

## **a 22-ft. dory-sharpie**

By H. I. Chapelle

Here's a small, shallow-draft sailing craft which combines sea-worthiness with economy and, with power, will make moderate speeds.

**T**HERE is sometimes a need for a seaworthy, small sailing boat of very shallow draft. The "Southwind" was designed to fill this need at relatively low cost and with little labor. The old round-sided sailing dories of New England, and the Seabright Skiffs of New Jersey prove that the flat-bottom may be combined with

rounded topsides to make a seaworthy small boat.

However, these are usually rather narrow on the bottom and thus can carry only a small area of sail, so to make "Southwind" faster in summer weather her bottom was made wider and approaches the sharpie in proportion. She can be built with or with-

out a cuddy, as indicated in the plans. In so small a boat a cuddy must be very cramped and provides overnight accommodations of pup-tent standards.

The double-ender form of hull is not particularly suited to the use of an outboard engine. Yet power can be used if desired by fitting some kind of a metal side-bracket on which a small outboard engine can be hung. The disadvantage of this is that the motor must be unshipped when sailing in a fresh breeze and so the engine ought to be quite light. This in turn limits the power available to less than 1½ h.p. which would produce a maximum speed in a calm of about 4½ m.p.h. perhaps. To enable more power to be utilized I have given details for an outboard engine well between frames 16 and 18. This plan, if employed, will allow a heavier and more powerful engine to be used. It is suggested that the bottom of the well be closed by a non-watertight door when under sail to reduce the drag of the well.

Fig. 1 shows the lines of "Southwind," with the offsets and a typical section showing general construction. In shaping this hull, a very old idea has been utilized to reduce the work in lofting. In ancient times it was usual to shape all of the frames with but three molds which could be fitted together to form each of the frames; this method was called "whole molding." In "Southwind" the same principle has been applied so that all the frames and the stem and stern knees are formed by one curve mold. This mold is shown in the lines drawing with its offsets, and is called the "Master Curve Mold" there.

The lines and the typical construction section should be carefully studied before the boat is laid down in the loft. First, it will be noted that the boat is built dory-fashion, without a keel. The bottom, then, will be shaped and put together to form the "keel" and then the rest of the hull will be built upon it. The lines show every other frame and so the half-breadth plan will have to be faired in, though the diagonals shown will not be required in lofting. The first step, then, is to draw the profile and half-breadth plans full-size in building paper or plywood, from the offsets given, and then to draw the perpendiculars that will represent the frames not given in the offsets. You will have a frame at every foot mark between the perpendiculars. Next, make the Master Curve Mold as shown on either plywood, heavy cardboard, pattern lumber or other suitable material. The body plan is now to be made—lift the heights and half-breadths of each frame from the profile and half-

breadth plans just completed. When you have a row of spots on the body-plan water lines, sheer and chine, fit the Master Curve Mold to them and sweep in the curve. It will be noticed that the mold will have to be shifted upward or downward from frame to frame. The spots for the stem and stern liners, in the profile, are likewise taken from the offsets and swept in by use of the Master Curve Mold. Probably the offsets will not be accurate enough for the curve to hit every spot but the mold curve should pass through all but one or two, at least. When the thicknesses of the planking of sides and bottom are laid off, the mold will also be used to sweep in the sides represented by the outboard or molding edge of the frames. It can also be used to lay off the inside edge of each frame and so it will not be necessary to lay off all of these frame curves with a batten.

The bottom must be laid off and expanded for length; the molded lengths of the floor frames ascertained, and the shape of the brackets holding bottom and side frames together obtained. All this will require accurate lofting to obtain the necessary bevels. Check the Construction Plan, Fig. 2, for the necessary information for lofting the structural parts of the hull, and the Specifications and Building Instructions for sizes. It should be observed that a short "Chine Log" or batten is shown; this is only desirable if the lowest strake, the "chine strake," will have to be butted amidships. This will be necessary if wide plank is not available for the sides. If you cannot get the plank in sufficient length, in a width up to 14 in., it will be well to use the chine log or batten as shown and to butt the two lengths of each chine strake on this batten. In most localities wide plank of such length as is required for single length chine strakes is not now available or is very expensive. If there is any doubt about the matter, the chine battens should be utilized as in any case they will strengthen the hull at a place where it will receive much punishment in service.

