April 15, 1952 A. C. HOGGATT 2,592,697

BOAT CONSTRUCTION

Filed March 17, 1950 2 SHEETS--SHEET 1

FIG. 1

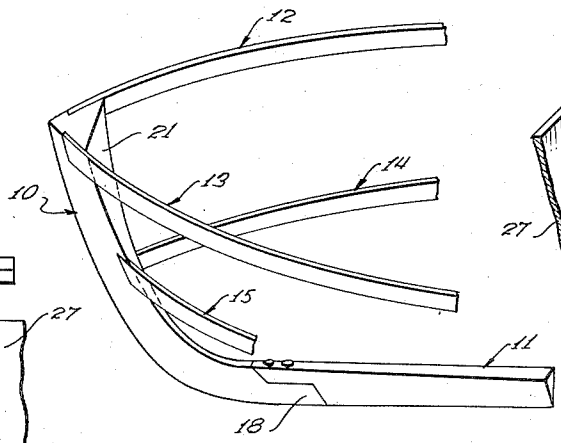


FIG. 8

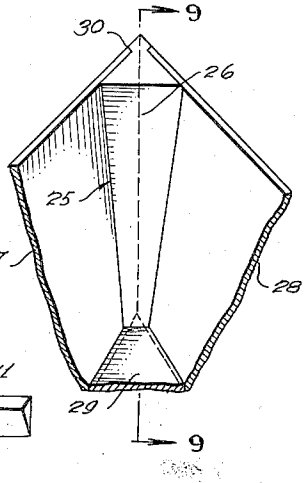


FIG. 9

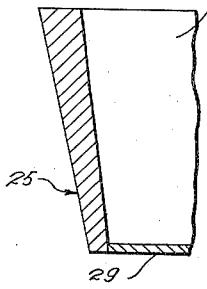


FIG. 2

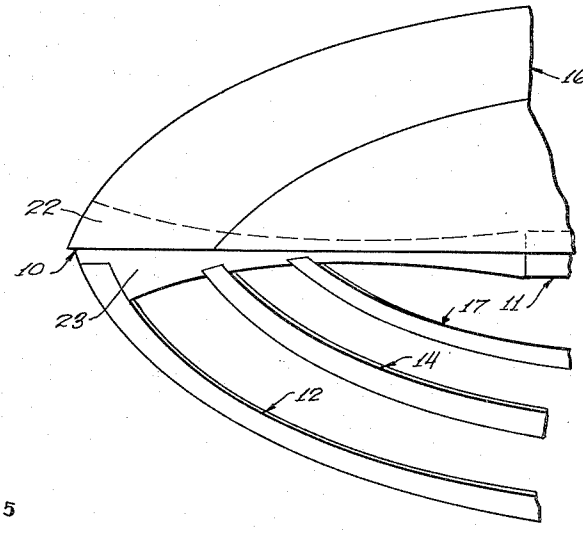


FIG. 5

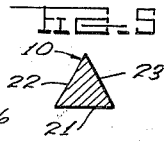


FIG. 6

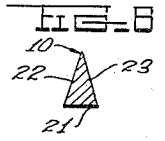


FIG. 7

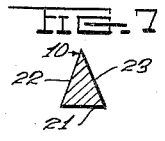
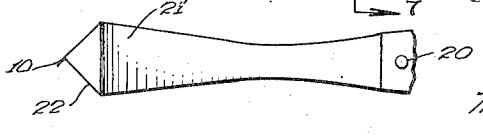


