

How-to-Build the 36-Footer Sea Dawn

Designed by Daniel S. Crocker, Jr.

No. XXXIII in *The Rudder's Series of Working Plans*

Note: We cannot guarantee speed, seaworthiness or safety of this boat if built at variance with the published plans and specifications. If changes are contemplated we should be consulted

ON THE four following pages you will find a complete set of designs for the construction of an auxiliary ketch which we have named Sea Dawn. This boat was designed by the well-known Boston designer, S. S. Crocker, Jr. who has specialized for many years in the design of yachts of the cruising type.

Sea Dawn is 36-feet in length and 11 feet in width and is of the husky seagoing type intended for service on deep waters but just as suitable for sailing on Long Island Sound, the Great Lakes or any similar bodies of water.

In recent months we have heard a great deal about the seaworthiness of centerboard boats and we have received so many letters in this regard that we have no excuses to make for the use of the board in Sea Dawn. She is not an extreme shallow draught craft for there is a fairly deep keel with a good deal of drag which should be sufficient to permit her to go to windward in shoal water with a fair amount of success. In deeper waters the board can be sent down to provide the maximum lateral plane area.

The ketch rig was used for obvious reasons. For short-handed cruising there has never been a better rig. In a short squall the mainsail can be let go with a rush and there will still be canvas enough to keep way on the boat. The average yawl has so small a mizzen that she will do nothing but bob up and down in the sea if the mainsail is taken off. The total area of canvas is low but quite sufficient for a cruising boat where comfort is the watchword and the crew is not pleased with the idea of jumping about every few minutes shifting sails. If there is any one item which can utterly spoil a good hull it is over-canvassing.

Sea Dawn is fitted with a gaff-headed rig. Without a doubt many readers will think that they prefer the jib-headed, or Marconi, rig. Those who insist upon making this change are referred to the designer who no doubt will be quite willing to design a new sail plan, at his regular fee for such work. From the standpoint of THE RIGGER staff we urgently advise you to stick to the gaff rig. If Sea Dawn was intended for afternoon racing we would suggest a marconi rig but for ordinary cruising there has never been a better rig than the one shown.

Below decks Sea Dawn is laid out to suit the desires of the average yachtsman. There are berths for four and a good toilet and galley. The latter is equipped with a sink, ice-box and one of the old-reliable Shipmate ranges. We believe that many owners of this fine boat will feel that four is a crowd, and not company, in a boat of this size. A suggestion for such folks would be to make the saloon berths a little longer and to add a great deal to the locker space.

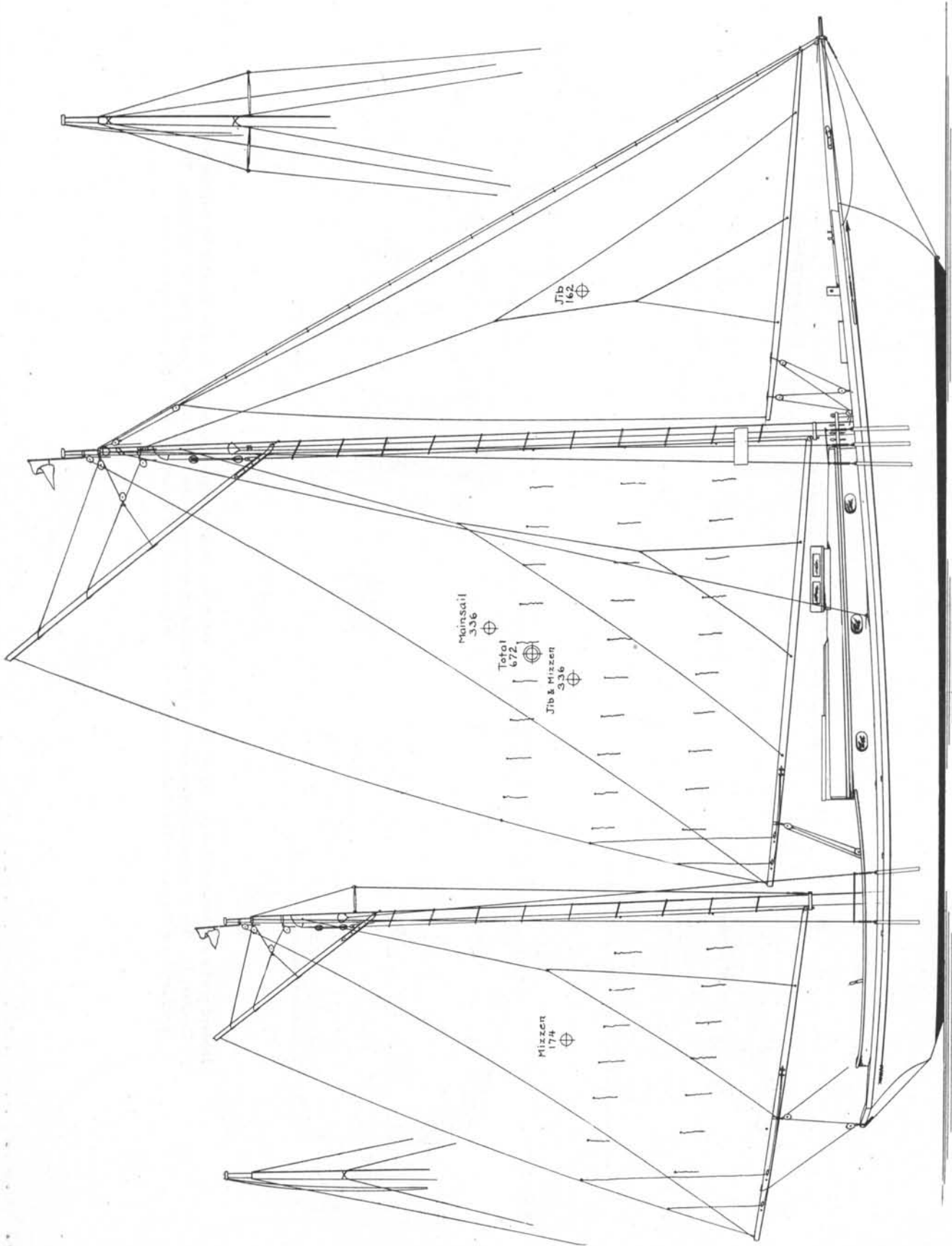
There is not quite full headroom for a tall man in the cabin except beneath the skylight and the companion hatch. This fault is not nearly as serious as it may seem at first glance for there is not much space in any boat of this tonnage to walk about. Most of your waking hours will be spent on deck and most of the time you are below you will be seated upon the transoms. The man who positively will not tolerate a boat without full headroom for a six-footer can increase the height of the cabin side three or four inches and thus get his vertical dimension at the expense of a slight injury to the appearance.

It is suggested that builders sketch up various arrangement plans—providing the one shown will not suit—and submit them to THE RIGGER for additional advice but, if you do change the arrangement, don't rely too much on your own draftsmanship but lay out the final location of bulkheads in the actual boat with chalk.

