

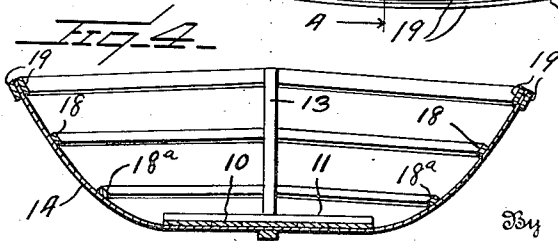
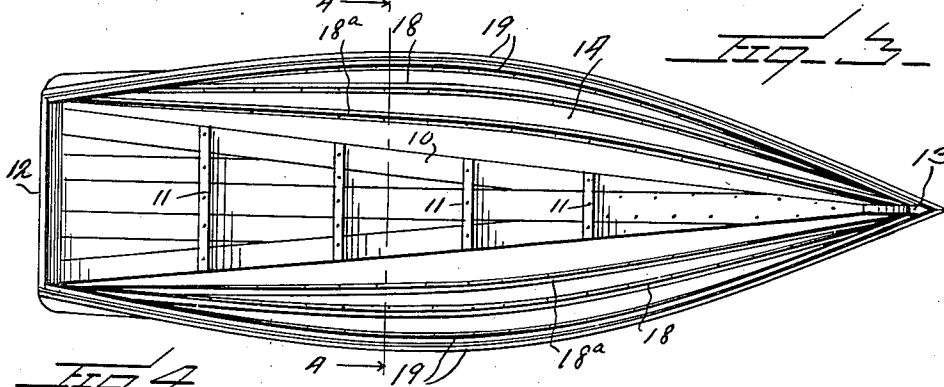
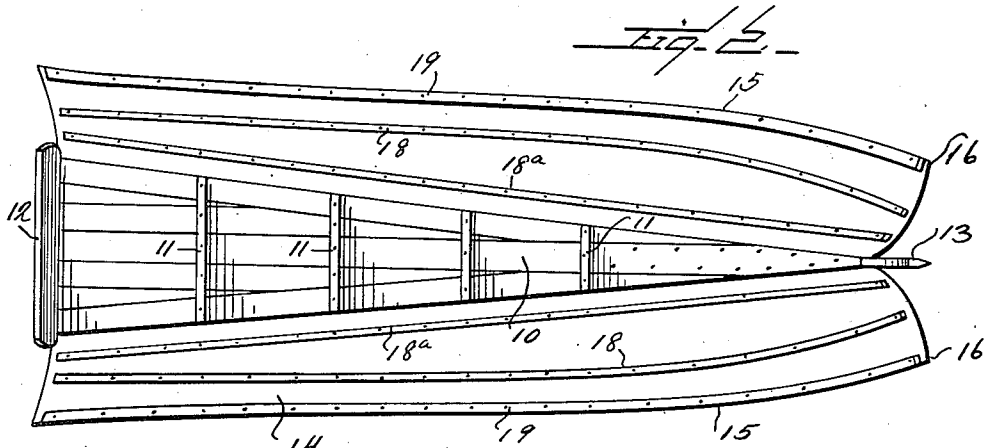
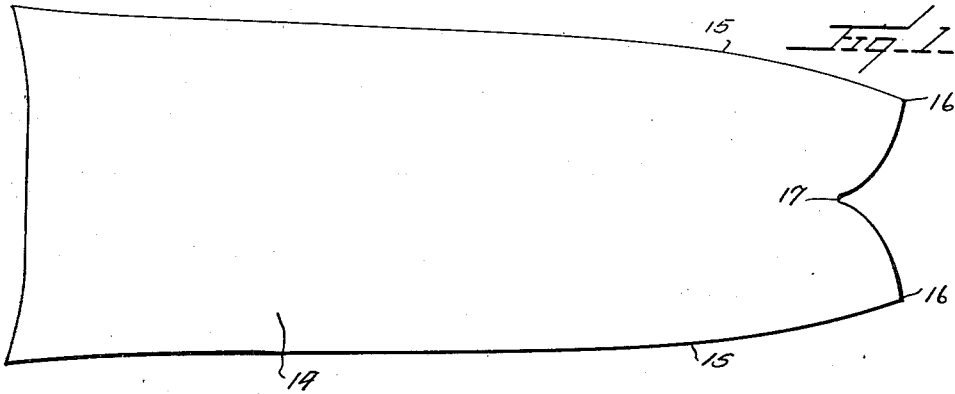
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METALLIC BOAT

