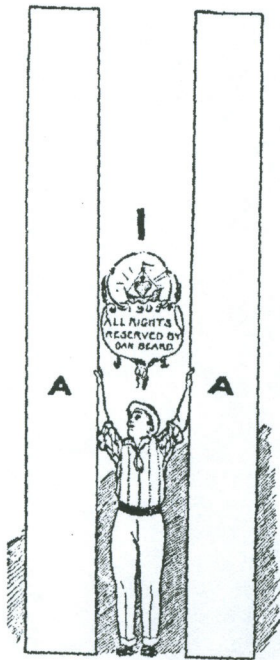


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HOW TO BUILD A CHEAP BOAT

By DAN BEARD



THE old-time raftsmen formerly built their "Yankee Pines" of the rough, unplanned boards fresh from the saw-mills on the river banks, and these raw, wooden skiffs were staunch, light and tight boats, but to-day smooth lumber is as cheap as the rough boards, so select enough planed pine lumber for a 12 1-2-foot boat, and you may calculate the exact amount by reference to the accompanying diagrams which are all drawn as near as may be to a regular scale.

By reference to Fig. 1 you will see that A, A represent the two

SIDE-BOARDS

These should be of sufficient dimensions to produce two side-pieces each 13 feet long, 17 inches wide and 7-8 inch thick (A, Fig. 2). You will also need a piece for a

SPREADER

54 inches long, 18 inches wide and about 1 1-2 inches thick, but as this is a temporary affair almost any old piece of proper dimensions will answer (B, Fig. 2), and another piece of good 1 1-2 plank (C, Fig. 2) 36 inches long by 15 inches wide, for a stern-piece. Besides the above there must be enough 1-inch lumber to make seats and to cover the bottom. At a point on one end, 6 1-2 inches from the edge of the A plank, mark the point *c* (Fig. 2); then measure 37 inches back along the edge of the plank and mark the point *b* (Fig. 2). Rule a pencil line (*bc*) between these

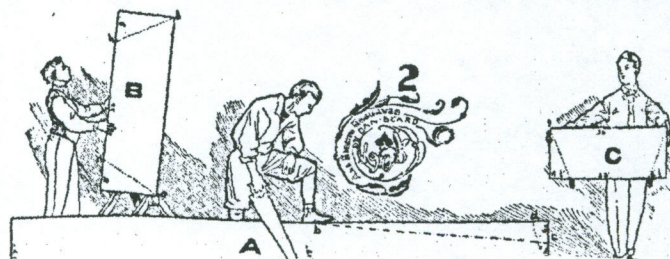
saw off the triangle *bed*. Make the second side-board an exact duplicate of the one just described and prepare the spreader by sawing off the triangle with 9-inch bases at each end of B (Fig. 2). This will leave you a board (*h, k, o, n*) that will be 36 inches long on its lower edge and 54 inches long on its top edge.

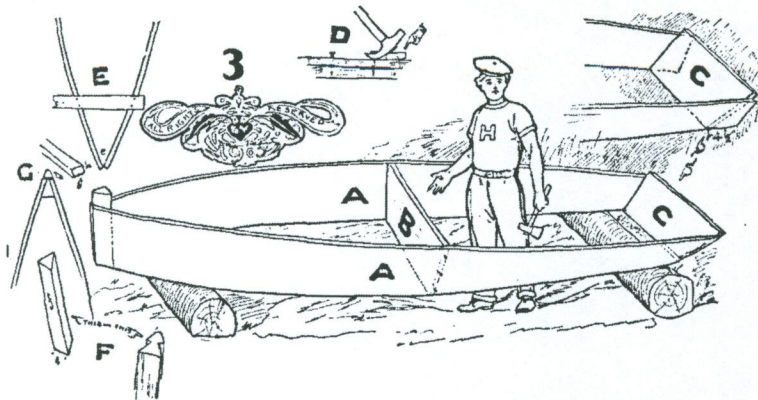
Next saw off the corners of the stern-piece C (Fig. 2) along the lines *f, g*, the *g* points being each 6 1-2 inches from the corners; and a board (*ff, gg*) 18 inches wide and 36 inches top measurement, with 23 inches at the bottom. Now fit the edge of the stern-piece along the line *ed* (Fig. 2), or at a slant to please your fancy. In Fig. 3, upper C, the slant makes the base of the triangle about 4 1-2 inches, which is sufficient. Be careful that both side-boards are fitted exactly alike, for instance, nail the port-side with nails only driven partly in, as shown at D (Fig. 3); then nail the starboard side and, if they are both seen to be even and of the right slant, drive the nails home; if not correct, the nails may be pulled out, by using a small block under the hammer (D, Fig. 3), without bending the nails or injuring the wood. Leave the stern ends of the side-boards protruding, as in the upper C, until you have the spreader and stem in place.

