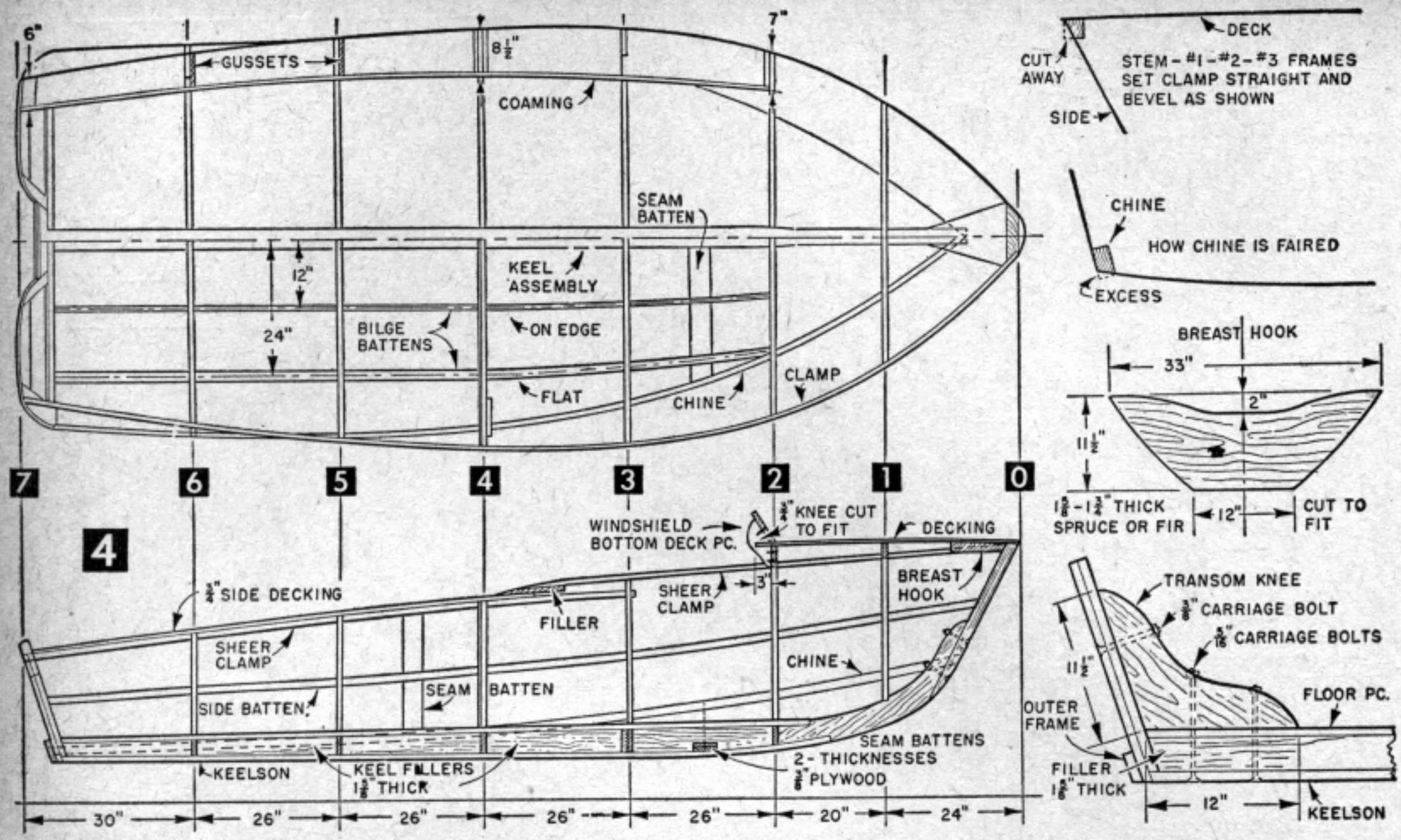
Insert keel through frame notches and C-clamp in place temporarily. Place the stem in position and clamp it to the keelson. At the forward end, fasten the stem to the floor with a steel bracket, making sure the stem is aligned with the rest of the framework. Now sight down the string and check the keelson for horizontal alignment. If the keelson appears to "dip," simply shim up frame ends or saw a bit off to bring it into alignment.

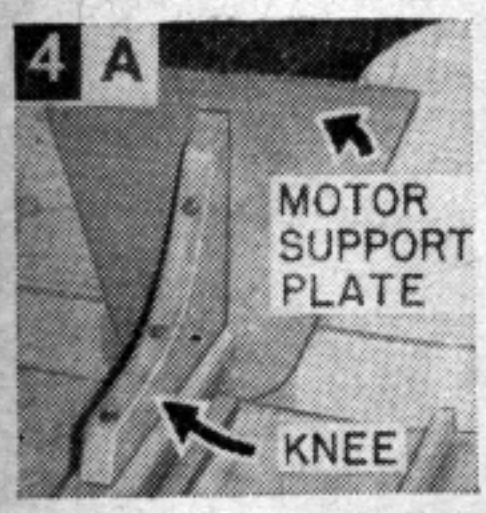
Screwfasten the keelson in place, drilling and countersinking pilot holes. Soap threads of











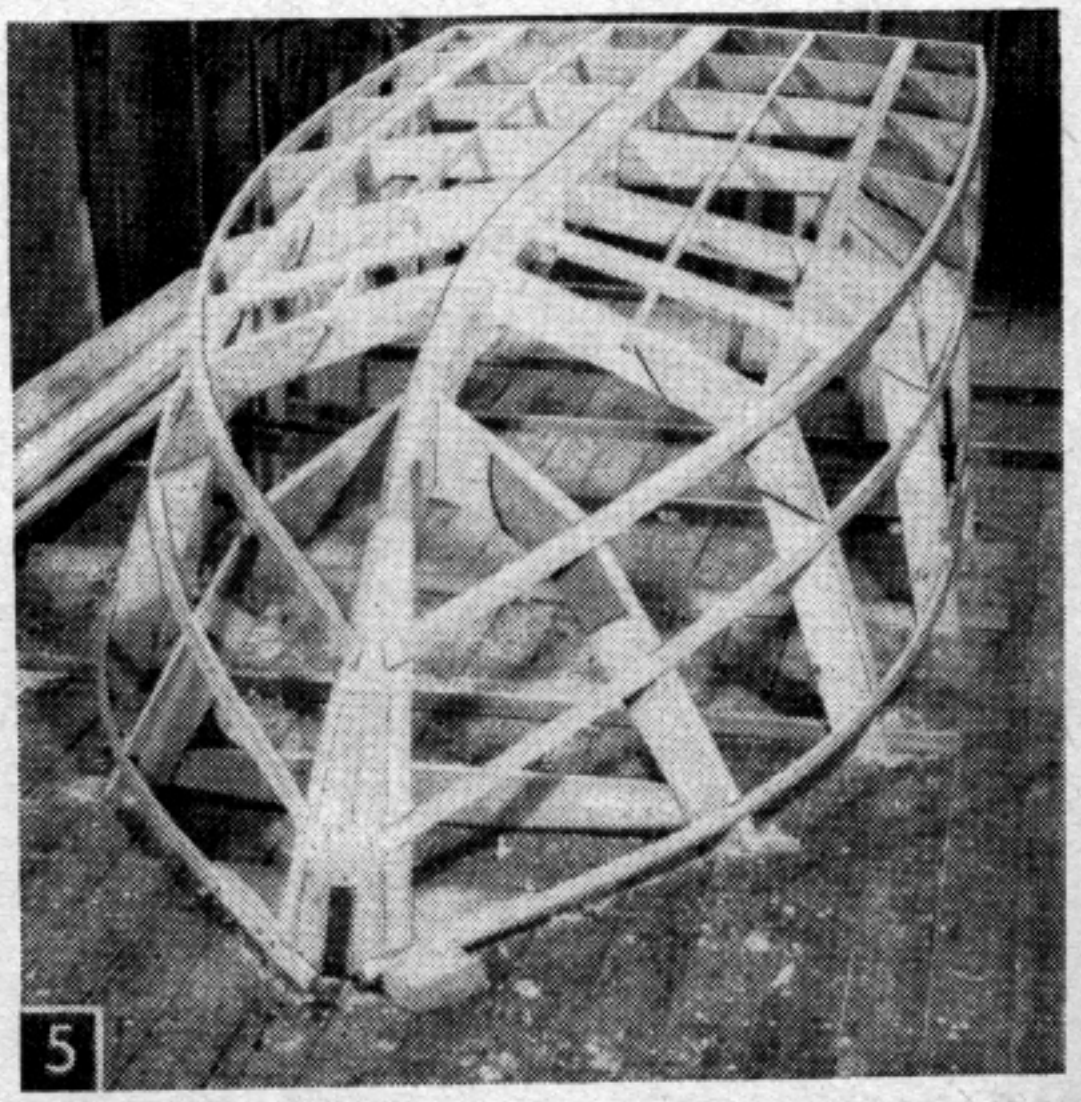
Transom is 1⅞ in. thick at center where motor is mounted.

screws for easier driving in the oak bottom frames.

