NORTHWIND

This flat-bottomed cruising kayak has an over-all length of 19 feet, 10½ inches and a 38-inch beam.

By M. E. Alford

A KAYAK that's hard to tip certainly isn't commonplace. Northwind, with her flat bottom, has proved herself on the windy lakes and swift rivers of the Yukon; she's as stable as any you'll find. Apart from that, buoyancy chambers make her virtually unsinkable. Designed for plywood construction, she's easy to build, light in weight and strong. Fine for long cruises, she has an ex-

CARGO SPACE aft of cockpit is fully enclosed after deck and hatch is installed.

liner. This liner is nothing more than a length of thin-wall tubing with a .040 brass flange soldered in place as shown in the accompanying diagram.

Smear the outside of the tubing with liquid pitch before forcing it through the filler plug. Pour some additional pitch over the flange to seal the assembly, being careful not to drip any inside the tubing. When the pitch solidifies, brush the plug a few times with clear dope to eliminate porosity in the balsa; then sand smooth.

When the filler has dried, test the plug by submerging it in water. If a good sealing job has been done air bubbles will not appear. If they do, reseal with pitch.

The neck of the balloon can now be stretched over the filler plug; apply some talcum powder to the plug to ease this operation.

With the filler plug in place the balloon is ready to take shape. Using the exhaust from a tank-type vacuum cleaner and a length of ¼-inch rubber tubing (to carry the air to the plug), inflate the balloon to the flaccid diameter recommended in the instructions accompanying the balloon.

This early inflation is necessary to allow the balloon's fabric to adjust to size prior to the first ascent.

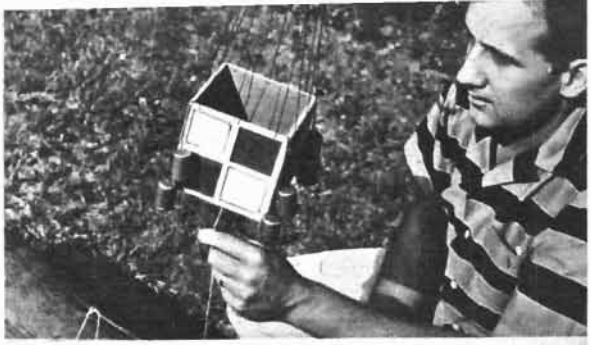
Finally, seal the balloon with a plastic plug as shown in the diagram.

The balsa gondola can be of either medium or soft-grade stock. However, the soft grade is preferable since it is lighter.

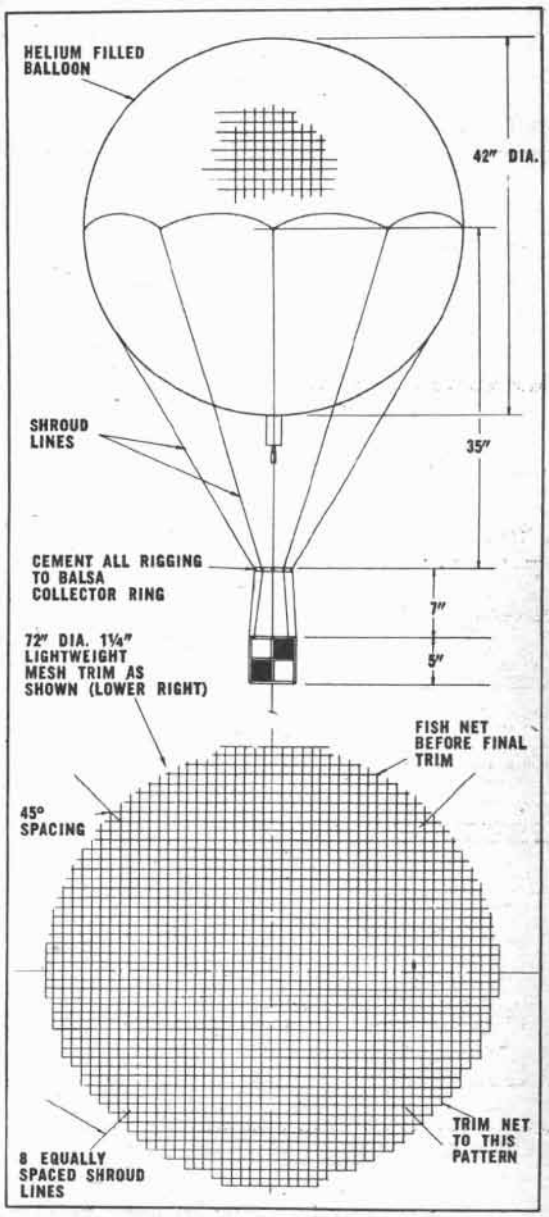
The gondola's four sides and floor are all of ⅛-inch sheet balsa. Complete the sides according to the diagram. Assemble the 4¾-inch sides to the bottom first, then cement the 5-inch sides in place. When dry, sand the sides smooth. Then apply a few coats of clear dope and sand again. [*Continued on page* 170]