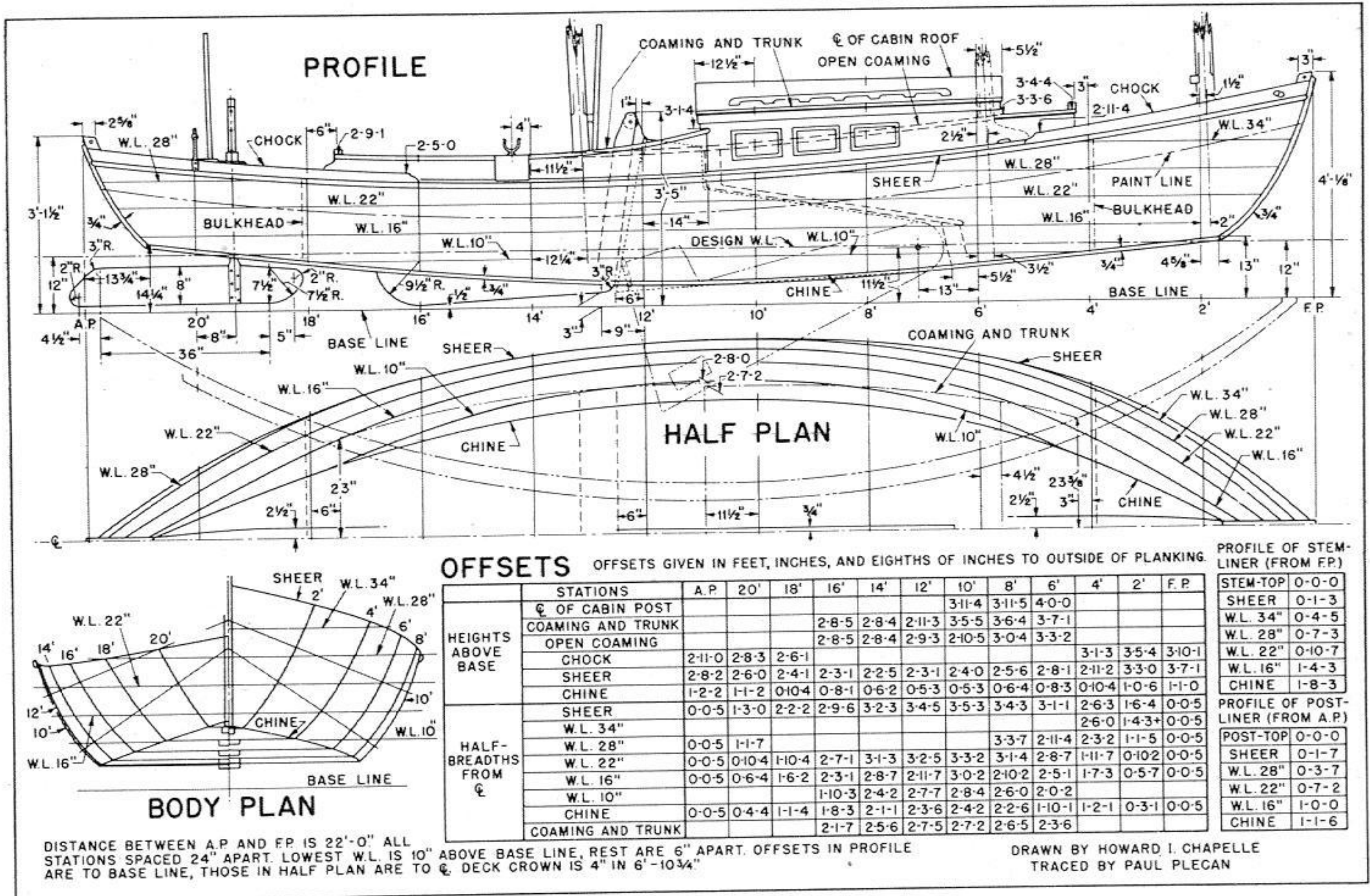
It should be mentioned that the offsets show the height of either cuddy sides, or coaming if cuddy is not employed, in a double line of offsets in the offset tables. In the half-breadth offsets there is a Z-mark between stations 10 and 12—this means the sweep is not continuous as there will be a break or offset in the coaming and trunk line; this is noted in the half-breadth plan by offsets there. The top of the coaming, when the cuddy is not employed, is shown by dotted lines on the profile and when these are followed the deck box is omitted. The dimensions of the cen-

terboard and its case will be found in the details accompanying the construction plan, Fig. 2. The rudder post is perpendicular to the base line and, as shown, is 8 in. afore station 20. The dimensions for the rake of the masts will give the locations of the centers of partners and steps, but the actual rake will be established as a result of trials under sail and so the stepping of masts is to be done to allow rake alteration without carpentry.

The construction to be followed in "Southwind" is fully shown in Fig. 2. The boat is to be built right-side-up with the bottom sprung on top of a series of forms. These forms should be laid down in the loft work. They are merely a series of hurdles made of two uprights and a crosspiece and well braced. Their height will be determined so as to properly camber the bottom fore-and-aft and place the work at a convenient building height. A form should be located at every even station—those for which offsets are given in the lines and single supports at the bow and stern. The forms should be made of 2-in. x 4-in. common lumber, well braced with cross-members and struts of 1-in. plank. If possible, there should be some provision for bracing the bottom, when sprung to camber on the

forms, from overhead. If this cannot be done the bottom will have to be secured to the forms by nailing it to cleats on the sides of the forms' crosspieces, clear of the floor timbers and in such case great care is necessary to secure the forms so they cannot lift and leave the base line.

When the bottom has been formed and secured by the floor timbers, the whole is set on the forms and sprung to the required fore-and-aft camber. This must be done accurately or there will be much trouble later. Strike the centerline along the bottom and then run a centerline chalk-line or a wire above the work, sufficiently high to clear the stem and stern liners when in place. The upper line can be stretched between two uprights set clear of the work. Now the stem and stern liners can be made up. These are made dory-fashion, without a rabbet for the side plank and are formed of knees bolted to the bottom. Once these are in place the centerboard case should be partly made up and fitted. The case can be assembled up to one plank above the logs. The centerboard case logs will have to be cut to fit the camber of the bottom and it would be an excellent plan to blue-chalk them to get a very accurate fitting. The blocking for the rudder-post



pipe and the mast steps should be placed and secured now. Frames 4 and 18 are formed of bulkheads; these should be gotten out but not assembled; the bottom plank will serve as a floor-timber. There are no floor timbers for frames 2 and 20.

The side frames should now be shaped and the brackets made up. It would save much time and work if the builder made some pattern from his loft drawing by which the side frames can be set up accurately. If this is done and the alignment checked against the centerline and chalk-line the hull can be kept true in this stage and much fairing can be avoided. I hope you will note that the floor timbers require bevel and are set so that those on stations 3 to 11 have their after faces on the station marks while those on stations 12 to 19 have their forward faces on the station marks. This will make the bevel-side of the frame less than the molding edge and saves much time and error. As each pair of side frames are set up, they should be connected by a suitable cross-piece or spall before being put into place. The spall ought to be of at least 1-in. x 3-in. lumber; it may be placed so that its top is about 5 in. below the sheer-mark on the frames, and the centerline of the hull must be marked on each spall. The brackets are to be fastened only after the side frames are in alignment and the centerlines correct. The bulkheads may now be assembled up to the top plank, which should be omitted for the present. When all the frames are in place and secure, a stiffener plank can be sprung along the top of the spalls to help in steadying the structure. This plank can be made of two or more lengths butt-blocked together and should be at least 1 in. x 6 in. The ends should be carefully fitted to notch around the stem and stern liners and secured there with a temporary fastening. The stiffener will also have to be notched to fit over the after head-ledge of the case.

