Nov. 22, 1955 V. D. SHOUP ET AL 2,724,132

METAL BOAT FLOTATION CHAMBER CONSTRUCTION

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Fig. 1

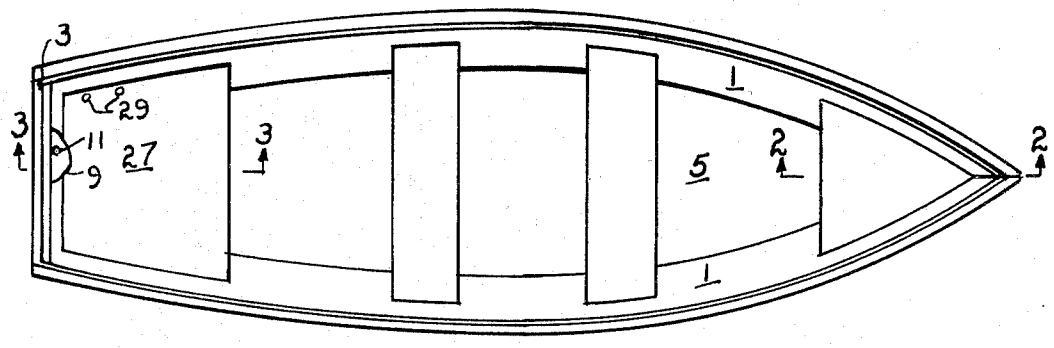


Fig. 2

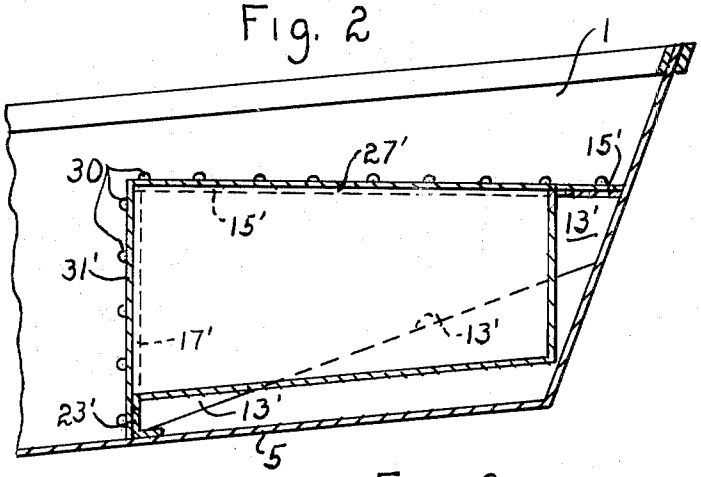


Fig. 6

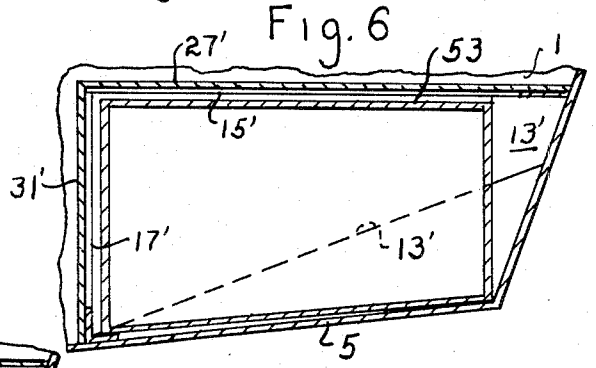
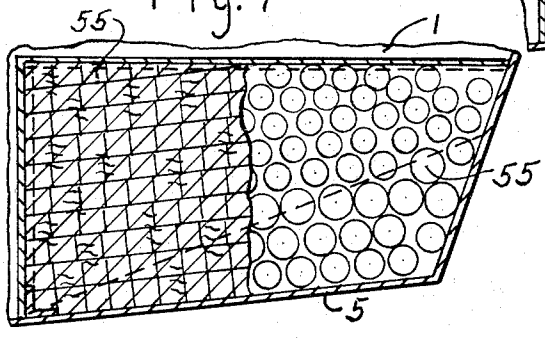


