METHOD OF MAKING BOAT HULLS

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4 Claims. (Cl. 9—6)

1. This invention relates to a method of making boat hulls which is particularly intended and adapted for the making of the hulls of small boats and boat models.

The general object of the invention is to provide a method of making a boat hull out of flexible sheet material without employing frames or forms, the making and use of which require considerable knowledge and skill on the part of the person making the boat hull. The invention is the result of the discovery that satisfactory boat hulls may be made out of flexible sheet material by cutting the planking sections to the exact shape required to produce a particular hull, bringing the cooperating edges of said sections into engagement with one another and temporarily securing said sections together by means of adhesive tape applied to the outside thereof, and permanently securing the cooperating edges of said planking sections together solely by filling and bridging the joints between said sections with adhesive material applied to the abutting planking sections on either inside or outside, after which the adhesive tapes may be removed when the permanent adhesive material on the other side has hardened. The cooperating edges of said planking sections are preferably beveled prior to the assembly operation. A boat hull so fabricated has remarkable strength and rigidity, and the lines of the boat hull are satisfactory and pleasing owing to the curved surfaces and lines produced by the flexing of the planking sections. Such boat hulls are not made over forms, and are readily made in the hands of the person doing the work. Moreover, boat hulls made according to the methods of the present invention require no keelson, stem or frames, since the necessary strength and rigidity are provided by the flexed planking sections which, together with the deck over the top, form a rigid box-like construction. However, frames may be inserted if the maker so desires or if a propelling means is to be mounted within the hull. A suitable flexible sheet material for the planking sections of a boat hull made according to the present invention is thin plywood, but other flexible sheet material may be used. Liquid adhesive material such as the glue or plastic cement sold under the trade name "Weldwood" is highly satisfactory for filling and bridging the joints between the planking sections and so as to form fillets, and gives to most of the hull shell the necessary rigidity. Additional rigidity at the top edges of the top-side planking sections may be given by thin battens glued longitudinally along the top edges of the top-side planking sections, and by deck sections secured to those battens. Any suitable form of tape which adheres but is readily removable may be employed for temporarily securing the adjacent planking sections to one another during the fabrication of the hull shell prior to the application of the liquid adhesive to the planking sections along the butting cooperating edges. If the planking sections are cut to the exact shape required to produce a particular hull, no trouble will be experienced in assembling said sections, temporarily securing them by means of pieces of tape, and finally permanently securing them to one another by the liquid adhesive material, after which the adhesive tapes may be removed when the adhesive material has hardened.

The methods of fabricating a boat hull which are the subject of the present invention may be used for the making of boat hulls of many kinds; and said methods are not useful merely in the making of a chine-boat hull, but may be used for the making of boat hulls which in transverse section have lines which are substantially chineless. However, the methods of fabricating a boat hull which are the subject of the present invention can be simply illustrated as applied to the making of a chine-boat hull, and in the drawings accompanying the specification the parts illustrated are designed for the making of that kind of a boat hull. In those drawings, Fig. 1 shows the form of a starboard top-side section; Fig. 2 shows the form of a transom adapted to cooperate with the planking sections shown in Figs. 1 to 4; Fig. 6 is a horizontal plan view showing the outside of the bottom of the fabricated hull prior to the removal of the tapes which temporarily secure the planking sections to one another; and Fig. 7 is a sectional elevation on the line 1—1 of Fig. 6, inverted.

The form of the starboard and port top-side sections 9 and 10 will be evident from Figs. 1 and 4 in which the upper edges of those top-side sections 9 and 10 are provided with battens 11 and 12 which are glued respectively to those planking sections. As shown at 13 and 16 in Figs. 1 and 4, the battens 11 and 12 may be provided with transverse cuttings which facilitate the bending of the top-side sections and which may be cut to accommodate the points where the bending is most pronounced. The starboard and port bottom sections are shown at 16 and 17 in Figs. 3 and 3. It will be understood from Figs. 1 to 4 that the edges a and a', the edges b and b', the edges c and c', and the edges d and d' of the
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3 planking sections are intended to cooperate with one another in the fabricating of the boat hull. These planking sections 9, 10, 16 and 17 are accurately cut to the exact shape required to produce the particular hull; and after said sections have been cut the edges a—a', b—b', c—c' and d—d' are preferably slightly beveled by sand-papering or in any other suitable manner.

