Jan. 22, 1957 L. TYKWINSKI 2,778,035

METAL BOAT SEAM

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Fig. 1

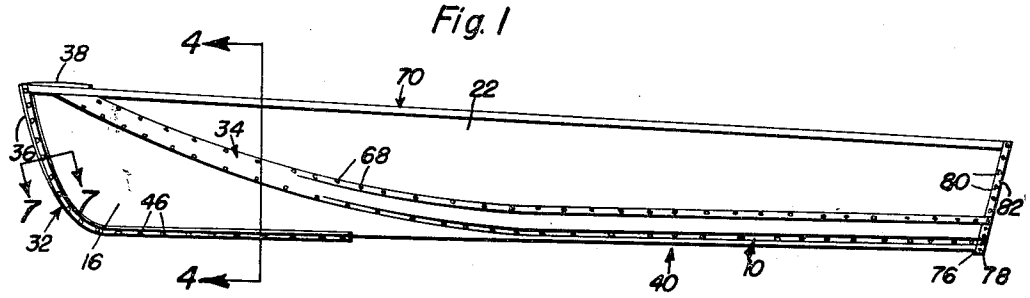


Fig. 5

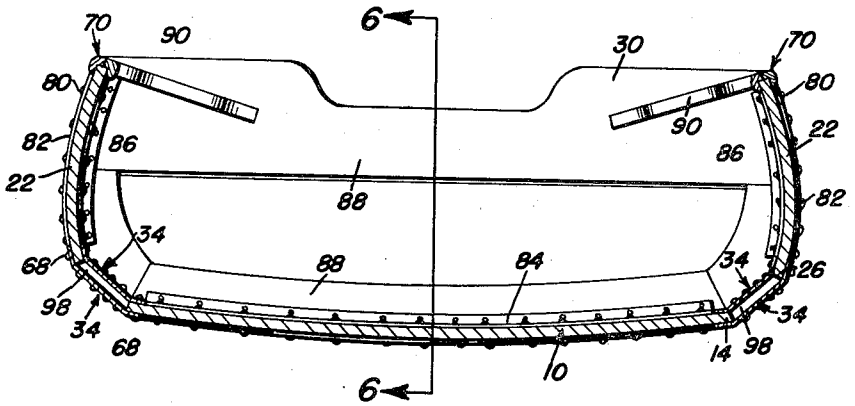


Fig. 6

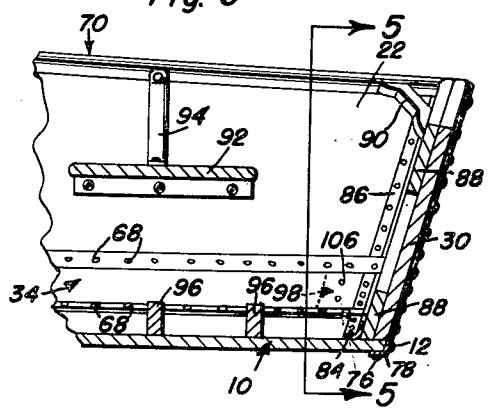
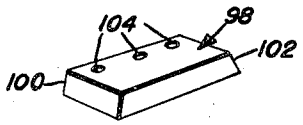


