May 8, 1928. 1,669,276

H. L. BALDWIN

AUTOMATIC BOAT BAILER

Filed March 8, 1926

Fig. 1.

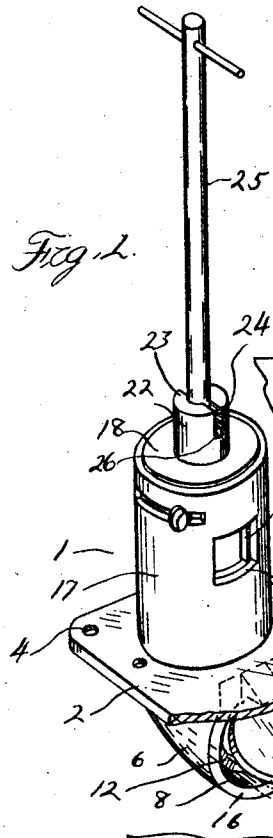


Fig. 2.

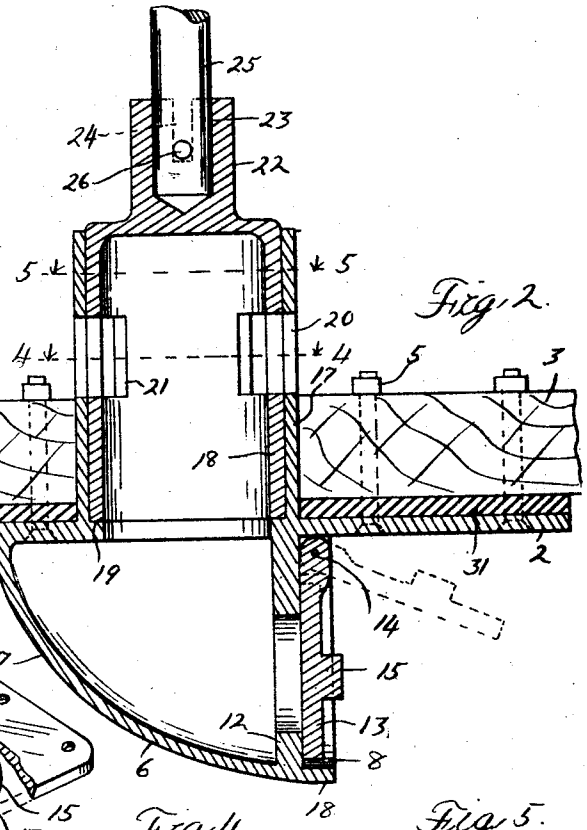


Fig. 3.

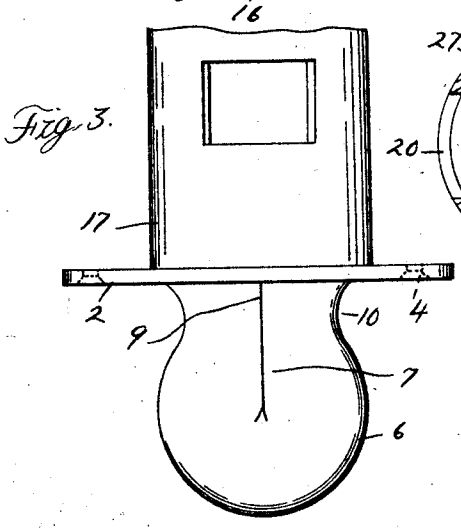


Fig. 4.

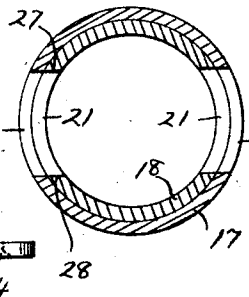
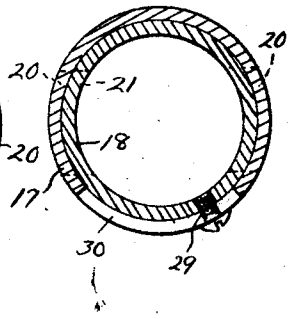


Fig. 5.



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UNITED STATES PATENT OFFICE.

HAROLD L. BALDWIN, OF ST. CLAIR, MICHIGAN.

AUTOMATIC BOAT BAILER.

Application filed March 8, 1926. Serial No. 93,309.

The invention relates to an improved automatic boat bailer of the type in which the water is ejected from the bilge by means of the suction produced by a projecting displacement member during the propulsion of the vessel. While many other devices of this general character have heretofore been patented my improved construction has certain advantages not found in the prior devices.

One of the objects of the invention is to provide a construction capable of producing the maximum suction while offering the minimum resistance to the movement of the vessel. Another object is to provide a construction having an automatically operated valve for preventing ingress of water and also a manually operable safety valve for the same purpose. In my construction the automatic valve is held closed by gravity and water pressure and is set into the body of the displacement member so that it will not be accidently opened by floating material. The manually operable valve is of the sleeve type and is provided with knife edged gates or ports which serve to shear off waste or other foreign matter that might lodge in the valve casing, thus interfering with the proper seating of the valve.