Fig. 7



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Fig. 3

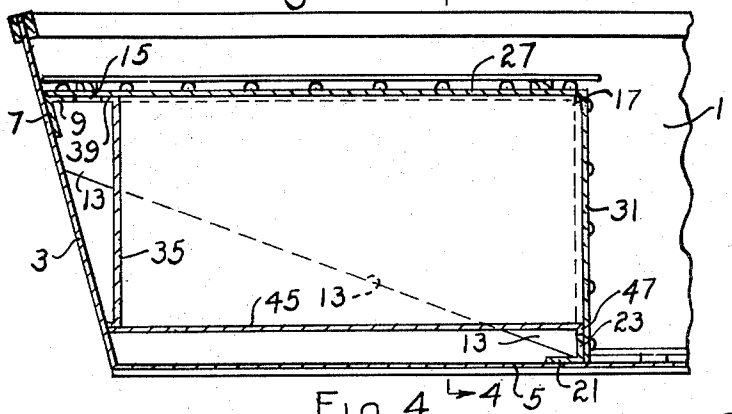


Fig. 4

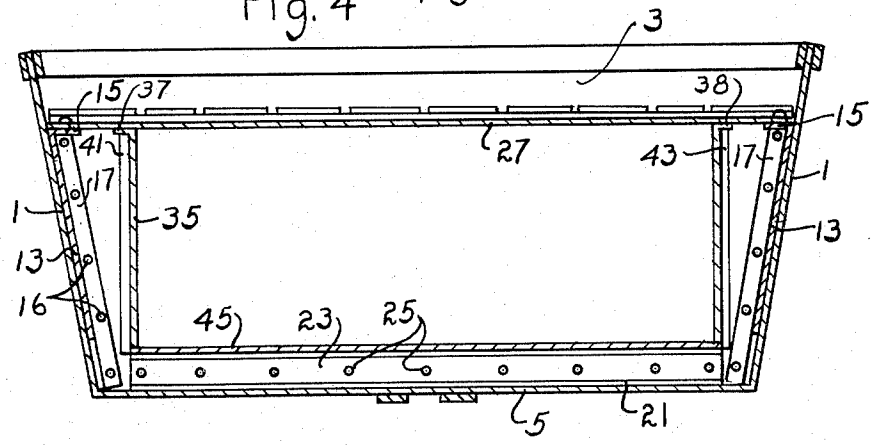
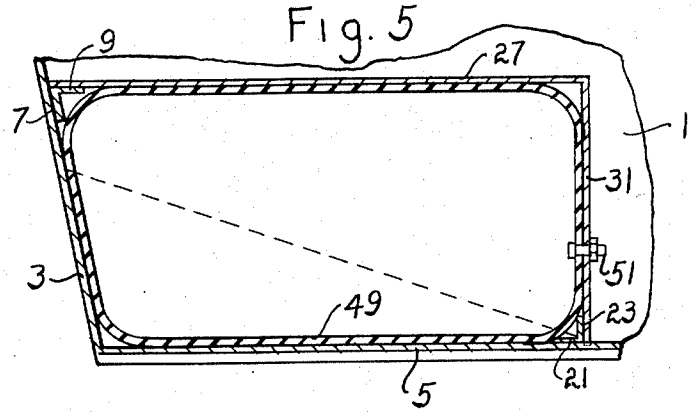


Fig. 5



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METAL BOAT FLOTATION CHAMBER CONSTRUCTION

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3 Claims. (Cl. 9—3)

This invention relates to boat floatation means. More specificially, it relates to floatation means for mental boats which prevents them from sinking when they are capsized or filled with water.

It is the usual procedure to provide an air chamber at each end of a metal boat by utilizing the sides and bottom of the boat as walls of the chamber and by inserting a front and top wall. The chamber is made air tight by soldering all of the corners.

This construction has several defects the first of which is that long soldered joints are required in positions which are difficult to reach and render air tight.

Further, corrosion inside the tanks results from sweating which is caused by the contact of several walls of the chamber with water which is at a lower temperature than the surrounding air.

It is an object of the invention to provide floatation means which are not subject to these defects.

A further object is to provide floatation means which will be reasonably permanent and thereby to provide safety throughout the life of the boat.

Yet another object of the invention is to provide floatation means which are easy to remove and inspect.

A further object of the invention is to provide floatation means which are not readily damaged by ordinary corrosion and wear.