Fig. 11



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Fig. 2

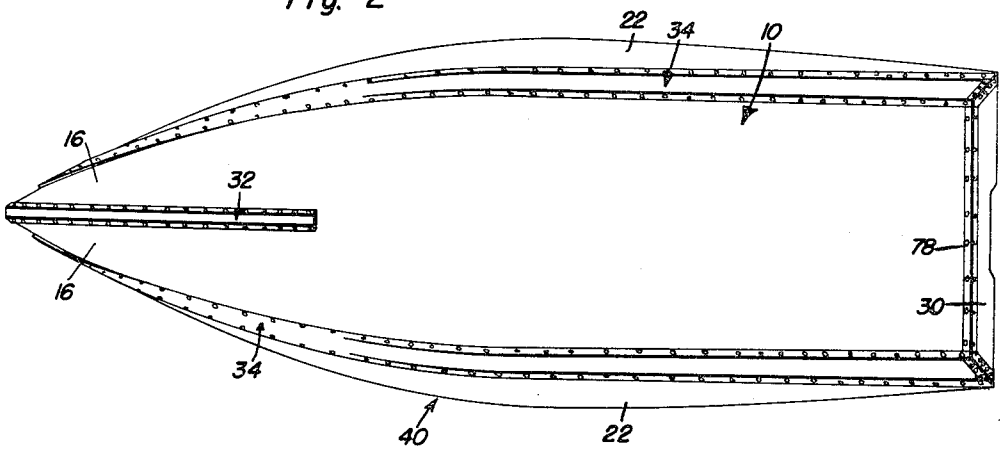


Fig. 4

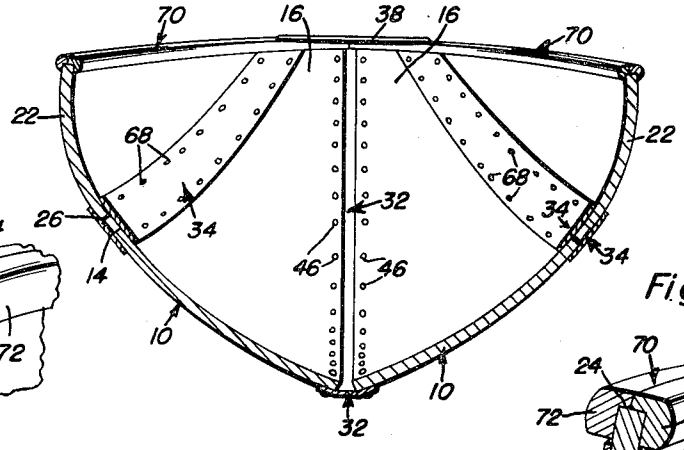


Fig. 8

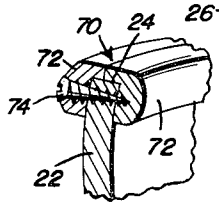


Fig. 12

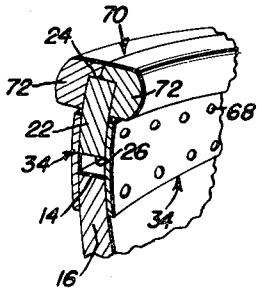
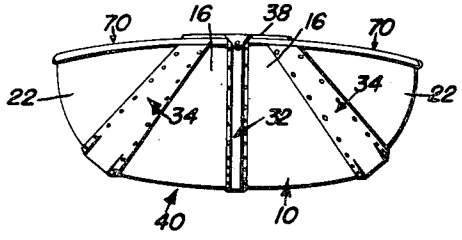


