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BILGE DRAINER

Original Filed May 22, 1934

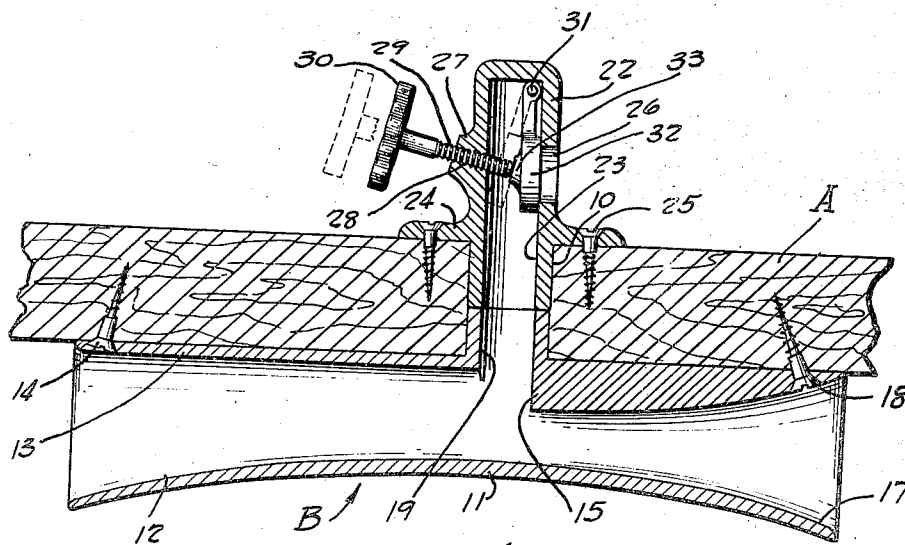


Fig 1

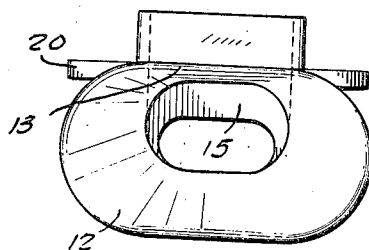


Fig 2

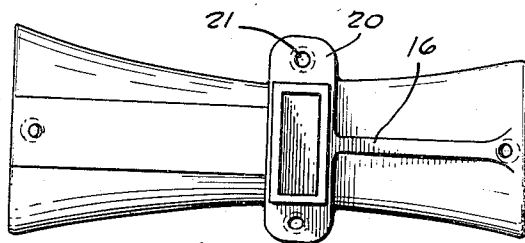


Fig 3

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BILGE DRAINER

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Original application May 22, 1934, Serial No. 726,919. Divided and this application September 27, 1935, Serial No. 42,427

3 Claims. (Cl. 114—185)

This invention relates to bilge drainers and is concerned primarily with a drainer designed for draining water from the bilge of a water craft incident to movement of the latter through water.

5 This application is a division of my copending application Serial No. 726,919, filed May 22, 1934, entitled "Bilge drainer".

The invention has in view, as an important object, the provision of a Venturi shell or tube 10 which is designed to take advantage of the slip of water passed the vessel to draw the water from the bilge thereof. In carrying out this idea in a practical embodiment, the water in the bilge is entrained and drained from the bilge by the 15 movement of the water exterior of the craft through the Venturi tube.

A particular object of the invention is to provide a Venturi tube of a shape which is effective to cause the entrainment of the bilge water 20 with a high degree of efficiency so as to insure of the drainage action under conditions in which movement of the craft in the water is only slightly evidenced.

Another object of the invention is to provide 25 in combination with a Venturi tube of the character described, a valve for opening and closing communication through the bottom of a water craft.

A detailed end in view is the provision of a 30 valve which will permit of water being drained from the bilge but which will inhibit movement of the water through the valve opening in the opposite direction. Such valves are commonly know as one-way valves.

35 Yet another object of this invention is to provide, in association with a one-way valve of the type above noted, a member which is operable to positively maintain the valve in closed position and which member may be operated to permit of 40 opening of the valve.

Other more detailed objects and advantages are associated with the carrying out of the above noted thoughts in a practical embodiment.

The invention therefore comprises a Venturi 45 tube formed with a waist, at which is located an out-flow conduit which communicates with the interior of the bilge of a water craft. This Venturi tube is adapted to be mounted on the under side of a water craft and a one-way valve is asso- 50 ciated with the out-flow conduit to control movement of the water from the bilge therethrough. When this valve is open and the craft is in motion, water from the bilge may pass therethrough and be entrained by the water passing through 55 the Venturi tube. When the craft is immovable

in the water, the one-way valve is affected by the water to be moved into closed position. This latter position may be rendered permanent by the operating member which is associated with the valve.

For a full and more complete understanding of the invention, reference may be had to the following description and accompanying drawing, wherein:

Figure 1 is a longitudinal section taken through 10 a bilge drainer made in accordance with this invention and as applied to the bottom of a water craft,

Figure 2 is an end view of the bilge drainer of Figure 1 shown as removed from the craft, and 15

Figure 3 is a plan view of the device shown in Figures 1 and 2.

Referring now to the drawing, wherein like reference characters denote corresponding parts, the bottom of a water craft is shown in Figure 1 20 and referred to generally by the reference character A. This bottom A is formed with an opening which is identified by the reference character 10.

