June 15, 1965 L. B. DAWSON 3,188,994

AUTOMATIC BILGE DRAIN STOPPER

Filed Dec. 16, 1963 2 Sheets-Sheet 1

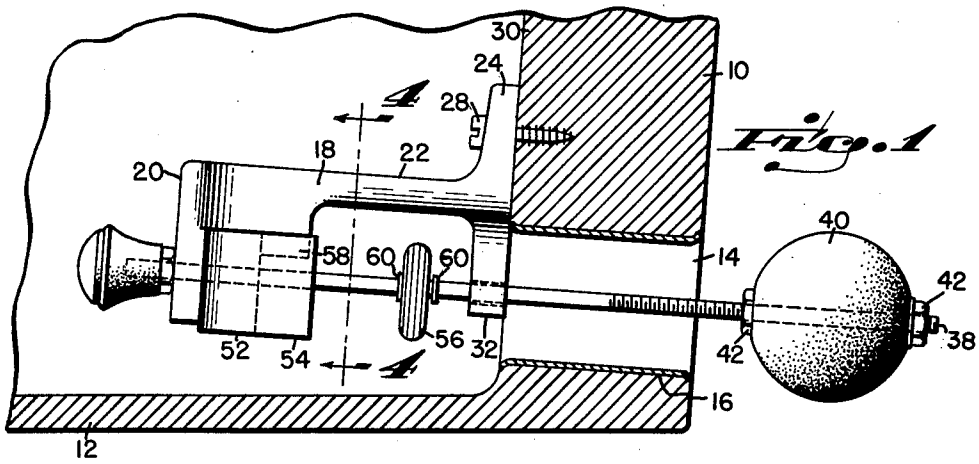


Fig. 1

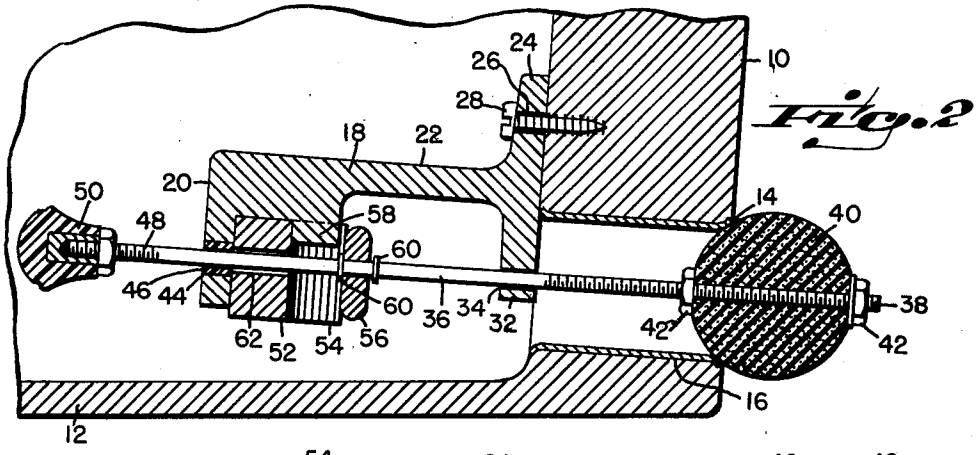


Fig. 2

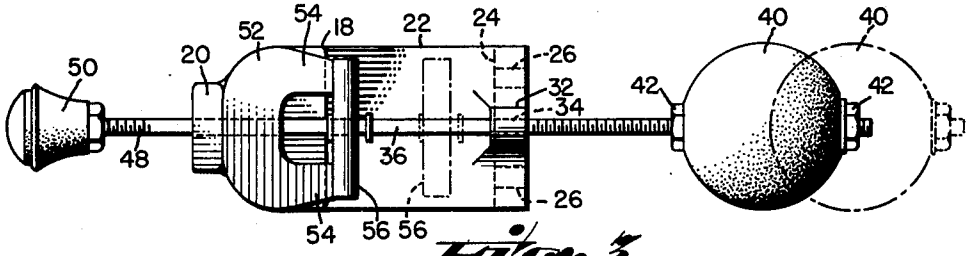


Fig. 3

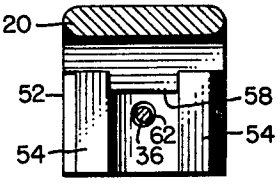


Fig. 4

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AUTOMATIC BILGE DRAIN STOPPER