Fig. 3



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METAL BOAT SEAM

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Fig. 9

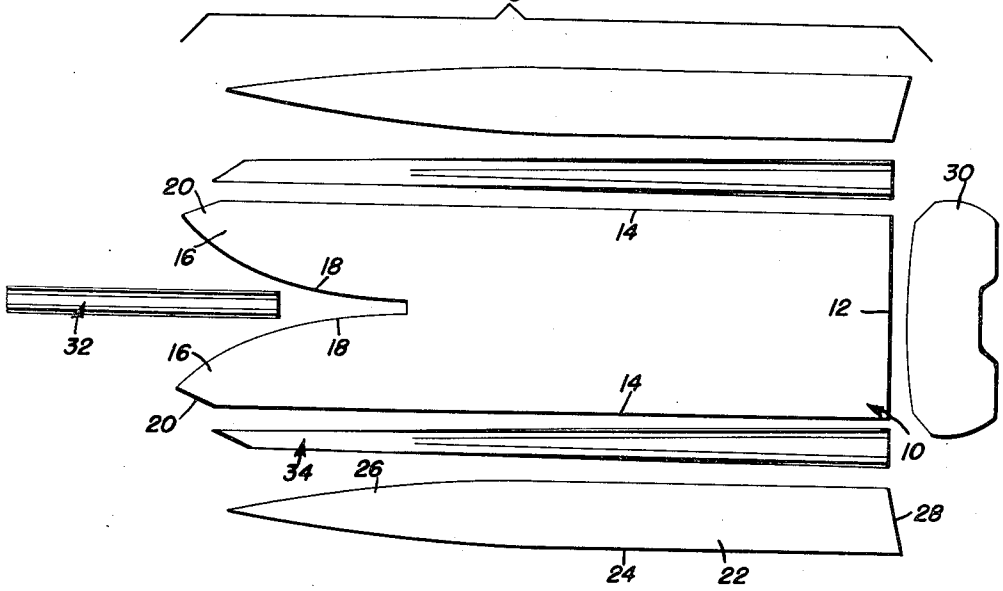


Fig. 10

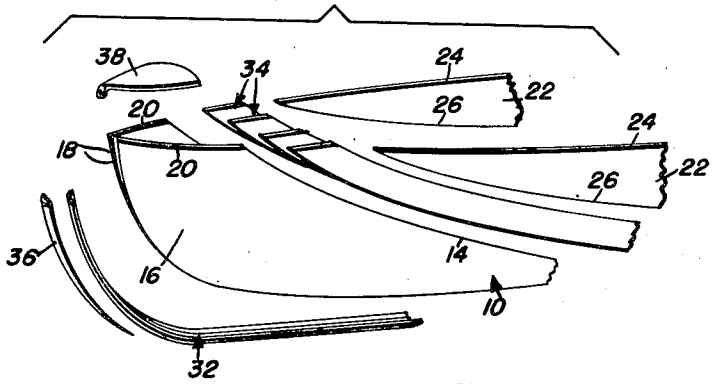


Fig. 7

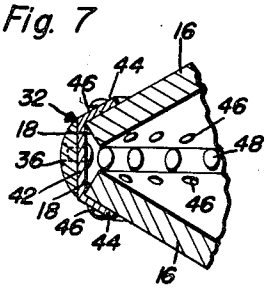
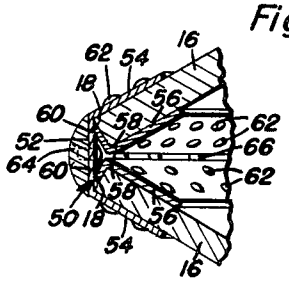


Fig. 13



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2,778,035

METAL BOAT SEAM

Leonard Tykwinski, Little Falls, Minn.

Application October 28, 1952, Serial No. 317,169

3 Claims. (Cl. 9—6)

This invention relates in general to boat construction, and more specifically to a metal boat seam.

This application is a continuation-in-part of my co-pending application Serial No. 245,615, filed September 7, 1951, now abandoned.

The primary object of this invention is to provide an improved metal seam whereby portions of a wooden boat hull may be quickly and effectively secured together in a water-tight joint.

Another object of this invention is to provide an improved boat hull whose bow and bottom are formed of a single sheet of material which has been bent and portions thereof removed so that the bow and bottom may be formed by a single joint, said joint including a bow piece.

Another object of this invention is to provide an improved boat hull in which the bottom and bow portions are formed of a single sheet of material and to which are secured other sheets of material which form side pieces, said side pieces being joined to the sheet of material forming the bow and bottom by elongated side seams.

Another object of this invention is to provide an improved boat construction which is relatively simple and which requires a minimum of labor so as to be economically feasible.

A further object of this invention is to provide an improved method of forming a boat hull wherein a single sheet of material may be utilized for the construction of the bottom and bow portions thereof.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a side elevational view of a boat whose construction conforms to the spirit of this invention;

Figure 2 is a bottom plan view of the boat of Figure 1 and shows the general arrangement of seams therein outlining the joints between the various portions of the boat hull;

Figure 3 is a front elevational view of the boat hull of Figures 1 and 2 and shows the arrangement of the seams at the bow of the boat;

Figure 4 is an enlarged transverse vertical sectional view taken substantially upon the plane indicated by the section line 4—4 of Figure 1 and shows the specific construction of the boat and the general configuration of the bow and side seams;