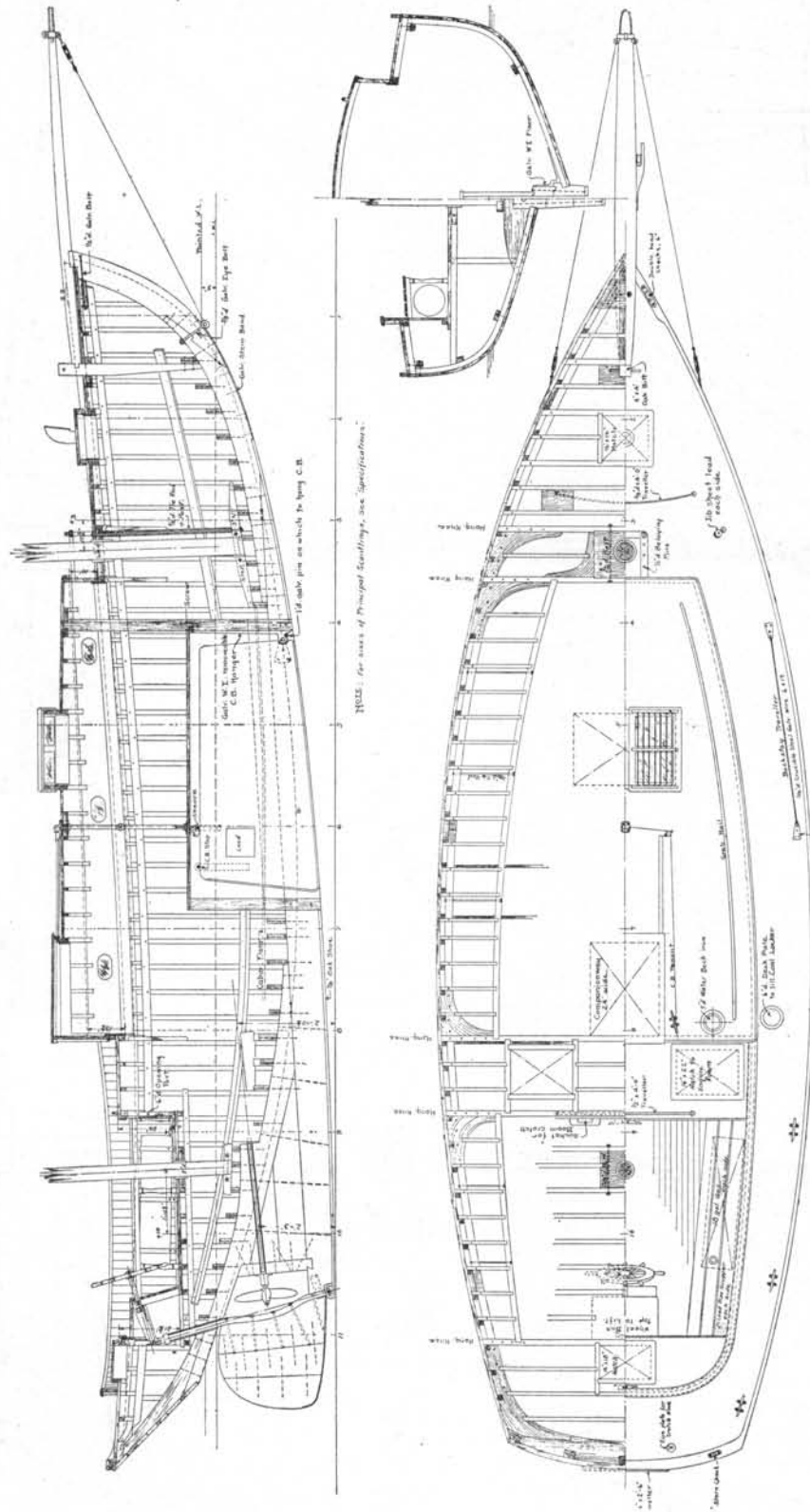
As to whether or not you can build Sea Dawn; that is something which we cannot tell you. She is not the simple hull that we presented in Sea Bird, Seagoer and some of our other How-to-Build articles. As a generality we would say that the inexperienced amateur will not be able to build Sea Dawn in a manner worthy of so good a design. The man who has built one or more boats and has a good shop, plenty of tools and a few friends willing to give him a hand should be able to complete her. A professional woodworker, even if he has not had boatbuilding experience should also be able to make a good job of the boat. The unskilled amateur had better leave her alone before he wastes a great deal of time and money.

Mention of amateur builders always brings up the question of price. Built in a good shop Sea Dawn will cost between \$5,000 and \$7,000. Built in one of the plants where nothing but the finest of work is turned out she will run to \$10,000. The actual cost of her material and equipment will run close to \$1,200, maybe a bit more or less depending upon the market quotations in your particular section. Consider the fact that lumber which costs nine cents a board foot in some sections will run up to twenty cents in others.

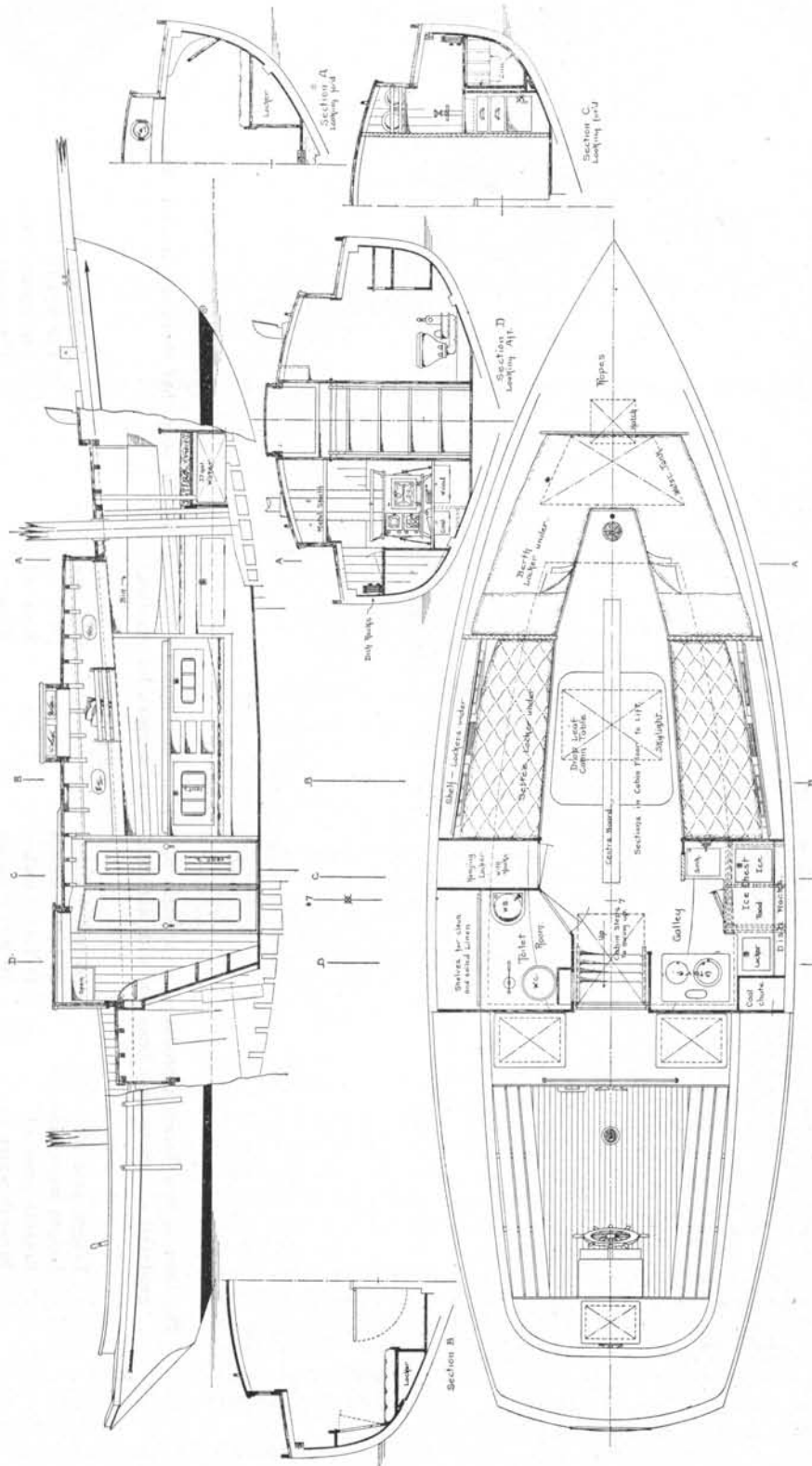
In the February issue of THE RIGGER we will continue this article on Sea Dawn by giving you a complete set of specifications, the table of offsets and other information of value to both amateur and professional builders. Please remember one thing, the yacht was designed by an experienced architect, the plans were checked by another and if you are so foolish as to change their work you must bear the consequences. Your chance of improving the boat—unless you are a qualified designer—is a ten to one shot, with you holding the short end.



