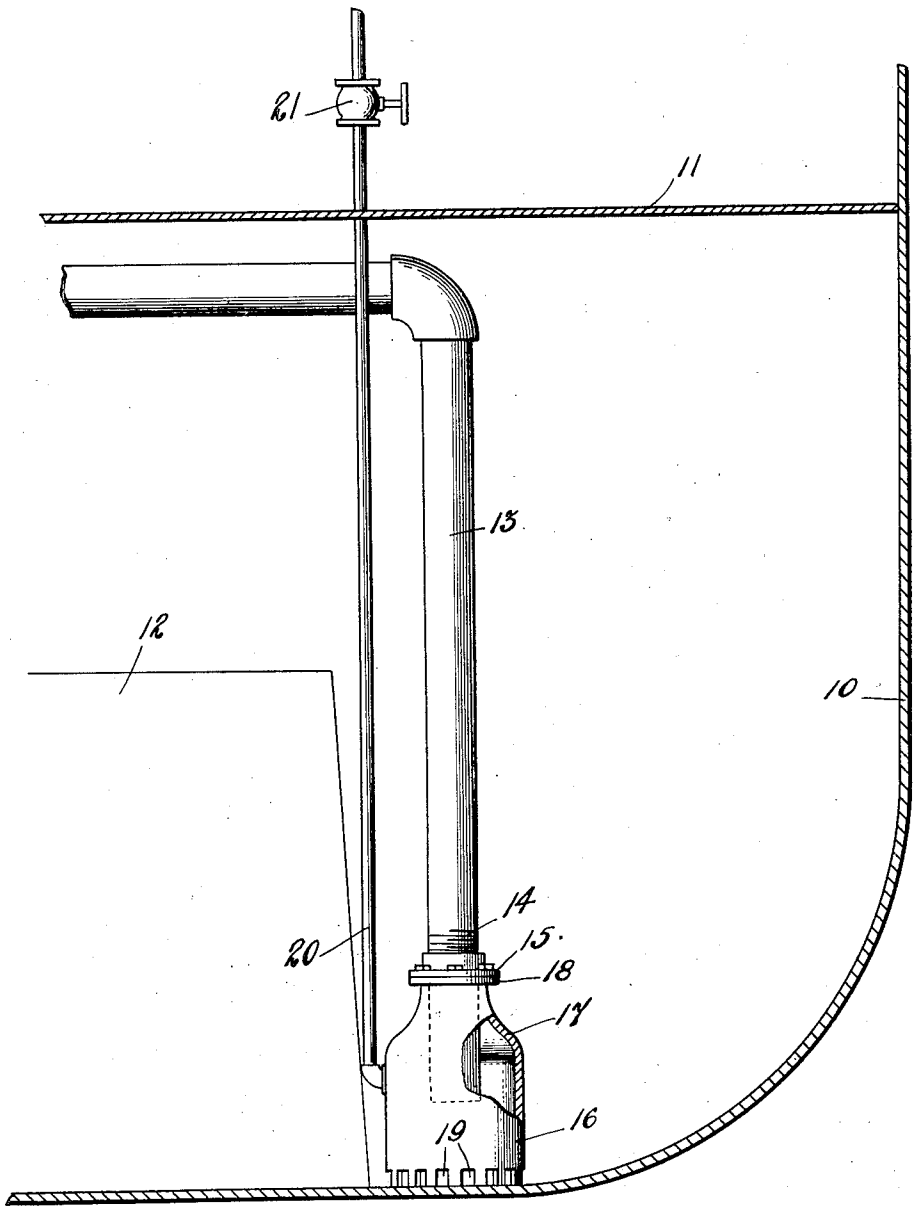
Dec. 10, 1935. L. C. HARROD 2,023,586.

BILGE WATER EDUCTOR

Filed Feb. 9, 1933



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Patented Dec. 10, 1935 2,023,586

UNITED STATES PATENT OFFICE

2,023,586

BILGE WATER EDUCTOR

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Application February 9, 1933, Serial No. 655,902

4 Claims. (Cl. 103—39)

This invention relates to bilge water eductors, and has for an object to provide improved means for educting water from the bilge of a ship, the while floating oil will be retained.

A further object of the invention is to provide means for educting the bilge water from a ship, with improved means for changing the type of eduction installation to vary the eduction from the underlying water to the entire liquid bilge content.

A further object of the invention is to provide in combination with a bilge pump suction pipe a baffle at the lower end of said pipe so arranged as to take in liquids only at the bottom of said baffle, with means for breaking the rarification within the pipe and baffle when the level of the liquid has reached a predetermined height.

