

C. H. HITCHCOCK.
 AUTOMATIC BOAT BAILER.
 APPLICATION FILED JULY 17, 1909.

983,620.

Patented Feb. 7, 1911.

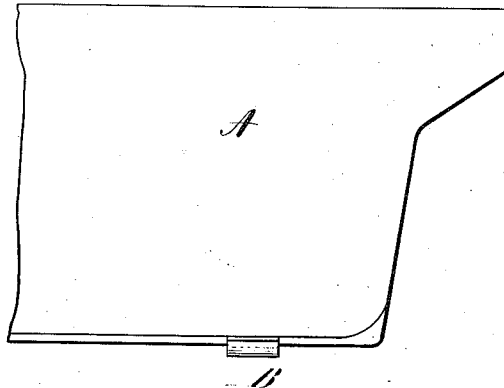


Fig. 1.

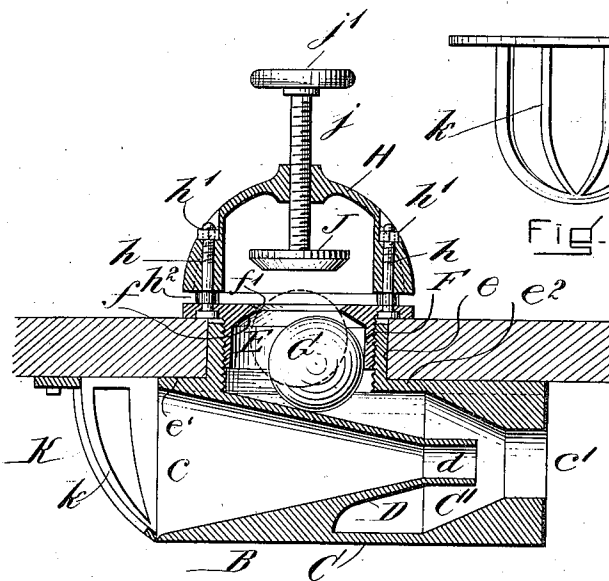


Fig. 2.

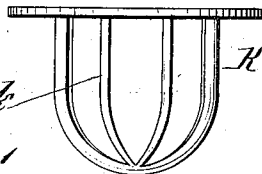


Fig. 5.

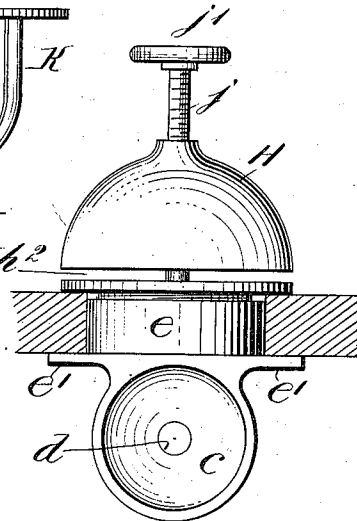


Fig. 3.

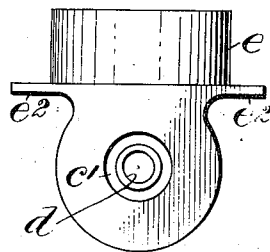


Fig. 4.

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AUTOMATIC BOAT-BAILER.

983,620.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CHARLES H. HITCHCOCK, of Boston, in the county of Suffolk and State of Massachusetts, a citizen of the United States, have invented a new and useful Improvement in Automatic Boat-Bailers, of which the following is a specification.

The development of the power boat has made it possible to provide means operated upon the rapid movement of the boat through the water whereby a valve which closes an opening in the bottom of the boat when the boat is at rest will open automatically as the boat moves, to allow the bilge water to flow out from or be drawn from the boat. My invention is a device for such use and it will be understood by reference to the drawings, in which—

Figure 1 shows diagrammatically a hull of a boat to which my device is attached. Fig. 2 is a longitudinal section through the middle of my device. Fig. 3 is an elevation looking from the front (this view and Fig. 2 showing the device attached to the hull), and Fig. 4 is a rear view. Fig. 5 is a front view of the fender.

A is the hull and in Fig. 1 B is the bailer. The bailer comprises a casing C having a full sized opening *c* at the front end thereof and a smaller opening *c'* at the rear end thereof. This casing contains within it an injector nozzle D the larger end of which corresponds and is coincident with the opening *c* in the casing C. The nozzle projects into the chamber *C'* within the casing to a point quite near the rear end of the casing and is conical in shape terminating in a reduced section *d*. The diameter of the smaller end of the nozzle is somewhat less (though not very much so) than the opening *c'* in the rear end of the casing, the proportions of these parts being such as would naturally cause a vacuum in the chamber *C'* in the casing upon the establishment of a sufficiently strong rearward stream through the nozzle. The hull A is provided with an opening preferably in its bottom and the casing is provided on its upper side above the nozzle and forward of its mouth with a circular chamber E having a vertical neck *e* which passes up through the opening in the hull and is threaded on the interior, this neck being between the two ends of the casing so as to leave flanges *e'*, *e''* by means of which the casing may be held in the opening