Now the sides can be planked. First go over the bevels of the bottom and if the bevels of the side frames have not been cut in sawing them, cut them now. Some builders will prefer to do this with hand tools rather than attempting to bevel the frames on the saw, when curved. A broad-hatchet for hewing is a very handy tool for cutting bevels by hand. The amount of bevel on each frame can be quickly determined by bending a short batten over three or four frames and marking the apparent bevel of each at the batten. After roughing out the bevel, the final cuts must be made with a plane. The joining of the bevels of

frames and bottom must be as accurate as possible, and fair.

To obtain the most desirable finish to a round-sided hull, the planking ought to be "lined-off." This means that the position of the seams, and thus the width of the plank used, are predetermined. "Lining-off" is described in books on boatbuilding. The easiest way is to place a  $\frac{5}{8}$ -in. x  $2\frac{1}{2}$ -in. batten along the side frames and tack it to each. The batten will have to be long enough to reach from stem to stern. Place the batten so that its bottom is roughly where the lowest diagonal is shown on the body plan in the lines and assume this to be the top of the chine strake on the side being worked. Let the batten come fair to each station—it will take a bend so that its bottom will stand at right angles to each frame where it crosses each. This is the "normal" line and is the bend of a straight edged plank. This will show you the width required in the chine strake, to close the side between the batten and the bottom. If the stock on hand requires less, lower the batten a little. Once you are satisfied the stock will allow the strake to be made, run a pencil mark along the bottom of the batten on each frame and then take it down. Get out the chine strakes together and fit them into place. Now space the frames for the number of strakes required, by the width of your available stock, to plank up the side by using a divider or compass. It is a good plan, for the sake of appearance, to arbitrarily set the width and taper of the sheer strakes so that a good sheer to the bottom of the strake exists, say slightly more than the sheer of the hull. Then space the distance between this and the chine strake for the desired number of strakes. This general method of lining-off is better than "goring," which consists of laying off the frames into an equal number of plank widths and then trying to cut the strakes to come to their marks, for this method is not only uneconomical but is impractical in some forms of hull. Lining-off is not difficult and requires only patience and an appreciation of the appearance of nicely placed seams and well-proportioned strakes. The "Southwind" is a relatively easy form to line-off and gives a good chance to learn something about this builder's art. I recommend that the sheer strake be 5 in. deep amidships and be made so that its lower edge parallels the "Paint Line" shown in the lines, if your stock will permit.

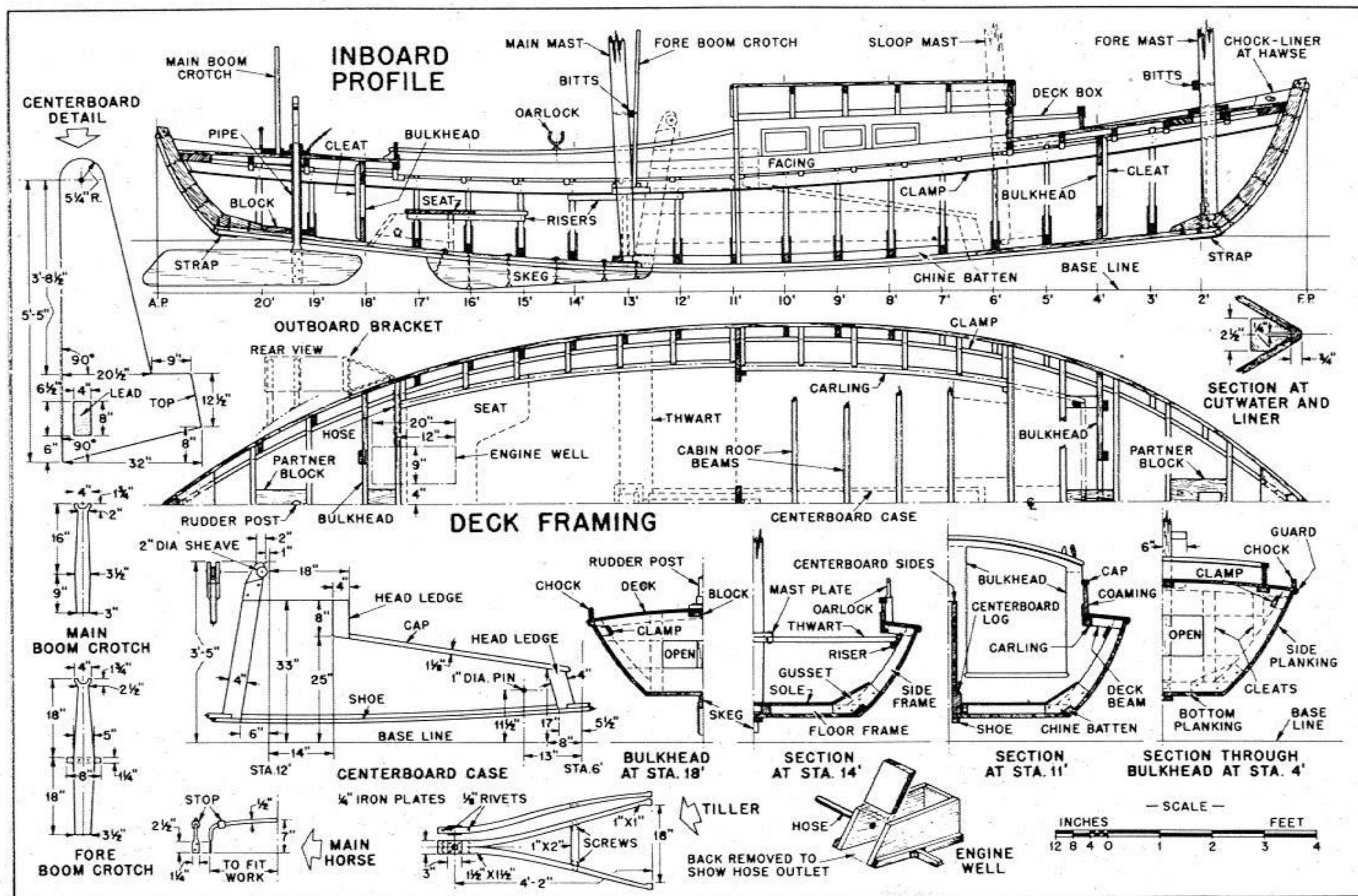
When the planking is complete, the clamps can be shaped and placed at the necessary height along the inside of the frames. It is usually easiest to make these