FIG. 3

FIG. 4



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FIG. 10

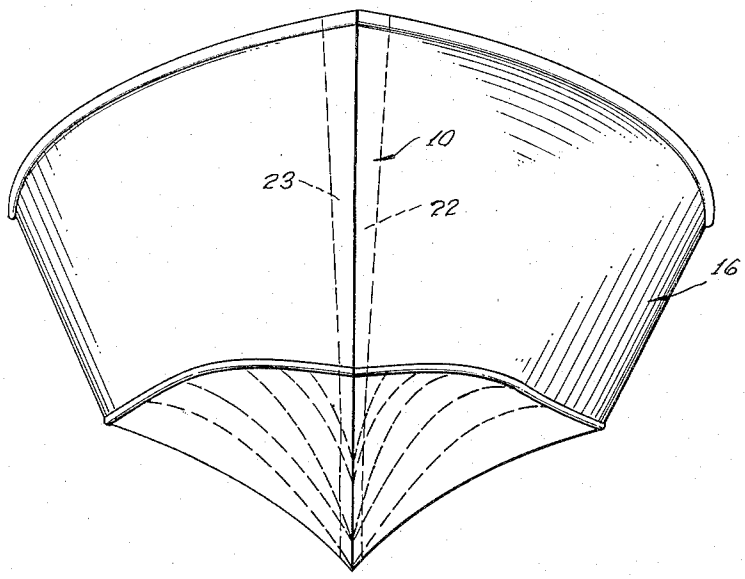
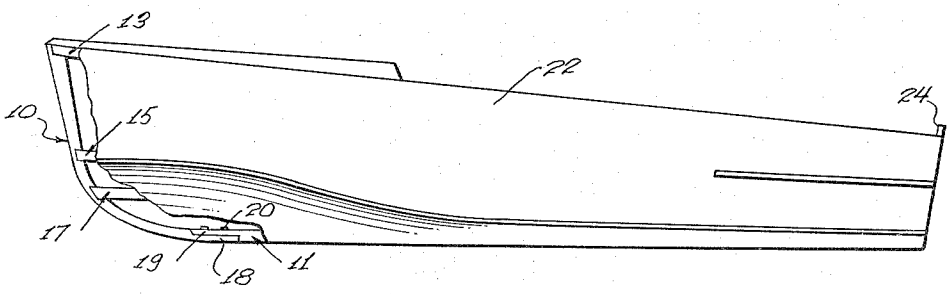


FIG. 11



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BOAT CONSTRUCTION

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Application March 17, 1950, Serial No. 150,259

3 Claims. (Cl. 9—6)

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This invention relates to boat construction and more particularly to a stem and bow construction which molds and secures the bow structure of a boat without the use of vertical ribs and transverse members, such as spreaders or thwarts.

It is among the objects of the invention to provide an improved bow construction for a boat which construction eliminates the vertical ribs and transverse members, such as spreaders and thwarts, and at the same time, provides a strong and rigid structure properly molded to the desired contour, which can be applied to different types of boat hulls, such as V-bottom boats having a dead rise formation at the bow, and flat bottom boats, and which greatly facilitates the manufacture of boats, and materially reduces the construction cost.

Other objects and advantages will become apparent from a consideration of the following description and the appended claims in conjunction with the accompanying drawings, wherein:

Figure 1 is a perspective view of a fragmentary forward portion of a boat skeleton illustrating the bow construction of the invention;

Figure 2 is a bottom plan view of the fragmentary forward portion of the boat illustrated in Figure 1;

Figure 3 is a side elevation of the stem and keel assembly at the bow of the boat;

Figure 4 is a top plan view of the stem and keel assembly illustrated in Figure 3;

Figure 5 is a transverse cross-section on the line 5—5 of Figure 3;

Figure 6 is a transverse cross-section on the line 6—6 of Figure 3;

Figure 7 is a transverse cross-section on the line 7—7 of Figure 3;

Figure 8 is an elevation of a broken-away bow portion of a different type of boat from that illustrated in Figures 1 and 2 and showing a modified stem constructed according to the invention;

Figure 9 is a cross-section on the line 9—9 of Figure 8;

Figure 10 is a bow elevation of a completed boat of the type illustrated in Figures 1 and 2; and

Figure 11 is a side elevation of the boat illustrated in Figure 10.

