June 3, 1930. W. SOBOLEW 1,761,645

AUTOMATIC BAILER

Filed April 22, 1929

Fig. 1.

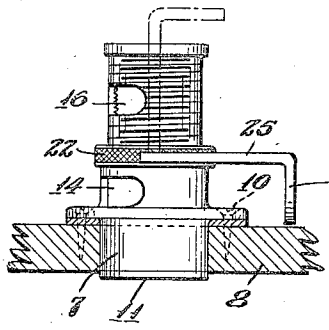


Fig. 2.

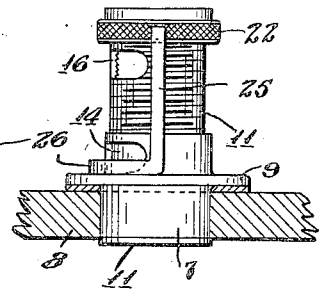


Fig. 3.

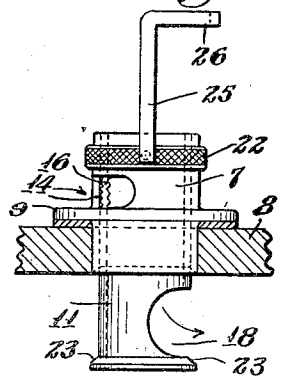


Fig. 4.

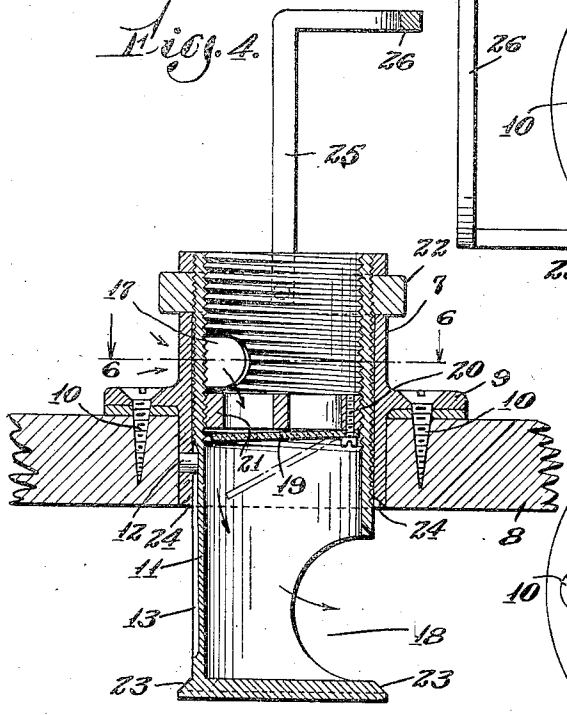


Fig. 5.

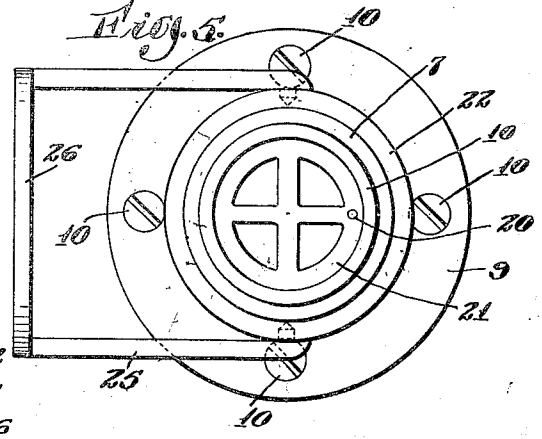
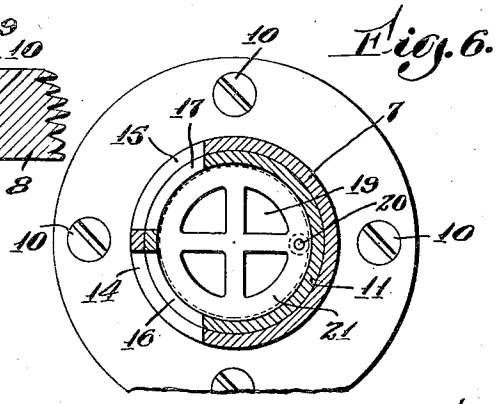


Fig. 6.