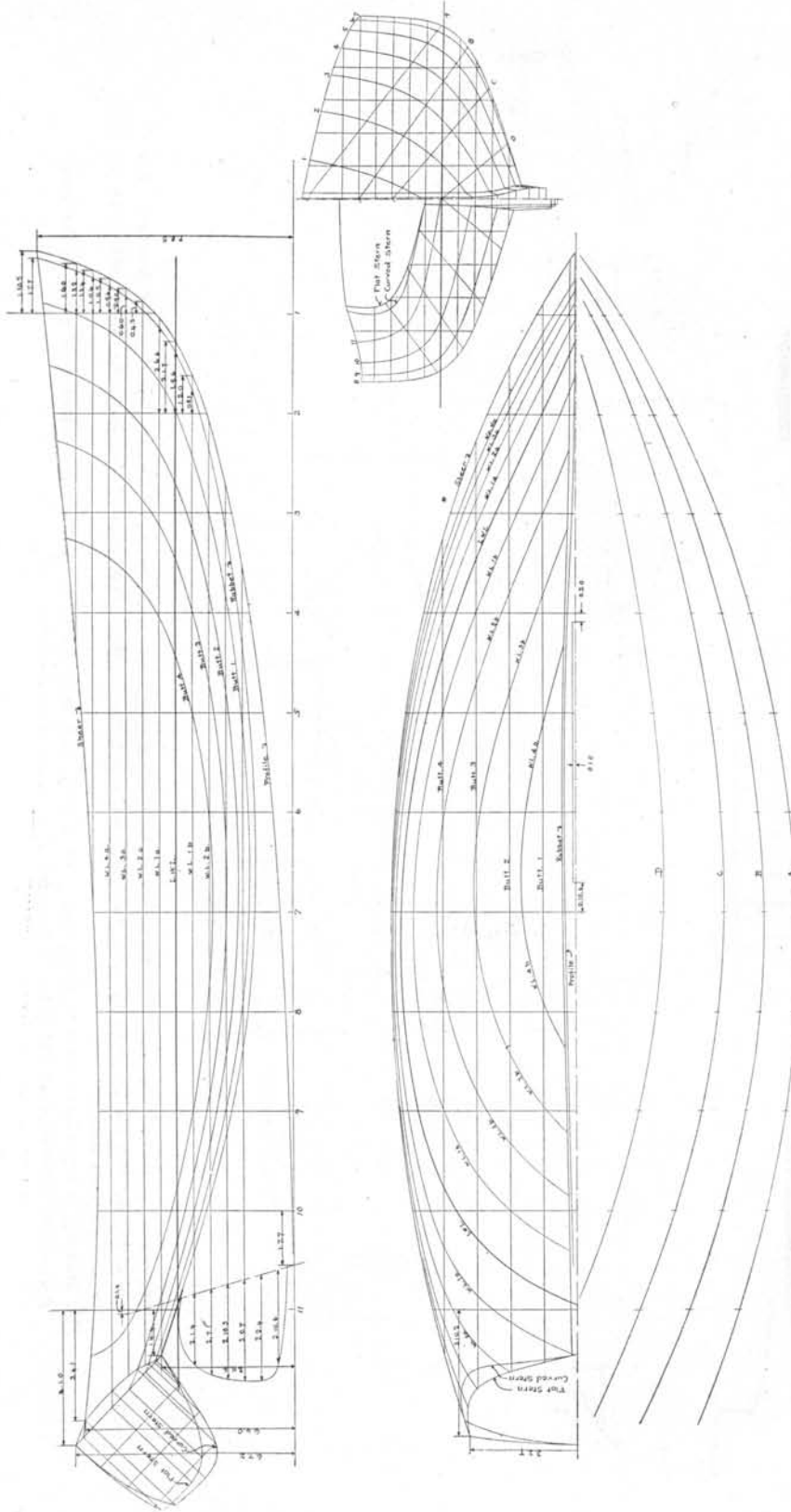
The auxiliary ketch Sea Dawn designed by S. S. Crocker, Jr. for The Rigger. This sail-plan is reproduced on a scale of 3/16th inch equals 1 foot



Inboard profile and beam and deck plan of the auxiliary ketch Sea Dawn designed especially for The Rudder by Samuel S. Crocker, Jr. The sectional drawings show the construction in the way of the centerboard trunk and the shaft-log. The specifications will appear in The Rudder for February. Reproduced to a working scale of 3/16th inch equals 1 foot



Arrangement plans of the auxiliary centerboard ketch Sea Dawn designed by S. S. Crocker, Jr. for The Rudder. The cabin is laid out for the average man but there are innumerable other arrangements which each builder can work out to suit his own desires. The drawing is reproduced to a working scale of 3/16th inch equals 1 foot. Always use dimensions given in the specifications or lettered upon the plans in preference to scaled measurements.



The lines of Sea Dawn reproduced to a scale of 3/16th inch equals 1 foot. It will be seen that Architect Crocker has produced a craft of easy lines but with sufficient body to make for comfort

DIMENSIONS

Length over all	-	-	36 feet 0 inches	Sail area	-	-	672 square feet
Length water line	-	-	29 feet 0 inches	Jib	-	-	162 square feet
Breadth over all	-	-	11 feet 0 inches	Mainsail	-	-	336 square feet
Breadth water line	-	-	10 feet 6 inches	Mizzen	-	-	174 square feet

How-to-Build the 36-Footer Sea Dawn

Designed by Samuel S. Crocker, Jr.

No. XXXIII in The Rudder's Series of Working Plans

(Concluded from January)

Note: We cannot guarantee speed, seaworthiness or safety of this boat if built at variance with the published plans and specifications. If changes are contemplated we should be consulted

IN THE last issue of THE RUDDER we published the complete plans, to scale, of the auxiliary ketch Sea Dawn designed especially for THE RUDDER by Samuel S. Crocker, Jr.

In this issue you will find the table of offsets and a complete set of specifications as written by the naval architect. This completes the publication of this design, one of the finest types which we have presented in our famous series of working plans of worth while boats.

Sea Dawn is not a craft for the inexperienced amateur to build for the construction is too complicated and heavy for anything but the professional or the amateur who is

accustomed to boat work and has all the tools and shop facilities necessary for the building of so large a craft.

The design has been kept as simple as possible to keep down the cost but in no case has cheapness of construction been placed ahead of staunchness and the ability to go to sea and stay there just as long as the grub and water holds out.