With continued reference to the drawings, and particularly to Figures 1 to 7 inclusive, the improved bow construction comprises in general, a stem 10, a keel 11, a pair of gunwales 12 and 13, a pair of chine strips 14 and 15, a cover 16, and may also include a pair of strakes, one of which is indicated at 17 in Figure 2.

The stem 10, as particularly illustrated in Figure 3, is an elongated member of generally triangular, cross-sectional shape having therein a longitudinal curve somewhat greater than 90-degrees. This stem has a flat upper end, and has its lower end provided with a notch and a tongue 18 which fits into a notch provided in the keel 11, while a tongue 19 provided on the

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keel extends into the notch provided in the stem, the tongues 18 and 19 being secured together by suitable fasteners, such as the bolts 20. While the tongue-and-notch construction is typical, it is to be understood that the stem may be joined at its lower end to the forward end of the keel in any suitable way.

The stem has a front edge and a rear surface 21 and has side surfaces 22 and 23 which diverge from the front edge to the rear surface. These side surfaces 22 and 23 are also longitudinally inclined relative to each other, so that the cross-sectional shape of the stem varies along the length of the stem from one end to the other. In the example illustrated, the side surfaces 22 and 23 include between them, at the upper end of the stem, an angle of approximately 90-degrees centered on the front edge of the stem, and, at the location at which the chine strips 14 and 15 are attached, include between them an angle of approximately 60-degrees also centered on the front edge of the stem. At the location below the chine strips 14 and 15 at which the strakes 17 are attached, the side surfaces 22 and 23 include between them an angle of approximately 30-degrees, and at the forward end of the keel, includes between them an angle of approximately 40-degrees.

The two gunwales 12 and 13 are somewhat flexible, elongated strips and are secured at their forward ends to the stem 10 adjacent the upper end of the stem, so that they extend outwardly from the stem in the divergent relationship of the two side surfaces 22 and 23 of the stem. These gunwales are bent inwardly and are attached at their rear ends to the boat counter 24 at respectively opposite ends of the counter, and provide the longitudinal shape of the boat at the top of the boat. The large angle between the side surfaces of the stem at the location at which the gunwales are attached causes the gunwales to diverge sharply at their forward ends, thus providing a blunt, rounded bow shape. The two chine strips 14 and 15 are generally parallel to the gunwales 12 and 13, respectively, and are spaced below the gunwales. At the point of attachment of the chine strips, as explained above, the angle of divergence between the side surfaces of the stem has been reduced to approximately 60-degrees, so that the chine strips do not diverge at their forward ends as sharply as do the gunwales. The sides of the boat will thus slope downwardly and inwardly from the gunwales to the chine strips.

The bottom of the boat extends from the chine strips to the bottom end of the stem and to the opposite sides of the keel 11. At the bow of the boat the bottom is concavely curved to provide a dead rise formation, and the stem has a minimum angle between its two side surfaces at the location at which the forward end of the bottom is attached to the stem. From this point, the angle between the two side surfaces of the stem

gradually increases, so that the bottom of the boat gradually flattens from its forward end rearwardly, and the angle between the side surfaces of the keel also increases from the forward to the rearward end of the keel, so that at the stern of the boat the bottom may be substantially flat.

If the bottom of the boat is cross-planked, the strakes 17 will be used and at their forward ends set into the stem substantially at the location at which the forward end of the bottom of the boat is attached to the stem. These strakes gradually turn from their forward to their rearward ends to follow the inclination of the boat bottom at opposite sides of the stem and keel.

The shape of the stem holds the gunwales, chine strips and strakes firmly in place at the bow of the boat, so that it is not necessary to use any vertical ribs or to supply transverse members, such as spreaders or thwarts between these members, and the cover 22 may be secured directly to the gunwales and chine strips and to the sides of the stem.

