Jan. 3, 1961 R. C. IREY 2,966,875

SELF-BAILER FOR BOATS

Filed April 14, 1960

FIG. 1

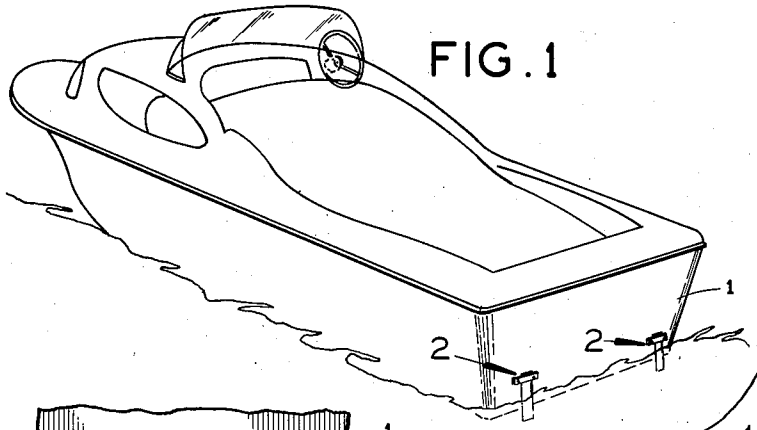
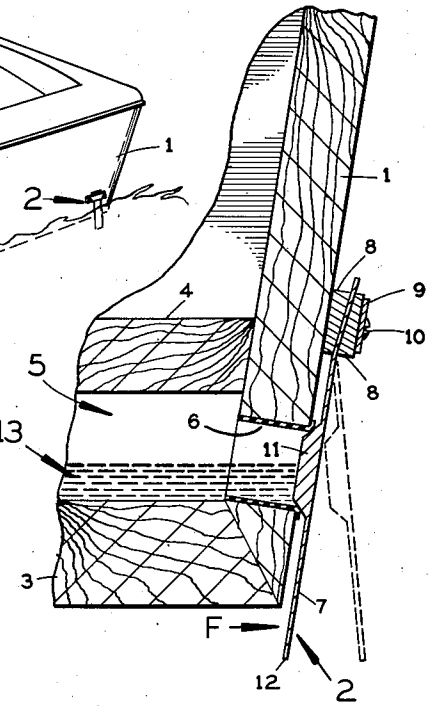


FIG. 3



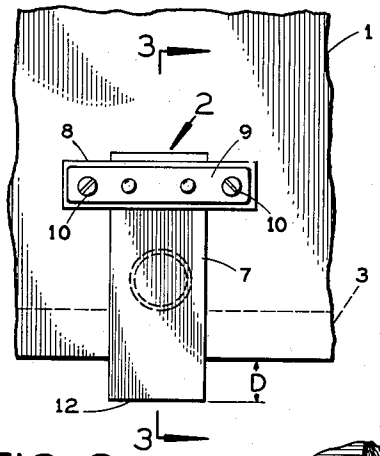


FIG. 2

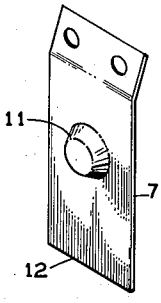
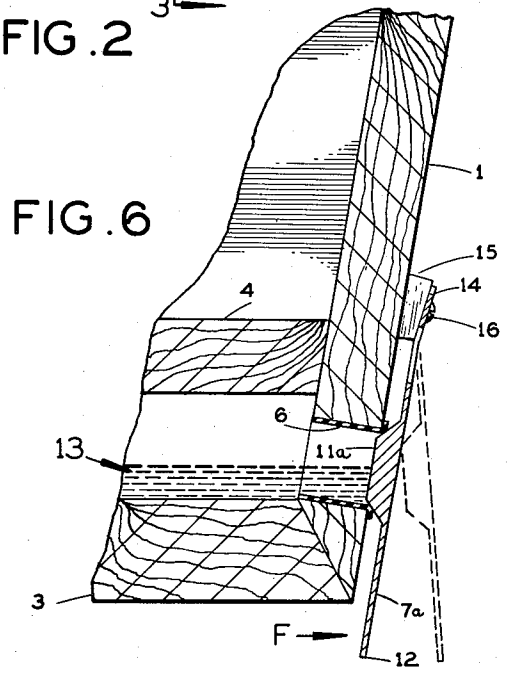


FIG. 4

FIG. 6



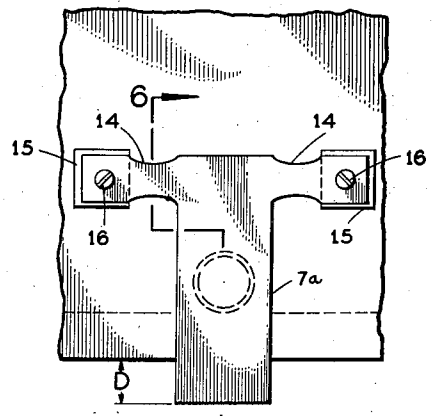


FIG. 5

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SELF-BAILER FOR BOATS

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4 Claims. (Cl. 114—185)

This invention relates in general to bailing devices for boats and more particularly to an automatic bailer for discharging water from the bilge of a boat responsive to the forward motion of the latter.

Bailing valves prior to this invention for self-bailing relatively small boats either require manual operation or are solely dependent upon negative pressure in the wake adjacent the transom of the boat when the boat is under way.

Self bailing valves dependent upon negative pressure are positioned above the static water level of a boat to minimize leakage due to their necessary sensitive construction. Thus complete drainage of the bilge cannot be accomplished unless the boat is planing at relatively high speeds in order to operate the valve by means of the relatively small vacuum created adjacent the rear of the transom.