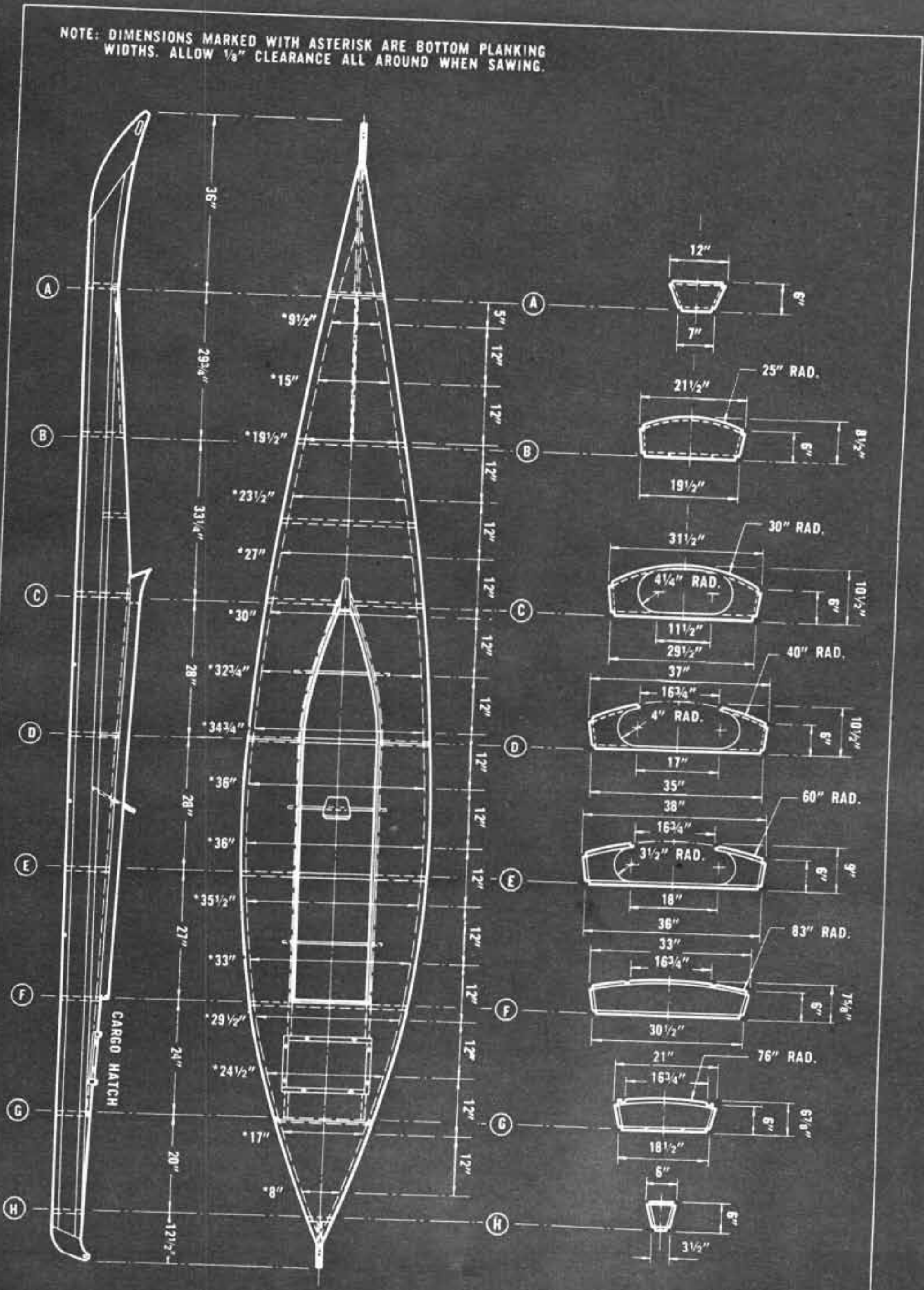
FULL-SCALE PLANS

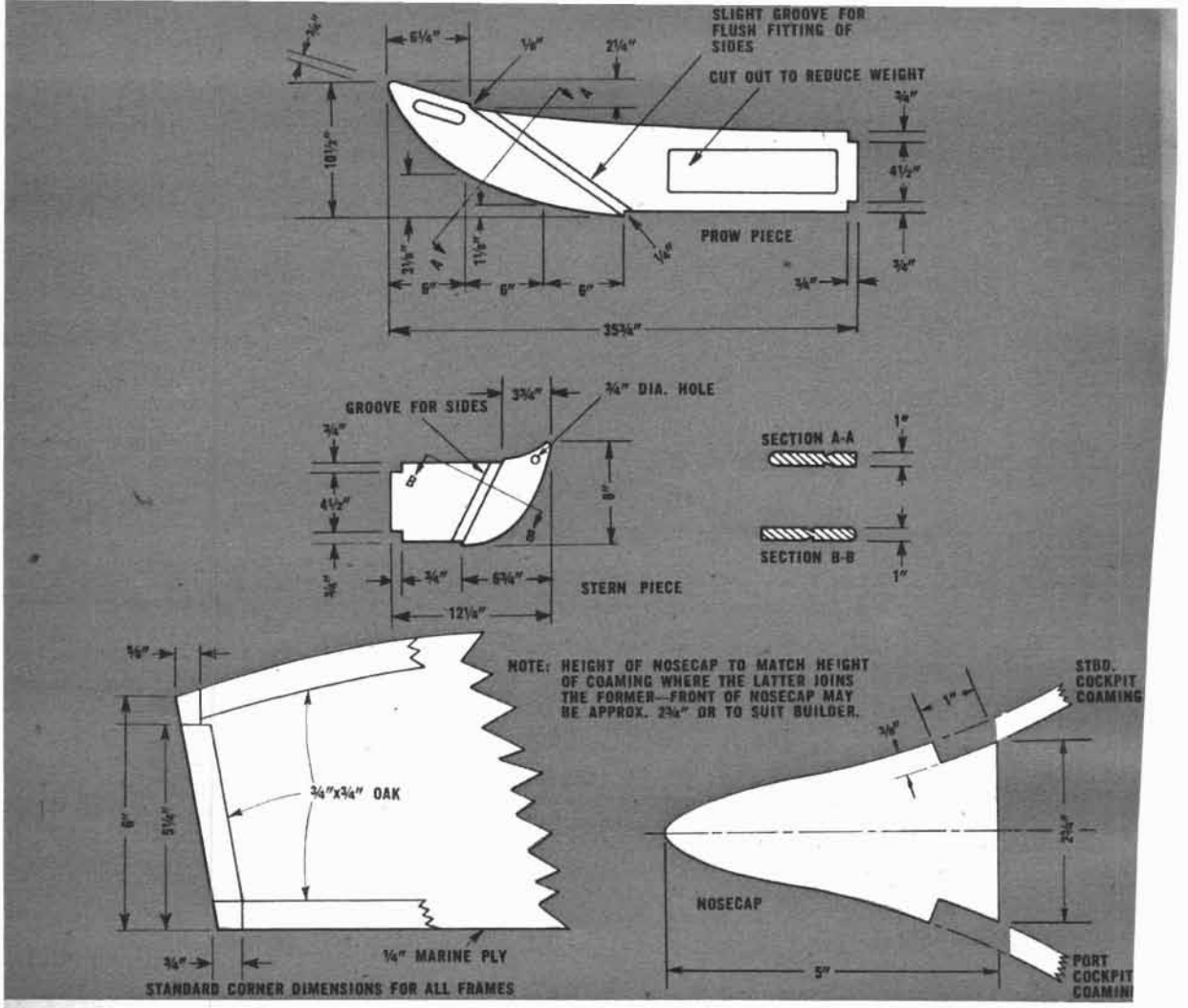
will greatly simplify construction. Send 50 cents to Mechanix Illustrated Plans Service, Fawcett Bldg., Greenwich, Conn. Please specify Plan Number M-246, MI's Baby Balloon, when writing.



MINIATURE SANDBAGS of balsa wood look realistic and represent balloon's ballast.