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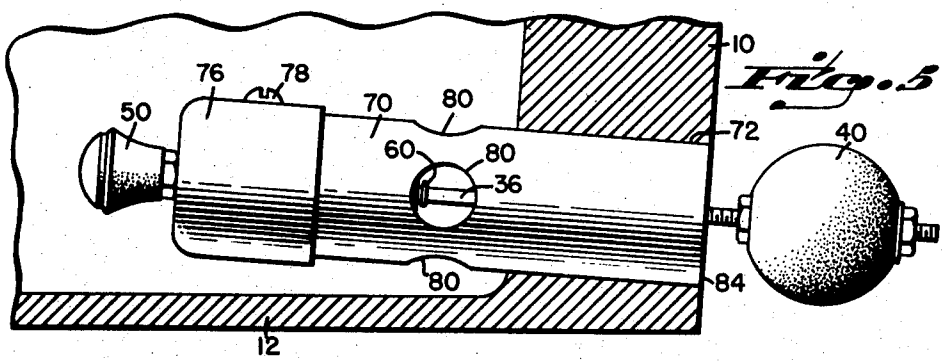


Fig. 5

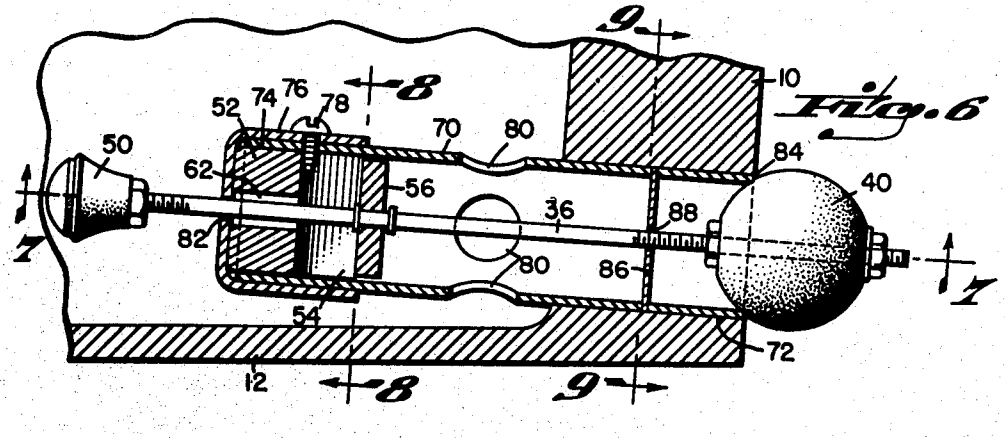


Fig. 6

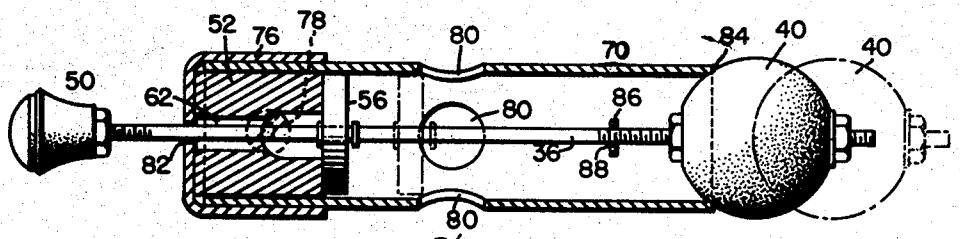


Fig. 7

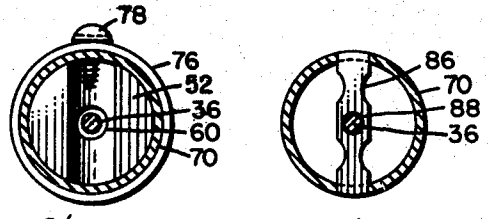


Fig. 8 Fig. 9

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AUTOMATIC BILGE DRAIN STOPPER

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The present invention realtes to a bilge drain device for boats.