Figure 5 is an enlarged transverse vertical sectional view taken substantially upon the plane indicated by the section line 5—5 of Figure 6 and shows the general construction of the boat at the stern thereof;

Figure 6 is a fragmentary sectional view taken substantially upon the plane indicated by the section line 6—6 of Figure 5 and shows the manner in which the transom is secured to the side pieces and bottom of the boat;

Figure 7 is an enlarged fragmentary transverse horizontal sectional view taken substantially upon the plane indicated by the section line 7—7 of Figure 1 and shows a preferred form of bow construction;

Figure 8 is a fragmentary vertical sectional view showing the manner in which gunwale is secured to an upper edge of the boat hull;

Figure 9 is an exploded plan view of the various elements of the boat of Figure 1 prior to their bending to the desired configurations;

Figure 10 is an exploded perspective view of the bow portion of the boat of Figure 1 and shows the arrangement of the various portions thereof after the same have been bent to their desired configurations;

Figure 11 is an enlarged perspective view of a filler block adapted to be disposed between strips forming the side seams to close the stern ends thereof adjacent the transom;

Figure 12 is a fragmentary perspective view with portions of the boat being shown in section in order to clearly illustrate the appearance of the side seam in the vicinity of the gunwale; and

Figure 13 is a fragmentary sectional view similar to Figure 7 and shows a modified form of bow piece construction.

Referring now to Figure 9 in particular, it will be seen that there is illustrated the various elements which form the boat, which is the subject of this invention. The various elements include an elongated flat rectangular sheet which is referred to in general by the reference numeral **10**. The flat rectangular sheet **10** includes a stern end **12**, spaced parallel side edges **14** and a bow end. The bow end has a centrally located generally triangular portion removed therefrom to form a pair of spaced bow portions **16**. The bow portions **16** include adjacent inner edges **18** and outer edges **20**.

The elements of the boat also include a pair of identical side pieces **22** which have upper and lower edges **24** and **26**, respectively. The bow ends of the side pieces **26** are pointed and the same terminate in a stern end **28** which is disposed at a slight angle to both the upper and lower edges **24** and **26**.

The major elements of the boat also include a flat transom **30** which may be of the desired configuration for the particular outline of the boat.

In order that the various elements of the boat may be suitably connected together, there is also provided a metal bow plate **32** which is adapted to secure together the adjacent edges of the bow portions **16**. Also provided is a pair of sets of strips **34** which lie partly in the chine line and partly sweeping upwardly and forwardly to the gunwales and secure the inner edges **26** of the side pieces **22** to the edges **14** of the sheet **10**.

Referring now to Figure 10 in particular, it will be seen that there is illustrated a portion of the bow of the boat after the elements thereof have been arranged in their respective positions and shaped in the desired manner. It will be noted that the bow portions **16** of the sheet **10** have now been curved upwardly and inwardly whereby the edges **18** thereof are closely adjacent each and substantially in parallel relation. The bow plate **32** is also provided with an upwardly curved front portion of the same curvature as the edges **18** of the bow portions **16**. Also provided is a longitudinally curved, rounded stem strip **36** which is adapted to be secured to the middle part of the front portion of the bow plate **32** in order to give the same the desired configuration.

It will be noted that when the bow portions **16** are properly shaped, the edges **20** thereof lie in a common horizontal plane and extend forwardly as continuations

of the upper edges 24 of the side pieces 22. In order to reinforce the bow of the boat and also prevent shipping water, there is provided a hood 38 which is adapted to be secured to the edges 20 of the bow portions 16.

It will be noted that the edges 14 of the sheet 10 now curve upwardly and have the same configuration as the lower edges 26 of the side pieces 22. The strips 34 have also been longitudinally curved and have the same configurations as the edges 14 and 26.