The present invention overcomes the above disadvantages, inadequacies and objections by the provision of one or more valve means secured to the transom of the boat below the static water line having portions thereof projected downward from the transom a predetermined distance below the boat bottom for operation by the positive slipstream water pressure, which is a principal object of the invention.

Another object of the invention is the provision of one or more valve means on the transom of the boat normally closing corresponding orifices entering the bilge thereof including means adapted to automatically open the valve means by the positive pressure of the water slip stream for automatically evacuating water from the bilge of the boat by the negative pressure through said orifices which are automatically opened when the boat is underway at relatively low speeds.

Another object of the invention is the provision of a reed valve adapted to be secured to the lower outer surface of a boat transom and having a portion thereof extending downward from the boat hull for movement by positive water pressure when the boat is forwardly moved.

These and other objects and advantages in one embodiment of the invention are described in the appended specification and drawing in which:

Fig. 1 is a perspective view of a typical boat having a pair of bailing valves in the transom thereof.

Fig. 2 is an enlarged fragmentary vertical elevation of the transom showing one of the valves illustrated in Fig. 1.

Fig. 3 is a fragmentary cross sectional view taken through section line 3—3, Fig. 2.

Fig. 4 is a perspective view showing a valve element shown Fig. 2.

Fig. 5 is an enlarged fragmentary vertical elevation of the transom illustrated Fig. 1 showing a valve of alternate construction.

Fig. 6 is an enlarged cross sectional view taken through section line 6—6, Fig. 5.

Referring to Fig. 1, the transom 1 of the boat is provided with a pair of automatic bailing valves 2—2 which are secured for operation below the normal static water line of the boat. With reference to Figs. 2 and 3, the lower edge of the transom 1 terminates in a bottom 3 with a conventional floor or duck board 4 spaced from the bottom forming a bilge compartment 5.

A cylindrical tubular grommet 6 of resilient material, such as rubber or plastic, is secured through a bore in the transom and positioned in close proximity with the bottom 3 as shown forming a valve seat around the outer end thereof.

An elongated reed type valve 7 is secured by its upper end portion thereof between two obliquely shaped resilient spacers 8—8 by a plate 9 and screws 10—10. The valve member 7 has an integral conical projection 11 constructed to normally seat in the outer circular opening of the grommet 6 and is normally urged into sealed relation thereto by the tension of spacers 8—8 as shown Fig. 3.

The lower end portion 12 of the valve member 7 is positioned to project a predetermined distance D below the boat bottom 3.

When the boat is moved in a forward direction, the projecting end 12 of valve 7 will encounter a positive force from the water pressure illustrated by arrow F which will force the valve outward as shown in dotted lines, Fig. 3, and thus permit the negative pressure present at the seat of the transom to drain bilge water 13 from the bilge. This drainage is enhanced by the planing action of the boat which will gravitate the bilge water therein rearward toward the now open valves.

It is apparent that as soon as the forward motion of the boat is stopped the absence of positive pressure against the valve member 7 will permit the immediate closure of the valve by the resilient spacers 8 and thus prevent leakage into the bilge.

An alternate construction shown Fig. 5 provides for the alternate valve member 7a in which a pair of outward extending arms 14 are integral with blade 7a and secured to the transom by fixed oblique spacers 15 and screws 16, as shown in full lines.

Sufficient torsion is provided in the flexed arms 14 to normally hold the valve member in sealed relation with the grommet 6. When the boat is moved forward the water pressure F exerted against the lower extension 12 of the valve member overcome the torsional forces in the arms 14 and the valve opened and the bilge drained as previously described. Although a variety of materials for the construction of the valve may be used, a preferred form is made from molded plastic such as polyethylene or similar materials in which thin sections thereof are inherently resilient, and which material is highly resistant to erosion, particularly in the presence of sea water.

It is to be understood that certain modifications of the invention incorporating the features above described are intended to come within the scope of the appended claims.

I claim:

1. An automatic bailer for water in the bilge of a boat responsive to the water slip stream at the terminus portions of the bottom and transom of said boat comprising an orifice means through said transom into said bilge below the static water line of said boat, a valve means on the outside of said transom positioned for movement from a normally closed to an open position over said orifice when operated, urging means secured to said transom means and said valve means for retaining said valve to said transom and normally urging the latter in said closed position, a portion of said valve means extending a predetermined distance from said bot-

tom into the path of said slip stream whereby said valve means will be moved against the restraining action of said urging means to said open position thereby and said water in said bilge induced outward from said bilge through said orifice by said slip stream when said boat is propelled forward in water.

2. An automatic bailer for water in the bilge of a boat responsive to the water slip stream at the terminus portions of the bottom and transom of said boat comprising an orifice means through said transom into said bilge below the static water line of said boat, a valve means on the outside of said transom positioned for movement from a normally closed to an open position over said orifice when operated, said valve including an integral resilient portion secured to said transom and constructed to normally urge said valve in said closed position, a portion of said valve means extending a predetermined distance from said bottom into the path of said slip stream whereby said valve means will be moved against the restraining action of said resilient portion to said open position thereby and said water in said bilge induced outward from said bilge through said orifice by said slip stream when said boat is propelled forward in water.

3. An automatic bilge valve for a boat transom of the character described comprising an orifice through said transom terminating at the outer side in a valve seat, a reed type valve on the outer side of said transom positioned for movement from a normally closed position sealed against said seat to an open position spaced away from said seat, resilient means for securing said valve to said transom and for urging the latter against said seat, a lower portion of said valve extending downward a predetermined distance below the edge of said transom for rearward movement to move said valve to said open position by the action of the water slip stream when the boat is propelled forward in water.

4. The construction recited in claim 3 including a conical projection on one side of said reed type valve for sealed mating engagement with said seat when said valve is in said closed position.

No references cited.