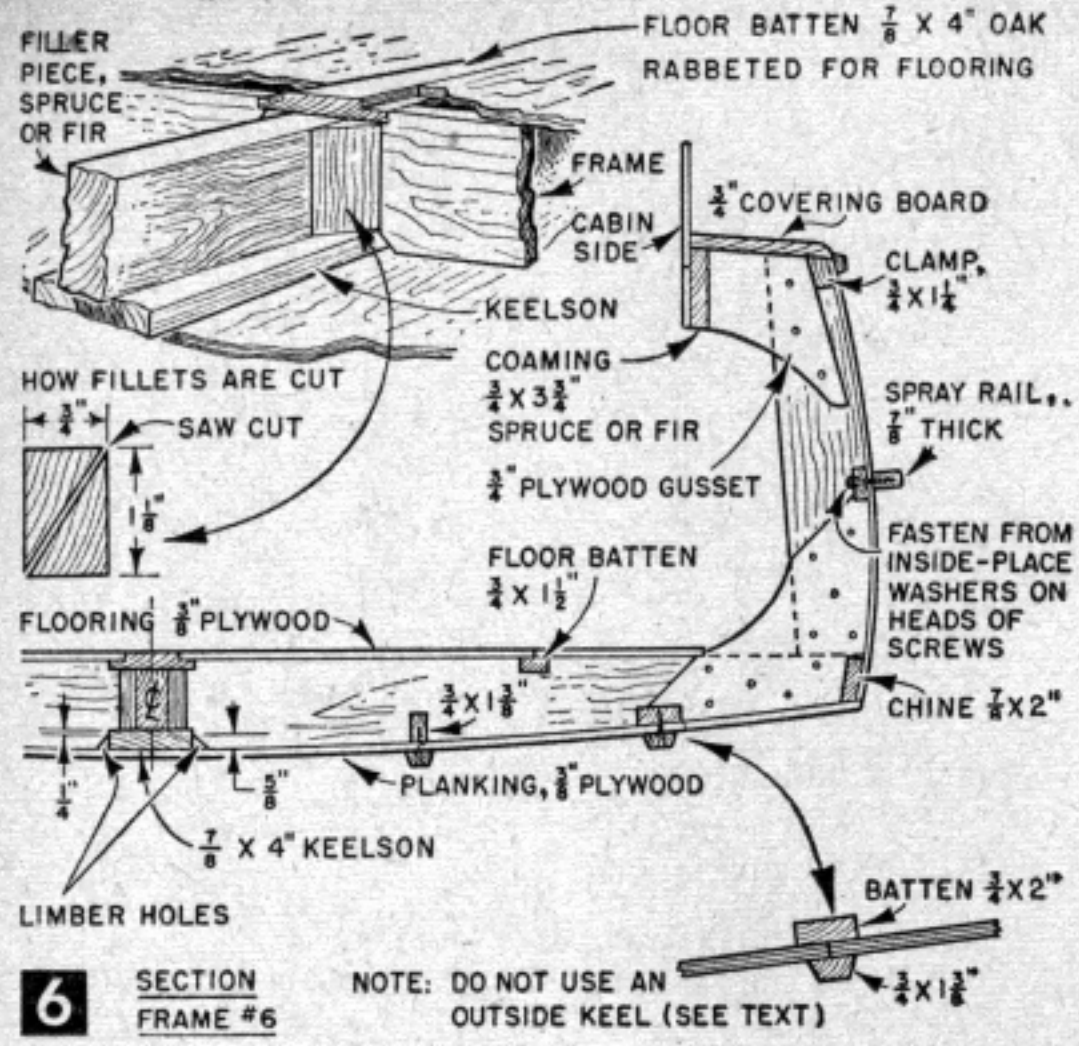
With a short chunk of chine and sheer clamp, mark their notches to size and cut each notch a trifle undersize. Spring both chines in place together to keep from warping framework out of square. Clamp them along the rough cut notches and fit each frame's notch by sawing alongside the chine. Screwfasten chine in place. Cut a notch in the stem so the chine fits flush. Fit the four sheer clamps and screwfasten them to frames (Fig. 2A). Note that the clamps overlap between frames 3 and 4 (Fig. 4). Notch the stem for the sheer clamps and fasten into place. Then fit and fasten the breasthook (Fig. 4) into place at bow.

Before notching for any of the bilge or side battens, fair the bottom and side edges of the framework so the plywood planking will make full contact at each frame, chine, keelson and sheer clamp. This fairing can be the rough part of boat building, but a sharp jack plane and coarse wood rasp will help. Check frequently with a light batten placed across the contact surfaces. When fairing is complete, notch battens flush into frames. Place bottom battens parallel to keelson exactly 12 in. center to center (Fig. 4). Outboard batten is wider to receive butt-joints of bottom planking. Screwfasten battens in place. Notch battens through transom and inner frame. Cover open ends of bilge battens, keelson and chine with an outer frame piece (Fig. 3). After coating contact surfaces between outer frame and transom with Kuhls *Bedlast*, screwfasten outer frame to transom. Seam battens that back up bottom planking joint forward are two thicknesses of ⅜-in. plywood glued together, cut out to clear battens and assembled as in Fig. 7. Fit these forward seam battens after bottom planking has been cut to shape but before the planking is fastened.

Building the trussed keel calls for crawling under the framework and notching all frames ⅜ in. deep for the floor batten (Fig. 6). Note that floor batten is rabbeted. Clamp this floor batten to frames and fit an insert, cut from a 2x4, between each frame. Each insert must fit snugly between floor batten and keelson. Remove



Hull is built upside down. Frames are temporarily nailed to floor until planking is fastened.



6 SECTION FRAME #6 NOTE: DO NOT USE AN OUTSIDE KEEL (SEE TEXT)

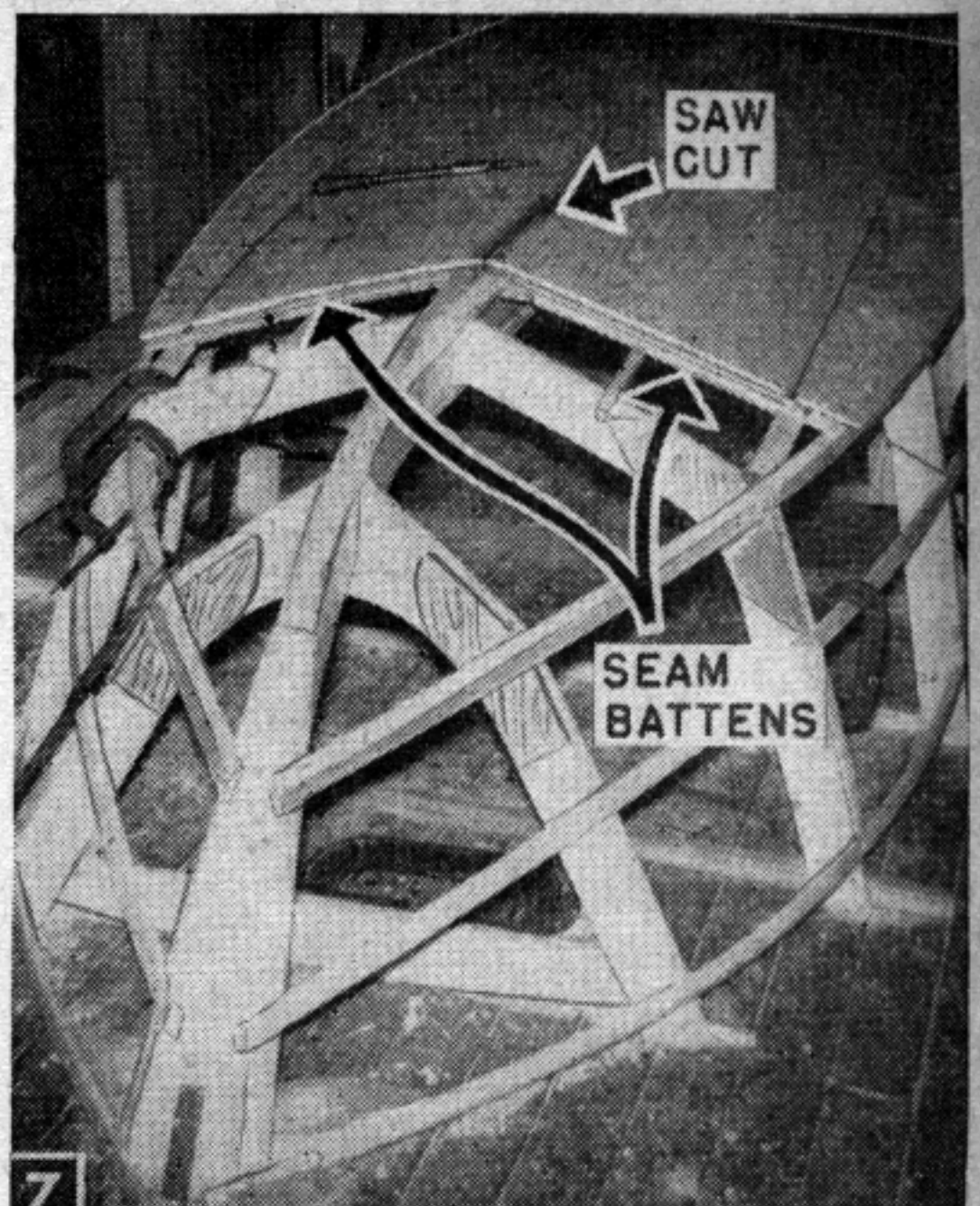
floor batten, coat inserts with glue and screwfasten to keel. Coat contact surfaces between floor batten and inserts with glue, replace floor batten and screw it to frames and inserts as you did the keelson. Further reinforce the joint between inserts and frames with triangular blocks, coated with glue and nailed in place. Notch the stem for the floor batten, glue and screwfasten. Glue and bolt stern knee in position, countersinking bolt heads along keel (as shown in Figs. 4 and 4A).