An object of the invention is to provide an improved bilge drain device constructed to avoid mishaps resulting from inadvertent lack of attention to the bilge drain when launching or operating a boat.

Another object is to provide an improved bilge drain device of the character mentioned above, which is easily and inexpensively installed upon a boat either in the course of building a new boat, or in applying the device to a boat equipped with a standard bilge drain.

A further object of the invention is to provide an improved bilge drain device having automatic closing features which greatly minimize the dangers attending failure to devote proper and timely attention to the bilge drain during launching or operation of a boat.

Another object is to provide highly reliable bilge drain device of the character stated, which is simple and inexpensive to manufacture, and designed for installation with ease and despatch.

The foregoing and other objects are attained by the means described herein and as illustrated upon the accompanying drawings, in which:

FIG. 1 is a cross-sectional view of a boat transom, showing in elevation the device of the invention applied thereto as an accessory to standard boat construction.

FIG. 2 is a view similar to FIG. 1, showing the improved bilge drain device in vertical cross-section.

FIG. 3 is a bottom plan view of the device illustrated by FIG. 2.

FIG. 4 is a cross-section taken on line 4—4 of FIG. 1.

FIG. 5 is a side elevation of a modified form of the bilge drain device, constructed for application to a new boat transom in the course of building a boat.

FIG. 6 is a vertical cross-section taken on line 7—7 of FIG. 6.

FIG. 7 is a cross-section taken on line 7—7 of FIG. 6.

FIG. 8 is a cross-section taken on line 8—8 of FIG. 6.

FIG. 9 is a cross-section taken on line 9—9 of FIG. 6.

Standard practice in the boat-building art has been to provide the transom 10 of boat 12 with a bilge drain opening 14, containing a cylindrical liner 16 of metal or other durable material. The drain opening required closing by means of a removable plug or stopper whenever the boat was launched or permitted to rest motionless upon the water, to avoid foundering at such times. Inattention to this task has often resulted in damage to the boat and its equipment, sometimes with disastrous effects. One of the objectives of the present invention is to eliminate or at least minimize the hazard connected with failure of the boatman to devote timely attention to the bilge drain.

Referring particularly to FIGS. 1 to 4, the reference numeral 18 indicates an inboard bracket or body, preferably in the form of a metallic casting, including a head 20, a nick 22, and a mounting base 24. The mounting base may be provided with holes 26 receptive of screws 28 or equivalent fasteners whereby the base may be secured to the inner face 30 of the boat transom.

From the base 24 may depend a bearing lug 32 having a bore 34 to be aligned with the axis of drain opening 14, the bore being adapted to slidably support a reciprocable stem or rod 36 which extends axially through drain opening 14. That portion 38 of the stem or rod

which extends through the drain opening carries a buoyant outboard valve member 40, which may be in the form of a ball larger in diameter than the drain opening and thus provide an effective closure therefor.

It is important that the ball or valve member 40 be buoyant and have a tendency to float in the water outboard of the boat transom. To this end, the member 40 may be formed of cellular rubber, cork, plastic or any suitably durable material capable of floatation and of sealing the bilge drain opening. While in the present disclosure the member 40 is shown as a solid or semi-solid material, it may of course be in the form of a hollow body attachable to stem or rod 36 near its outer end 38. The float member may be rendered adjustable along the stem, by providing the stem with a screw thread as shown, and nuts 42 to clamp the float member therebetween.

The head 20 depends laterally from neck 22, and is provided with a bore 44 carrying a bushing 46 aligned with bore 34. Bushing 46 is remote from bore 34, and serves to slidably support the end portion 48 of stem 36. Said end portion carries a knob or handle 50 whereby the stem may be manually shifted longitudinally to seat and unseat the ball or valve member 40 relative to the bilge drain opening.

Means are provided for normally but releasably holding stem or rod 36 in a normally operative position of retraction at which the valve member or ball 40 is seated upon the bilge drain opening, FIG. 2. Such holding means may comprise a fixed permanent magnet 52, whose poles 54 extend in the direction of lug 32. Upon the stem or rod 36 is mounted an armature 56 to be attracted and held by the poles of the magnet whenever the stem or rod is manually moved to retracted position by means of knob or handle 50. The magnet is fixedly mounted upon head 20, and kept in place by a locating lug 58 on the head.