In fabricating the boat hull, the top-side section 8 and the bottom section 10, beginning preferably at their bow ends, are progressively flexed into engagement with one another along the beveled edges a and a', adhesive tape (as shown at 20 in Fig. 6) being applied to the outside of said sections across the meeting line thereof as the flexing progresses. Then the same operation is repeated with the top-side and bottom sections 10 and 17, so that said sections cooperate along their edges c and c'. Thus the starboard half and the port half of the hull are fabricated, with the two planking sections which comprise each of them temporarily secured to one another by pieces of tape applied to their outer surfaces across the lines where the sections meet. These two half-sections of the hull may then be brought into engagement with one another along the edges b and b' and d and d' and may be temporarily secured to one another by pieces of adhesive tape 21 (see Fig. 6) applied to the outside of the halves of the hull across the abutting lines b and b' and d and d'. The partly fabricated hull now presents the appearance shown in Fig. 6 in which the hull sections 9, 16, 17 and 10 are temporarily secured with their cooperating edges in engagement with one another by means of pieces of tape 20 and 21.

The transom 22 shown in Fig. 5 is now inserted between the stern ends of the planking sections, and is secured by means of liquid adhesive material applied to the edges of the transom 22 which abut the planking sections; adhesive tape being applied around the stern of the boat for the purpose of holding the planking sections tightly in engagement with the transom while the adhesive is setting. In order to permanently securely the cooperating beveled edges of the planking sections together, liquid adhesive material shown at 23 in Fig. 7, is applied to the inside of the abutting portions of the planking sections so as to fill and bridge the joints and form a fillet between the planking sections; and after the adhesive material hardens, the abutting planking sections are securely attached to one another. The deck 26, shown in Fig. 7, may now be applied and glued or otherwise secured to the battens 11 and 12 and the transom 22, tapes 23 being applied to hold the deck securely in place while the glue is hardening. The deck, which may extend over all or a part or parts of the hull, adds to the structure the necessary rigidity. When the glue has hardened, the adhesive tapes 20, 21 and 23 on the outside of the hull are removed. The hull is now fabricated. Any desired varnish or paint finish may be applied. If desired any internal fittings, bulkheads, model plates or other similar structures may be inserted, but neither these nor the methods of applying them need be described since they form no part of the present invention.

What is claimed is:

1. The method of fabricating a boat hull out of flexible sheet material which comprises cutting the planking sections to the exact shape required to produce a particular hull out of said material, bringing the cooperating edges of said sections into engagement with one another and temporarily securing said sections to one another by applying across the outside of each joint between said sections a plurality of adhesive tapes, permanently securing the cooperating edges of said sections together solely by filling and bridging the joints between said sections with fillets of adhesive material applied to the abutting planking sections, and removing the tapes after said adhesive material has hardened.

2. The method of fabricating a boat hull out of flexible sheet material which comprises cutting the planking sections to exact shape out of said flexible sheet material, bevelling those edges of said sections which are to cooperate with one another, flexing adjacent sections and bringing the cooperating beveled edges thereof into engagement with one another and temporarily securing said adjacent sections to one another by applying across the outside of each joint between said sections a plurality of adhesive tapes, permanently securing the cooperating edges of said sections together solely by filling and bridging the joints between said sections with fillets of adhesive material applied to the inside of said sections, and removing the said tapes after the said adhesive material has hardened.

3. The method of fabricating a chine boat hull out of flexible sheet material which comprises cutting the bottom and top-side sections to exact shape out of said material, flexing each bottom section and the corresponding top-side section and bringing the cooperating edges thereof into engagement with one another to form the chines of the hull and temporarily uniting said cooperating bottom and top-side sections by applying across the outside of each chine a plurality of adhesive tapes, bringing the cooperating edges of the said chine portions into engagement with one another and temporarily securing said portions together by applying across the outside of the joint between said portions a plurality of adhesive tapes, permanently securing the cooperating edges of said sections together solely by filling and bridging the joints between said sections with fillets of adhesive material applied to the inside of said sections, and removing said tapes after the said adhesive material has hardened.

4. The method of fabricating a chine boat hull out of flexible sheet material which comprises cutting the bottom and top-side sections to exact shape out of said material, bevelling those edges of said sections which are to cooperate with one another, flexing each bottom section and the corresponding top-side section and bringing the cooperating beveled edges thereof into engagement with one another to form the chines of the hull and temporarily uniting said cooperating bottom and top-side sections by applying across the outside of each chine a plurality of adhesive tapes, bringing the cooperating beveled edges of the said united portions into engagement with one another and temporarily securing said portions together by applying across the outside of the joint between said portions a plurality of adhesive tapes, permanently securing the cooperating edges of said sections together solely by filling and bridging the joints between said sections with fillets of adhesive material applied to the inside of said sections, and removing said tapes after the said adhesive material has hardened.

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