Other objects of the invention reside in the details of construction as hereinafter set forth.

In the drawings:—

Figure 1 is a perspective view of the bailer;

Figure 2 is a longitudinal section therethrough.

Figure 3 is an end view thereof;

Figure 4 is a section on the line 4—4 of Figure 2;

Figure 5 is a section on the line 5—5 of Figure 2.

My improved automatic boat bailer is preferably formed of a single main casting 1 having the substantially rectangular flat plate 2 adapted to be secured to the bottom 3 of the boat and is provided with a series of countersunk holes 4 for receiving the securing bolts 5. Depending from the plate 2 is the displacement member 6 the outer contour of which is stream lined to provide the minimum resistance to the water. As specifically illustrated the displacement member is upwardly curved as indicated at 7 from the enlarged rear portion 8 to the forward edge of the plate 2. The cross section of the displacement member 6 is of substantially circular form, the section area increasing from the pointed front end 9 towards the rear end 8. It is also preferable that the metal connecting the displacement portion with the plate 2 be undercut as indicated at 10 so that the water flowing past the displacement member will surround at least 270° of the circumference.

For preventing ingress of water a suitable check valve is provided and this is preferably mounted at the rear of the displacement member and adapted to seat upon the inwardly projecting annular flange 12, the latter being forwardly spaced from the rearward edge of the displacement member. The valve 13 is hingedly supported by a pin 14 and carries the offset weight 15 adapted to normally hold the valve against its seat. Thus, when the valve is seated upon the annular flange 12 it is within the displacement member and is protected from floating material which might tend to open the same by the rearwardly extending annular flange 16. The check valve 13 is preferably of circular form and of substantially the same diameter as the opening formed by the inner wall of the annular flange 16.

Extending upwardly from the plate 2 upon the opposite side from the displacement member is the tubular valve casing 17 this being of sufficient length to project through the planking 3 of the boat and to communicate with the lower portion of the hull. The interior of the cylindrical casing is preferably ground to provide a seat for the cylindrical sleeve valve 18, the latter being adapted to rest upon the annular shoulders 19. The tubular casing is provided with the diametrically opposite ports 20 while the sleeve valve 18 has similar ports 21 adapted to register with the ports 20 in one position of rotative adjustment. The upper portion of the sleeve valve is provided with a shank 22 having a vertical bore 23 therein and a lateral slot 24. For manually adjusting the sleeve valve 18 there is provided a wrench 25, the lower portion of which has a cross pin 26 adapted to engage the slot 24 of the shank. Thus, by rotating the sleeve valve one-quarter of a turn, the ports 20 can be completely closed thereby insuring that no water can leak into the boat if by chance the automatic valve 13 were held from its seat. The ports 20 and 21 are preferably rectangular, the side walls 27 and 28 being substan-

tially parallel. Thus in closing the valve, the edges 27 and 28 will serve to shear off any foreign matter that might collect in the valve casing and this will insure the complete closure of the valve.

In the operation of my device the movement of the boat forwardly through the water causes the water to flow around the displacement member 6, thus creating a suction at the rear of the member sufficient to open the check valve 13. Any water which may have collected in the hull of the boat will therefore, be drawn through the ports 20 and be ejected through the opening in the rear of the displacement member. By providing the forwardly and upwardly curved surfaces on the displacement member the latter offers a minimum amount of resistance to the water flowing past the same and by providing the reduced neck portion a greater amount of suction will be produced because of the fact that the water surrounds at least 270° of the circumference of the body.

My improved construction is easy to install and simple to manufacture since it comprises only a single main casting, the sleeve valve and the check valve. The broad flange formed integral with the main casting provides a good bearing surface so that the device may be rigidly secured to the boat and by employing a suitable gasket 31 the joint will be entirely leak proof.

A suitable stop is preferably provided to limit the rotation of the sleeve valve to approximately one-fourth of a turn and as shown in Figure 5, this comprises a screw 29 threadedly engaging the valve 18 and projecting through a segmental slot 30 in the outer casing 17. With this arrangement when the screw is at one end of the slot the valve is open and when at the other end the valve is closed.

What I claim as my invention is:

1. An automatic boat bailer comprising a hollow displacement member adapted to be attached to the bottom of a boat, said displacement member being stream lined longitudinally and having an opening at the rear thereof, a conduit connecting with said hollow member opening into the lower portion of the hull, an annular flange within said displacement member, a flap valve hingedly connected to said displacement member and adapted to seat upon said flange within the outer walls of said member, said valve being of substantially the same area as the opening in the rear of said displacement member.

