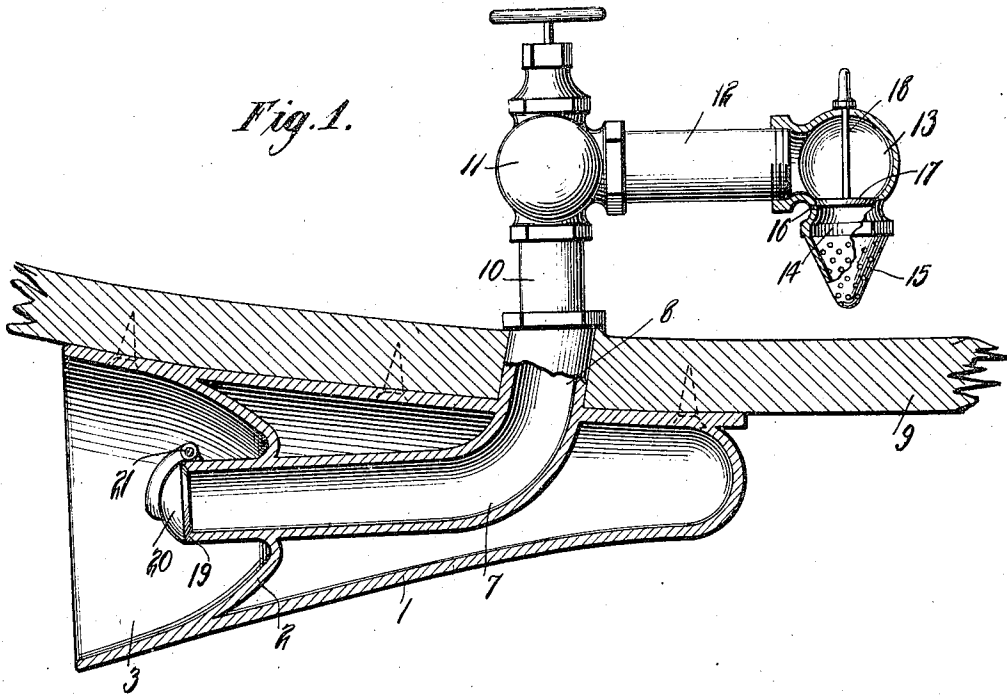
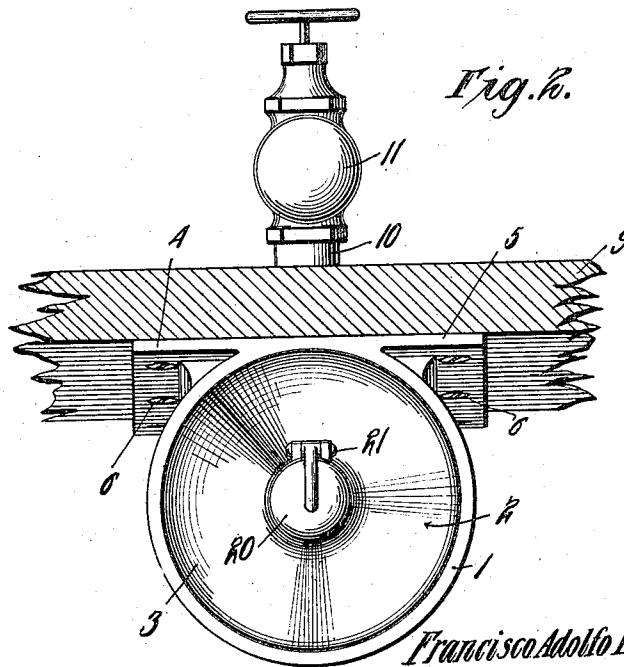


F. A. LIZARRAGA.
BAILING VALVE.
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BAILING-VALVE.

1,241,408.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FRANCISCO ADOLFO LIZARRAGA, a subject of the King of Great Britain, residing at Corozal, British Honduras, Central America, have invented certain new and useful Improvements in Bailing-Valves, of which the following is a specification.

My invention pertains to an improvement in bailing valves, and relates particularly to a valve of this type adapted for use upon a boat or vessel, and so constructed that during propulsion of the vessel the valve will act automatically to accomplish the bailing action.

An object of the invention is to provide a valve structure which has the parts thereof so arranged that a double check against ingress of water is provided and the valves will close automatically through the pressure of the water upon stoppage of the boat, a manually operated valve being also provided to be closed down to positively cut off access to the pipe line of the bailing valves in either direction.

A further object resides in so constructing the parts of the valve and in providing a shield structure therefor, that the vacuum suction to draw the water from the hold of the boat or vessel is increased.

With the above and other objects in view, my invention consists in certain novel features of construction and combinations of parts which will be hereinafter pointed out in conjunction with the drawings and then particularly mentioned in the claims.

In the drawings:—

Figure 1 is a view with parts of the structure disclosed in longitudinal vertical section.

Fig. 2 is an elevational view from the rear end of the structure.