To fit bottom planking, lay ⅜-in. x 4 x 10-ft. plywood along bottom with outer edges along centerline of outboard bilge battens. Fore end of this bottom sheet should fit midway on plywood seam battens. Slit fore end of plywood sheet back 30 in. with portable electric saw (Fig. 7). You will need to trim the 10-ft. length to about 9 ft., 7 in. for the fore end to center on seam batten.

Clamp this shaped and fitted piece of bottom planking to framework and mark underside of plywood around keel, battens, frames and chines with a pencil. Remove plywood and drill pilot holes at 6-in. intervals along penciled frame outline. Coat all contact surfaces between plywood and framework with glue except transom which should be coated liberally with *Bedlast*. Replace planking in position and screwfasten using the previously drilled pilot holes as a guide for screws placed in between. Stagger a double row of screws down keel and across transom. Add filler planks cut from ⅜-in. plywood along each side in the same way. Trim evenly along the chines.

To plank forward bottom end, lay heavy building paper in position over the fore ends and cut a pattern to fit. Transfer this shape to ¼-in. plywood and cut to size. Before assembling, pour hot water on both sides for 10 to 15 minutes, clamp in position and screwfasten.

Side planking is ¼-in. plywood. Clamp a 4 x 10-ft. piece along sides, mark and saw to



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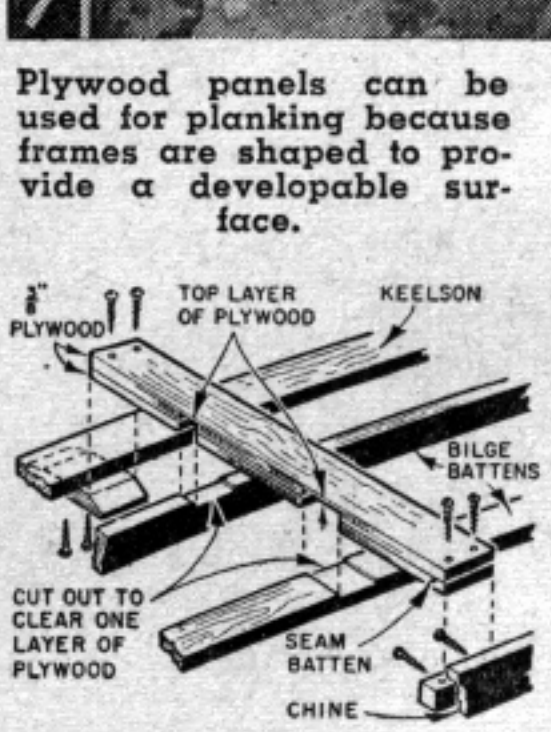
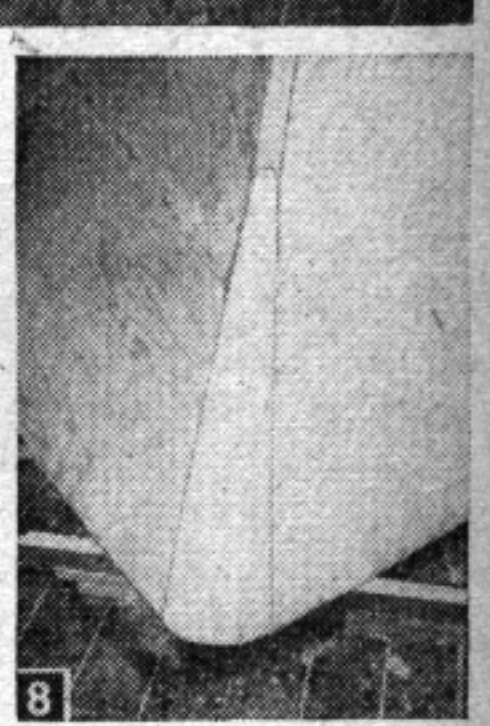
Plywood panels can be used for planking because frames are shaped to provide a developable surface.





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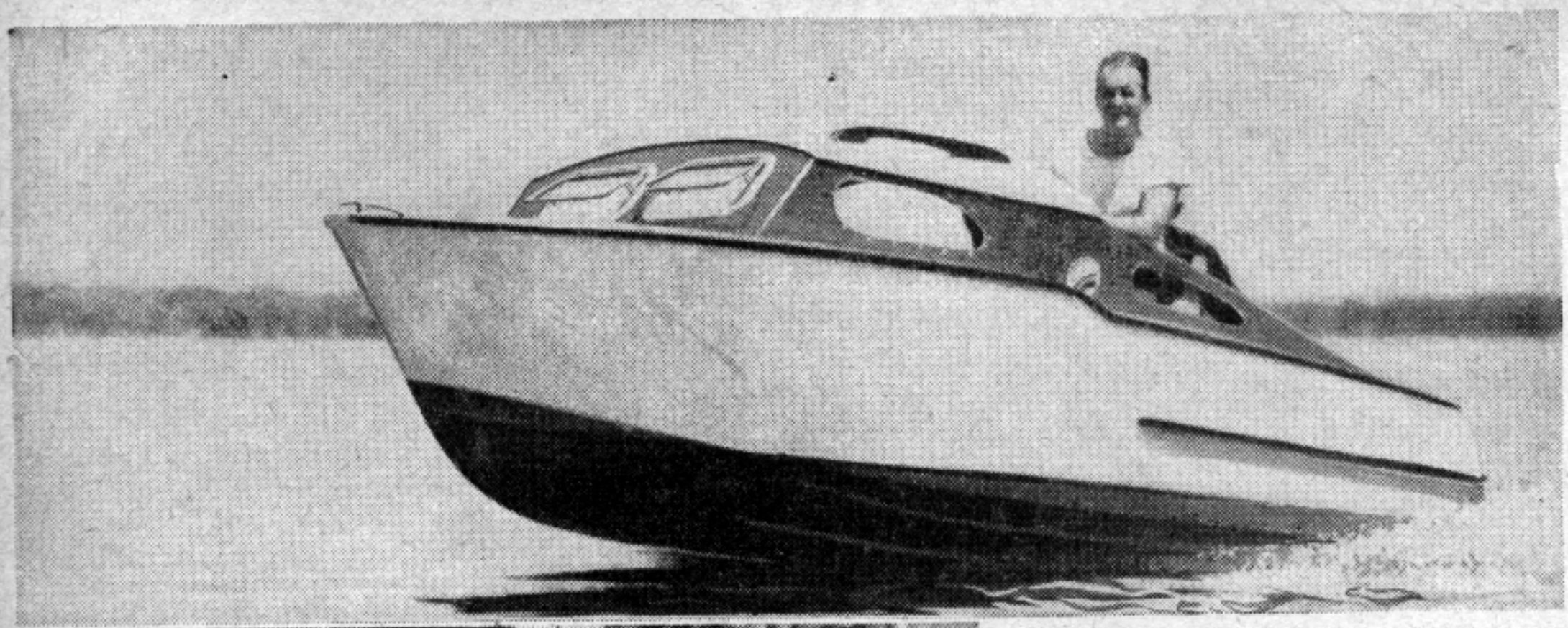
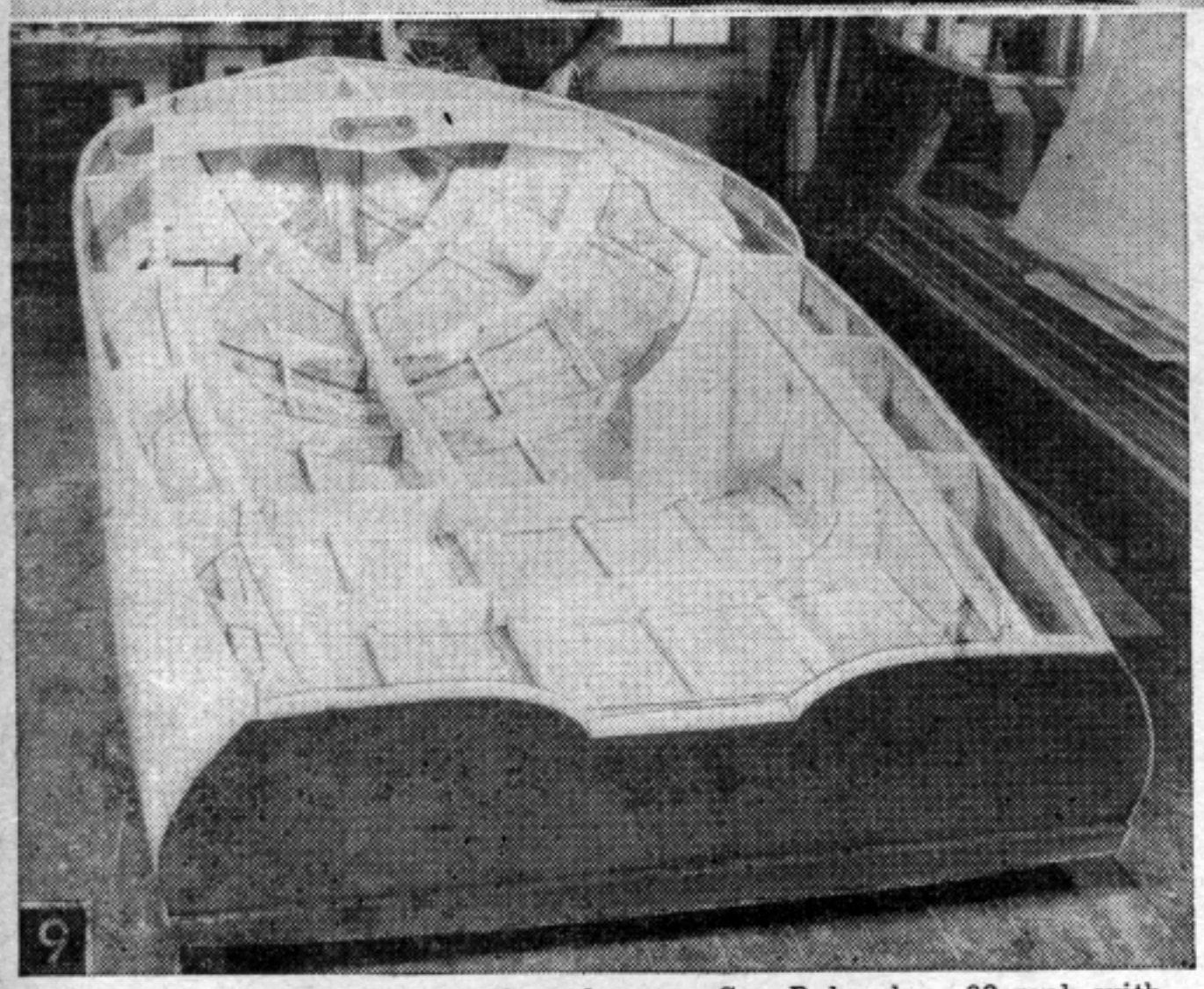
shape. Use this one side piece as a pattern for the other side. Fit ¾ x 2½-in. seam battens between sheer clamps and chine (Fig. 4) as you did for the bottom. Coat chines liberally with Kuhls *Bedlast*. Coat battens and sheer clamps

