June 3, 1947. C. L. BUNTEN 2,421,479

BILGE DRAIN FOR BOATS

Filed May 21, 1946

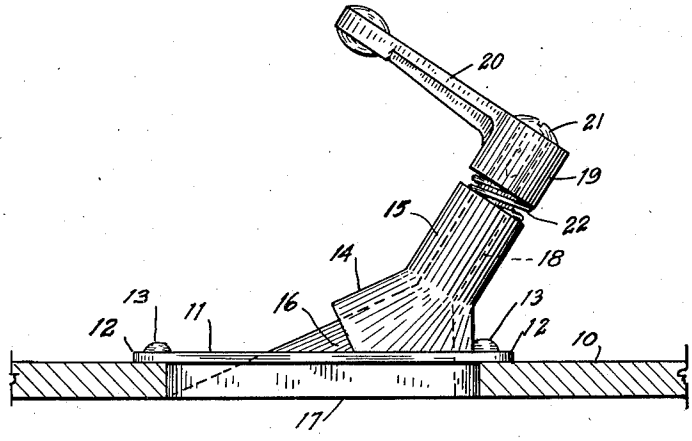


Fig. 1.

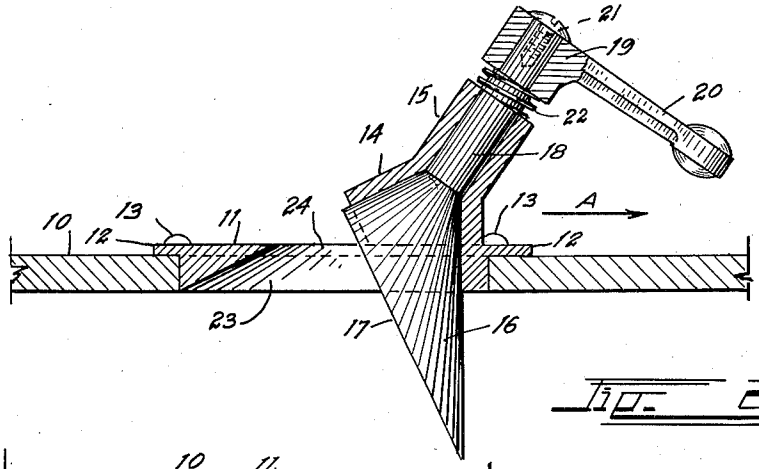


Fig. 2.

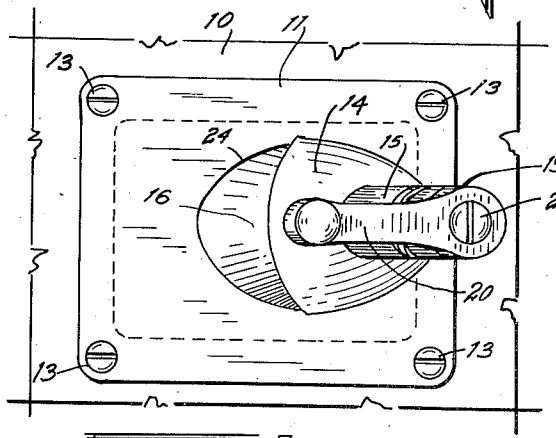


Fig. 3.

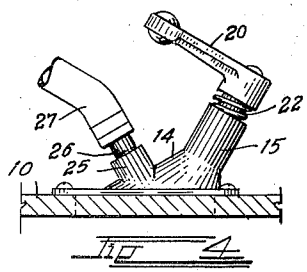


Fig. 4.

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Patented June 3, 1947

2,421,479

UNITED STATES PATENT OFFICE

2,421,479

BILGE DRAIN FOR BOATS

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Application May 21, 1946, Serial No. 671,288

3 Claims. (Cl. 114—185)

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This invention relates to a bilge draining device for boats, and is more particularly adaptable to motor boats of relatively light draft and relatively high speed.

The principal object of the invention is to provide a device of this character which employs the force created by the movement of the boat through the water to create a suction to draw the bilge water from the boat.

Another object is to so construct the device that it will have but one, trouble-free, moving part, and so that when not in use there will be no projection from, or depression in, the skin of the boat to create friction or resistance.

Other objects and advantages reside in the detail construction of the invention, which is designed for simplicity, economy, and efficiency. These will become more apparent from the following description.

In the following detailed description of the invention, reference is had to the accompanying drawing which forms a part hereof. Like numerals refer to like parts in all views of the drawing and throughout the description.

In the drawing:

Fig. 1 is a sectional view through the bottom of a boat, illustrating a side view of the invention in place therein in the closed position;

Fig. 2 is a longitudinal section therethrough, illustrating the device in the open or draining position;

Fig. 3 is a plan view of the improved bilge drain in the closed position; and

Fig. 4 illustrates the improved bilge drain arranged for general suction purposes.

In the views of the drawing, the bottom of a typical boat is designated by the numeral 10.