The specifications which are continued on the following pages are exceptionally complete and builders are warned that no changes from either the plans or specifications should be made without consulting the architect of the Readers' Service Department of THE RUDDER.

(Specifications continued on page 70)

Offset Table No. 100

S.S. Crocker, Jr. - Naval Architect - Boston, Mass.

October 25, 1927

Sections	Heights Above Base			—Half Breadths—														
	Sheer	Rabbit	Profile	Sheer	Wl. 6a	Wl. 5a	Wl. 4a	Wl. 3a	Wl. 2a	Wl. 1a	Le.Wl.	Wl. 1b	Wl. 2b	Wl. 3b	Wl. 4b	Rabbit	Profile	
1.	7.5.6½	4.4.6	4.1.4	1.2.2	0.11.6½	0.10.2	0.8.2	0.5.6	0.2.6½								0.2.2	0.0.4
2.	7.1.7	2.9.3	2.7.0	2.7.7	2.6.6	2.5.3	2.3.4	2.1.0	1.9.6½	1.5.5	1.0.3	0.5.5					0.2.2	0.0.4
3.	6.10.2	2.1.0	1.9.6	3.9.2	3.8.6	3.7.6	3.6.3	3.4.4	3.1.7	2.10.1	2.4.6	1.9.3	1.0.0				0.2.6	0.1.3
4.	6.7.1	1.7.4	1.3.2½	4.6.7		4.6.3	4.5.4	4.4.2½	4.2.4	3.11.6	3.7.2	3.0.3	2.2.6	1.2.5½			0.3.7	0.3.1
5.	6.4.1	1.3.6	0.10.5	5.1.3		5.1.2	5.0.6½	5.0.0	4.10.7	4.8.7	4.5.5	4.0.1	3.3.3	2.2.1	0.11.0		0.4.6	0.4.0
6.	6.1.6	1.1.5	0.7.1	5.5.1½			5.5.0	5.4.4	5.3.7	5.2.5	5.0.2	4.7.7	3.11.5½	2.10.6	1.6.0		0.5.0	0.4.2
7.	6.0.0	1.1.5	0.4.4	5.6.5			5.6.4	5.6.2½	5.5.7	5.4.7	5.2.7	4.10.5	4.2.2	3.0.4	1.7.2		0.4.6	0.3.7
8.	5.10.7	1.4.2	0.2.5½	5.6.2			5.6.2	5.6.1	5.5.5½	5.4.5	5.2.1	4.8.6	3.10.2	2.6.0	0.10.2		0.4.1½	0.3.2½
9.	5.10.4	1.10.2	0.1.2½	5.3.7			5.3.6	5.3.4	5.2.5	5.0.7	4.9.2	3.11.7	2.8.0	0.10.6			0.3.4	0.2.6
10.	5.11.0	2.7.5	0.0.3	4.11.2½			4.11.1	4.10.3	4.8.6	4.4.7	3.7.7	2.0.1					0.2.6½	0.1.7
11.	6.0.4	3.6.6½	3.6.5	4.4.1½			4.3.2½	4.1.5	3.9.0	2.6.6							0.2.2	0.0.3

All dimensions are in Feet, Inches and Eighths to Outside of Planking and Top of Deck

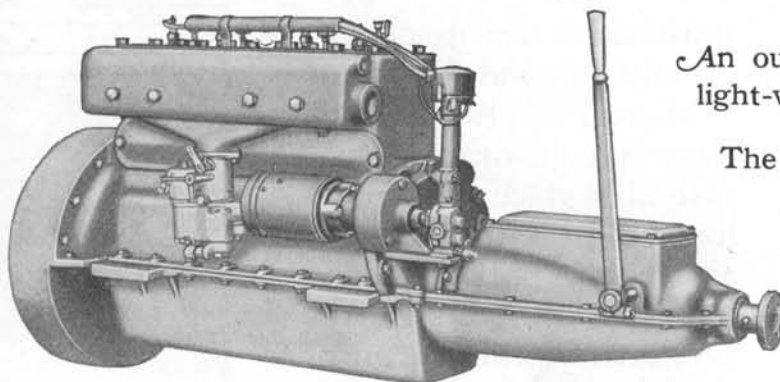
Base Line is 3'6" below Load Water Line

Waterlines are spaced 6"

Buttocks are spaced 12"

Sections are spaced 3'0" centre to centre

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Specifications of Sea Dawn

(Continued from page 48)

Dimensions:

Length Over all	36 feet 0 inches
Length Water line	29 " 0 "
Beam (extreme).....	11 " 1 "
Draft	3 " 6 "

Keel: Of clear, sound oak, moulded as per Construction Plan, sided $\frac{3}{4}$ inch wider than rabbet. Mortised to receive heels of frames. All through fastenings to be a tight driving fit through keel.

Forward Overhang Timber: Of oak, sided as per rabbet, moulded as shown. To be perfectly sound, free from checks, shakes, etc. Fastened to keel with $\frac{1}{2}$ inch diameter galvanized iron bolts as indicated.

Tail Feather: Of oak, sided as per rabbet line and moulded as shown. Fastened to keel and deadwood with $\frac{1}{2}$ inch diameter galvanized iron bolts.

Stem: Of oak, sided $4\frac{1}{2}$ inch and moulded as shown. Fastened to forward overhang timber with $\frac{1}{2}$ inch diameter galvanized iron bolts, as shown.

Stern: Of oak, constructed on radius as shown on Line Plan. Planks to be 1 inch thick and not over 5 inches wide. Fashion pieces of 2 inch oak. Kneed to tail feather with $2\frac{1}{2}$ inch oak knee.

Frames: Of clear, straight-grained oak, $1\frac{3}{4}$ inch by $1\frac{3}{4}$ inch, steamed and bent into place, spaced 9 inches on centers. Absolutely no cracked frames to be used, and should frames sliver and crack after being set in place, such frames are to be removed and replaced by sound frames. Frames which do not bend fair are to be replaced by those which do. Shimming of timbers to be guarded against. Those frames required to make quick bends are to be split for the length of the bend with a saw, and care must be taken to see that plank fastenings secure both pieces. Heels of frames mortised into keel and securely fastened to keel and floor timbers.

Floor Timbers: Of oak, carefully shaped so that planking lays snugly to them. Of heights and thicknesses as shown. Fastened to keel with $\frac{3}{8}$ inch diameter galvanized iron.

Clamps: Of hard pine or oak, $2\frac{1}{2}$ inch by 3 inch, in single length, if possible. Taper due to beveling to come out of these dimensions. Fastened at every frame with $\frac{1}{4}$ inch diameter galvanized iron bolts. Bolts burred over after nuts are set up. If necessary to scarp, scarps must be 2 feet 6 inches long.

Bilge Stringers: Of hard pine or oak, $1\frac{1}{2}$ inch by $3\frac{1}{2}$ inch, in single length if possible. Fastened at every frame with heavy galvanized screws, care being taken that no screws are twisted off in fastening.

Planking: Garboard and broadstrake of oak, sheerstrake of hard pine, rest of Oregon pine in as long lengths as possible. To finish $1\frac{1}{8}$ inch thick. Wale strakes to be of rift stock, not over $4\frac{1}{2}$ inches wide. Planks hollowed to fit frames. Butts made on oak butt blocks between frames. Butts well distributed. Butts in the same bay to have at least three strakes between them. Butts in adjacent strakes to have at least three bays between them. Planking to show tight seam inside and caulking seam of not more than $\frac{1}{8}$ inch outside to receive cotton caulking and white lead putty. Plank fastenings to be $\frac{1}{8}$ inch diameter by $2\frac{1}{4}$ inch over all length galvanized hinge nails, bunged. Fastenings to stagger as much as possible down the frame. After each plank has been fastened off and allowed to set for a while, then each plank and fastening shall be given a final blow to ensure its hugging the frame snugly. Inside of planking and timbers to be redlead.