Another object of the invention is to provide a metal enclosure or container, joined to metal brackets which are in turn joined to the sides, below the gunwales and at the bow and stern of a metal boat as by welding, spot-welding or riveting, so that the enclosure or container provides to the boat the same rigidity as that provided by the built-in air chamber yet permits the removal of the air chambers for inspection and painting.

These and other objects will become apparent from a study of this specification and the drawings which are attached hereto, made a part hereof and in which:

Figure 1 is a plan view of a boat utilizing our floatation means.

Figure 2 is a sectional view taken substantially on the line 2—2 of Figure 1 showing the forward floatation tank.

Figure 3 is a sectional view taken substantially on line 3—3 of Figure 1 showing the rear floatation tank.

Figure 4 is a sectional view taken substantially on the line 4—4 of Figure 3 showing the means for securing the bulkhead.

Figure 5 is a sectional view showing an inflatable bag enclosed by the bulkhead and seat panel.

Figure 6 is a sectional view similar to that taken on line 2—2 of Figure 1 showing a container inserted in the compartment.

Figure 7 is a view similar to Figure 6 showing numerous individual floatation means packed in the compartment and held in place by the seat panel and bulkhead.

Referring to Figures 1, 2, 3 and 4 which disclose the preferred form of my invention, the numerals 1, 3 and 5 represent respectively, the sides, end and bottom of a metal boat which form an open chamber or hull.

An angle strip has a vertical leg 7 attached to and transversely of the back as by welding, spot welding or riveting and has a horizontal leg or horizontal projecting means 9 which is pierced at 11 to receive sheet metal screws.

Each side has an angle member comprising an upright plate 13 suitably fixed to the side of the boat. The plate is preferably in the shape of a trapezium and has a horizontally and inwardly directed flange or horizontal projecting means 15 at its upper end and a vertical and inwardly directed flange or projecting means 17 at its forward end. The latter flange or leg extends to the bottom 5. All of the flanges are pierced as at 16 to receive sheet metal screws. The portion of the member fixed to the side wall of the boat assists in stiffening the wall.

An angle member has one leg 21 fixed to the bottom 5 and a vertical leg 23 which is pierced at 25 for screws.

These parts are so disposed that the flanges 9 and 15 are in the same horizontal plane while flanges 17 and 23 are in a common upright plane.

A suitably shaped sheet of metal is bent as shown in Figure 3. One portion forms a seat panel 27 which is pierced at 29 for screws. It is adapted to rest upon the flanges 9 and 15 and to be affixed thereto by sheet metal screws. This portion forms a vertical wall or bulkhead. fit against the flanges 17 and 23 and is pierced to receive screws. This portion forms a vertical wall or bulkhead.

The floatation chamber in this case may be formed of a metal sheet 35 suitably notched and bent into a four sided box. Such box is preferably flanged on all edges at 37, 38, 39, 41, 43, 47 and the flanges 41, 43 and 47 at the ends are sealingly affixed to the bulkhead 31 as by spot welding and soldering them thereto while the flanges 37, 38 and 39 are spot welded and soldered to the bottom side of the seat panel 27 providing an integral structure.

In this manner the combined seat panel and bulkhead is provided with an air tight floatation chamber. This component is thus separately fabricated without difficulty, is easily handled and soldered and can be readily installed and removed from the boat as is required for use, inspection, painting or repair.

The floatation chamber and particularly the joints thereof are thus protected from exposure and may be suspended above the bottom of the boat so that water entering the boat will not immediately engage the chamber.

Obviously the chamber itself may be constructed in other ways than by the method just described and attached to the seat. The chamber also serves to assist in stiffening the seat panel.

The construction of the forward floatation means is similar to that just described in that two plates 13' similar to the plates 13 are fixed to the sides and have inwardly directed flanges 15', 17'. In this case the receiving chamber is defined by the side and bottom walls, there being no end wall in the prow of the boat. An angle member is fixed to the bottom and has a vertical leg 23'. The flanges 23' and 17' are coplanar as are the flanges 15' so that the bulkhead 31' and seat panel 27' may be attached respectively thereto by sheet metal screws 30 which are driven through suitable openings in the associated parts. Of course, any other suitable fastening means may be utilized.

The sides, end and bottom 1, 3, 5 together with the flanges 9, 15, 17 and 23 define an open stern receptacle which is closed by the combined panel and bulkhead 27—31. Similarly the sidewalls, bottom and the flanges 15' and 17' define an open receptacle in the prow which is closed by the combined seat panel and bulkhead 27'—31'.