Mounted on the under side of the bottom A is a Venturi tube identified generally by the reference 25 character B. This tube B is formed with a waist at 11 from which extends rearwardly a funnel-like portion 12 that has a substantially flat upper surface 13 that is in surface contact with the bottom A of the craft. As shown at 14, screws 30 may be availed of to secure the Venturi tube B to the under side of the bottom A.

Extending forwardly of the waist 11, the Venturi tube B is materially reduced in the vertical 35 dimension, this reduced portion being defined by a shoulder at 15. As shown at Figure 3, a rib 16 extends longitudinally of the tube B and terminates at one end at the shoulder 15 and at the forward end in a front flare 17. As shown at 18, another screw member may be employed to se- 40 cure the forward end of the tube B to the under side of the bottom A.

Extending upwardly upon the waist 11, the tube B is formed with an out-flow conduit that is defined by an upwardly extending neck design- 45 ated 19 that is received in the opening 10. As shown in Figures 2 and 3, flanges 20 extend on each side of the upwardly extending portion 19 and these flanges 20 may be formed with openings 21 which may receive fastening members 50 that aid in securing the tube B in position. At this point it might be well to note that the exterior surface of the top wall 13 of the lower portion 12, the upper surface of the rib 16, and the upper surfaces of the flanges 20, are in sur- 55

face engagement with the under side of the bottom A.

A valve housing is shown in Figure 1 as mounted on the upper side of the bottom A. This housing is referred to by the reference character 22 and is formed with a neck portion 23 that projects into the opening 10 and it is notable that the end of the neck portion 23 abuts the end of the upwardly projecting portion 19 of the Venturi tube B. Flanges shown at 24 extend from each side of the housing 22 and these flanges 24 have openings through which pass screws 25 that are screwed into the bottom A. It is the fitting of the neck 23 in the opening 10 and the screws 25 which maintain the housing 22 in position.

The valve housing 22 is formed with a valve opening at 26, and substantially opposite the opening 26, the wall of the housing 22 is enlarged, as shown at 27, and this enlarged portion 27 is formed with a threaded opening 28, the axis of which is slightly out of the perpendicular with respect to the vertical axis of the housing 22, this relationship being clearly developed in Figure 1.

A threaded stem 29 is received by the threaded opening 28 and has one end projecting into the interior of the housing 22, for a purpose to be hereinafter set forth in detail, while its free extremity is provided with a hand wheel at 30.

Pivotally mounted interiorly of the housing 22, as shown at 31, is a valve member 32 which is movable into positions either closing the valve opening 26 or permitting the flow of water therethrough, these two positions being shown by the full and dotted line positions of Figure 1 respectively.

When the boat is immovable, or for other reasons it is not desirable to drain the water from the bilge of the craft, the valve member 32 may be maintained in closing position against the wall of the housing 22 by threading the stem 29 up tight against the boss which is formed on one end of the valve member 32, this boss being identified by the reference character 33. With this arrangement, the valve member 32 is positively held in closed position.

When it is necessary or desirable to drain the water from the bilge of the craft, the latter having the necessary motion through the water, the hand wheel 30 may be availed of to retract the stem 29 from the boss 33. In this position of the stem 29, the valve member 32 is free to swing backwardly into the dotted line position of Figure 1 whereby the opening 26 is left unrestricted for water to pass therethrough.

As the boat is in motion, water will enter the flared end of the Venturi tube B and backwardly therethrough. As the tube B is enlarged rear-

wardly of the waist 11, this movement of the water therethrough will cause the valve member 32 to open, and water from the bilge to drain through the opening 26 and be entrained by the water in the Venturi tube B.

When the motion of the boat is discontinued, the movement of the water upwardly through the portion 19 and neck 23 will cause the valve member 32 to assume its closed position, although it will not be positively held in such position without operation of the hand wheel 30.

The operation of the valve member 32 may be briefly described by noting that as the boat moves, it is automatically swung backwardly into open position, and upon cessation of movement, it automatically is swung into closed position under the effects of the water in the neck 23.

While a preferred specific embodiment of the invention is herein set forth, it is to be clearly understood that I am not to be limited to the exact constructions illustrated and described, because various modifications of these details may be provided in putting the invention into practice within the purview of the appended claims.

I claim:

1. A bilge drainer for boats comprising a Venturi tube, means for mounting the said Venturi tube on a boat bottom for projection into water, said Venturi tube having a waist, an outflow conduit communicating with the Venturi tube at the said waist, and a constriction in said waist formed by a wall of the outflow conduit extending thereinto.

2. A bilge drainer comprising a venturi having a neck proportioned to be inserted partway through the material of the hull of a boat and provided with a passage, a valve housing having a neck proportioned to pass partway through the hull and communicate with the neck of the venturi, said housing being provided with an opening, a valve pivoted within the housing in position to close the opening under the action of back pressure within the housing, and manual means for exerting augmenting closing stress upon the valve.

3. A bilge drainer comprising a venturi having a neck proportioned to be inserted partway through the bottom of the hull of a boat and provided with a passage, a valve housing having a neck proportioned to pass partway through the wall and communicate with the neck of the venturi, said Venturi tube being formed with a waist at the joinder of the said neck thereto, and a constriction in said waist formed by a wall of the neck extending thereinto.

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