The main structure portion of the devices constitutes the elongated and substantially truncated cone shaped shield member 1 which is preferably hollow and is provided with a partition wall 2 adjacent to the enlarged open end thereof to form a cup 3. Laterally extending flanges 4 and 5 are provided in conjunction with the shield member and this shield member may be thus secured to the bottom of a boat or vessel on the outer side thereof by the use of the screws 6 passed through the flanges, or by the use of other suitable fastening means. A suction pipe 7 extends centrally through

the partition 2 and into the cup 3, and is curved to extend up through the top wall of the shield 1, or through the wall thereof having the flanges 4 and 5 formed therefrom, and thus this curved end 8 of the tube extends up through the bottom 9 of the boat or vessel.

A pipe section 10 is connected at the upper end of the suction pipe 7, and thus is placed entirely within the hull of the vessel, and a valve 11, which is of the manually operated globe type, or of any other approved form is connected with the upper end of this extension pipe 10. This valve 11 is preferably of the angle type, and a section of pipe 12, is connected with the remaining passage to the valve and has a check valve casing 13 mounted thereon. This check valve casing 13 has an intake opening 14 formed therein and downwardly disposed, and a screen member 15 is connected around this intake opening in such relation that water passing into the casing 13 will flow therethrough and be strained. To give greater surface to the screen member 15, it is preferable that the same be made substantially cone shape with the apex disposed downwardly and thus the screen will be practically self-cleaned due to the fact that the suction through the intake opening 14 is at no time directly brought to bear at right angles upon the screen member. A valve seat 16 is formed within the casing 13 above the intake opening 14, and a valve 17 is mounted on a stem 18 in such relation that it will rise to permit water to flow through the intake opening 14 in the casing 13, but will close against egress of water from said casing through the opening 14.

As has been stated, the pipe 7 extends beyond the partition wall 2 into the cup 3, and a valve seat 19 is formed at the extreme end of this extension, a valve 20 being hingedly mounted by the pin 21 so that it acts to be of the flap valve type, and arranged to close down upon the seat 19.

In the use of the structure, the parts will be fitted as is shown in Fig. 1 and the shield portion 1 will be arranged with the small end thereof toward the bow of the boat or vessel, it being understood that the shield is mounted on the outer side of the hull at the bottom of the side and in such relation that the valve casing 13 and the strainer 15 thereof will be positioned to be submerged in the bilge water as the water may

rise in the hull through leakage, through waves dashing over the boat, or through any other cause. Above I have stated that the shield is secured at the bottom of the hull, but it will of course be apparent that this shield will be placed at any other position and that the only changes necessary would be that the casing 13 be brought to the proper position with respect to a depressed or low part of the hull, and that the valve 20 be mounted so that it will fall by gravity to the closed position.

In use, the travel of the boat through the water will cause the water in which the boat is floating to be separated due to the substantially truncated cone shape of the shield, and this water flowing over the lip of the cup portion 3 will create suction within the cup in such a measure that when the manually operated valve 11 is opened, direct suction will be created through the pipe 7, the extension 10, the valve 11, the pipe extension 12, and the valve casing 13, that the flap valve 20 and also the valve 17 will be opened and water will be sucked up through the screen 15 and through the intake opening 14 of the valve casing 13 to flow through the connecting part to the suction pipe 7 from which it will be discharged through the cup 3 and into the main body of water. It will of course be understood that as the cross sectional area of the suction pipe 7 may be decreased or the area of the open end of the cup 3 may be increased, the suction pressure exerted through the pipe 7 will be correspondingly increased, however, assuming that the suction pipe 7 has a cross sectional area of three-fourths square inches, and the shield represents an area at its open end of ten square inches, if the ship moving at a rate of six knots per hour, measures seven pounds on a vacuum gage; then ten times seven pounds equals seventy pounds or the suction power created in the cup 3. As the suction pipe 7 represents the only opening into the cup, the full suction force and power as created within the cup will be concentrated upon the suction pipe, and due to the fact that this pipe is formed to present an open cross sectional area of only three-fourths of an inch, it will be seen that a constant and powerful suction through the suction pipe and the extension thereof and consequently through the intake opening 14 of the valve casing 13 will be accomplished which will cause water in the hull of the boat to be drawn therefrom. As the speed of movement of the boat may be slowed down or stopped, the pressure of the water against the valve 20 will seat the same tightly upon the seat 19, the valve 17 acting as a second seal against the ingress of sea water to the boat. If desired, the manually operated valve 11 can be closed to positively

cut off the suction pipe against the passage of water in either direction therethrough and to also relieve the suction force which would be otherwise exerted through the casing 13 if this valve 11 be permitted to remain open.

From the foregoing it will be seen that I have provided a bailing valve structure which is entirely automatic in its action when the valve 11 is open, the parts acting to take water from the hull during the movement of the boat, and upon stoppage of the movement or upon the movement of the boat being slowed down to such a point that the suction force within the cup 3 is not sufficient to overcome the pressure of the external water, the valve will be automatically closed and will positively check the return flow of water into the hull, the only occasion for actuating the manually operable valve being when it is desired to render the device inoperative or perhaps when the boat or vessel is brought to anchor or is beginning to make way, at which times the manually operable valve can be closed to release the strain which would otherwise be placed upon the check valve from the displacement pressure.