each in two lengths, with a butt-block somewhere amidships. The butting can be done after each half is secured in place. The inside of the frames, where the clamps bear, will have to be beveled of course, and most builders will do this with hand tools in any case. The ends of the clamps should be fastened to cleats, one on the inside face of the stem and stern liners. This done, you can dress off the ends of the side planking at bow and stern and spring the cutwater moldings into place. These are merely steam-bent oak strips through-fastened as bent and can be readily understood from the drawings. The bottom of the cutwaters cannot be trimmed until the shoe is placed and this is best done when the hull is ready to be shifted from the forms or stocks.

The deck beams are next made up and placed. These will be fastened by galvanized wire nails to the clamps. Since the carlins are in short lengths, I think it is best that they be sawed to the half-breadth curves and for sheer out of thick stock as listed. The stiffener plank can be cut out of the boat but I would be in no hurry to remove the spalls, for they hold the sides in shape and can be cut away later. Once the deck beams are in place, the deck blocking can be placed. Now the

bulkheads can be completed and the rudder-post pipe fitted. The thwart for the mainmast and the risers for this and the sternsheets can be fitted; if there is to be an outboard motor well this, too, should be completed before any decking is laid.

When the boat is complete and ready for sailing trials she will need some ballast. Gravel or sand, in canvas bags 20 in. x 12 in. are preferred—the bags can be fitted between the floor timbers under the sole if not completely filled and may be held in place by “stops” tacked between the floor frames. Ten bags should be sufficient and fine sand is the best ballast. The exact position of the ballast will depend upon the gear put aboard—an outboard in a well aft will necessitate less ballast and the weight must be placed farther forward than when no engine is used. On the other hand, the use of a cuddy and its attendant gear will require the ballast to be placed farther aft than when the open cockpit is used. With the jib-and-mainsail rig do not place the deck lead-blocks for the jib sheets permanently until after the sail has stretched into its final shape. One way to fit the lead blocks so that they can be easily shifted is to place an oak batten on deck; this should be 1 in. wide and about  $\frac{7}{8}$  in. high—say



26 in. long. There should be a batten for both sides of course and they should be made with the top about  $\frac{1}{8}$  in. narrower than the base. The battens should have their bottoms notched out, scupper-fashion. These notches should be  $\frac{5}{16}$  in. in depth and about  $\frac{3}{8}$  in. fore-and-aft—the notches spaced about 3 in. on centers. The upper corners of the battens should be well rounded. These are fastened to the deck with screws and at least two  $\frac{1}{8}$ -in. stove bolts through batten, deck and deck-beam. The lead blocks may be lashed to these battens with small line or with a rawhide thong.

“Southwind,” like any sailing boat, will require “tuning up” and after the sails are stretched it may be necessary to change the rake of the masts or to shift the ballast to trim the boat a little by the bow or stern, so that she steers easily. Her balance will be affected also by the depth to which the centerboard is lowered. Only in rough water and strong winds would you give the boat all of the board which, in any case, should not be lowered so much as to allow the arm at the after end to leave the case entirely. Running before the wind you will usually house the board or, in a strong breeze and a sea, you may show just a little of it to steady the boat. May you have good sailing! •

## SPECIFICATIONS AND BUILDING INSTRUCTIONS

**Loft-work**—The hull is to be accurately lofted as given in the Lines and offset tables; including coamings, cuddy sides, chock rails, rudder, centerboard and case. Patterns for frames, stem and stern liners, deck beams, camber of bottom, coamings, etc., shall be made from the loft-work.

**Stocks**—The hull is to be built on her assembled bottom right side up. The stocks shall be made of two uprights and a crosspiece, all 2"x4" common lumber, bolted together with  $\frac{1}{4}$ " diameter iron carriage bolts, 5" long. There shall be one of these structures at each even-numbered station—making the forms two feet apart. The forms shall be placed so that those at Stations 2 to 10 have their after faces (of crosspiece) on the station lines or marks; those from 12 to 20 shall have the forward faces of the crosspieces on the station marks—to avoid the necessity of beveling. Each set of forms shall be secured to the floor and braced as necessary with 1"x4" common lumber to give a rigid and strong structure, without side or end movements. Uprights are to be placed clear of the boat of sufficient height to allow a chalk-line or wire to be stretched above the hull on the stocks as a centerline. The heights of each set of stocks will be determined from the loft-work to bring the hull, when mounted on them, to suitable working height. Single legs or braces should be placed under stem and stern to support the bottom.