NOTE: DIMENSIONS MARKED WITH ASTERISK ARE BOTTOM PLANKING WIDTHS. ALLOW 1/8" CLEARANCE ALL AROUND WHEN SAWING.
CARGO HATCH
*9½"
*15"
*19½"
*23½"
*27"
*30"
*32¾"
*34¾"
*36"
*36"
*35½"
*33"
*29½"
*24½"
*17"
*8"
36"
29¾"
33¼"
28"
28"
27"
24"
20"
12½"
5"
12"
25" RAD.
30" RAD.
4¼" RAD.
40" RAD.
4" RAD.
60" RAD.
3½" RAD.
83" RAD.
76" RAD.
12"
7"
6"
21½"
19½"
8½"
31½"
11½"
29½"
10½"
37"
16¾"
17"
35"
38"
18"
36"
9"
33"
30½"
7⅝"
21"
18½"
6⅞"
3½"

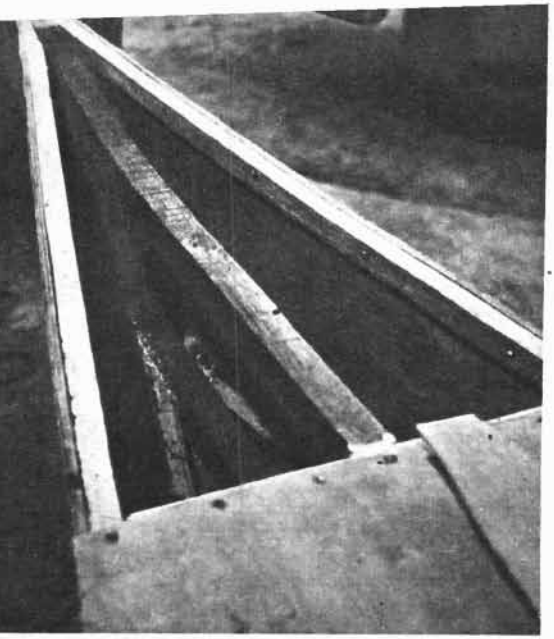


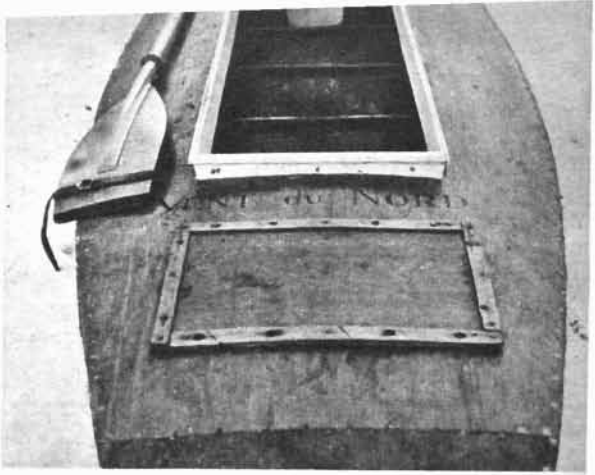
tremely shallow draft which permits navigation of the shallowest streams; with a load of 450 pounds, she draws only 2½ inches.

Northwind is built in a straightforward manner. No jig or form is required. Begin by laying out the flat bottom on a 4x18-foot sheet of ¼-inch exterior fir plywood. The bottom widths, as taken from the drawing, include allowance for the sides. Bend the chine batten around the points to draw a smooth curve. Then mark the frame locations and cut the shape either by hand or with a power saw, leaving ⅛ inch all around for final trimming after the sides are in place.

The frames are next built and glued and nailed in their respective positions. It is advisable to have 2x4's clamped to the plywood bottom to give it rigidity when driving bronze one-inch Anchorfast nails in from the underside. Any slight difference in frame width and bottom profile width at a frame position may be taken up by moving the frame forward or backward slightly in relation to its indicated position.