Armature 56 may be loosely mounted upon stem 36, to have limited bodily movement lengthwise of the stem between close limits determined by stops or washers 60, 60, which are fixed upon the stem at opposite sides of the armature. The stem may move through a hole 62 in magnet 52.

From the foregoing, it will be apparent that the boatman may place the bilge drain device in either of the positions illustrated by FIGS. 1 or 2, by simple manipulation of the knob or handle 50. When in the FIG. 1 position, the device will effect bilge expulsion as the boat travels in forward direction. In the FIG. 2 condition of the device, the ball or valve member 40 precludes movement of water in either direction through the bilge opening of the transom.

It may here be pointed out that in launching the boat from a trailer or skid, with the transom heading into the water, the force of water acting against ball or valve member 40 will close it upon the bilge pipe 16 as in FIG. 2, in which closed position it will be held by the force of magnet 52. The danger of launching the boat with the bilge pipe open is thereby avoided.

Further, if the boat is transported by trailer to the launching site, and the ball or valve member 40 happens to be unseated, vibration and road shock imparted to the ball or valve member incident to road travel are likely to eventually urge the device to closed condition, in advance of the launching.

To cite a further advantage, assume that the boat is traveling in water at high speed with the ball valve open to remove bilge water. If then the forward speed of the boat is reduced or stopped, the action of wake and waves upon the buoyant ball or valve member 40 will tend to laterally jiggle the valve stem and induce such free movement of the stem in its bearings, as to render the

armature readily movable into contact with magnet poles 54, thereby to automatically close the bilge opening and preclude entry of water into the boat.

The action of the device is very simple and reliable, requiring no engine power or elaborate equipment for its operation.

The modified form of the device illustrated by FIGS. 5 to 9, operates in the same manner and has the same advantages as recited above. It differs principally from the device of FIGS. 1 to 4, in that the body 70 is a tube rather than a casting, and replaces the bilge pipe or liner 16 in the factory assembly of the boat.

Body 70 is secured in the transom opening 72, and extends inwardly into the boat where at its inner end 74, the cylindrical body is provided with a cap 76 held in place by a screw 78. The screw may serve also to anchor the magnet 52 within the body. Cap 76 is apertured at 82 to accommodate the slidable stem or rod 36, the latter carrying at its opposite ends the knob or handle 50 and the ball or valve member 40, as in FIGS. 1 to 4. In the manner previously explained, an armature 56 is mounted upon the stem, for attraction by the poles 54 of the magnet.

Intermediate its ends, the tubular body may be provided with side openings 80 for entry of bilge water and expulsion thereof through the rear open end 84 of the body. A strut 86 apertured at its middle portion 88, and secured at its ends within the tubular body, provides a bearing in which stem 36 may shift longitudinally. Shifted positions of the stem and the parts connected thereto, are indicated by full and broken lines upon FIG. 7.

The various advantages and objectives hereinbefore set forth as applying to the device of FIGS. 1 to 4, are applicable as well to the modification illustrated by FIGS. 5 to 9. Both forms of the device are equally effective in accomplishing the objectives of the invention.

It is to be understood that various modifications and changes may be made in the structural details of the device, within the scope of the appended claims, without departing from the spirit of the invention.

What is claimed is:

1. A bilge drain device for controlling the drain opening of a boat transom, said device comprising in combination: an elongate reciprocable actuating stem having forward and rear end portions, a support means for the stem comprising a body having a head, a mounting base, and a neck intermediate the head and the mounting base, bearing, means on the head and the mounting base, for supporting the reciprocable stem axially of the drain opening, with the rear end portion of the stem extended into the drain opening and the forward end portion thereof accessible inboard of the boat, an outboard buoyant valve member mounted upon the rear end portion of the stem for movement with the stem to and from seated position upon the drain opening outboard of the transom, and cooperative magnetic elements carried by the body and the stem, for releasably holding the stem at a shifted position at which the valve member seats upon the drain opening to close said opening.

2. The combination as set forth in claim **1**, wherein the valve member is adjustable along the rear end portion of the actuating stem.

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