The invention therefore comprises an addition to a bilge water pump suction pipe of a baffle preferably though not necessarily circular in form having at the bottom, inlets, which said bottom is in contact with the bottom of the bilge, with a pipe extension from said suction pipe extending downwardly within the baffle but stopping short of the bottom, and an air vent under manual control communicating with said baffle at a predetermined height.

The drawing is a conventional showing of the parts of a vessel with the invention applied thereto, the invention being shown in elevation with a part broken out.

The invention is adapted to be associated with vessels of various types and the showing of the hull 10, engine room floor plates 11 and tank 12 are only illustrative.

A vessel is ordinarily provided with a suction pipe 13 from the bilge water pump, which pipe ordinarily extends to a position adjacent to the bottom of the bilge. With a vessel so equipped, the lower end of the suction pipe 13 will be cut off and threaded as at 14 and a flange 15 applied thereto.

To this flange 15, the baffle will be applied. The baffle comprises a body or housing 16, preferably though not necessarily, circular in cross section, and with a pipe section 17 extending downwardly into this baffle a predetermined distance. This pipe section 17 may be cast integral with the housing 16, or may be applied thereto in any approved manner so that the joints are water-tight. The housing 16 is provided with a flange 18 which co-acts with the flange 17 to rigidly attach the housing 16 to the pipe 13.

About its lower edge, which is normally open, a plurality of recesses 19 are formed which permit ingress of fluid underneath the housing 16.

At one side of the housing and spaced at a distance above the bottom substantially equal to the pipe section 17, a vent pipe 20 is connected. This pipe 20 is extended to some position for easy access for manual control, as for instance, extending into the engine room and there provided with a manual cock 21.

In operation, the device being installed as shown, the water may be pumped from the underlying oil volume by maintaining the valve 21 in an open condition. The exhaust in the pipe 13 will therefore draw water through the openings or recesses 19 and through the pipe 13 so long as the level of the combined water and oil remains above the inlet of the vent pipe 20.

When, however, the level has been reduced to reach this vent pipe 20, air will be admitted to the housing 16 and will break the vacuum so that no further water will be lifted through the pipe 13.

This arrangement is for the purpose of pumping out the bilge water without pumping out the oil which accumulates upon the top of the water and which it is illegal to discharge into port waters.

When, however, it is desired to pump out all of the accumulation, including the oil, the valve 21 is closed, whereupon, the housing 16 becomes an extension of the pipe 13 and continues to deliver liquid to the pipe until the level of the liquid has fallen to the top of the recesses 19, which is practically the entire quantity of liquid.

This type of pumping may occur while the vessel is at sea, and therefore at liberty to discharge oil, or when in port the educted liquid may be directed into a settling tank and the water later pumped from under the oil and the oil retained for use.

Of course, the invention herein illustrated may be modified in various ways without departing from the invention herein set forth and hereinafter claimed.

The invention is hereby claimed as follows:

1. A bilge water eductor comprising a suction pipe extended downwardly toward the bottom of the bilge of a ship, a larger pipe section with an open bottom enclosing and extending beyond the lower end of said first pipe entirely to the bilge limits and forming with said suction pipe an annular chamber, said open bottom having an edge formed with a plurality of openings therein, and a tube provided with a manual valve adapted to selectively admit air to the annular chamber whereby eduction is discontinued when the liquid

level drops below the end of the first pipe and continues to the open end of the enlarged pipe section when air is excluded.

2. A bilge water eductor comprising an open bottom housing adapted to stand upon the bottom of the bilge of a ship and having an inlet opening on the bottom edge of the housing, a suction pipe extending downwardly into but stopping short of the bottom of the housing, and a manually interrupted conduit adapted to admit air to the housing to break the eduction when the liquid level has uncovered the inserted end of the suction pipe.

3. A bilge water eductor comprising an eduction duct, a housing having an open bottom with ingress openings about the lower edge and wholly below the lower end of said eduction duct and providing a chamber in communication therewith, an air inlet duct in communication with the chamber, said housing being connected to the eduction duct at a point removed from its lower end with the housing spaced from and enclosing the lower end of the eduction duct thereby providing an air locked interior space modifying the action within the chamber by tending to reduce the gurgitations or pulsations of the pumped liquid.

4. In a bilge pumping mechanism, the combination with a housing forming an open bottom chamber having openings about the lower edge for admitting fluid to the interior of the pump, a liquid eduction duct extending and opening into said chamber, the said housing being spaced from the eduction duct and having a closed end connected to the duct at a point removed from the extremity thereof, an air inlet duct opening into said chamber, said chamber forming an air cushion for reducing the gurgitations or pulsations of the pumped liquids.

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