We are now ready for the spreader (*h, k, o, n*) amidship, or, more accurately speaking, 6 feet 9 inches from the bow (B, Fig. 3). Nail this as shown by D (Fig. 3), so that the nails may be removed at pleasure. Bring the bow ends of the A boards together and secure them by a strip nailed temporarily across, as shown in the diagram E (Fig. 3).

THE STEM-PIECE

may be made of two pieces, as is shown at G and *f* (Fig. 3), or if you are more skilful than the ordinary non-professional, the stem may be made of one piece, as shown by the lower diagram at F (Fig. 3). It is desirable to have oak for the stem, but any hard wood will answer the purpose, and even pine may be used when no better is to be had. Take a piece of cardboard or an old shingle on which to draw a pattern for the end of the stem and make the outline with a lead pencil by placing the shingle over the apex *c* of diagram E (Fig. 3), from the inside trace the line of the sides thus, *V*. Trim your stem down to corre-





will not slip out of place, and the cleats serve to strengthen the sides of the otherwise ribless boat. Make the cleats of 1 by 2-inch lumber and let the seat be about 12 inches wide. The stern seat may be wider, 1 1-2 feet at K and 4 or 5 inches more at the long sides of the two boards each side of K (Fig. 5). Of course, it is not necessary to fit a board

spond to these lines and let the stick be somewhat longer than the width of the sides A, A.

When this is done to your satisfaction, fit the stem in place and nail the side-boards to the stem.

Turn the boat over and nail on a bottom of 1-inch boards as shown by Fig. 4.

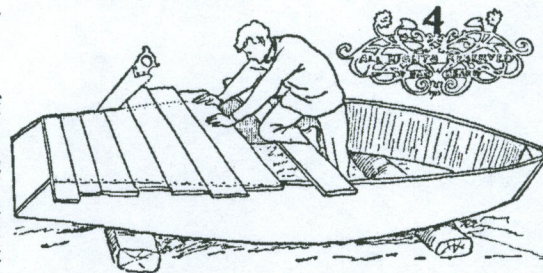
DON'T

use tongue and grooved, or any sort of fancy cabinet or floor joining when wet, such matched lumber warps up in waves, but use boards with smooth, flat edges; if these are true and fitted snugly together in workmanlike manner the first wetting will swell them in a very short time, until not a drop of water will leak through the cracks, for the reason that there will be none. Fit the bottom boards on regardless of their protruding ends, as these may be sawed off after the boards are nailed in place.

THE SEATS

consist of a triangular one at the bow (J), the oarsman's seat (L), and the stern seat (K, Fig. 5). The bow seat is made of 1-inch boards nailed to two cleats shown at M (Fig. 5). N shows the bench for the stern seat and O explains the arrangement of the oarsman's seat a little forward amidships. As may be seen, it rests upon the cleats x (Diagram O, Fig. 5), which are fitted between two upright cleats on each side of the boat; this makes a seat which

in against the stern piece, for a cleat will answer the purpose, but a good, heavy stern piece is often desirable and the board shown in Diagram N (Fig. 5) will serve to add strength to the stern as well as to furnish a firm rest for the stern seat, but it will also add weight.