in the hull. A convenient way of so holding it is by means of a threaded flanged collar F which collar has a round opening *f* shaped to form a valve seat to receive the valve G. This valve G may be made of soft rubber or any other light substance which will float under ordinary conditions. I have found a soft rubber valve the best for the purpose. I prefer to provide the opening which is ordinarily closed by the valve G with a positive valve closure and as a convenient means of providing such a closure and also straining the bilge water so that it shall not become clogged with foreign material, I have shown a closure support H which is of inverted cup shape and which is conveniently attached to the bailer by bolts *h* which pass up through the flange of the collar F and through a thickened portion of the cover H and are held in place by nuts *h'*. It will be seen that the lower edge of the support H approaches the upper surface of the flange of the collar F quite closely so as to leave a narrow passage *h''* sufficient for the water to escape but not large enough for the passage of such foreign matter as would clog the valve. A valve J is provided to form a positive closure. It is attached to a threaded rod *j* which passes through the top of the support H and is provided at its upper end with a hand wheel *j'*. By turning the hand wheel in one direction or the other the valve may be raised or lowered as desired. Where this device is used a second valve seat *f'* is provided on top of the collar F to receive and seat the valve J.

The operation of my device is as follows: It may be attached in the manner shown or in such other convenient way as may be desired, in an opening in the bottom of the hull as near its lowest portion as is practicable. Under ordinary conditions when the boat is in the water and not traveling and the valve J is open the chamber *C'* is filled with water which causes the float valve G to seat itself on the seat *f*, and close the opening in the collar F. As the boat moves forward at speed the water entering the opening *c* and passing through the nozzle *d* causes more or less of a vacuum in the chamber *C'* about the nozzle, drawing the water therefrom and forcing it out through the opening *c'* in the rear of the casing. The lowering of the level of the water in the chamber *C'* causes the float valve to drop

and any water that there may be in the bottom of the boat is driven out through the opening *f* in the collar *F* and thence out through the opening *c*¹. When the speed of the boat slows down the chamber *C* fills up again and the float valve is forced onto its seat, thus preventing water from getting into the boat through this opening.

I prefer to provide a fender *K* at the forward end of the bailer to fend off any refuse sufficiently large to clog the outlet *c*¹. Such a fender may be made as shown with bars *k* sufficiently near together for the purpose but not so near as to interfere materially with the rush of water through the part *D*. I prefer also that this device should be shaped as shown, the upper part being farther from the top of the casing than the lower part so that as it moves through the water it will tend to push any foreign matter down under the bailer rather than allow it to collect against the bars.

It is desirable when the boat is not in use to close the valve *J* which can be done by turning the hand wheel, forcing the valve down upon its valve seat and so preventing any leakage into the boat. The passage *h*² under the valve support *H* is sufficiently small to serve as a strainer and prevent anything from passing down into the casing which would tend to clog or otherwise hinder the normal operation of the parts without interfering with the bailing operation. If desired, however, the valve *J* may be supported in any other desired way.

It will be noted that the chamber *E* serves both as an outlet for bilge water and by reason of its enlargement near the valve seat as a confining chamber for the float valve, the opening from the boat into the chamber being provided with a seat upon which the valve is seated when the boat is at rest.

I do not mean to confine my invention to the precise details of construction shown in the drawings as it may be otherwise embodied and yet fall within the language of the claims.

I have found that a device of this kind can be very conveniently used upon power-driven boats.

The automatic feature of my device may be dispensed with by omitting the valve *G* in which case the valve *J* will be opened and closed by hand as occasion may require.

What I claim as my invention is:—

1. The bailer above described comprising a detached float valve, a casing, an injector nozzle projecting within said casing and forming a chamber therewith, said chamber

having an enlargement to receive said float valve, the enlarged portion of said chamber having an opening surrounded by a valve seat whereby said float valve will be confined within said chamber and its movements restricted between the walls of said chamber and said valve seat.

2. The bailer above described comprising a casing having a valve chamber and a valve in said chamber, said casing having below said chamber means whereby upon movement of the bailer through the open water suction will cause the bilge water to open said valve and pass out from the boat through said casing, said last-named means also retaining said valve in said chamber.

3. The bailer above described comprising a casing, an injector nozzle projecting within said casing and forming a chamber therewith, said casing having a neck projecting therefrom to form a passage for bilge water into said chamber, said neck having a valve seat in combination with a float valve adapted to close against said valve seat and be maintained in closing relation therewith by said nozzle.

4. The boat bailer above described comprising a casing, a nozzle located within said casing, a chamber within said casing, the walls of said casing forming an opening to connect said chamber with the interior of the boat to be bailed, two valve seats located around said opening, and two valves one adapted to close the opening from its upper side and one from its lower side.

5. The boat bailer above described comprising a casing having therein a nozzle and a chamber about said nozzle and provided with walls to form an opening to said chamber, a flanged collar adapted to screw into said opening and attach the casing to the boat to be bailed, said collar having a valve seat on its upper and under sides, in combination with valves to close upon said valve seats, as set forth.

6. The boat bailer above described comprising a casing containing a valve chamber, a neck to form an opening to said chamber, a flanged collar adapted to screw into said neck and attach the casing to the boat to be bailed, said collar having a valve seat on its under side in combination with a valve to close against said valve seat, and means for limiting the movement of the valve in a direction away from said valve seat.

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Witnesses:

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