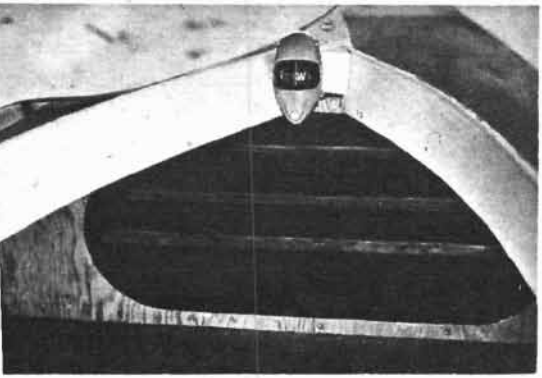
With the bottom resting on a level floor, the ¾x¾-inch oak chines are next positioned to follow the contour of the bottom and, at the same time, fitted into the notches at the bottom corners of the frames. Because of the projecting bottom, the chines will have to be removed a few times to permit planing of the slight angle necessary to align them with the flared sides of the frames. The chines are finally glued and nailed in position, leaving sufficient material at

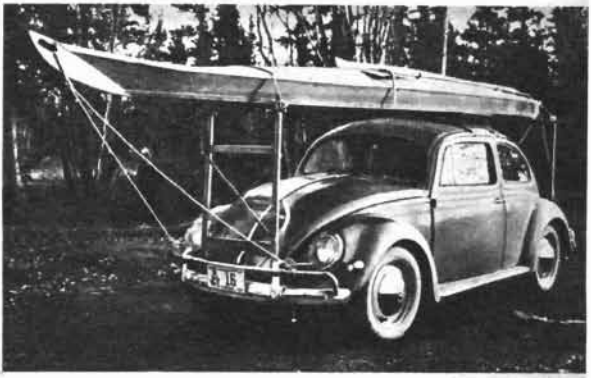




HATCH, made watertight with rubber gasket, is secured with bolts and wing nuts.

PROW PIECE, left, extends back to first frame, has a cutout to reduce its weight.





OAK COAMING is steamed before bending. Notice the floor supports between frames.

NORTHWIND is light enough to be carried on the smallest cars in the manner shown.

each end to allow for the prow and stern post fitting.

The sheer battens, made of $\frac{5}{8}$x$1\frac{1}{8}$-inch oak, are treated in a similar manner to the chines. When fitted, they give rigidity to the skeleton framework. Again, leave material at the prow and stern. These battens are secured to each frame with $1\frac{1}{2}$-inch Anchorfast nails countersunk below the surface. Planing of the angles (continuation of the frame profiles) may be done after the battens are fastened. Both chine and sheer battens may be spliced if long lengths of oak are unobtainable.

The prow and stern pieces may be cut from a four-foot length of 1x12-inch oak.

LARGE-SCALE PLANS

will greatly simplify construction. Send $2.00 to Mechanix Illustrated Plans Service, Fawcett Bldg., Greenwich, Conn. Please specify Plan B-236, Northwind.

The shaped pieces are trial-fitted with the end of each piece butted against the nearest frames. Chine and sheer battens are then angle-cut to length and clamped to form a neat joint. Additional planing will probably have to be done

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on the sheer batten near the prow to provide an angle coincident with the progressive flare of the sides at this point. The positions where chine and sheer battens meet the prow and stern pieces are then marked in pencil on the latter so that a connecting pencil line will indicate the position of the grooves to be cut for the flush fitting of the sides. After the grooves have been chiseled and both pieces fit snugly in their respective positions, the entire prow and stern portions are glued and nailed.

To give additional support to the light decking, the sheer batten is notched midway between frames B and C to accommodate a ¾x¾-inch oak crosspiece steambent to suit the deck height at this point. A second brace is placed in position between frames A and B, running longitudinally on the centerline, and nailed to the frames.

The cutting and fitting of the sides, which are approximately six inches wide, is the most difficult part of construction and care should be exercised. Although the bottom projects approximately ⅜-inch along each side, making accurate marking of the side profile awkward, this may still be done by scribing along the periphery of the bottom against the clamped side panel; however, some fitting will be necessary to complete the job. For handling, a strip of plywood 12 inches wide may be precut from a 20-foot sheet. While the bottom of each side panel must be cut to the exact profile, the top may be planed after the sides are in position. Glue and nail the sides.

The cockpit battens form the support for the cockpit coaming. Of ¾x¾-inch oak, they are bent to shape by steaming and then notched to fit flush and become integral with frames. Notice that these battens are extended to frame G to form part of the cargo hatch. They are notched at the position indicated on the main drawing for the fitting of the backrest support which is made of ¾x¾-inch oak.

Just aft of frame F is the sealed cargo space to protect equipment not contained in waterproof bags and prevent its loss in the unlikely event of a capsize. Crosspieces of ¾x¾-inch oak are placed ten inches apart and notched into the cockpit battens. They are spaced equidistant between frames F and G.