The improved bilge drain consists of a floor plate 11 designed to be inset in the floor 10 to a position flush with the bottom surface thereof. The plate 11 is provided with a peripheral flange 12 which rests upon the floor 10 and is secured thereto by means of suitable attachment screws 13.

A conical shell 14 arises from the plate 11 with its axis rearwardly inclined. A cylindrical bearing sleeve 15 extends upwardly from the apex of the conical shell 14 on the angle of, and in alignment with, the axis thereof. The interior of the conical shell 14 is hollow to provide a conical socket 23 with its axis coinciding with the axes of the shell 14 and sleeve 15. The shell 14 is cut away at the top side to provide an open throat 24 communicating with the socket 23.

A rotatable cone valve 16 is mounted in the

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conical socket 23. The bottom of the valve 16, indicated at 17, is cut off at an incline to the axis of the shell 14 and sleeve 15 so that, when in the closed position of Fig. 1, the bottom 17 will be in perfect, smooth alignment with the bottom of the plate 11. The angle of the bottom provides a long side and a short side on the valve 16 positioned opposite each other.

The cone valve 16 is provided with a valve stem 18 extending axially therefrom. The stem 18 extends through the sleeve 15 and projects from the top thereof. The stem 18 terminates in a handle hub 19, from which an operating handle 20 projects. The hub 19 is secured on the extremity of the stem 18 by means of an attachment screw 21. A compression spring 22 constantly urges the hub 19 away from the sleeve 15 so as to maintain the conical valve 16 in close, sealed contact with its conical socket 23.

It can be readily seen that, when the handle 20 is in the position of Fig. 1, the angularly cut conical valve 16 will completely fill the socket 23 and align perfectly with the bottom of the plate 11 and with the boat bottom 10 to form a perfectly smooth surface. The throat 24 is closed by the rounded side of the valve 16.

If the handle is now rotated 180° to the position of Fig. 2, it will rotate the valve 16 to the position of Fig. 2, causing the long side thereof to project downwardly from the bottom of the boat, and causing the short side thereof to open the throat 24.

Assuming the boat is traveling in the direction of the arrow A in Fig. 2, a pressure area will be created ahead of the rounded surface of the valve 16, and an area of partial vacuum will be created behind the flat bottom 17, due to the swirl of the water around the valve 16. This partial vacuum will suck any bilge water present in the boat downwardly through the open throat 24, and if there is no water therein, will suck air through the throat. As soon as the bilge water has been eliminated, the valve can be rotated back to the position of Fig. 1, providing a smooth, frictionless bottom surface on the boat.

The device can be arranged for general suction purposes as shown in Fig. 4. For this use a tube 25 is formed on, or attached to, the conical shell 14 over the throat 24. The tube 25 carries a hose nipple 26 to which a suction hose 27 is attached. The hose can be used for sucking water from any desired place and discharging it through the bottom of the boat.

While a specific form of the improvement has been described and illustrated herein, it is de-

sired to be understood that the same may be varied, within the scope of the appended claims, without departing from the spirit of the invention.

Having thus described the invention, what is claimed and desired secured by Letters Patent is:

1. A bilge draining device for boats comprising: a plate arranged to be inset in the bottom of a boat flush with the outer surface thereof; a conical valve seat extending upwardly from said bottom surface into said plate at an angle to the vertical; a conical valve seated in said seat, the axis of said valve corresponding to the inclined axis of the seat, the bottom of said valve, when in one position, being in alignment with the bottom of said plate, the incline of said conical valve providing a long and a short side thereon; a throat opening formed in the upper side of said plate and communicating with said valve seat; and means for rotating said valve so that the long side thereof may cover said throat, and so that the short side thereof may expose said throat.

2. A bilge draining device for boats comprising: a plate arranged to be inset in the bottom of a boat flush with the outer surface thereof; a conical valve seat extending upwardly from said bottom surface into said plate at an angle to the vertical; a conical valve seated in said seat, the axis of said valve corresponding to the inclined axis of the seat, the bottom of said valve, when in one position, being in alignment with the bottom of said plate, the incline of said conical valve providing a long and a short side thereon; a

throat opening formed in the upper side of said plate and communicating with said valve seat; a valve shaft extending axially from the apex of said valve; an inclined bearing sleeve supporting said shaft; and an operating handle mounted on the upper extremity of said shaft.

3. A bilge draining device for boats comprising: a plate arranged to be inset in the bottom of a boat flush with the outer surface thereof; a conical valve seat extending upwardly from said bottom surface into said plate at an angle to the vertical; a conical valve seated in said seat, the axis of said valve corresponding to the inclined axis of the seat, the bottom of said valve, when in one position, being in alignment with the bottom of said plate, the incline of said conical valve providing a long and a short side thereon; a throat opening formed in the upper side of said plate and communicating with said valve seat; a valve shaft extending axially from the apex of said valve; an inclined bearing sleeve supporting said shaft; an operating handle mounted on the upper extremity of said shaft; and spring means acting to urge said valve into said conical seat.

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REFERENCES CITED

The following references are of record in the file of this patent:

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