While in the foregoing I have described, and I have illustrated only one form of the invention, it will be apparent that a number of variations and modifications might be resorted to and incorporated with the structure as disclosed or in lieu thereof, and hence I do not wish to be limited to the device in its exact form of disclosure, but only to such points as may be set forth in the claims.

I claim:

1. A bailing valve comprising a shield to be mounted on the outer side of the hull of a vessel and having an open end which is to be disposed from the direction of travel of the vessel, a suction pipe leading from said shield to the interior of the hull, and a check valve hingedly mounted on the outer end of said suction pipe to normally close by gravity to guard against back flow of water into the hull.

2. A bailing valve comprising a shield having one end thereof open and said shield constructed to be mounted exteriorly on the hull of a vessel with the open end disposed rearwardly, a suction pipe leading from the open end of the shield to the interior of the hull and opening low down within the hull, and a valve mounted in said shield to normally close the outer end of the suction pipe and to thus cut off the same to the back flow of water into the hull, said valve being so mounted that as suction is created within the shield by movement of the boat the valve will be unseated.

3. A bailing valve comprising a shield having one end thereof open and made cup-

shaped, means by which said shield is to be mounted exteriorly on the hull of a vessel with the open end disposed from the direction of travel thereof, a suction pipe opening into the cup end of said shield and led to have the remaining end open within the hull of the vessel, a check valve carried by the outer end of said suction pipe and hingedly mounted to normally swing by gravity to a position that the pipe is closed against back flow of water, and a second check valve mounted at the inner end of said pipe to guard against the back flow of water which may be in the suction pipe when the first mentioned check valve closes.

4. A bailing valve comprising a shield made of substantially truncated cone shape open at the larger end and adapted to be mounted on the outer side of the hull of a vessel with the open end disposed from the direction of travel of the vessel, a suction pipe opening into the shield extended to have the remaining end within the hull of the vessel, a check valve mounted on the outer end of said suction pipe to be opened by suction created within the shield when the vessel is in motion, and a cut off valve mounted in the suction pipe to render the device inoperative.

5. A bailing valve comprising a shield having one end thereof open and said shield constructed to be mounted exteriorly on the hull of the vessel with the open end disposed from the direction of travel of the vessel, a suction pipe with one end thereof disposed adjacent the open end of the shield and the remaining end opening within the hull, a check valve mounted at that end of the suction pipe opening within the shield, and a second check valve mounted at the inner end of the suction pipe, said valves being so arranged that suction created through the pipe by the movement of the vessel will open the valve and will draw water from the interior of the hull while the valves are automatically closed upon decreasing of the suction power and back flow of water into the hull is thus stopped.

6. A bailing valve comprising a shield made of substantially truncated cone shape and open at the larger end with a substantially cupped shape formation within this open end, said shield being shaped to be secured exteriorly on the hull of a vessel with the open end thereof disposed from the direction of travel of the vessel, a suction pipe extending from the cupped end of the shield to the interior of the hull of the vessel, extension pipes leading from the inner end of the suction pipe, a valve casing mounted

on the open end of the extension and provided with an intake opening, a check valve mounted on that end of the suction pipe within the cupped formation of the shield to stop flow through said pipe into the vessel, and a check valve mounted in the valve casing over the intake opening to form a second stop against the inflow of water.

7. A bailing valve comprising a shield made of substantially truncated cone shape and open at the larger end with a substantially cupped shape formation within this open end, said shield being shaped to be secured exteriorly on the hull of a vessel with the open end thereof disposed from the direction of travel of the vessel, a suction pipe extending from the cupped end of the shield to the interior of the hull of the vessel, extension pipes leading from the inner end of the suction pipe, a valve casing mounted on the open end of the extension and provided with an intake opening, a check valve mounted on that end of the suction pipe within the shaped formation of the shield to stop flow through said pipe into the vessel, a check valve mounted in the valve casing over the intake opening to form a second stop against the inflow of water, and a strainer connected over the intake opening and arranged to be self-cleaning.

8. A bailing valve comprising a shield made of substantially truncated cone shape and open at the larger end with a substantially cupped shape formation within this open end, said shield being shaped to be secured exteriorly on the hull of a vessel with the open end thereof disposed from the direction of travel of the vessel, a suction pipe extending from the cupped end of the shield to the interior of the hull of the vessel, extension pipes leading from the inner end of the suction pipe, a valve casing mounted on the open end of the extension and provided with an intake opening, a check valve mounted on that end of the suction pipe within the cupped formation of the shield to stop flow through said pipe into the vessel, a check valve mounted in the valve casing over the intake opening to form a second stop against the inflow of water, said check valves adapted to be opened by suction created through the suction pipe, and a manually operable valve connected in said suction pipe to close the same.

In testimony whereof I affix my signature in presence of two witnesses.

FRANCISCO ADOLFO LIZARRAGA.

Witnesses:

GERALD BRADDICK,
ARTHUR BALDERAMOS.