Light two-wheeled trailer solves winter storage.





Above. With only a 16 hp outboard motor, Sea Babe does 20 mph with one person aboard. Below. Hull designed to take larger motors.

with glue. Clamp side planking in place and screwfasten at all points. See Table A for screw size and spacing. Complete side planking, making butt-joint over side seam battens, and screwfasten fore end to inner stem (Fig. 4).

Trim and fair stem and cover it with a 1⅝-in. outer stem piece. Round the edges of this outer stem and blend it into the round contour of the sides (Fig. 8). Remainder of the stem back to frame #3 is covered with a ½ x 1¼-in. oak strip bent into place.

Now that you have finished planking *Sea Babe's* hull, your next step will be to install the bottom spray battens. First coat all of the contact surfaces with Kuhls *Bedlast;* then screwfasten in place. The two outer bilge keels will cover and close the joint in the bottom planking at that point. It is best not to use a full-length outer keel down the center of the bottom as it only slows the boat down. The bottom spray battens add lift, maneuverability and speed.

Now you're ready to cut the hull loose from the floor. Simply saw the frames flush with the sheer and recruit a couple of strong-armed friends to help you turn it over. Prop the hull, so it doesn't roll. Trim the plywood even along the sheer, and at frame #4 forward use the curved ¼-in. plywood pattern (Fig. 12) to trim the sheer. Install #2 deck beam with bolts. Notch the ¾ x 2¼-in. center deck batten into the deck beams at Sta. #1 and #2 and aft of breasthook.

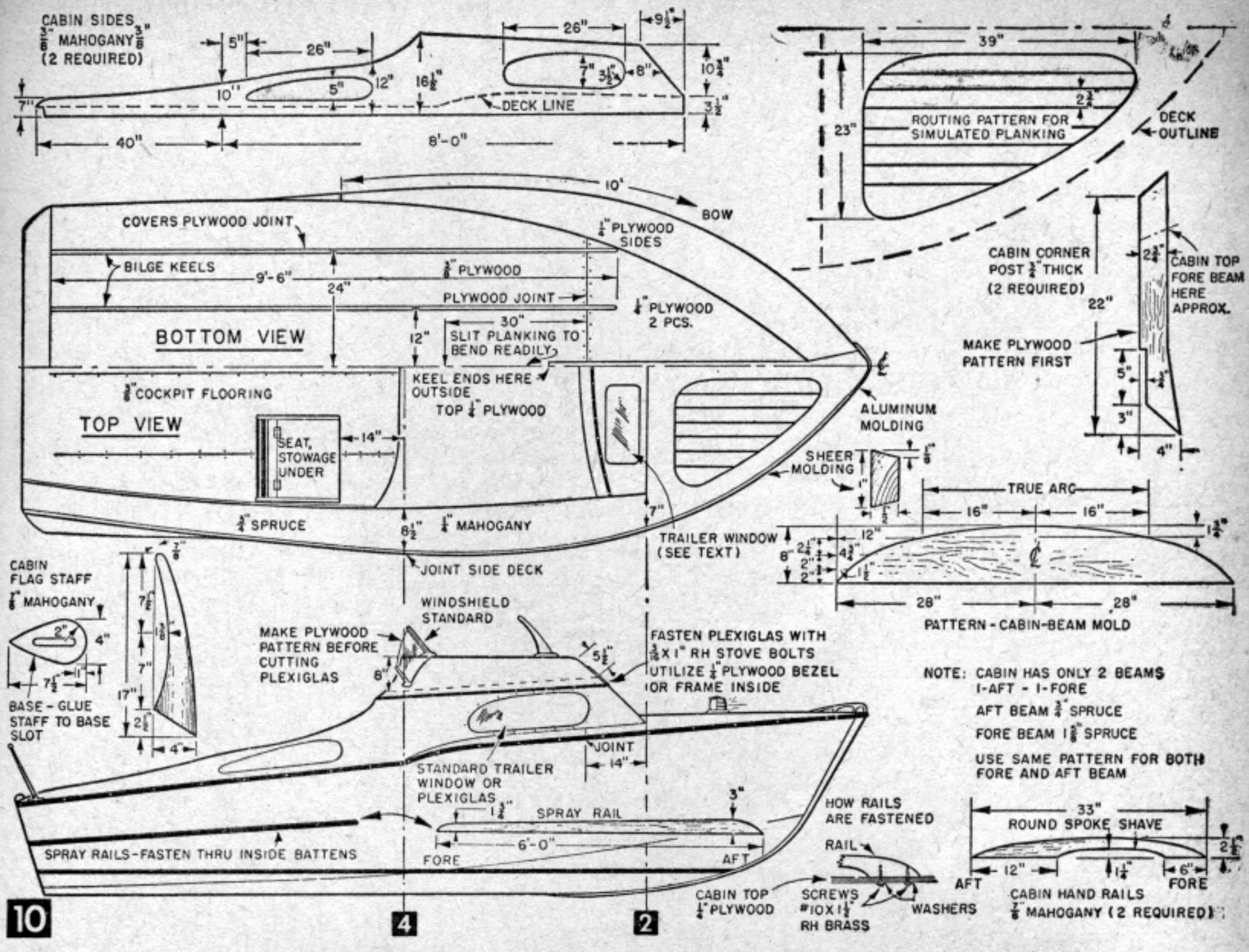
Coamings are made in two pieces from ¾-in. spruce—one piece from #2 to #4 frame and one length from #4 frame back to the transom. Next, bolt the side deck supports (Fig. 3) to each frame. Fit blocks to #2 frame and transom for attaching ends of coamings. Screwfasten coamings to gussets. Lay a straightedge over sheer and coamings, and trim fair so decking will lie flat.

Side deck planking between #4 frame and transom is ¾-in. spruce. From #4 frame forward to bow, decking is ¼-in. mahogany-faced plywood. Fit the side deck first by marking the spruce, removing and sawing it to shape. Screwfasten it in position. Cut a groove in the forward end of these side decks as in Figs. 11 and 12 to receive the forward ¼-in. mahogany plywood deck. Round off sheer edges.

For the forward deck lay a 4 x 8-ft. piece of ¼-in. mahogany plywood over deck beams with one edge down the centerline of the deck batten. Mark to shape, remove and saw to shape. You can fit the forward side decking around the cabin in one piece with the bow decking or make a joint backed up with a seam batten 14 in. aft of frame #2 (Fig. 10).

Use this first piece as a pattern for sawing the forward decking for the other side. Rout out a simulated planking design (Fig. 10), and fasten deck in place with *fh* brass screws (Fig. 13). Leave about 3 in. of the decking extending aft of Sta. #2 (Fig. 4).