Modification (Fig. 5)

As a modification of our invention, we may attach an

inflatable bag 49 of rubber, plastic or other material to the seat panel. Such bag may have a suitable inflating tube 51 which may be valved like the ordinary automobile tube. The bag need be under only enough pressure to fully inflate it.

Instead of attaching the floatation means to the seat, it may obviously be placed loosely in the cavity. In such case the floatation means must be a separate air tight chamber. Thus, we may place a metal or plastic box 53 (Figure 6), rubber or plastic bag, or a floatation material comprising numerous pieces such as pieces 55 which may be cork, expanded polystyrene or other floatation material or hollow balls, etc., as shown in Figure 7, within the cavity. This floatation means is then enclosed by installing the seat and bulkhead.

The advantage, in any case is that the floatation means can be removed, inspected and replaced or initially inserted very simply by removing or reassembling the seat and bulkhead. At the same time the seat affords rigidity to the boat.

It is obvious that various changes may be made in the form, srtucture and arrangement of parts without departing from the spirit of the invention. Accordingly, applicants do not desire to be limited to the specific embodiment disclosed herein primarily for purposes of illustration; but instead they desire protection falling fairly within the scope of the appended claims.

What we claim to be new and desire to protect by Letters Patent of the United States is:

1. In a metal boat structure comprising side and bottom walls forming a hull, a bracket rigidly secured to the inner side walls and bottom of said hull and positioned below the gunwales and reinforcing the hull, said bracket comprising elongated angle strip members arranged horizontally along opposite sides of the hull adjacent to and extending towards the end of the boat, connecting angle strips extending from the inner end of said horizontal strips and downwardly along the side walls and across the bottom of said boat, said angle strips of the bracket comprising an integral projecting flange member, a hermetically sealed floatation chamber arranged in said boat with the top of the chamber disposed below said gunwales, said floatation chamber comprising projecting flange means extending along its side edges and bottom portion and arranged to engage and overlap said projecting flange members on the bracket, and means for removably fastening said flange members of the floatation chamber to the projecting flange members of said bracket to position said floatation chamber in the boat below the gunwales and adjacent the bottom of the hull.

2. In a metal boat structure comprising side and bottom walls forming a hull, bracket means disposed at opposite ends of said hull and secured to the inner side walls and bottom of said hull and positioned below the gunwales and reinforcing the hull, said bracket comprising elongated angle strip members arranged horizontally along opposite sides of the hull adjacent to and extending towards the end of the boat, connecting angle strips extending from the inner end of said horizontal strips and downwardly along the side walls and across the bottom of said boat, said angle strips of the bracket comprising an integral

projecting flange member, a hermetically sealed floatation chamber arranged in said boat with the top of the chamber disposed below said gunwales, said floatation chamber comprising projecting flange means extending along its side edges and bottom portion and arranged to engage and overlap said projecting flange members on the bracket, means for removably fastening said flange members of the floatation chamber to the projecting flange members of said bracket to position said floatation chamber in the boat below the gunwales and adjacent the bottom of the hull, a seat panel disposed on the top of said floatation chamber, and means for securing said seat panel in place.

3. In a metal boat structure comprising side and bottom walls forming a hull, bracket means disposed at opposite ends of said hull and fixedly secured to the inner side walls and bottom of said hull and positioned below the gunwales and reinforcing the hull, said brackets comprising elongated angle strip members arranged horizontally along opposite sidees of the hull adjacent to and extending towards the end of the boat, connecting angle strips extending from the inner end of said horizontal strips and downwardly along the side walls and across the bottom of said boat, said angle strips of the bracket comprising an integral projecting flange member, a pair of floatation air chambers arranged in said boat, one adjacent the bow and the other adjacent the stern, said chambers being positioned in said boat below said gunwales, said floatation chambers having a flat planar top surface and with flange means extending along the side edges and bottom portion which are arranged to engage said projecting flange members on the bracket, means for removably fastening said flange members of the floatation chamber to the projecting flange members of said bracket to fasten said floatation chamber in the boat below the gunwales and adjacent the bottom of the hull, and seat panel means disposed on the top of said floatation chambers.

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