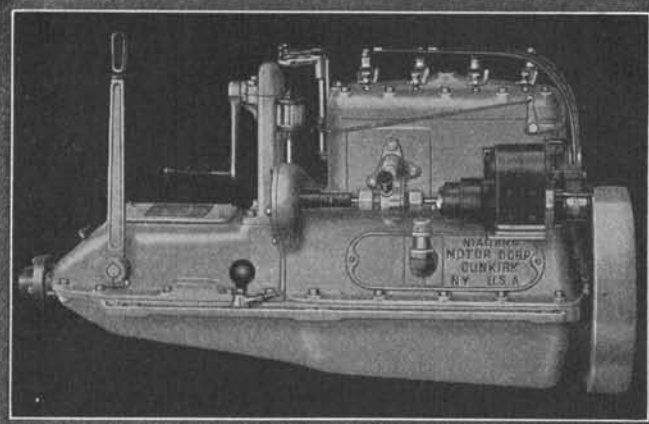
Deck: Of reasonably clear, seasoned, tongued and grooved white pine, 1 inch thick. Covered with 12 ounce canvas in two pieces, (seam through center line), well stuck down with thick paint. Canvas to be turned up around all openings to prevent leaks. Deck to be perfectly joined and sandpapered smooth before canvas is laid.

Deck Beams: Of clear, seasoned oak. Sawed to crown $6\frac{1}{2}$ inches in 11 feet 0 inches. Care to be taken in locating beams which take bulkheads. Beams to be spaced as per Construction Plan. Main beams moulded $2\frac{1}{4}$ inches and sided $1\frac{3}{4}$ inches. Auxiliary beams moulded 2 inches and sided $1\frac{1}{4}$ inch. Half beams moulded $1\frac{3}{4}$ inches and sides $1\frac{1}{8}$ inches. Fastened to clamp with $\frac{1}{4}$ inch diameter galvanized screw bolts. Main beams to notch over clamp. Tops of beams to be carefully faired off before laying deck so that deck lays snugly to them.

(Continued on page 74)

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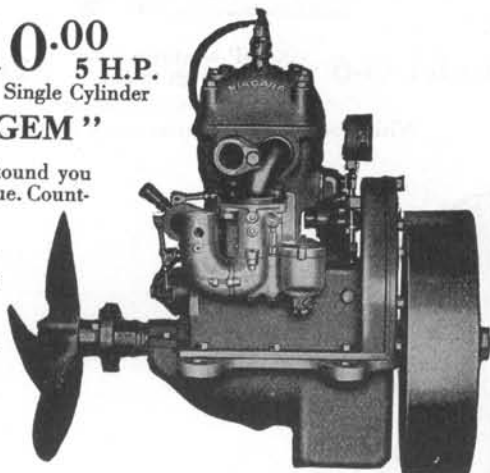
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BOX 192
DUNKIRK - N. Y.

(Continued from page 70)

Rail: Of oak, $3\frac{1}{2}$ inches high at forward end, $2\frac{1}{2}$ inches high at stern, straight taper between. Properly beveled and edge fastened to sheer strake. All scarphs to be hook scarphs. To be scuppered in three places at lowest part of sheer.

House Sides and Ends: Of white pine, $1\frac{1}{4}$ inch thick. Through bolted to sill with $\frac{1}{4}$ inch diameter galvanized iron bolts, about 18 inches apart.

House Deck: Of white pine, $\frac{3}{4}$ inch thick, tongued and grooved, and to show V seam on under side. Joined and sand-papered perfectly smooth. Covered with 12 ounce canvas in one piece, laid in thick paint. Canvas to be painted immediately after stretching to prevent it soaking up too much of the paint in which it is laid. Canvas to be turned up inside of hatch coamings to prevent leaks.

House Beams: Of clear, seasoned oak, sided $1\frac{1}{8}$ inch and moulded $1\frac{3}{8}$ inch. Sawed to crown of $7\frac{1}{4}$ inch in 7 feet 0 inch. Spaced as per Construction Plan. Ends of beams to be dovetailed to sides of house.

Hull Ceiling: Of white pine, $\frac{3}{8}$ inch by 2 inch, showing V seam.

Cockpit: Floor of white pine, 1 inch thick, laid in strips not over 2 inches wide, caulked, and seams payed with seam composition. Lead pipe scuppers, $1\frac{1}{2}$ inch diameter, to be installed as shown. Both flanges fastened with brass screws. Cockpit seats and staving to be of pine.

Centerboard Box: Posts of oak, 2 inch by 4 inch, each white-leaded and held in place by two $\frac{1}{2}$ inch galvanized rivets through the keel. Logs of oak $3\frac{1}{2}$ inch by 8 inch, tongued into plowed trough in keel, well white leaded, fastened in place with $\frac{3}{8}$ inch diameter galvanized bolts down through keel and $\frac{3}{8}$ inch diameter galvanized rivets through centerboard posts. Box to be caulked all round. Rest of box to be of either tongued and grooved or splined white pine. Edges dowelled and well fastened to centerboard posts. Centerboard top to be of oak, mahogany or other material, depending on interior finish. Inside of centerboard box to be well painted with copper paint as it is assembled.

Centerboard: Of $1\frac{1}{4}$ inch yellow bark oak or hard pine, preferably yellow bark oak as this has the least tendency to warp or twist. To be securely dowelled together and bound with iron, as indicated. To be hung as shown on Construction Plan. Centerboard stop as shown, which will be a $\frac{3}{4}$ inch diameter galvanized bolt riveted over two straps, securely fastened on the outside of the centerboard box. There will be a 3 inch diameter deck plate in centerboard box covering located near the after end of the board, through which to run a stick to force the board down in case it should stick. Centerboard pennant to be $\frac{1}{8}$ inch diameter flexible bronze rope.

NOTE: To remove centerboard, remove screw in upper end of centerboard hanger, lift board and hanger up and back over the 1 inch diameter galvanized pin on which it hangs, and drop down through box. Board can also be removed by removing top of box and lifting up through.

Rudder: Blade of oak, 2 inches thick, tapered at after edge to 1 inch, well dowelled together with $\frac{3}{8}$ inch diameter dowels.

Rudder Stock: To be as shown, of 2 inch diameter solid Tobin bronze shafting, fastened to blade with five $\frac{1}{2}$ inch diameter Tobin bronze bolts.

Rudder Port: Of $2\frac{1}{2}$ inches "X" strong brass pipe. Lower end to be threaded and screwed into after overhang timber. A suitable stuffing box to be installed on the upper end.

Steering Gear: Edson Self-Adjusting Type Quadrant Steerer, size No. 2, with 28 inch handwheel.

Chainplates: Main chainplates of Naval bronze or galvanized wrought iron, $1\frac{1}{2}$ inch by $\frac{3}{4}$ inch by 26 inches. Edges beveled for one-half the thickness. Fastened to outside of planking with $\frac{1}{4}$ inch diameter stove bolt through each plank. Mizzen chainplates of Naval bronze or galvanized wrought iron, $1\frac{1}{4}$ inch by $\frac{3}{8}$ inch by 21 inches. Edges beveled for one-half the thickness. Fastened to outside of planking with $\frac{1}{4}$ inch diameter stove bolt through each plank. Chainplates for bowsprit shrouds of Naval bronze or galvanized wrought iron, 12 inch by $1\frac{1}{8}$ inch by $\frac{3}{8}$ inch.