**Bottom Plank**—The bottom is to be made of yellow, or white pine, or white cedar; the strakes to be in single lengths and of 1 $\frac{1}{4}$ "x8" plank; to finish 1 $\frac{1}{8}$ " thick. The bottom will be assembled and held together by the floor frames, which will be placed on the stations shown (none on Stations 2' and 20'); those with their after faces on the station marks are frames numbered 3' to 11' inclusive and those with their forward faces on the station marks are the

frames numbered 12' to 19' inclusive. The floor frames will be beveled to stand plumb when the bottom is sprung over the stocks. The shape of the bottom will be expanded from the mold-loft work and the bevels will be taken there. The bottom plank will be tightly wedged together before being fastened to the floor frames—or the bottom may be temporarily cleated together clear of the floor frames if desired. The bottom will be marked with a centerline and the centerboard slot will be cut as required in the Lines. When the bottom is assembled it will be mounted on the stocks, aligned, and sprung to the fore-and-aft camber. It will be held in this position by either temporary fastenings to the stocks or by overhead braces as the situation permits. In assembling the bottom, the seams should be payed with white lead or marine glue and caulked with cotton.

**Stem and Stern Liners**—The stem and stern liners shall be cut from sound 3" oak plank or knees, to side 2 $\frac{1}{2}$ " when dressed and to mold as shown in the plans. The liners are to have no rabbets and are to be beveled on the sides to take the side-plank which will come flush with the forward face of each liner. The amount of bevel will be ascertained in the loft-work. The liners will be bolted to the center-plank of the bottom with two  $\frac{1}{4}$ " diameter galvanized iron carriage bolts with the heads countersunk in the outside of the bottom plank.

**Frames**—The floor and side frames shall be cut from sound oak plank 1" thick, to dress not less than  $\frac{7}{8}$ " thick. The floor frames will mold 2" and be beveled. The side frames will mold 1 $\frac{3}{4}$ " at head and 3" square to face at chines. The side frames shall be joined to the floor frame by brackets of  $\frac{1}{4}$ " marine plywood, one on each side of every butt. The brackets are to be formed as shown in the drawings and are to be fastened with four galvanized iron stove bolts with round heads— $\frac{3}{16}$ " diameter and 1 $\frac{3}{4}$ " long—or by roundhead screws 1" long—No. 6 wire. If the latter are used each bracket will have four fastenings. Floor frames fastened to bottom plank from top with 3" boat nails spaced about 2" apart, or by 3" No. 10 wire screws.

**Chine Battens**—The chine battens or logs will be cut from 1" oak or yellow pine plank and will dress to about  $\frac{7}{8}$ "x3". The chine batten will run from frame 7' to frame 13'; it will be fastened to the end of each floor frame by a 2" No. 10 wire galvanized iron screw. The chine batten will be nailed to the bottom plank by 4" galvanized iron wire nails driven from the top of the batten after boring for same. There will be one nail every six inches along the batten, keeping clear of the frames.

**Spalls**—To be made of common lumber 1" thick and not less than 3" wide—these are to be fastened across every pair of side frames some 5" below the sheer mark of the frames. The spalls are to be fastened to the side frames with 1 $\frac{1}{2}$ " common round-head iron screws—No. 5 wire.

**Clamp**—The sheer clamps are to be of 1" yellow pine or fir plank—to dress  $\frac{3}{4}$ " thick and from 3 $\frac{1}{2}$ " deep amidships to 2 $\frac{1}{2}$ " at bow and stern. The clamps may be butted amidships. Fastenings at the butts and to the frame-heads will be with 1 $\frac{1}{2}$ " galvanized iron roundhead screws—No. 5 wire. The clamp will be secured to each frame with two fastenings and there shall be eight fastenings in the butt-block if used.

**Centerboard Case Logs**—These shall be of white or yellow pine, or cedar, and cut from 2" plank. They shall stand 5" above the bottom plank at frame 11' and shall stand 3" above the bottom plank at the fore-ends. The bottom of the logs shall be dressed to fit the camber of the bottom. The logs shall be laid on flannel strips saturated with thick paint or a marine glue and shall be bolted to the bottom plank with galvanized iron carriage bolts— $\frac{1}{4}$ " diameter and 3 $\frac{1}{2}$ " to 5 $\frac{1}{2}$ " long—spaced 6" apart. The heads shall be countersunk into the bottom plank so as to stand flush with the outboard face. The outboard corners of the tops of the logs shall be beveled to drain and the bolts shall stand in the bevels with washers under the nuts.

**Centerboard Case Head Ledges**—These shall be cut of 2" oak or yellow pine plank, to be dressed to 1 $\frac{1}{2}$ "x4" of the shapes indicated in the plans. The



deck foundation block 1" thick and to be secured with 2" screws. The rudder post is to be made of 1" diameter rod, squared at top for 2" and with a welded clevis and galvanized to take the rudder blade as shown in the plans. There are to be three 3/16" diameter holes in the rod above the deck as shown for adjusting rudder depth and a suitable iron pin, secured with a short chain or rawhide lanyard, will be fitted to the holes to allow this adjustment of the rudder. A suitable bolt with nut will be placed in the uppermost hole as a stop to prevent loss of the rudder, once it is shipped.

**Rudder-blade**—The rudder-blade shall be made of 1" oak plank, to dress 7/8"x8", as shown in the Lines. It will be fastened to the clevis of the rudder-stock by means of six 1/8" diameter rivets or rod. The blade must be of well seasoned stock to avoid warping—if it is deemed necessary to use stock not thoroughly seasoned yellow pine may be used with some 1/8" diameter rod driven as edge-bolting through the blade vertically.