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METALLIC BOAT

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4 Claims. (Cl. 9—6)

This invention relates to the construction of metallic boats of relatively small size and the general object of the invention is to provide a metallic boat of a very simple construction which may be easily and cheaply made and which has been found to be thoroughly practicable and effective in actual practice and which is particularly adapted to power propulsion.

A further object of the invention is to provide a boat in which the primary framing includes a flat rigid floor, which floor is provided with a stem and stern but is in the form of a longitudinally extended acute triangle, and provide a hull formed of non-elastic sheet metal body to which longitudinal braces have been attached upon which the wooden floor is placed, the sheet metal being then brought up over the edges of the wooden floor and attached to the stem and stern, the metal being riveted in place and thus retaining all its original strength and resilience.

A further object is to provide a boat of this character which combines a true water line or line of friction with a proper flare.

Other objects will appear in the course of the following description.

Our invention is illustrated in the accompanying drawing, wherein:—

Figure 1 is a plan view of the sheet metal blank from which the body of the boat is made;

Figure 2 is a top plan view with the floor laid upon the braced sheet metal blank, the blank being flattened;

Figure 3 is a top plan view of the completed boat;

Figure 4 is a section on the line 4—4 of Figure 3.

Referring to the drawing, 10 designates the floor of the boat which constitutes the main part of the primary framing which is longitudinally acutely triangular or wedge-shaped and is formed of a plurality of longitudinally extending boards fitted to each other and braced by cross pieces 11. Attached to the larger end of the floor 10 is the stern board or transom 12 and attached to the small end of the wedge and extending upwardly therefrom is the stem 13. The hull 14 of the boat is made of a sheet metal blank, shown in Fig. 1, this sheet metal blank having an overall length equal to the overall length of the boat and a width such that the body may be turned up around the stem and stern and provide a hull having the requisite beam. The blank from which the body is formed, as shown in Figure 1, has its side edges con-

vergently inclined forward for approximately a quarter of the length of the boat; then extended approximately parallel to the longitudinal axis of the blank and from the points designated 15 has its side edges inclined more sharply to points 16 which has the greatest overall length. From these points 16, the forward end of the blank is cut reentrantly inward to a medial line as at 17, the forward edge of the cut being concavely curved.

In the standard size of boat, the rear end of the blank will have a width of sixty-six inches while the forward end of the blank from one point 16 to the opposite point 16 will have a width of thirty-six inches.

Attached by rivets to the inside face of the blank forming the hull are the longitudinally extending secondary framing strips 18 which are of wood and the gunwale strips 19. These strips 18 and 19 extend nearly the full length of the body but not quite, so as to permit the forward end of the blank to be riveted or otherwise attached on each side of the stem and to permit the rear end of the blank to be attached to the stern board 12.

The gunwale strips 19, of course, follow the shape of the exterior edges of the blank from which the body is made. The framing strip 18 nearly parallels the gunwale strip but toward its forward end diverges slightly therefrom. The lowermost framing strip 18^a is nearly parallel to the adjacent side edge of the triangular floor 10. The number of these longitudinal strips 18 and 18^a depends entirely on the size of the boat and on the relative weights of material. These strips 18, 18^a, and 19 may be made of metal, if desired, or of wood and if of metal may be either welded or riveted to the sheet metal body. Where wooden strips and a wooden floor are used, the rivets may pierce the metal and the wood or the rivets may be flash-welded to the metal, if desired.

In forming the boat, the blank is laid down flat and then the floor 10 is placed in proper position on top of the blank. The metal is then sprung up over the stern and stem and fastened to the stem and stern by riveting, welding or the like.