Prior to applying the decking, paint the entire inside of the kayak with sealer and apply two coats of clear varnish. Following planing of the sheer line and the tops of the sides to produce a continuation of the frame profile, the ⅛-inch mahogany plywood decking is clamped in position and the plan profile at the sheer is marked on it. With care, the entire deck may be cut from two 4x8-foot sheets. When cutting the profile don't forget the hole for the cargo hatch. Before fitting the cut sections in position, the undersides should be varnished. To ensure perfect molding of the deck to the desired shape, start laying the sections from the bow. Butt joints are made at frames A, D and G. Kuhls bedlast is used between the decking and framework and the deck is screwed down instead of nailed, permitting removal of any part to gain access to a damaged section. Use ¾-inch, No. 5 flathead brass screws.

The cockpit coaming, made of ⅜x2¾-inch oak, is steamed to fit the cockpit batten and notched to allow for the backrest support and nose cap. While fitting the coaming it is advisable to fit the nose cap at the same time, as one is integral with the other. A piece of similar size oak is attached to frame F to complete the periphery of the coaming and to form a small backrest for the stern paddler. The other backrest is made of quarter-inch plywood and hinged to the center of the backrest support; its shape or size is left to the individual but a piece about 6x10 inches is convenient for most people. The coaming is fully rounded on the upper edge and half rounded on the lower edge which fits flush with the bottom of the cockpit batten. The nose cap may take any form to please the builder. The one we used was cut from a solid piece of oak and bolted with quarter-inch carriage bolts to frame C and the apex of the extended cockpit battens. The underside must be concaved slightly to ensure a snug fit on the deck.

The cargo hatch cover is made from ⅛x1-inch oak and ⅛-inch mahogany ply. Sandwich the plywood at the ends and sides between two oak strips. The result is

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a cover pliable enough to form to the curve of the deck when it is screwed tight. On the underside of the hatch cover, glue strips of rubber from an inner tube. Using quarter-inch bolts fastened as studs to strips of metal and fixed to the underside of the cargo hatch battens so that they project through the hatch, it may be clamped tight with wing nuts.

Rubbing strips complete the exterior. When the deck is screwed in position, ⅛x 1-inch strips are secured at both the chine and sheer lines for the full length of the kayak. On the bottom, one rubbing strip should run along the centerline with parallel strips running fore and aft at 9½ and 16 inches from the centerline port and starboard. These should be glued and screwed.

A removable floor is made from a piece of quarter-inch plywood. It is supported by ½x¾-inch oak strips fastened to the bottom midway between the frames from B to F. Stand the pieces on their narrow dimension and glue and nail them in place. A piece of ¾x¾-inch oak is fastened to the underside of the floor at each end for further support.

In construction, Weldwood glue is used throughout except for the bedding of the deck and side rubbing strips, where Kuhls Bedlast is employed. Bronze Anchorfast nails are extensively employed; apart from those used to secure the sheer batten to the frames, all nails are one inch in length. Holes are predrilled for the nails with a 5/64-inch bit. The entire interior of the craft is varnished to prevent water absorption by the plywood. •

BILL OF MATERIALS

QUANTITY	SIZE—MATERIAL	USE
102 feet	¾"x¾" Oak	Frames, chines and battens
42 feet	⅝"x1⅛" Oak	Sheer battens
4 feet	1"x12" Oak	Rubbing strips and coaming
1 sheet	¼"x4'x8' Exterior fir plywood	Frames, bottom, side
2 sheets	¼"x4'x18' Exterior fir plywood	Frames, bottom, side
2 sheets	⅛"x4'x18' Marine mahogany plywood	Decking

MISCELLANEOUS

3½ lbs. of 1-inch bronze Anchorfast nails; 2 eight-ounce cans of Weldwood glue; 1 pint of Kuhls Bedlast; 1 quart of white marine paint; 1 quart of orange marine paint; 1 quart of spar varnish; 1 pint of sealer; 1 pint of primer; 2 gross of ¾-inch, No. 5 flathead brass wood screws.