NOTE: If galvanized chainplates are used, all holes to be bored and countersunk before being galvanized.

Deck Joiner Work: As per Construction Plan, to be done in

(Continued on page 78)



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(Continued from page 74)

materials and finish as selected by the Owner. Skylight to be properly constructed and fitted with brass drain troughs, hinges, raisers and gratings. Companionway slide and other hatch tops to be tongued and grooved together of pieces 5/8 inch thick and not over 3 1/2 inches wide, put together with either waterproof glue or a mixture of white lead and varnish. Companionway door to be in two pieces, arranged to slide up and out. Wheel box to be put together with oval head brass screws, so as to be easily taken down, if desired. All deck openings to be rain and weather proof.

Ground Tackle: Two galvanized, long shank, folding stock anchors of 40 and 60 lbs. each. Two rhodes of desired length, one of 3/4 inch circumference, one of 2 1/4 inch circumference.

Spars: All spars of spruce, of the following dimensions:

	Diameter	Length
Mainmast.....	6 1/4" at deck 6 1/4" at jaws 3 1/4" at shoulder	29' 3" deck to shoulder (Bury of mainmast to be taken from boat)
Main Gaff.....	2 7/8" largest 2 1/8" at end 2 1/4" at jaws	12' 9" to mast
Main Boom.....	3 1/2" largest 2 1/2" at end 2 3/4" at gooseneck	17' 7" to mast
Mizzen Mast.....	5" at cockpit floor 4 1/4" at jaws 2 5/8" at shoulder	25' 9" top of cockpit floor to shoulder
Mizzen Gaff.....	2" largest 1 1/2" at end 1 3/4" at jaws	7' 6" to mast
Mizzen Boom.....	2 7/8" largest 2" at end 2 1/4" at gooseneck	13' 3" to mast
Jib Club.....	3 5/8" largest 2 3/4" at stay 2 1/4" at end	14' 7" to stay

Bowsprit: Of spruce or oak, to be shaped as shown. Distance forward side of mast to headstay, 15 feet.

Spar Iron Work: To be as indicated, of galvanized Norway iron.

Standing Rigging: To be galvanized crucible steel wire, of the following sizes:

Headstay.....	7/16" diam.	6 x 7
Main Shrouds:		
Shroud over spreader.....	5/16" diam.	6 x 7
Other two.....	11/32" diam.	6 x 7
Mizzen Shrouds.....	5/16" diam.	6 x 7
Mizzen Jumper Stay.....	1/4" diam.	6 x 7
Bowsprit Shrouds.....	5/16" diam.	6 x 7
Bobstay.....	1/2" diam.	6 x 7
Backstays.....	5/16" diam.	6 x 19
Foot Ropes.....	5/16" diam.	6 x 19
Main and Mizzen Gaff Bridles.....	3/16" diam.	6 x 19
Main Throat Halliard Pennant.....	1/4" diam.	6 x 19
Mizzen Throat Halliard Pennant.....	1/4" diam.	6 x 19

All splices served with marline, or cotton twine, painted. Use no rawhide.

Turnbuckles to be 1/8 inch larger diameter than standing rigging.

Running Rigging: Of three-strand Manila, of the following sizes:

Jib Halliard and Jib Sheets, 12 thread; Main Peak and Main Throat Halliards, 15 thread; Mizzen Peak and Mizzen Throat Halliards, 12 thread; Main Sheet, 15 thread; Mizzen Sheet, 12 thread; Main Topping Lift, 12 thread; Mizzen Topping Lift, 9 thread; Jib Downhaul, 6 thread; Dock Lines, 18 thread; Flag Halliards, 1/8 inch cotton rope; Lazy Jacks, Light cotton rope.

Blocks: Of make and material as preferred by the Owner, sizes as follows:

Jib Halliard, 3 inch; Jib Sheets, 3 inch; Main Peak Halliard, 3 1/2 inch; Main Throat Halliard, 3 1/2 inch; Mizzen Peak Halliard, 3 inch; Mizzen Throat Halliard, 3 inch; Main Sheet, 3 1/2 inch; Mizzen Sheet, 3 inch; Main Topping Lift, 3 inch; Mizzen Topping Lift, 2 1/2 inch.

(Continued on page 80)



Announcing the "Falcon"

15 H.P. ~ 4 Cyl. Marine Engine

*Like the fleet-winged falcon — the
most powerful bird of its size —*

The new "Falcon" is —

- the most *advanced* engine in the marine field
- the *shortest* 15 h.p. marine engine
- the *lightest* 15 h.p. marine engine
- the *lowest priced* 15 h.p. marine engine for equipment furnished

The "Falcon" is *absolutely vibrationless*

It is the most ideal engine for small runabouts, tenders, auxiliary power, and with 2 to 1 reduction gear for small cruisers.

It has full pressure oiling system, full counter-balanced crankshaft, over-size bearings, camshaft and crankshaft, and is less than 35 inches long, including reverse gear.

Also manufacturers of the famous "Doman" modern medium and heavy-duty marine engines—from 5 to 60 h.p.

Manufacturers of the most complete line of highly perfected, marine-type electric plants—from 350 watts to 75 K.W. Also a special series of marine electric plants using the "Falcon" engine—1½ K.W. to 5 K.W.

UNITED STATES MOTORS CORPORATION

5 Nebraska Street, Oshkosh, Wis., U.S.A.

*Good dealer
& distributor
territories
still open*



*Write
for complete
information*

PRODUCTS MUST GIVE SERVICE

(Continued from page 78)

Sails: Mainsail, mizzen and jib of 8 ounce Commercial duck, cross cut, single bighted.

Bilge Pump: A 3½ inch diameter copper yacht pump, complete with brass deck plate, to be installed in cockpit floor. Suction piped to lowest part of bilge.

Engine Bed: Floor timbers under engine bed of oak, sided 3 inches, of heights as shown. Fore and aft engine bearers to be of oak, sided 3 inches, moulded as shown, notched over and well fastened to floor timbers.

Engine Installation: Any one cylinder, two cycle motor, or similar, of about 8 horsepower, turning 400 to 600 r.p.m. may be installed.

A suitable muffler to be installed close to the motor. Exhaust piped under the cockpit floor, up thro the wheelbox, and out thro the stern. Cooling water from the engine to be split, one part to the exhaust line and one part overboard, so controlled by valves as to allow the whole or any part to go into the exhaust pipe or overboard.

Gasoline Tanks: To be preferably of 20 ounce copper, tin lined, cylindrical in shape, and installed as shown, one each side under the cockpit seats. Each tank to have two swash bulkheads, these to be tinned all over if tanks are built of copper.

There will be a shutoff at each tank and at the carburetor, piped in general from each tank to a T and thence to the carburetor. A suitable swing to be installed each side of T to prevent gasoline flowing from the high tank into the low tank when boat is heeled. Swing checks to be at least 8 inches below the bottom of the tank to ensure head enough to operate when tanks are nearly empty. A gasoline strainer to be installed between each tank and swing check. All joints in gasoline line to be put together in thick shellac, and all to be perfectly tight.

Tanks to be very securely braced and fastened in place.

Water Tank: To be preferably of 20 ounce copper, tin lined, with one fore and aft and one thwartship swash bulkhead, these to be tinned all over if tank is built of copper.