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UNITED STATES PATENT OFFICE

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AUTOMATIC BAILER

Application filed April 22, 1929, Serial No. 357,323, and in Finland August 8, 1928.

The present invention relates to bailers which are used to bail water from a boat.

The principal object of the present invention is to produce an automatic boat bailer.

To the accomplishment of this object, and such others as may hereinafter appear, the various features of the present invention relate to certain devices, combinations and arrangements of parts as fully set forth hereinafter, the advantages of which will be readily understood by those skilled in the art.

The various features of the present invention will be readily understood from an inspection of the accompanying drawings illustrating the best form of the invention at present devised, in which,

Figure 1 is an elevation showing the bailer secured to the bilge of a boat and locked by a lock-nut in an inoperative position;

Fig. 2 is a similar elevation showing the bailer held by a yoke in an inoperative position;

Fig. 3 is an elevation showing the bailer in an operative position;

Fig. 4 is a sectional elevation showing the bailer in an operative position;

Fig. 5 is a plan, and

Fig. 6 is a detail in sectional plan on the line 6—6, Fig. 4.

In boats, particularly those used for pleasure, the removal of accumulations of water therein is inconvenient and often unpleasant. In order to remove these accumulations of water through a bailer operating automatically a cylindrical tube 7 (Fig. 4) is fitted within a cylindrical opening formed through the bilge or bottom 8 of a boat. The tube 7 is provided with a flange 9 which is permanently sealed to the bilge by four screws 10 (Fig. 5).

Within the tube 7 is a cylindrical spout 11 which is splined to the tube 7 so that the spout may slide but not rotate therein. To this end a pin 12 on the tube 7 engages a slot 13 in the periphery of the spout. The upper part of the tube 7 is provided with a pair of openings 14 and 15 (Fig. 6) which, when the bailer is in operation, register respectively with openings 16 and 17 formed in the spout 11. The openings 16 and 17, which constitute the intake for the spout, are directed generally towards the bow of the boat.

The bottom of the spout 11 is closed (Fig. 4). Adjacent the closed end is an opening 18 which is formed by breaching the wall of the spout laterally. The opening 18, which constitutes the outtake of the spout, is directed generally towards the stern of the boat.

With this construction the closed portion of the spout outside the boat cleaves the water when the boat is under forward headway. The swirl of the water, which moves relatively to the spout, produces a vortex behind the spout or in its wake. The vortex has a tendency to form a vacuum behind the spout at the outtake 18 thus inducing a flow of water from the boat through the intake, spout and outtake. Stated in another way, the vortex produces a condition of unbalanced pressure in the spout so that the water is bailed out of the boat by the atmospheric air which acts upon the surface of the water in the boat.

The water bailed out of the boat passes through a check-valve comprising a leather disk 19 (Fig. 4) secured by a single screw 20 to a grating 21 threaded from the top of the spout 7 and, therefore, removable from the inside of the boat.

After the water has been bailed out of the boat the outtake 18 may be housed within the tube as shown in Fig. 1. In order to lock the bailer in its inoperative position the periphery of the spout is threaded to receive a lock-nut 22. When the bailer is in its inoperative position the joint between the lower ends of the tube and spout are sealed by a valve 23 (Fig. 4) on the bottom of the spout which engages a valve seat 24 on the bottom of the tube. Moreover, by manipulating the nut 22 the spout may be drawn into the tube a variable amount with the result that the area of the intake openings 16 and 17 may be varied without varying the area of the outtake 18.

In order to provide a ready means for

elevating the spout into its inoperative position the lock-nut 22 carries a pivoted yoke 25 having an offset portion 26. The offset portion of the yoke may be used as a handle in lifting the spout and may be positioned against the flange 9 (Fig. 2) to hold the spout in its inoperative position. The yoke is used to hold the spout in its inoperative position when it is desirable to interrupt the operation of the bailer temporarily as when the boat stops or is reversed.