The modified construction shown in Figures 8 and 9 illustrates the application of the same principles to a small, flat-bottom boat, such as a rowboat. In this construction, a stem, generally indicated at 25, is provided, which is similar in shape to that portion of the stem 10 above the bottom edges of the chine strips 14 and 15.

The stem 25 is a straight prism of triangular, cross-sectional shape having a sharp front edge and a rear surface 26 and side surfaces diverging from the front edge to the rear surface 26, and converging from the upper end to the lower end of the stem, so that the angle included between them at the top end of the stem is approximately 90-degrees, while the angle included between them at the bottom end of the stem is approximately 60-degrees.

In this type of boat the gunwales, chine strips and strakes may be omitted and the sides 27 and 28 secured directly at their forward ends to the side surfaces of the stem. The bottom 29 is secured at its side edges to the bottom edges of the sides 27 and 28, respectively, by any suitable means, and is secured at its front end to the bottom end of the stem 25. The stem is preferably recessed, as indicated at 30, to receive the forward ends of the sides 27 and 28 and these sides diverge outwardly from the stem and are then brought parallel or somewhat convergent to the counter at the stern of the boat.

The invention may be embodied in other specific forms without departing from the spirit or essential characteristics thereof. The present embodiments are therefore, to be considered in all respects as illustrative and not restrictive, the scope of the invention being indicated by the appended claims rather than by the foregoing description, and all changes which come within the meaning and range of equivalency of the claims are, therefore, intended to be embraced therein.

What is claimed is:

1. In a boat structure, an elongated, curved stem of generally triangular cross-sectional shape, a keel connected at its forward end to the lower, rearward end of said stem, a pair of gunwales connected at their forward ends to said stem at respectively opposite sides and near the upper end of said stem, a pair of chine strips connected at their forward ends to said stem at respectively opposite sides of the latter and below said gunwales, and a pair of strakes connected at their forward ends to said stem at respectively opposite sides of the latter and below said chine strips, said stem constituting the sole connection for the forward ends of said gunwales, said chine strips and said strakes and having side surfaces diverging from the front edge to the rear side of said stem and converging longitudinally of said stem from the upper end to a location intermediate the length of said stem so that the angle between said chine strips is less than the angle between said gunwales and the angle between said strakes is less than the angle between said chine strips.

2. In a boat structure, an elongated, curved stem of generally triangular cross-sectional shape, a keel connected at its forward end to the lower, rearward end of said stem, a pair of gunwales connected at their forward ends to said stem at respectively opposite sides and near the upper end of the stem, a pair of chine strips connected at their forward ends to said stem at respectively opposite sides of the latter and below said gunwales, a pair of strakes connected at their forward ends to said stem at respectively opposite sides of the latter and below said chine strips, said stem constituting the sole connection for the forward ends of said gunwales, said chine strips and said strakes and having a front edge and a rear surface and side surfaces diverging from the front edge to said rear surface and converging longitudinally of said stem from the upper end to a location intermediate the length of the latter so that the angle between said chine strips is less than the angle between said gunwales and the angle between said strakes is less than the angle between said chine strips, and side covers secured directly to said stem, said gunwales and said chine strips.

3. In a boat structure, an elongated, curved stem of generally triangular cross-sectional shape, a keel connected at its forward end to the lower, rearward end of said stem, a pair of gunwales connected at their forward ends to said stem at respectively opposite sides and near the upper end of the stem, a pair of chine strips connected at their forward ends to said stem at respectively opposite sides of the latter and below said gunwales, and a pair of strakes connected at their forward ends to said stem at respectively opposite sides of the latter and below said chine strips, said stem constituting the sole connection for the forward ends of said gunwales, said chine strips and said strakes and having a front edge and a rear surface and side surfaces diverging from the front edge to said rear surface and converging longitudinally of said stem from the upper end to a location intermediate the length of the latter and diverging longitudinally of said stem from said location intermediate the length of the stem to the other end thereof.

ANDREW C. HOGGATT.

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