To have a ½ inch outlet each side, one for galley sink and one for toilet room lavatory, also a 1½ inch filler as shown, and ¾ inch diameter vent in top, piped up and turned down on forward side of bulkhead between cabin and forepeake.

Tank to be very securely braced and fastened in place.

Hull Painting: After hull has been joined perfectly fair, scraped and sandpapered smooth, the top sides to be given a priming coat, and bottom seams to be carefully painted with a seam brush but not given priming coat. Then all seams filled with white lead putty, colored as required for final painting, and entire surface sandpapered down, and finished with three coats of desired color paint on topsides, and at least two coats of anti-fouling paint on bottom.

There will be a ¾ inch groove, about ¼ inch deep and 3 inches down from the top of deck, with arrow head at bow and feathers at stern, goldleafed or painted any color desired.

Rest of finish to be as desired by owner.

Cabin Interior: All to be as shown on Plan.

Partitions and bulkheads to be of matched material not over ¾ inch thick.

Toilet room door and locker door to be at least 1 inch thick, hung with three hinges each, and fitted with rim lock sets.

Floor to be of rift Oregon pine, ¾ inch thick, with sections to lift up.

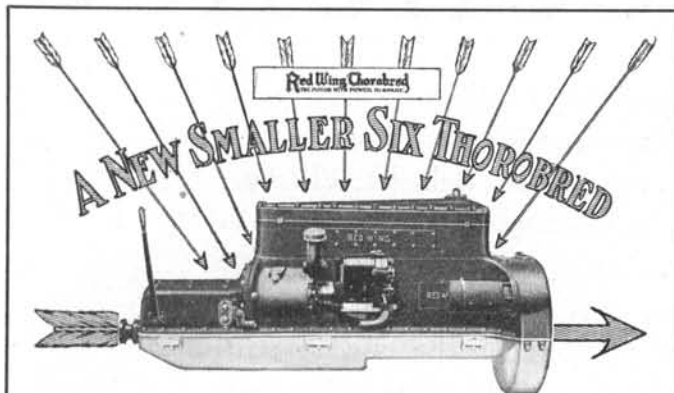
Galley sink to be of 20 ounce copper, with ½ inch diameter drain directly overboard. Drain to be as nearly straight as possible, to allow a cleaning rod of rattan to be run through it, if necessary. A suitable galley pump to be installed, piped to fresh water tank with ½ inch diameter brass pipe, with drain plug at lowest point.

Ice box to be divided into two compartments by means of slats, one compartment for food and one for ice. Slats to be zinced up for one-half their height to prevent melted ice water from getting into the food compartment. Ice compartment to be drained by faucet, as shown.

Stove to be a Shipmate No. 212 (coal burning), with 3 inch legs, complete with turnbuckles to fasten same down properly. Stove pipe can be fitted with either a Cape Cod, Liverpool, or Seafle head, as desired. Stove space to be lined with galvanized sheet iron over asbestos.

(Continued on page 84)

Ved Henvendelser til Annoncerende bedes De refferere til THE RUDDER



Red Wing "Arrow" Model X, 40-80 h.p.

6 cylinder Bore 3 3/4 in. 7-bearing
4 cycle Stroke 4 1/2 in. 2 3/4 in. crank

*Especially suited for Fast Runabouts, Passenger Craft
and Medium Sized Cruisers*

A Few of Important Specifications of New "ARROW" Six

7-bearing crank shaft of 2 3/4 in. diameter with extra large bearings.
Genuine RICARDO cylinder head design.
Oil Pan furnished in either grey iron, or salt water resisting aluminum.
Piston, special light weight grey iron.
Full pressure feed lubrication with patented submerged type Red Wing oil pump.

Reverse gear, oversize Joes 88% reverse-Ignition, Bosch H.T. magnet with impulse Electric starter, 2-unit, 6-volt, regular equipment.
Weight, approximately 850 lbs.
Revolutions: Normal service, 1400 to 1800 r.p.m. Intermittent service to 2500 r.p.m.
Overall length only 58"; width 16 1/4".

Not a "Light Six" but a rugged and lasting high speed engine of true Thorobred quality. A powerful motor and a tremendous marine engine value at **\$990**
Complete, including electric starter.

Detailed circular on "ARROW" Model, as well as other THOROBRED sizes from 4 to 150 h.p. mailed on request

Red Wing Motor Co. Red Wing, Minn., U.S.A.

Red Wing Thorobred

THE MOTOR WITH POWER TO SPARE

Red Wing Marine Engines

4 to 150 h.p.

*as exhibited in Block "V", Mezzanine Floor,
New York Motor Boat Show*

A SIZE FOR EVERY BOAT

1 and 2 CYLINDER MODELS

Model K 4-5 h.p. (3 3/4 x 4 3/4) Model KK 7-8 h.p. (3 3/4 x 4 3/4)

4 CYLINDER MODELS

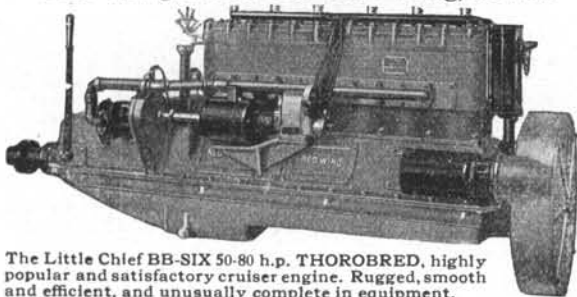
Model D 10-14 h.p. (2 3/4 x 4) BB-FOUR 40-50 h.p. (4 1/2 x 6) MD
Model AA 18-24 h.p. (3 3/4 x 4 3/4) BB-FOUR 45-70 h.p. (4 1/2 x 6) HS
Model F 28-36 h.p. (4 1/2 x 5) BC 50-60 h.p. (5 x 7)
Model B 32-40 h.p. (4 1/2 x 5) BCSp4 75-90 h.p. (5 3/4 x 7)

6 CYLINDER MODELS

Arrow Model 40-80 h.p. (3 3/4 x 4 1/2) HS BC-SIX 85-110 h.p. (5 x 7)
BB-SIX 50-80 h.p. (4 1/2 x 6) MD BCSp-SIX 110-150 h.p. (5 3/4 x 7)
BB-SIX 80-110 h.p. (4 1/2 x 6) HS

*New 1928 catalog describing all
models mailed free on request*

Red Wing Motor Co. Red Wing, Minn.



The Little Chief BB-SIX 50-80 h.p. THOROBRED, highly popular and satisfactory cruiser engine. Rugged, smooth and efficient, and unusually complete in equipment.

(Continued from page 80)

Toilet room to be fitted with suitable pump closet and lavatory. Waste water closet to be carried in lead pipe bend above the water line and then down overboard well below the water line. Toilet intake to be installed lower down and forward of the waste pipe outlet. Seacocks to be easily accessible. Toilet outboard connections, and all other outboard connections, to be protected by lead pipe, carefully flanged inside and outside of planking as protection against worms.

Waste from lavatory to be carried by lead pipe over the bowl and beneath the seat of the toilet. Pipe to be flattened as required. A suitable pump to be installed at lavatory, connected to fresh water tank with 1/2 inch diameter brass pipe, with drain plug at lowest point.

Cabin interior to be finished and painted as desired by owner.