While the bailer may be used to bail the bilge-water from the boat advantage may be taken of the internal threads on the spout to couple a conduit thereto and thus extend the spout to flooded compartments in any part of the boat.

What is claimed as new, is:

1. In an automatic bailer, the combination with a spout having an intake inside the boat, an outtake outside the boat, and a check-valve intermediate the intake and outtake, of interfitting tube means permanently fastened to the boat for slidably securing the spout, said spout and means being relatively movable to one position for housing the outtake in an inoperative position and having cooperating surfaces to seal the end of the spout outside the boat when the portion containing the check valve is projected within the boat.

2. In an automatic bailer, the combination with a movable spout having an intake inside the boat and an outtake outside the boat, and rigidly fastened means for securing the spout to the boat, said intake and outtake operating, respectively, to draw water from within the boat and discharge it from the boat when the boat is under forward head-way, of valve means for preventing the backing-up of water through the spout when the boat is not under head-way or is under reversed head-way, and a second valve means for sealing the rigidly fastened means to prevent leakage when the bailer is not operating.

3. In an automatic bailer, the combination with a tube secured to the boat and passing therethrough and provided with a valve seat adjacent the open end outside the boat, of a spout splined to the tube having an intake inside the boat and a closed end and an outtake both outside the boat, a valve adjacent the closed end arranged to engage the valve seat when the spout is elevated within the tube and a grating detachably arranged between the intake and outtake and removable from the inside of the boat.

4. In an automatic bailer, the combination with a flanged tube secured to the boat and passing therethrough and a spout splined to the tube having an intake inside the boat and an outtake outside the boat, of a yoke pivotally mounted on the spout mounted to cooperate with the flange to hold the spout in a position such that the outtake is housed within the tube.

5. In an automatic bailer, the combination with a flanged tube secured to the boat and passing therethrough and a spout splined to the tube provided with internal and external threads, an intake inside the boat, an outtake outside the boat, a check-valve threaded into the spout, and a lock-nut threaded onto the spout, of a yoke carried by the nut mounted to cooperate with the flange to hold the spout in a position such that the outtake is housed within the tube.

6. In an automatic bailer, the combination with a tube secured to the boat and passing therethrough, of a slidable cylindrical spout therein having an intake within the boat, an enlarged closed end outside the boat, an outtake adjacent the closed end comprising a breach in that wall of the spout which is directed towards the stern, a detachable grating mounted within said spout between the intake and outtake and removable from the inside of the boat, and a valve arranged beneath said grating.

7. In an automatic boat bailer, the combination of a tube permanently seated into the boat and passing therethrough, and a bailing spout slidably retained within said tube and carrying a check valve intermediate its ends, the outer end of said spout having an enlargement cooperating with a seat formed on said tube for sealing the bailer against the entrance of water into the boat between said tube and said spout.

8. In an automatic boat bailer, the combination of a tube secured to the boat and passing therethrough, a bailing spout slidably retained within said tube, an externally threaded portion on said spout, an adjusting nut movable over said threaded portion, and a manipulating yoke having terminals pivoted in said nut for adjusting its position and movable about said pivoted terminals for temporarily retaining said spout in a fixed position.

9. In an automatic boat bailer, the combination of a tube permanently sealed into the boat and passing therethrough, a bailing spout slidably arranged therein having an open end within the boat and an enlarged closed end with a valve surface outside the boat, a valve seat for said enlarged end on said tube outside the boat, and a check-valve removably inserted through the open end of said spout.

10. In an automatic boat bailer, the combination of a tube permanently sealed into the boat and passing therethrough, a bailing spout slidably arranged therein, having an enlarged closed end formed with a valve surface outside the boat, a valve seat for said enlarged end on said tube outside the

boat, and a readily removable check-valve for preventing the flow of water through said tube from the outside into the boat, accessible from the inside of the boat while the valve surface on the tubing is sealed on its valve seat.

WILHO SOBOLEW.