Referring now to Figures 1 through 4, inclusive, and 7 in particular, it will be seen that the bow plate 32 extends not only vertically along the bow of the boat, which is referred to in general by the reference numeral 40, also extends along the forward portion of the bottom thereof. The edges 18 of the bow portions 16 are disposed closely adjacent each other, but at angles to each other. In order that the bow plate 32 may be conveniently secured to the outer faces of the bow portions 16 in the vicinity of the edges 18, the same is generally channel-shaped in cross-section and includes a web 42 and outwardly directed flanges 44. The flanges 44 closely overlie the outer faces of the bow portions 16 adjacent the edges 18 thereof and are secured thereto by a plurality of longitudinally spaced rivets 46. It will also be noted that the rounded stem strip 36 is of a width equal to the width of the web 42 and is secured thereto by a plurality of longitudinally spaced rivets 48, the rivets 48 being countersunk within the rounded stem strip 36.

It is preferred that the rivets 46 and 48 be of the soft aircraft type so as to facilitate the forming of the joint between the edges 18 of the bow portions 16, as well as the joint between the bow plate 32 and the rounded stem strip 36. It will be also understood that disposed between the flanges 44 and the other faces of the bow portions 16 is a suitable sealing compound (not shown) to insure a water-tight joint.

Referring now to Figure 13 in particular, it will be seen that there is illustrated a modified form of bow construction which includes a longitudinally curved, elongated bow piece which is referred to in general by the reference numeral 50. The bow plate 50, like the bow plate 32, is generally channel-shaped in cross-section and includes a web 52 and outwardly projecting flanges 54. It will be noted that the main difference between the bow plate 32 and the bow plate 50 is that the flanges 54 of the bow plate 50 are of a greater width than the flanges 44 of the bow plate 32.

The bow plate 50 has its flanges 54 overlying outer faces of the bow portions 16 adjacent their edges 18. Overlying the inner faces of the bow portions 16 adjacent the edges 18 are flanges 56 of L-shaped reinforcing members 58 which have second flanges 60 overlying the edges 18. The flanges 56 and 54 are connected together on opposite sides of the bow portions 16 by parallel rows of rivets 62.

The bow plate 50 also has secured thereto a rounded elongated stem strip 64 so as to give the bow plate 50 a rounded appearance. The rounded stem strip 64 is identical to the rounded strip 36 and is secured to the web 52 of the bow plate 50 by a plurality of longitudinally spaced rivets 66. It will be understood that the rivets 62 and 66 are substantially identical to the rivets 46 and 48, respectively.

Referring now to Figures 1 through 5, inclusive, and 12, in particular, it will be seen that the side pieces 22, which are transversely curved, are secured to the sheet 10 along its edges 14 by the strips 34. It will be noted that there is one strip 34 disposed on each side of the adjacent edge portions of the side piece 22 and the sheet 10 and that the same are secured together in clamping relation with respect to the side pieces 22 and the sheet 10 by a plurality of longitudinally spaced rivets 68. It will be noted that the side pieces 22 are secured to the sheets 10 in such a manner that their lower edges 26 are in spaced complementary relation with respect to the edges 14 of the sheet 10.

It will be noted that the strips 34 are both longitudinally and laterally curved so as to conform to the configuration of the respective portions of the boat 40 and that the same gradually change from a generally flat configuration adjacent the bow of the boat 40 to a generally channel-shaped cross-section adjacent the stern of the boat, as is best illustrated in Figure 5. This is due to the fact that the edges 14 and 26 gradually become disposed at angles to each other with the angles increasing as the stern is approached.

Referring now to Figures 8 and 12 in particular, it will be seen that the upper edges of the boat 40 are provided with a gunwale construction which is referred to in general by the reference numeral 70. The gunwale construction 70 includes a pair of substantially identical generally L-shaped strips 72 which have portions overlying the upper edges 24 of the side pieces 22 and which are secured to the upper portions thereof at regularly spaced intervals by suitable fasteners 74. It will be also noted that the strips 34 intersect the upper edges of the boat 40 and, accordingly, intersect the gunwale assembly 70.