Begin the cabin assembly with the corner posts



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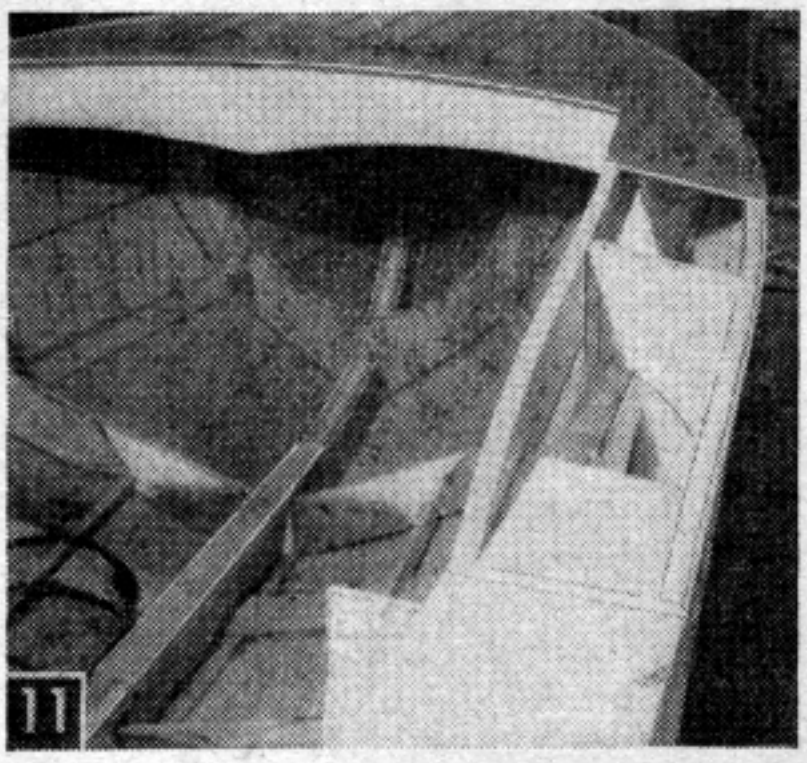

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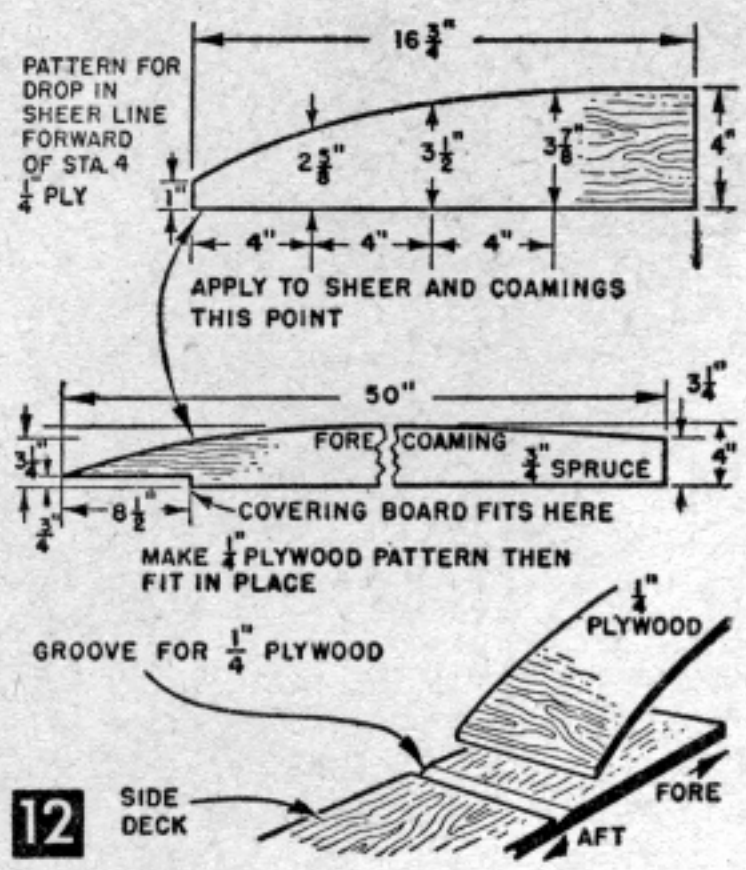
View of hull forward of station 5 before installing forward side decking or cabin.



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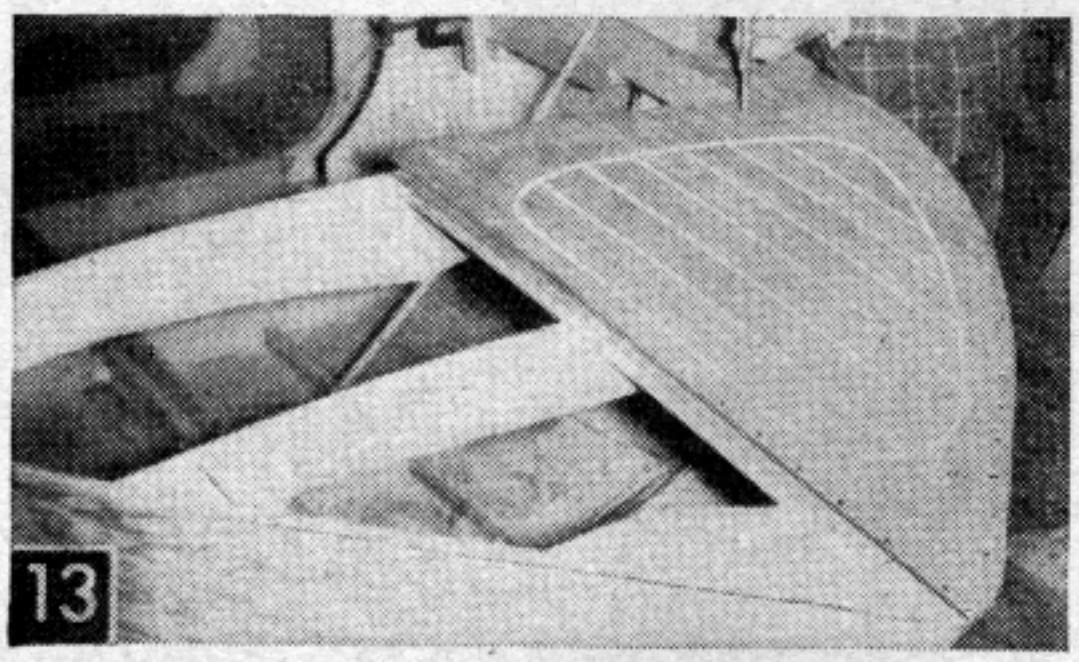
(Fig. 10) and the transverse deck member, all cut from ¾-in. spruce. Part of this transverse deck member (Fig. 10) has a beveled curve which fits against the deck and should be trimmed to fit. When both transverse deck member and the fore corner posts fit together, clamp them to each other, remove from the boat and screwfasten. Return this assembly to boat and screwfasten to deck from underside. In fitting the fore and aft cabin uprights, remember the cabin sides fit between coaming and uprights, so allow ¼-in. space between them.

Cabin beams are cut to the shape of the cabin-beam mold (Fig. 10). The forward beam is cut from 1⅝-in. spruce and canted to line up with the cabin corner posts. Attach aft cabin beam with gussets glued and nailed with galvanized shingle nails to reinforce joint at upright (Fig. 14). Screwfasten fore beam in place between corner posts. Saw cabin carlins to shape and screwfasten in position, fore and aft. Notch a ¾ x 2-in. batten flush into beams down centerline of cabin top. Cover the cabin top with ¼-in. plywood