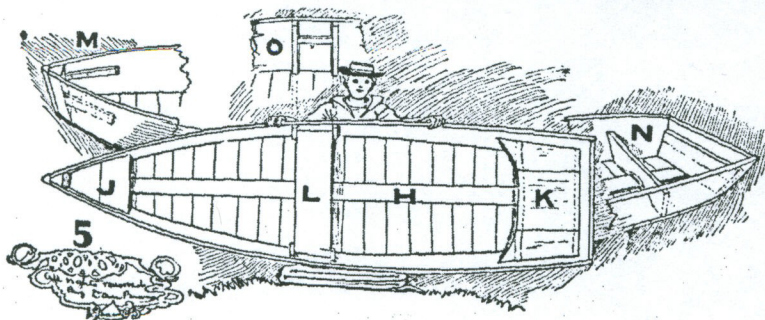
THE KEEL BOARD

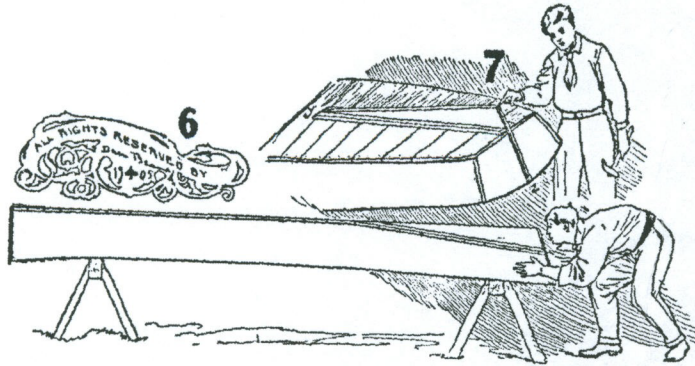
is an advisable addition to the boat, but may also be omitted without serious results (H, Fig. 5).

The keel board should be 4 1-2 inches wide, 1 inch thick, and should be cut pointed, to fit snugly in the bow, and nailed in place along the center of the floor, before the seats are put in the boat. A similar board along the bottom, joining the two cleats each side of the skeg at y (Fig. 7) and extending to the bow will prevent the danger of loosening the bottom planks when bumping over riffs, shallow places, or when the boat needs to be hauled on a stoney shore; this bottom board may also be omitted to save time and lumber, and is not shown in the diagram.

THE SKEG

is a triangular board (Figs. 6 and 7), roughly speaking, of the same dimensions as the pieces sawed from the side-boards (bcd, Fig. 2). The stern end will be about 7 inches wide and it will taper off to nothing at y (Fig. 7). The skeg is held





in place by cleats of 1-inch lumber, 2 inches wide, nailed to the bottom, on each side of the skeg. To get the proper dimensions experiment with the pieces sawed from the A boards and cut your skeg board so that its bottom edge will be level with the bottom at *y* (Fig. 7); the diagonal line, to correspond with the slant of the stern, can be accurately drawn if the skeg is left untrimmed until it is fastened in place.

TO FASTEN ON THE SKEG

rule a line from the center of the stern to the center of the bow and toe-nail the skeg on along this line. This must be accurately done, or you will make a boat which will have an uncomfortable tendency to move in circles.

After toe-nailing the skeg to the bottom, nail the two cleats, one each side of the skeg, and let them fit as closely as may be to the keel. Now saw off the stern ends of the cleats and lay a rule along the stern, as the stick is placed in Fig. 7, where the boy has his finger, rule a pencil line across the protruding end of the keel and saw off the end along the diagonal line, so that the stern cleat *x* (Fig. 7) may be nailed in place to finish the work.

You can buy row-locks of galvanized iron for about a quarter of a dollar a pair, and brass ones are not expensive, but even when the store furnishes the hardware (Fig. 12) there must be a firm support of some sort to hold the row-lock.

If you use the manufactured article to be found at any hardware store, the merchant will supply you with screws, plates and row-locks, but he will not furnish you with the blocks for the holes in which the spindles of the row-locks fit. Fig. 12 shows a rude, but serviceable, support for the lock made of short oaken posts much in vogue in Pennsylvania, but Fig.

11 is much better, and if it is made of oak and bolted to the sides of the boat it will last as long as the boat. Fig. 11 may be put upon either the outside or inside of the boat, according to the width amidships.

A GUARD RAIL

or fender, of 1 by 2 inch lumber alongside of and even with the top of the side-boards, from bow to stern, gives finish and strength to the craft; but in a cheap boat, or a hastily constructed one, this may be omitted, as it is in these diagrams.

If you are building your boat out of the convenient reach of the hardware shop, you must make your own row-locks. Fig. 10 shows the crude ones formerly used by the raftsmen for their Yankee pines, and Figs. 8 and 9 show row-locks made with oaken, or hardwood thole-pins fitting in holes cut for that purpose in the form of notches (U, Fig. 9) in the side of the boat, or as spaces left between three blocks, as are shown by R (Fig. 8). When the side-boards A, A, of the boat are notched, a cleat of hard wood, 5 or 6 inches wide, and extending some distance each side of the side-boards must be used, as is shown by Diagram V (Fig. 9) and S (Fig. 8). The Diagram R (Fig. 8) explains itself; there is a center block nailed to the sideboard and two more each side, leaving spaces for the thole-pins T (Fig. 8) to fit and guarded by another piece bolted through to the sides.

If bolts are out of your reach nails and screws may act as substitutes and Fig. 9 will be the best form of row-lock to adopt.

To fix the place for the row-locks, seat yourself on the oarsman's seat, grasp the oars as in rowing, and mark the place which best fits the reach of your arms and oars; it will probably be about 13 inches aft from the center of the seat.