**Skeg**—To be made from 1 1/4" oak or yellow pine and bolted with 3/16" diameter carriage bolts or drifted with 1/4" diameter galvanized iron rod.

**Shoe** is to be of 1" oak or yellow pine plank dressed to 3/4"x5" and tapered at bow and stern as indicated in Lines. The shoe is to be fastened to the bottom plank with 1 1/4" boat nails.

**Cutwaters**—The cutwater strips are to be of steam-bent oak, finished to 3/4"x1 3/8" and bent on the flat. These will cover the hood ends of the side planking and be dressed off to a rounded finish when in place as indicated in the plans. Fastenings will be 1/8" diameter galvanized iron stove bolts or 4" No. 10 wire galvanized screws. The heels shall be protected by 10" of galvanized iron strap, 1/8"x1 1/2", screw-fastened to cutwater strip and outside of shoe with 3/4" No. 4 wire screws.

**Coamings**—To be made of 1" plank, white or yellow pine, cedar, fir or mahogany—to dress to 3/4"x-10" (or 3/4"x6" if open cockpit is used without cuddy). To be fastened with 3" galvanized wire nails from below the carlins and with 1 1/2" roundhead brass screws elsewhere—No. 4 wire. The cap is to be of 3/4"x1" mahogany, oak or yellow pine, fastened with 1 1/2" flathead brass screws, No. 4 wire or by finishing nails. Cuddy sides to be pieced up of same material as coamings with corner cleats—the side ports to be hinged to swing inboard or to be fixed, as owner directs.

**Cabin Roof**—The cabin roof, if required to lift, shall be supported by a frame around the top of the cuddy sides—to be sawed from 2" white or yellow pine plank—and to finish 1 1/2"x2" or thereabouts—with a rabbet at the bearing of the frame in the trunk-sides. The roof beams shall halve into the frame and shall be sawed from 1" oak plank to finish 7/8"x1 1/2" and crowned as required by the plans. The cabin roof to be of 3/8" cedar, white or yellow pine, or 1/4" marine plywood, canvas covered. If the roof is to lift the corners of the frame it should be blocked with pieces of 1" cedar or pine. If the roof is to be fixed the frame may be omitted and the roof beams may rest on a batten 7/8"x1 1/4" run around the sides of the cuddy trunk. The grab rail is made of 1" oak or pine and fastened with screws to the cabin roof beams. Piano hinge may be used if the cabin roof is to lift, and wooden support braces are required at the after end.

**Chock Rails**—To be fitted at bow and stern as shown in Lines—to be made of 1" oak or yellow pine as shown and screw-fastened with 4" to 3" galvanized iron screws, No. 10 wire or with 4" wire nails galvanized. The hawse is to be bored through the fore chock rail as shown. 1 1/4" diameter and backed with a 3/8" thick oak plate screw-fastened inside the bow chock rails.

**Fittings**—The tiller to be of the wishbone type as shown and fitted with two 1/8" thick galvanized iron plates, riveted to the tiller parts, to take the head of the rudder-post. The tiller may be fitted with yoke-lines as well to allow steering from forward. The mainsheet horse is to be made of wrought iron and galvanized as shown in the detail. Mast Crotches—to be made of oak or yellow pine as owner directs.

Bitt-pieces to be fitted to masts in sharpie rig as shown in plans—a wooden or metal anchor—line cleat to be fitted on the fore-deck with the jib-and-mainsail rig. Oarlock blocks to be fitted on outside of coamings with galvanized iron locks with chain lanyards and toggles.

**Outboard Engine Mounts**—Well may be placed between frames 16' and 18' as shown in the plans; this will require an exhaust made by installing hose and hose fittings to vent the well through the side of the hull above the waterline. The well should be built of 1 1/4" plank and bedded on flannel saturated in thick paint or marine glue. It is recommended that the well be fitted with a door, rabbeted to fit over battens on the inside of the well and to come flush with the bottom of the hull, to reduce the resistance of the well when sailing. If a side bracket is preferred it may be built as shown in the sketch of 1/4"x1" iron strap and should be fitted between frames 18 and 19 as indicated.

**Spars**—The masts and booms and other spars are to be of spruce, fir or white pine and are to be made to the dimensions shown in the selected sail plan. Masts are square from tenon to a little above the partners. Masts will be secured with mast plates of oak secured to deck or thwart so that mast rake may be changed. Partner holes to be longer than necessary to allow this. Plates to be bolted. If the jib-and-mainsail rig is used the mast may be clamped to the deck beam at the fore-end of the cuddy or cockpit, or may be fixed in the cabin roof-top if it does not lift. The clamps to a deck beam should be made of 1/8"x1 1/2" galvanized iron strap with 1/4" U-bolts through the deck beam as staples; the clamp wedged in these by metal or oak pins. Copper rivets to be used in gaff-battens.

**Sails**—The sails to be made to the dimensions shown—which are "stretched dimensions"—and are to be commercial grade. The sails in the sharpie rig to be fitted with iron mast-hoops below the gaff-battens and with short lacing lines and toggles above—or the whole of the luff may be laced. The mainsail in the jib-and-mainsail rig is to be laced to mast, boom and gunter-pole. The jib to be hanked to the stay with either lacing and toggles or snap hooks. In the latter rig the forestay is not to be spliced at the ends but seized. The stay shall be of galvanized flexible wire rope of the size shown.

**Rigging**—All running rigging shall be of 3/8" diameter manila.

**Blocks**—Blocks as specified in the sail plans to be commercial grade with roller bushings, where possible.

**Paint**—The hull and deck to have one prime coat and two finish coats—the underbody to have two coats of antifouling. The interior, above the cabin sole to be painted with three coats—one being priming—but the bilges are not to be painted and shall be given, instead, two coats of boiled linseed oil or a 50-50 mixture of kerosene and creosote. Spars are to be varnished—two coats of spar varnish.