2. An automatic boat bailer comprising a plate adapted to be attached to the hull of a vessel, a hollow displacement member depending from said plate and integral therewith, said displacement member having its outer surface tapered forwardly and upwardly to impart a stream line contour thereto, the rear of said displacement member being open, an inwardly projecting annular flange forwardly spaced from the rear of said displacement member, a gravity seated check valve hingedly mounted on said displacement member to seat upon said annular flange, a vertical tubular housing integral with said plate adapted to project through the bottom of said vessel, said housing being laterally ported above the bottom of the vessel, a manually controlled valve rotatable in said housing and provided with lateral ports adapted to register with said first mentioned ports.

3. An automatic boat bailer comprising a plate adapted to be attached to the hull of a vessel, a displacement member depending from said plate and integral therewith, said displacement member having its outer surface tapered forwardly and upwardly to impart a stream line contour thereto, said displacement member also being hollow forming a single chamber therewithin, a tubular valve housing on the opposite side of said plate from said displacement member and communicating with said chamber, an annular flange within said displacement member, a gravity seated check valve hingedly connected to said displacement member and adapted to seat upon said flange thereby forming a check to prevent the back flow of water into said chamber.

4. An automatic boat bailer comprising a plate adapted to be fastened to the bottom surface of a boat, a hollow displacement member depending from said plate, the lower portion of said member being substantially circular in cross section and provided with an opening at the rear thereof, a contracted neck connecting said plate to said lower portion whereby the latter has at least 270° of its circumference surrounded by water, said displacement member being tapered forwardly and upwardly forming a lower surface, the forward end of which merges into the forward end of said plate, a flap valve of an area substantially equal to the opening in said lower portion, said valve being hingedly connected to said neck portion to seat within said displacement member, a tubular casing projecting upwardly from said plate provided with ports within the hull of said boat, and a manually operable sleeve valve rotatable in said casing for closing and opening said ports.

5. An automatic boat bailer comprising a plate adapted to be attached to the bottom of a boat, a stream lined displacement member depending from said plate, a vertical tubular housing provided with a plurality of lateral openings projecting upwardly from said plate, the said displacement member having an opening at the rear thereof and forming with the vertical tubular housing a conduit extending from the exterior to the interior of the boat, an annular flange

within the displacement member adjacent the opening in the rear thereof, a flap valve hinged to the displacement member adapted to seat upon said flange, a second flange formed at the mouth of the said displacement member adjacent its connection with the plate, and a sleeve rotatably mounted within the vertical tubular housing, the said sleeve being supported by the said last mentioned flange and being provided with a plurality of apertures adapted to be moved into registration with the apertures in the vertical tubular housing.

6. An automatic boat bailer comprising a plate adapted to be attached to the bottom of a boat, a tubular housing carried by said plate and projecting into the interior of the boat, a hollow displacement member depending from said plate having a mouth registering with the tubular housing and an opening adjacent the rear thereof, the said displacement member forming with the tubular housing a conduit extending from the exterior to the interior of the boat, a flange carried by the plate adjacent the mouth of the displacement member, and a sleeve within the tubular housing supported by the said flange, the sleeve forming with the tubular housing, a sleeve valve for controlling the passage of water through the conduit formed by the displacement member and the tubular housing.

7. An automatic boat bailer including in combination an intake member adapted to be positioned within the hull of a boat and a hollow displacement member adapted to depend from and be positioned below the bottom of the said boat, the said hollow displacement member being curved upwardly and forwardly to a knife edge.

8. An automatic boat bailer including in combination a plate adapted to be fastened to the bottom surface of a boat, a valved intake portion projecting upwardly from the said plate within the hull of the said boat, and a hollow displacement member depending from said plate, the said hollow displacement member being provided at its forward end with a knife edge.

9. In an automatic boat bailer, the combination with a plate adapted to be fastened to the bottom surface of a boat, of a hollow displacement member depending from said plate, a tubular casing projecting upwardly from said plate provided with ports within the hull of said boat, and a valve closing the said ports, the said valve being provided with a portion adapted to shear off any foreign matter that might collect in the said valve casing.

10. In an automatic boat bailer, the combination with a hollow displacement member adapted to depend from the bottom of a boat, of a tubular casing adapted to project upwardly within the hull of the said boat, the said tubular casing being provided with lateral ports, and a rotary valve for closing the said ports, the said valve having edge portions adapted to shear off any foreign matter that might collect in the said valve casing.

11. An automatic boat bailer including in combination, a valve casing adapted for positioning within the hull of a boat, a hollow displacement member depending from said valve casing and adapted to be positioned below the bottom surface of the boat, the said hollow displacement member being stream lined and being provided with a relatively large opening at the rear thereof, and a flap valve of an area substantially equal to the opening in the said displacement member, closing the said opening.

In testimony whereof I affix my signature.

HAROLD L. BALDWIN.