Referring now to Figures 5 and 6 in particular, it will be seen that there is illustrated the stern construction of the boat 40. The stern construction of the boat 40 includes an upwardly and rearwardly sloping transom 30 whose configuration is best illustrated in Figure 9. The transom overlies the stern portion of the bottom of the boat 40, which is formed by the sheet 10 and extends upwardly at the same angle as the edge 12. The bottom edge of the transom 30 is secured to the bottom of the boat 40 by a plurality of suitable fasteners 76. In order that the edge 12 of the sheet 10 may not be exposed, the same has secured thereto an overlying angle member 78, the angle member 78 being secured in place by the fastener 76.

The side pieces 22 also overlie edges of the transom 30 and are secured thereto by a plurality of fasteners 80. The rear edges 28 of the side pieces 22 are also protected by angle members 82 which are retained in place by the fasteners 80.

If desired, the joints between the transom 30 and the sheet 10 and the side pieces 22 may further be reinforced by angle members 84 and 86, respectively, which are disposed within the boat 40. These angle members are secured to reinforcing members 88 secured to the inner face of the transom 30 and which form only the outline thereof.

Referring now to Figure 6 in particular, it will be seen that the transom 30 is also reinforced at its corners by a pair of diagonal braces 90 which are secured to the gunwale assemblies 70. The boat 40 also includes a transversely extending seat 92 which is suitably secured to the side pieces 22 and braced by diagonal braces 94. If desired, the bottom of the boat may be reinforced at spaced intervals by transversely extending rib members 96.

Referring now to Figures 5 and 11 in particular, it will be seen that the stern end portions of the strips 34 have disposed between each pair thereof a metal block 98. The metal block 98 has a thickness substantially equal to the thickness of the sheet 10 and the side pieces 22 and is intended to form a filler between the edges 14 and 26 thereof. The block 98 includes a first longitudinal edge 100 and a second longitudinal edge 102. The longitudinal edges 100 and 102 are intended to tightly abut the edges 14 and 26, respectively, in order to provide a tight seal at the ends of the strips 34 to prevent entrance of water therebetween. It will be understood that the block 98 is provided with a plurality of suitably spaced apertures 104 for receiving rivets 106 which secure the same to the strips 34.

While the various strips and the block 98 described

above for securing together elements of the boat 40 have been described as being formed of metal, it will be understood that they may also be formed of plastic or any other suitable material. Also, in addition to the clamping actions of the bow piece and the strips, the joints also include suitable sealing material to insure a waterproof joint construction. Furthermore, while spaced strips have been illustrated only in the securing of the side pieces to the edges of the sheet 10, it will be understood that such a joint construction may be also utilized at the bow of the boat 40.

In view of the foregoing, it will be seen that applicant has devised a novel boat construction which also utilizes a plurality of novel boat seams. Furthermore, the novel boat structure permits a novel method of constructing the same.

From the foregoing, the construction and operation of the device will be readily understood and further explanation is believed to be unnecessary. However, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the appended claims.

What is claimed as new is as follows:

1. In a boat hull construction, a bow and bottom formed of a single sheet of material having curved portions joined together by a bow plate, side pieces secured to said bottom and said bow by seams which partly lie in the chine line and partly sweep upwardly and forwardly, gunwales secured to upper edges of said bow and said side pieces, said gunwales overlying and intersecting said seams.

2. In a boat hull construction, a bow and bottom formed of a single sheet of material having curved portions joined together by a bow plate, side pieces secured to said bottom and said bow by seams which partly line in the chine line and partly sweep upwardly and forwardly, said seams each being formed by spaced elongated strips secured adjacent edges of said sheet and said side pieces, said seams having rear ends thereof closed by blocks secured between said elongated strips and abutting edges of said sheet and side pieces, a transom secured to said bottom, said side pieces and said blocks.

3. In a boat hull construction, a bow and bottom formed of a single sheet of material having curved portions joined together by a bow plate, said curved portions having spaced edge portions with inner and outer surfaces, said bow plate being formed of a generally channel-shaped cross-sectional strip secured to outer faces of said edge portions, a rounded stem strip secured to a center portion of said strip on the outer face thereof, a pair of L-shaped reinforcing strips, one of said L-shaped reinforcing strips being secured to each of the inner faces of said curved bow portions and to said first-mentioned strip.

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