It will be seen that the stern piece or transom 12 has its end edges outwardly rounded and then extending upward and inward and, of course, when the sheet metal of the blank is drawn upward around this stern, the rear end of the sides of the boat will "tumble home".

Of course, it is to be understood that while we

have shown the blank 14 as if it were a solid sheet, it may be made up of a plurality of sections welded or otherwise joined together to form a sheet. After the sheet has been formed, the sheet is then cut out to form the hull blank shown in Figure 1. The floor and framing strips are then attached to the "skin" or hull blank while the blank is flat and the sheet metal of the blank is then bent upward, with the floor constituting a form, and at its ends is brought inward and against the stem and stern and riveted or otherwise attached thereto.

It is, of course, to be understood that the particular form of the stem and stern are not important and that various shapes for the bow and stern may be used.

It will be seen that this boat has the usual lines of boats of like character but that it has no transversely extending ribs. It is the only boat known to us which has the usual lines of a boat and which is assembled from a flat condition. It is likewise the only boat which combines a true wedge water line or line of friction with a true boat flare.

While we have described the stem and stern pieces as being made of wood, it is to be understood that these might be made of metal. This boat combines the wedge-shaped water line which follows the shape of the floor, a "dory" or lifeboat-like flare amidships and a racing or cruiser-line stern. Thus this shape combines two prime essentials; speed and seaworthiness. This is due to the form of the blank, the triangular or wedge-shaped floor and the longitudinal frame-work. With these elements, assembled as directed, there can be nothing else produced than the boat having the qualities above stated.

The vital part of the boat assembly is the shape of the floor. There has as yet been discovered no way in which a boat can be built from an initially perfectly flat blank except by making the bottom or floor a perfect wedge-shape. Hence the necessity of providing an acutely triangular floor which may act as a form upon which the sheet metal of the blank may be bent. Furthermore, in order to get a true boat form, it is impossible to cut the side edges of the blank in a straight line and get a real boat. The exact form of the primary framing which is constituted by the floor, will vary only for the width of the boat or for length, but in all cases this primary framing or floor must be triangular. The placing of the longitudinal framing strips assists the comparatively light sheet metal to assume the true boat form as regards the longitudinal, the transverse, and the diagonal curves. A boat could be built in the manner stated by us without any framing whatsoever, the blank or sheet metal being cut as described and brought up around the bottom or floor and attached to the stem and stern, but the metal would have to be very heavy and this would tend to defeat our purpose in building a light-weight economical type of construction.

It will be understood that the boat which is illustrated in the accompanying drawing is to be provided with a deck, if desired, at the forward end of the boat or at any other portion of the boat and is to be provided with the usual rowing thwarts or seats but these have not been shown as they form no part of our invention.

It is, of course, obvious that the gunwale strips or the longitudinal strips 18 and 18^a may be made tubular or of angle iron or steel or of any

desired metal as well as of wood, the main point with regard to these longitudinal strips being that they are attached tightly to the shell or skin of the boat and in a longitudinal direction while this skin or shell is flat. These strips may be welded, riveted or otherwise attached to the shell or skin and it is obvious that the shell or body may be attached to the stem or stern piece in any suitable manner depending upon the material of which this stern or stem piece is made, it being obvious that the stern or stem piece may be made of metal and may be attached to the floor either prior to setting the floor on the outer shell or body or may be attached thereto afterwards.