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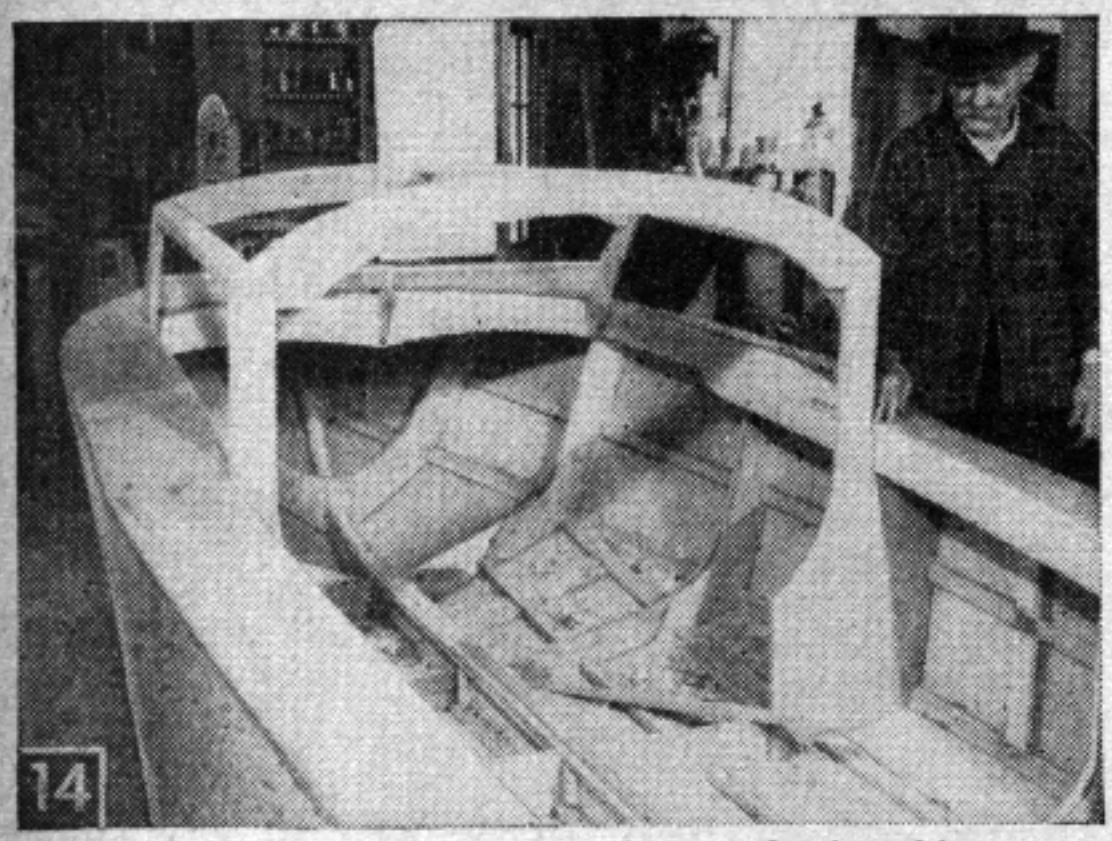
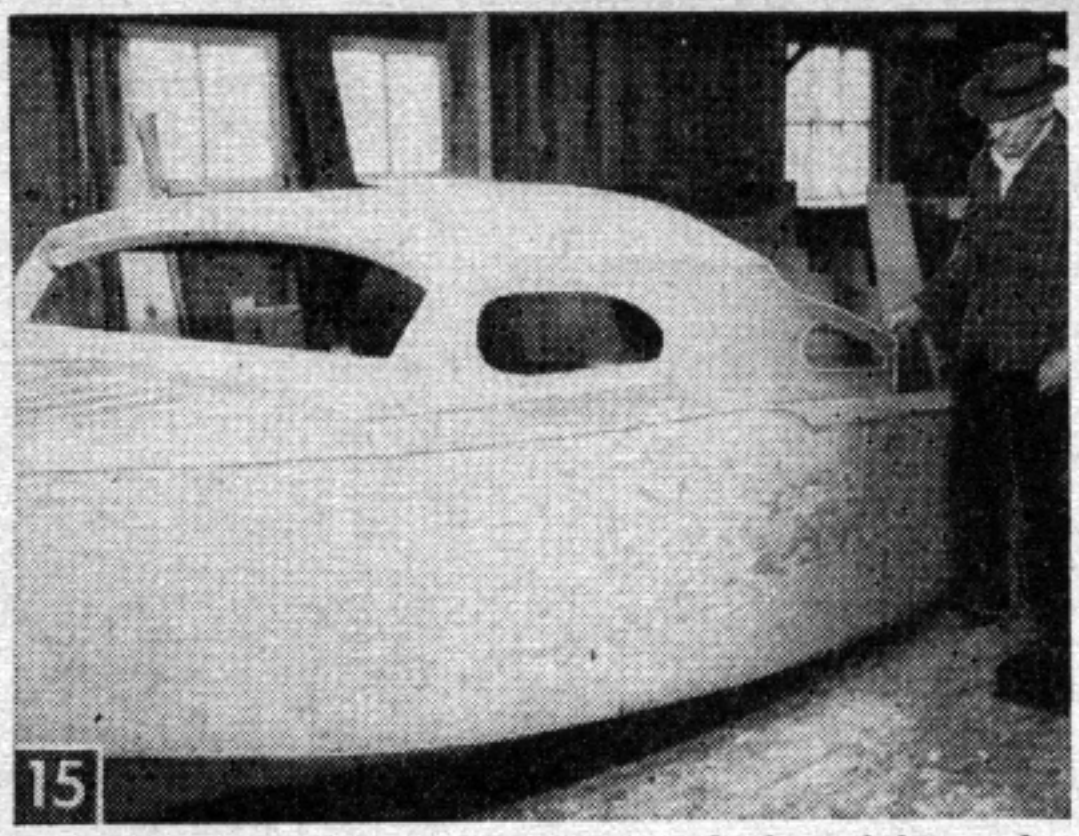
Grooves cut in plywood decking and filled with a white filler looks like expensive deck planking.



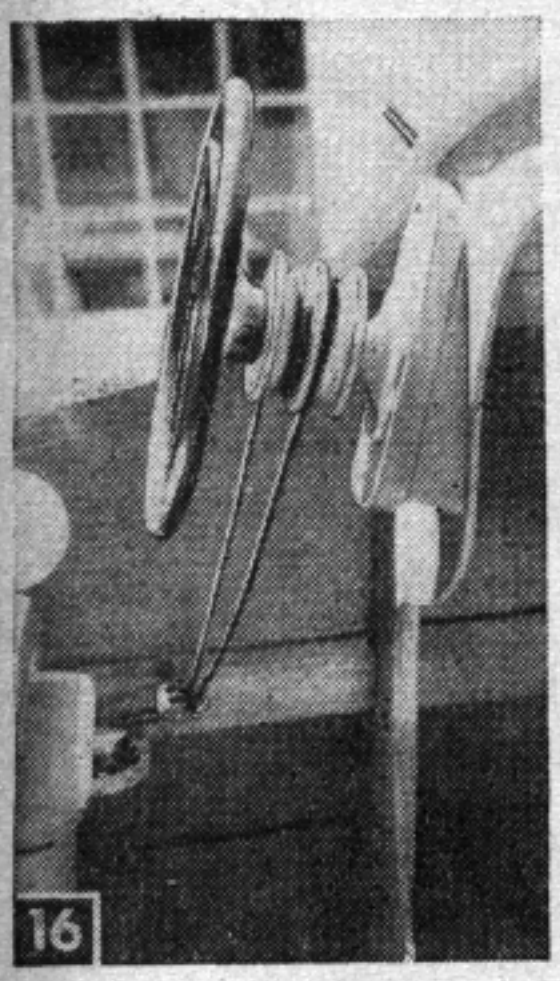
14

Allow 1/4-in. space between fore and aft cabin uprights and coaming for insertion of cabin sides.



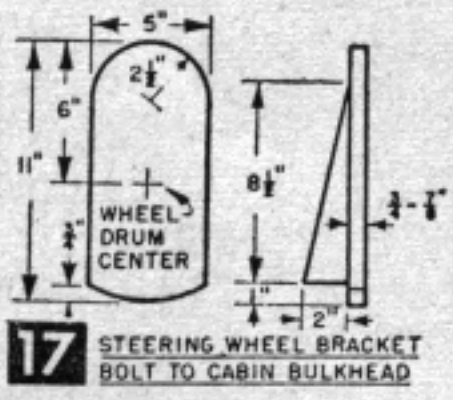
15

Cabin sides are fastened to fore and aft uprights and carlins on the outside and coaming on the inside.

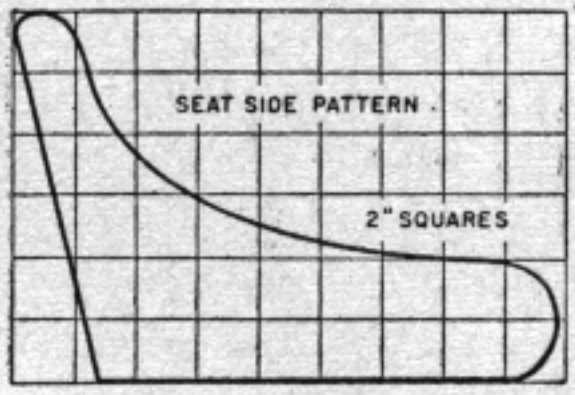


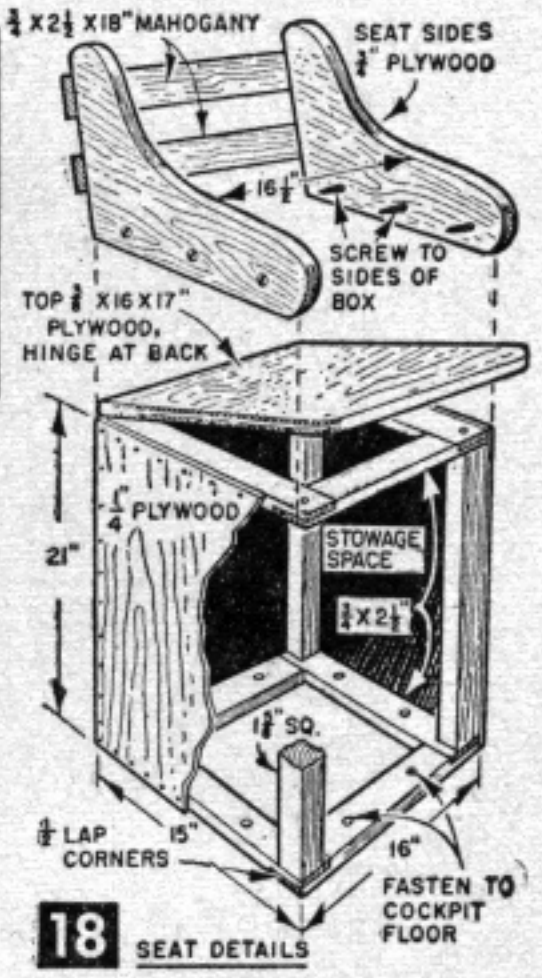
16

Motor controls and steering wheel are mounted on cabin bulkhead wall.