## BILL OF MATERIALS

**Stocks**—100 lineal feet of 2"x4", random lengths, common grade, pine, fir, spruce or hemlock; 100 lineal feet of 1"x4", random length, material as above; 18 carriage bolts, 1/4" dia., 5" long, with washers; 3 lbs. tenpenny nails.

**Bottom**—Three planks 1 1/4"x8", 20 feet long; Two planks 1 1/4"x8", 18 feet long; Two planks 1 1/4"x8", 16 feet long; Two planks 1 1/4"x8", 12 feet long; Yellow or white pine or white cedar. All dressed to 1 1/8" thick.

**Stem and Stern Liners**—One 3"x10", 8 feet long, white oak. Dress to 2 1/2".

**Frames**—90 lineal feet of 1"x6" oak, random lengths. Dress to 7/8"; 45 lineal feet of 1"x5" oak, random lengths. Dress to 7/8".

**Brackets and other plywood**—Marine grade, 1/4", one sheet 4'x6'.



**Chine Battens**—One plank of 1"x6" oak or yellow pine, 8'-0" long to rip and finish into two pieces 1/8"x3".

**Spalls**—70 lineal feet of 1"x4" common lumber—random lengths; 3 doz. roundhead screws, 1 1/2" long, No. 5 wire.

**Clamps**—Two 22'-0" planks or four 12'-0" planks, 1"x4" to dress to 3/4"x4". Yellow pine or fir.

**Centerboard Case Logs**—Two 2"x6", 8'-0" long pieces, white or yellow pine or cedar.

**Case Head Ledges**—One 2"x4", 6'-0" long, piece of oak or yellow pine—to dress to 1 1/2"x4".

**Blocking**—One piece of 2"x6", 4'-0" long—oak or yellow pine; One piece of 2"x8", 4'-0" long—oak or yellow pine; One piece of 1 1/2"x12", 6'-0" long—white or yellow pine or cedar.

**Cockpit Sole**—300 lineal feet of 1/2"x3" yellow pine, white pine or fir.

**Mast Thwart**—One piece 1 1/2"x10" oak or yellow pine, 6'-0" long, to dress to 1 1/4"x9" full. Risers to be cut from one piece of 1 1/4"x6", 5'-0" long—oak or yellow pine.

**Side Plank**—Fitch cedar, white or yellow pine, or fir, 1", to dress to 3/4" in 24 ft. lengths. 15 planks.

**Deck Beams**—70 lineal feet of 1"x6" oak—dressed to 7/8" thick.

**Carlins**—Four pieces of 2"x6", 8'-0" long, yellow pine or fir.

**Bulkheads**—Two plank, 1"x8", 14'-0" long—white or yellow pine, cedar or fir—to dress to 7/8"; one piece 1"x8", 10'-0" long, oak or yellow pine, dressed to 3/4" for cleats.

**Decking**—1"x4" cedar, white or yellow pine, fir, random lengths, 300 lineal feet. Dress to 3/4" thick.

1st Alternate—1"x1 1/2", random lengths, 700 lineal feet. Dress to 3/4" thick.

2nd Alternate—1/4" marine plywood—5 panels 4'-0"x6'-0". 12 yards canvas 36" wide.

**Case Sides**—Three plank 1"x6", 12'-0" long, cedar, white or yellow pine dressed to 7/8".

**Cap**—One piece 1 1/4"x6", 6'-0" long cedar or yellow pine. Dress to 1 1/8" thick.

**Centerboard**—Two plank 1 1/4"x8", 8'-0" long, oak or yellow pine. Dress to 1 1/8" thick.

**Rudder Blade**—One piece, 1"x9", 6'-0" long, oak or yellow pine. Dress to 7/8" thick.

**Skeg**—One piece 1 1/4"x8", 6'-0" long, oak.

**Shoe**—Two pieces, 1"x6", 12'-0" long, dress to 3/4" thick. Oak or yellow pine.

**Cutwater Strips**—One piece 1"x2", 10'-0" long, dress to 3/4". Oak for steam-bending.

**Coamings**—Five pieces 1"x10", 8'-0" long for cuddy construction. Finish 3/4"; one piece 1"x8", 12'-0" long for cuddy construction. Finish 3/4"; one piece 1"x8", 6'-0" long for cuddy construction. Finish 3/4"; two pieces 3/4"x1", 12'-0" long, for cuddy construction. Finish 3/4"; or five pieces 1"x6", 8'-0" long for open cockpit. Finish 3/4"; five pieces 3/4"x1", 8'-0" long for open cockpit. Finish 3/4". All mahogany, cedar, white or yellow pine or fir.

**Cabin Roof**—One 2"x4" white or yellow pine, 12'-0" long; one 1 1/2"x8" white or yellow pine, 6'-0" long, frame for lift roof.

**Beams**—Two 1"x8", 10'-0" long, oak. Dress to 7/8".

**Roof**—100 lineal feet of 3/8"x4" cedar or white pine or two panels of 1/4" marine plywood, 4'-0"x-6'-0". 4 yards canvas 36" wide.

**Chock Rails**—Oak or yellow pine. Two plank, 1"x4", 12'-0" long.

**Miscellaneous**—Oak. One piece 1"x2", 12'-0" long.

to bend. White or yellow pine, sternsheets. Two plank 3/4"x8", 6'-0" long. Locust, 1"x1", 20" long. Oak or yellow pine, 1 1/4"x4", 12'-0" long. Oak, 2"x2", 6'-0" long.