Golden Hammer Awards

[*Continued from page* 129]

Linton, Ind.; T. C. Glaze, Claremont, Calif.; Roger W. Stephenson, Westhampton Beach, L. I., N. Y.; Narcio Radkiewicz, Newark, N. J.; Glenn Johnston, So. San Francisco, Calif.; Richard G. Sterling, Belleville, Ill.; Arthur Frinetti, Valdoi, Que., Can.; Marcel Vincent, Vercheres, Can.; Edward M. Fledereau, Miami, Fla.; Edwin Minatra, Columbia, Tenn.; Frank Henigman, Bridgeville, Pa.; Daniel Haskins, Durham, N. H.; George A. Nelson, San Diego, Calif.; Edgar F. Jansen, Bedford, Mass.; Alfred Neumann, Spring Lake, Mich.; Robert C. Sweeney, Windsor, Vt.; Robert Nelson, New Market, N. J.; Clarence Botterviller, Vancouver, Wash.; Gus Guinchard, Jr., Donaldsonville, La.; William P. Searcy, New Orleans, La.; Steve Hudgins, Gainesville, Ga.; Clyde and Douglas Buchwalter, Kennewick, Wash.; Edmund A. Lee, Detroit, Mich.; Gorman W. Prince, Victoria, Texas; Maj. T. G. E. Cockbain, Pretoria, South Africa; S. Peter Kievit, Clifton, N. J.; Gordon Madland, North Burnaby, Can.

The following craftsmen have been awarded CERTIFICATES OF MERIT for their projects: Charles C. Scott, Festus, Mo.; Lowell T. Baker, Sigel, Ill.; Larry W. Anderson, Seattle, Wash.; Hal R. Donell, San Diego, Calif.; Ben H. Smith, Veterans Home, Calif.; Charles A. Schuster, Menomonie, Wis.; George E. Johnson, Minneapolis, Minn.; James J. Waugh, Chamberlain, S. D.; R. E. Tounsend, Mt. Clemens, Mich.; Thomas Simons, Bay City, Mich.; Tom Hotchkin, Los Angeles, Calif.; Harry E. Jenkins, West Point, Ill.; Warren Foster, Norfolk, Va.; John W. Mikuly, Gary, Ind.; Richard L. Cook, Lake City, Fla.; Aldria M. Harley, Augusta, S. C.; Ernest Ley, Hartford, Conn.; Sonny Marks, Peekskill, N. Y.; Lester C. Sanders, Riedsburg, Wis.; Donald Cox, Jamaica, B. W. I.; Alex Estrin, New York, N. Y.; Denny Jones, Spokane, Wash.; John Garling, Toledo, Ohio; W. J. Bishop, East York, Ont., Can.; J. F. Bush, Watford Herts, England; James L. Murray, Spiceland, Ind.; Richard Dietuch, Wyoming, W. Va.; Donald Spurlin, FPO San Francisco, Calif.; Albert Crandall, Erie, Ill.; Leland Grams, Faulkton, S. D.; W. H. Burnham, Dorchester, Mass.; Edwin Moerder, Phoenix, Ariz.; George Rudolph, Marshfield, Mo.; Richard Bringman, Elizabethtown, Pa.; Wm. Short, Middleton, N. Y.; Franklin C. Rees, Windsor, Calif.; Russell C. Baylor, Allentown, Pa.; James Farley, Riverside, Calif.; Varrick F. Cox, St. John's, Can.; Bernard Karsko, Columbus, Ohio; Norton Gassman, Traverse City, Mich.; Tony Polinsky, San Diego, Calif.; W. O. Wetzel, Pittsburgh, Pa.; Richard N. Jacobs, Piula, Pa.; Robert Blookgood, South Amboy, N. J.; Earl M. Dilley, Burlingame, Calif.; Gerald B. Buckley, Glos., England; Michael J. Blaha, Amsterdam, N. Y.; B. H. Redfearn, Dorset, England; Carl E. Cox, Omaha, Neb.; Arthur McDaniel, Hutchinson, Kan.; John Palinsky, Jr., Johnson City, N. Y.; J. W. McClellan, Camas Valley, Ore.; Ernest DeSanto, Glenolden, Pa.; S. J. Grant, Lake Jackson, Tex.; William Stamm, S. Ozone Park, N. Y.; Patrick Plarido, Bronx, N. Y.; Charles Lumkford, Rome, Ga.; Kenneth M. Owens, Two Rivers, Wis.; C. E. Tharkstar, Wilson, N. C.; Leo E. Homyer, Collinsville, Ill.; R. T. Wright, Montello, Wis.; Donald Fasnacht, Richmond, Ind.; Donald G. Sler, B. C., Can.; John M. Hiller, Yonkers, N. Y.; Worth G. Long, Concord, N. C.; Rich Woods, Emseworth Pgh, Pa.

Watch for names of more winners next month. •