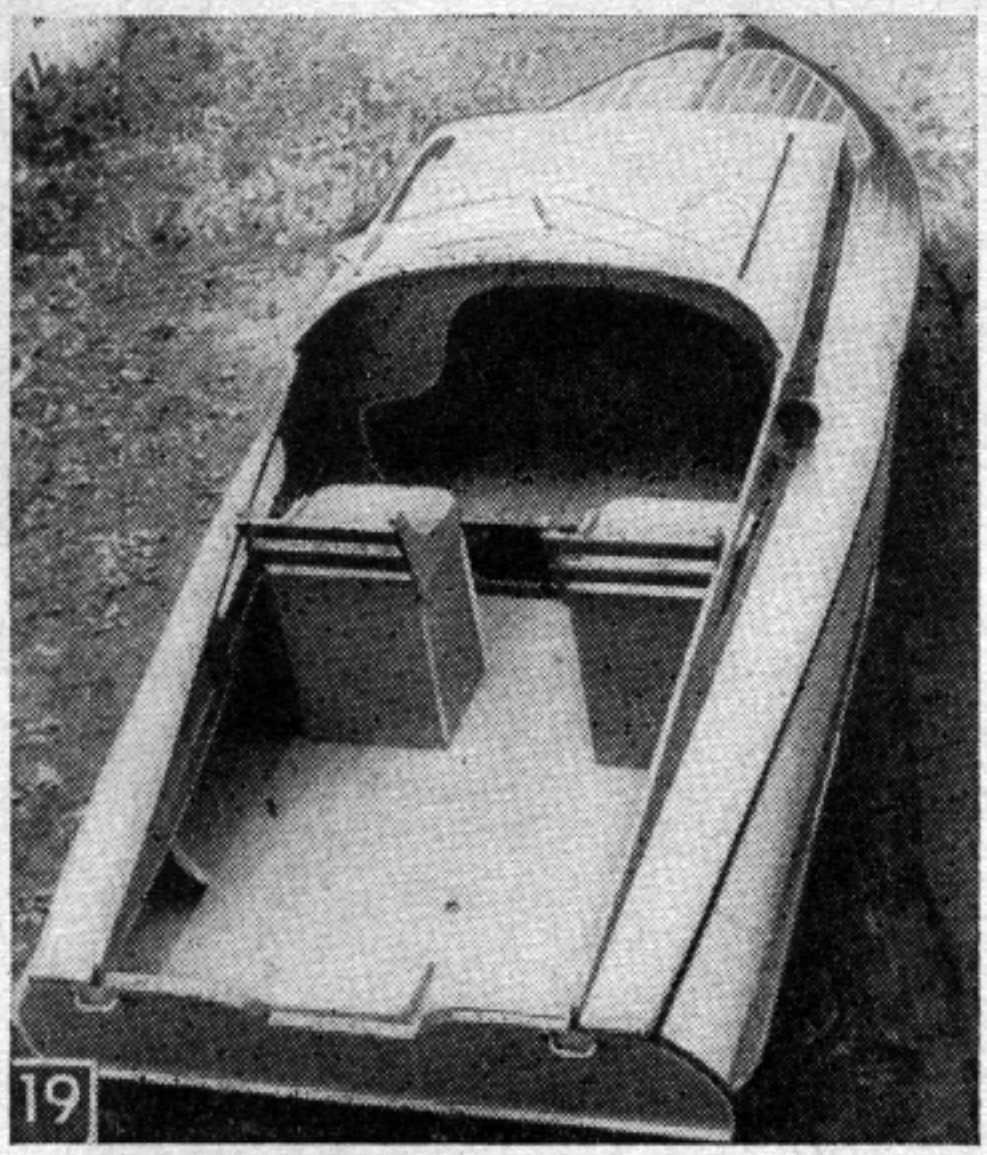


17 STEERING WHEEL BRACKET BOLT TO CABIN BULKHEAD





18 SEAT DETAILS



19

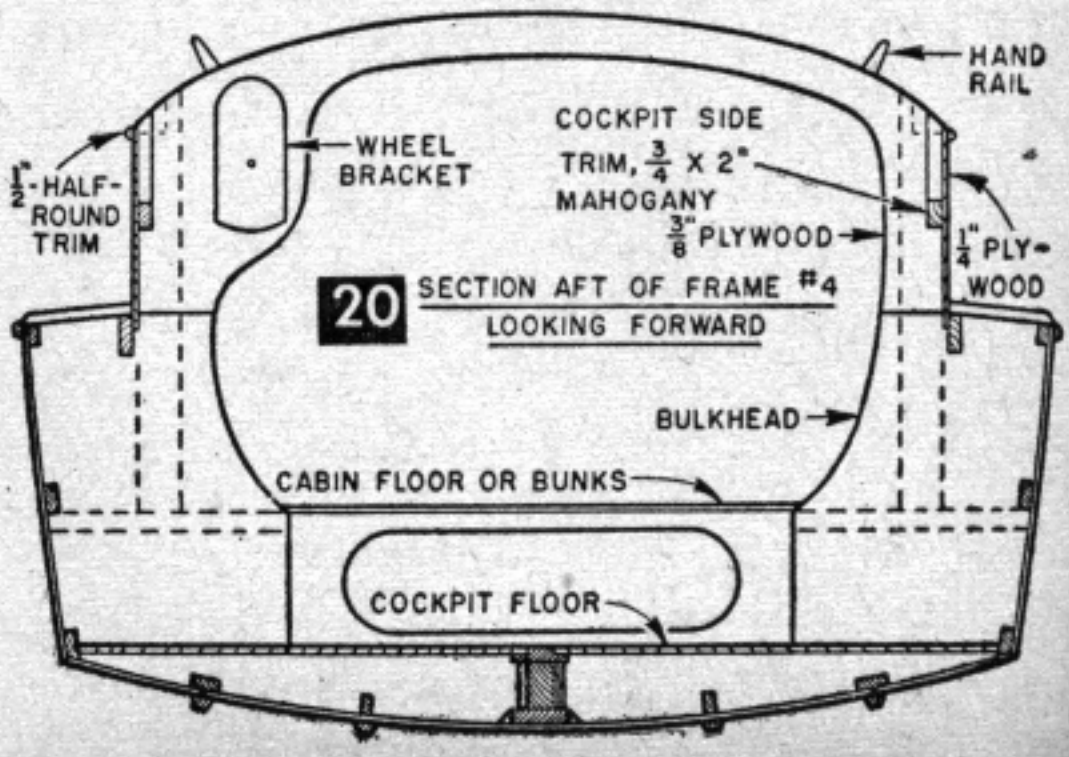
Sea Babe sleeps and seats two persons for overnight cruise or seats four people for day cruising.

with a joint over the centerline batten. Run face grain of cabin roof plywood fore and aft. Allow cabin top plywood to extend aft over the cockpit area, curved as shown in Figs. 10 and 15, and screwfasten in place.

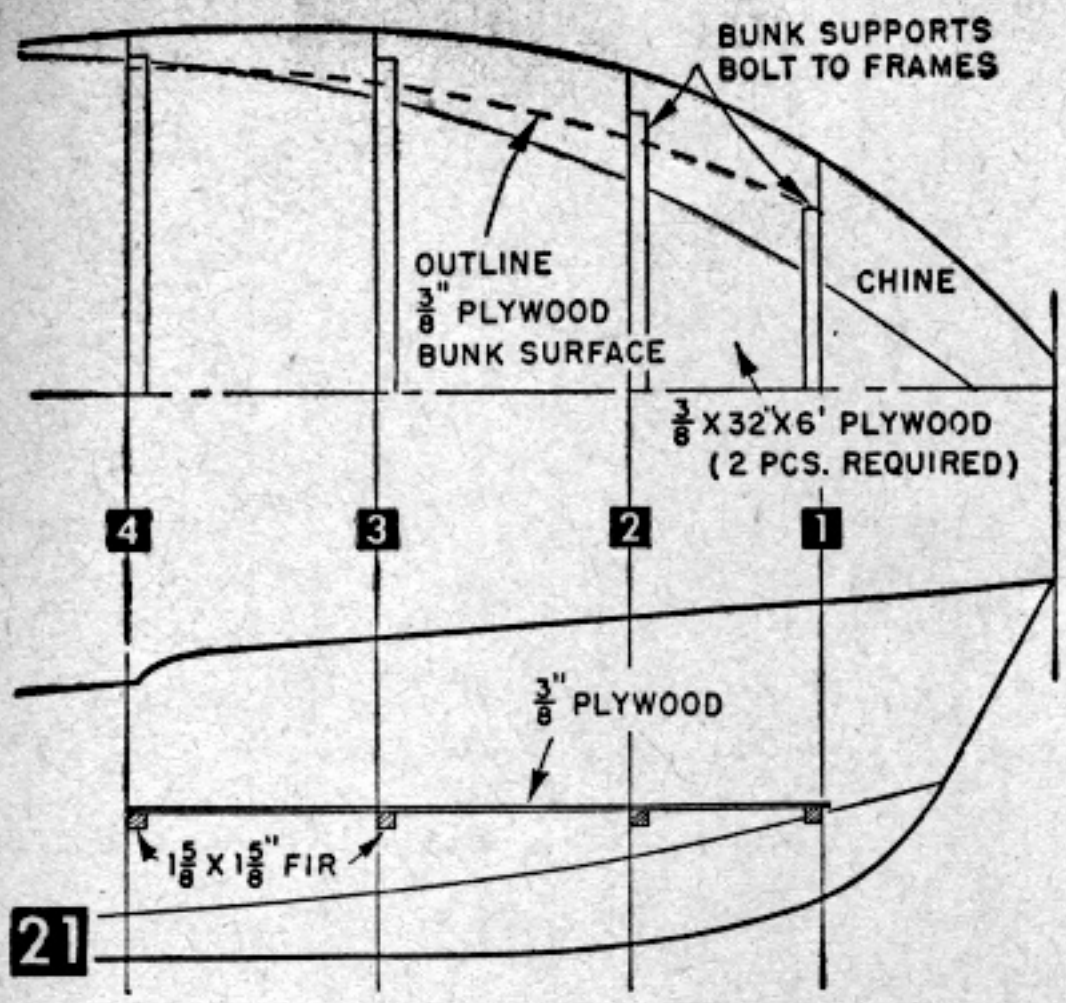
Cabin sides are cut from ⅜-in. mahogany with window and streamlined hand holes cut out before screwfastening cabin sides to coamings. Back up the joint in the cockpit sides between Stas. #5 and #6 with a ¾x2-in. mahogany block or gusset. Cover fore end of cabin with ¼-in mahogany plywood cut to shape, coated with Kuhls *Bedlast* and screwed in place. Round all edges.