**Fastenings**—Galv. iron screws—Roundhead—1 gross 1", No. 6 wire; 1/2 gross 1 1/2" No. 5 wire.

**Flatheads**—1/2 gross 2", No. 10 wire; 1 doz. 2", No. 6 wire; 1/2 gross 3", No. 6 wire; 2 gross 3/4", No. 5 wire; 3 doz. 3", No. 10 wire; 4 doz. 4", No. 10 wire.

**Brass Screws, roundhead**—2 gross 3/4", No. 4 wire; 2 doz. 1 1/2", No. 4 wire.

**Carriage Bolts**—1/4" dia.—1, 3" long; 4, 3 1/2" long; 8, 4" long; 6, 4 1/2" long; 10, 5" long; 8, 5 1/2" long.

**Stove Bolts, Roundhead**—60, 3/16" dia., 1 3/4" long; 3, 3/16" dia., 3 1/2" long; 4, 3/16" dia., 4" long; 4, 3/16" dia., 3 1/4" long.

Flathead—12, 1/8" dia., 4" long.

Galv. Rod, 1/4" dia., 24 feet.

Wrought Iron Rivets, 1/8" dia., 2" long, 1/2 doz.

Galv. Wire Nails—2 lb. 4"; 2 lb. 1 1/4"; 3 lb. 3".

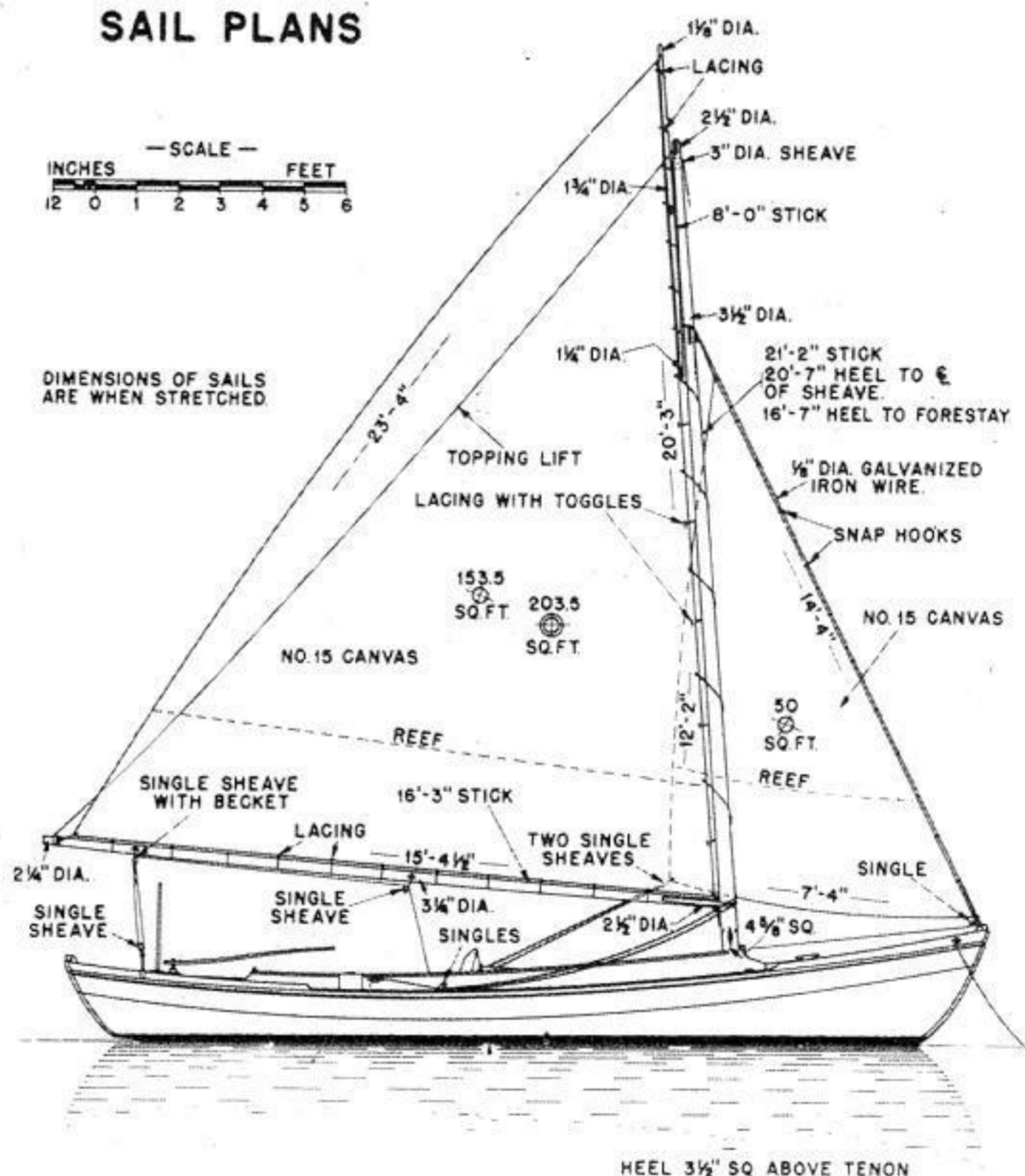
Boat Nails, Galv.—1 lb. 1 1/2"; 8 lb. 1 1/4".

**Paint**—3 quarts topside; 1 1/2 gal. deck and cuddy and interior; 4 quarts antifouling; 2 quarts varnish; 2 quarts creosote; 2 quarts kerosene.

2 1/2 yds. flannel; 1 lb. caulking cotton.

Spars and hardware to be taken from plans to suit owner's requirements, see plans.

### SAIL PLANS



## LARGE-SCALE PLANS

will greatly simplify construction. Send \$2.50 to MECHANIX ILLUSTRATED Plans Service, Fawcett Building, Greenwich, Conn. Please specify Plan No. B-217.