The longitudinal strips 19, 18, and 18^a are placed on the blank in the relationship described and shown in the drawing in order to assist in making the blank assume true boat curves, when the ends of the blank are sprung to or forced into the stem and stern. These strips placed in this manner reinforce both the longitudinal and diagonal curves, so essential to true boat form, and this is particularly true when using light-weight metal. The strip 18^a is straight and nearly parallel to the edge of the floor to assist in preserving a nearly true wedge water line as the side or free-board is bent up and away from the bottom. It intersects the transom or stern piece at the beginning of the bulge, and on being sprung to the stem it assumes a slight bow, thus departing slowly and gently from the straight and inclined line of the bottom or floor. The strip 18 nearly parallels the gunwale line or strip 19 in order to assist the strip 19 in forming the correct boat flare amidships. It is drawn nearer to 19 at the stern in order to assist in drawing the blank in and over the transom. Strip 18^a is placed nearly parallel to the side of the floor or bottom to aid the beginning of the side or free-board curve to assume its proper shape, while strip 18 is placed nearly parallel to the gunwale strip 19 in order to aid it in springing the amidships portion to proper flare and curve. Additional strips may or may not be used, but when used are placed in such a manner as to further aid the blank in assuming its proper longitudinal as well as diagonal curves. All the strips run from stem to stern and are attached to the stem and stern in order to secure maximum strength.

It is absolutely necessary or essential that the floor or bottom be triangular in shape. It is not essential that it be perfectly flat laterally. It may be gently curved or it may be even slightly V-shaped, but it must be a perfectly elongated wedge or triangle in plan, with the point at the stem and the extreme width at the stern, and the sides of this triangle must be a straight line. In no other manner can a boat be formed from a flat sheet metal blank. It is to be understood that this "floor" constitutes in effect a primary framing, and that we do not wish to be limited to the particular construction of this floor.

It will be seen that we have provided a boat, which under test, has shown itself to be entirely successful, that is made from a perfectly flat blank without resorting to the formation of tucks or laps in the blank and that the body or shell of this boat can be detached from the stem and stern and can be laid out perfectly flat. As far as our experience goes, this cannot be done with any other manner or type of construction than that which we have shown.

We claim:—

1. A flat-bottom boat having a primary frame including a rigid triangular floor terminating at its bow end in a point and having a stem and stern piece attached thereto, and a hull of sheet metal rigidly attached to and fitting flat against the bottom of the floor and extending upward and outward from each side edge of the floor, the ends of the hull being permanently attached respectively to the stem and stern pieces.

2. A flat-bottom boat having a primary frame including a rigid triangular floor terminating at its bow end in a point and having a stem and stern piece attached thereto, and a hull of sheet metal fitting flat against the bottom of the floor and extending upward and outward from each side of the floor, the ends of the hull being attached respectively to the stem and stern pieces and secondary framing strips attached to the hull and extending longitudinally thereof and being connected to the stem and stern respectively, the lowermost strips extending approximately parallel to the edges of the triangular floor and the uppermost strips extending parallel to the side edges of the hull.

3. A flat-bottom boat having a primary frame comprising a rigid acutely triangular floor terminating at its bow end in a point and having a stem and stern rigid therewith, and a hull formed of a sheet metal initially flat blank fitting closely against the under face of the floor, the forward end of the blank being narrower than the rear end and the side edges of the blank being slightly convergent from the stern forward for a portion of the length, then extending approximately

parallel to the longitudinal axis of the blank and then more sharply converging to the bow end of the blank, the opposite ends of the blank being brought up against and being attached to the stem and stern pieces respectively.

4. A flat-bottom boat having a primary frame comprising a rigid acutely triangular floor terminating at its bow end in a point and having a stem and stern rigid therewith, and a hull formed of a sheet metal initially flat blank fitting closely against the under face of the floor, the forward end of the blank being narrower than the rear end and the side edges of the blank being slightly convergent from the stern forward for a portion of the length, then extending approximately parallel to the longitudinal axis of the blank and then more sharply converging to the bow end of the blank, the opposite ends of the blank being brought up against and being attached to the stem and stern pieces respectively, and secondary framing strips attached to the blank outward of the floor, one of said strips being attached to each side edge of the blank to form a gunwale strip and conforming in curvature to the side edge of the blank, one of said strips being attached to each side of the blank closely adjacent the edge of the floor and extending approximately parallel thereto, and a third strip disposed approximately midway between the first and second strips on each side of the hull extending at its rear portion parallel to the gunwale strip and then extending in a curve toward the floor.

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