Cabin top is now covered with heavy muslin cemented in place. Apply 2 heavy coatings of Kuhls Canvas Cement to the cabin top, lay muslin in place, smoothing out wrinkles and tack along edges. Apply finish coat of canvas cement thinned half and half with turpentine and allow it to cure two weeks before applying paint.

Shape sheer moldings (Fig. 10) and screwfasten to sheer. From #4 frame forward, you will need to cut this sheer molding from ½-in. ma-



20 SECTION AFT OF FRAME #4 LOOKING FORWARD



terial to follow the sheer line.

Cockpit flooring and cabin bunks are cut from ⅜-in. plywood (Fig. 21), and fitted to rabbeted floor batten amidships. Before fastening floor and bunk supports in place, apply three coats of marine enamel in your choice of colors to the hull interior. Bunk supports are fir 2 x 2's bolted in place. Bunk surface is ⅜-in. plywood screw-fastened to supports.

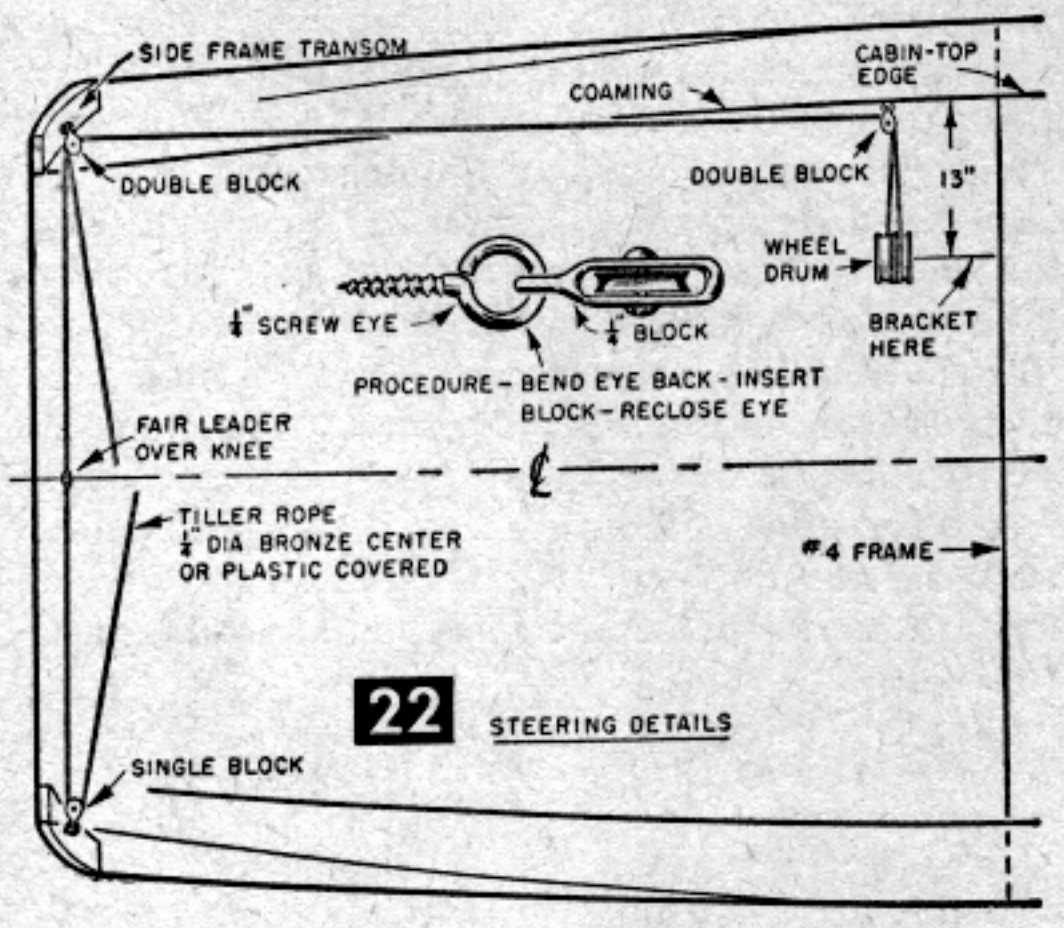
Spray rails along the sides are for appearance only (Fig. 10) as practically no spray reaches that high, so make them from mahogany. After hull receives its final coat of paint, attach spray rails by screwing through from inside the boat. Hand rails are mahogany too; first saw to rough shape (Fig. 10) and work to final shape with a spoke shave and garnet paper. Paint, then install.

Before finishing mahogany trim, sand smoothly, dust and apply one coat of mahogany-stained paste wood filler. Allow filler to dry 10-15 minutes or until gloss disappears, then rub across grain with clean burlap or coarse cloth. Allow filler to dry 8 hours, sand lightly and apply two coats of Condon's *Boat Life* varnish. On painted surfaces, prime first with *Firzite* tinted with pigmented colors to match final colors. To paint bottom, simply roll the hull over on her side. Apply one coat of Kuhls *Brushlast,* thinned about ⅛ with turpentine and tinted green, to the bottom and let dry 10 hours. Apply two coats of bottom paint such as Condon's *Boat Life* in colors. Paint topsides with two coats of marine enamel.

Apply a ⅜ x ¾-in. mold around top edge of cabin to conceal edge of muslin. Fill the routed deck forward with a mixture of spackle (available at paint or hardware stores) and white *Firzite* to form a thick paste. Wipe any excess away with a turpentine-soaked cloth and apply one coat of Condon's *Boat Life*—(clear) over filled decks.

For cabin windows use aluminum-framed trailer windows that come equipped with swinging glass inserts and screens behind because they are actually cheaper than plastic windows. Oval windows are also available. Either screwfasten or bolt these complete window assemblies in place. Side windows are simply *Plexiglas* cut to overlap the opening 1 in. all around and bolted in place with a mahogany-plywood gasket around the inside of the plastic glass. Make up the two seats (Figs. 18 and 19) and install permanently. Storage chests under seats use space efficiently.

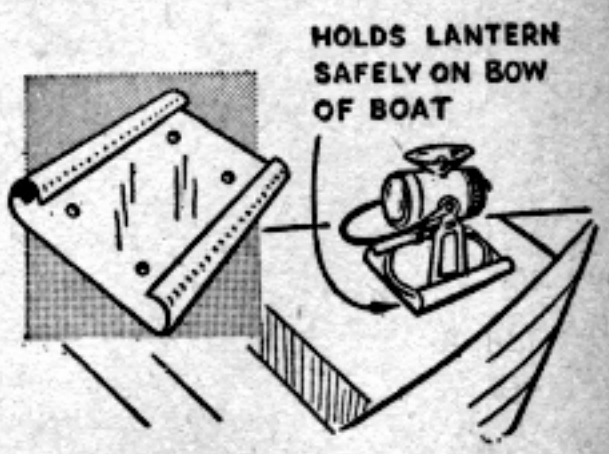
Attach a pair of aluminum lifting handles aft, a bow light with green lenses forward, chromium plated bronze ventilator at side decks (Figs. 10 and 19). For steering and engine control, make a bracket as in Fig. 17 and bolt it to the cabin bulkhead (Fig. 16). Then attach the wheel with blocks and lines to the engine as shown in Fig. 22. Speed and gear shift controls can be installed according to the type of motor you have. Outboard motor manufacturers can supply these, if desired.



PARTS REQUIRED

1	15-in. steering wheel	2	¼-in. screw eyes
25 ft.	¼-in. steering cable	2	spring tighteners
2	¼-in. double blocks	2	¼-in. rope clamps
1	¼-in. single block	1	fair leader

Lantern Clip



● Sheet metal, bent to a taper and flanged, when tacked at the bow of a small boat, will hold a lantern safely for night cruising and still permit it to be removed in an instant for other uses in emergencies.—G. E. HENDRICKSON.


SEA BABE