PACIFIC COAST NEWS

by Tom White

N. B. Nichols of San Francisco, well-known West Coast yachtsman, has ordered a sailing yacht that will be one of the largest of its kind in Pacific Coast waters. The new vessel will be schooner rigged, measuring 111 feet over all, with a 27 foot 5 inch beam and 11 foot draft. She will be auxiliary-powered with two 150-hp. Winton Diesels, and will accommodate twelve persons besides the crew. The schooner is under construction at a Baltimore yard, and when completed in July she will be sailed through the canal to San Francisco. For his use in the meantime, Mr. Nichols has repurchased the ketch Mermaid which he sold two years ago. At present, Mermaid is undergoing a considerable overhauling, including a number of changes in her cabin arrangement. In preparation for taking her on an extensive cruise early next spring, Mr. Nichols will have installed a new auxiliary motor, a refrigerating plant and a 100-watt transmitting and receiving radio set.

INTERNATIONAL MOTOR YACHTING UNION

The meeting of the Permanent Committee of the International Motor Yachting Union was held at Brussels, the 24th to 26th of November.

Two important points were discussed at the meeting, the establishment of record rules and the rules governing outboard motor racing. England's delegate promised that in 1928 and 1929 the Duke of York Trophy shall be for 1 1/2 litre boats. The American Power Boat Association decision to class their boats in litres instead of cubic inches was received with great enthusiasm by all delegates.

A definition was arrived at for outboards. It reads; "An outboard is a power group which can be lifted bodily by human power from the hull as one unit and which does not transmit its power through the skin of the hull." This means that an outboard may be made to operate through a well.

It was decided for 1928 only, that even record trials must be done with the silencer on. This applies to the whole world and the Union will not homologate any records otherwise established.

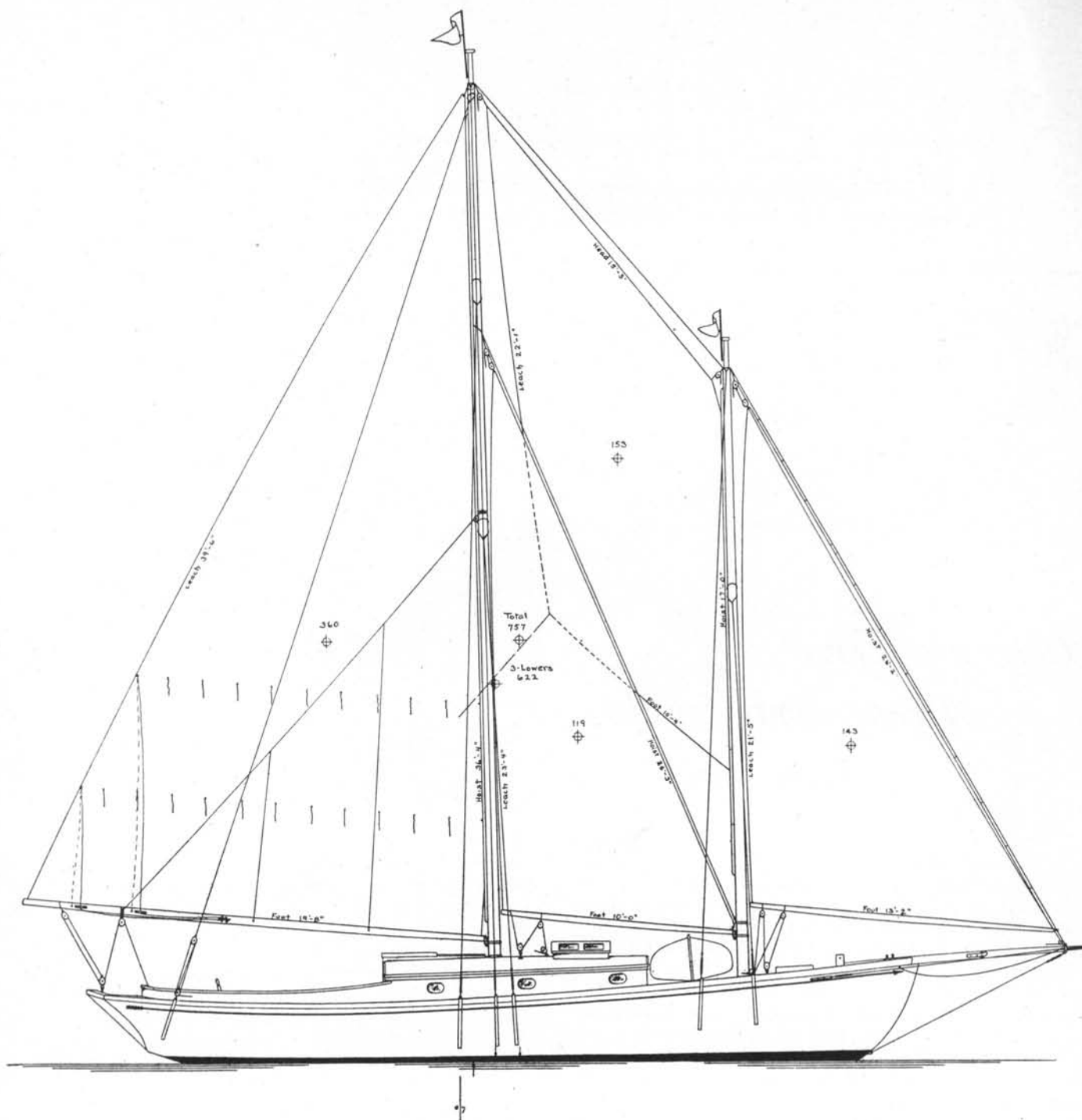
The following World Class Records (Section B) have been definitely homologated: 12 Litre class, Sadi VI, Dr. Etchegoin, 57.26 knots; 3 litre cruiser, Selve IV, Dr. von Selve, 15.61 knots; Outboard C, Baby Whale, Miss Hentschel, 26.50 knots (Detroit); 1 1/2 litre, Newgw, Miss Carstairs, 39.27 knots.

NATIONAL SPEED BOAT CLUB ELECTION

The recent election of the National Speed Boat Club carried on by letter ballot resulted in the election of E. W. Hammond of the Horseshoe Harbor Y. C., Larchmont, N. Y. as commodore. Com. Hammond is a popular racing man and his 151-class hydroplane Miss Westchester has been campaigned at practically all of the large regattas from the Gulf of Mexico to Boston and west as far as San Diego.

The vice-commodoreship went to Chris. Ripp of the Bay Head Y. C. of Meadowmere Park, L. I. Com. Ripp has been vice-commodore of the National Speed Boat Club since its inception three years ago. He probably owns more successful 151-class boats than any other man in America and his colors have been flown on every race course of importance in the country.

Gerald T. White was again re-elected secretary-treasurer, a position he has held for three years. The club is in flourishing condition with about 150 members, all of whom are practical hydroplane racing men. During the Motor Boat Show they will hold their annual dinner.



Sea Dawn as a Staysail Schooner

Above we have our old friend Sea Dawn, published in THE RUDDER for January and February, 1928. The illustration shows the profile and the staysail schooner sail plan drawn by S. S. Crocker, Jr., of Boston for Mr. U. G. Lee of Chicago.

Sea Dawn has been built by scores of RUDDER readers since her plans were first published. Mr. Crocker was also the original designer. For your information, she is a 36-foot auxiliary ketch with an 11-foot beam and is of

the husky seagoing type intended for service in deep waters, but just as suitable for sailing on Long Island Sound, the Great Lakes or any similar body of water.

There are berths for four and a lavatory and galley. She is laid out to suit the desires of the average yachtsman. In the original designs the ketch rig was used.

The designs are still available at THE RUDDER offices, and may be obtained if you wish to build Sea Dawn. She will make a fine offshore boat.