J. GOOD.

BOAT BAILING MEANS.

APPLICATION FILED OCT. 27, 1915.

1,304,961. Patented May 27, 1919.

Fig. 1.

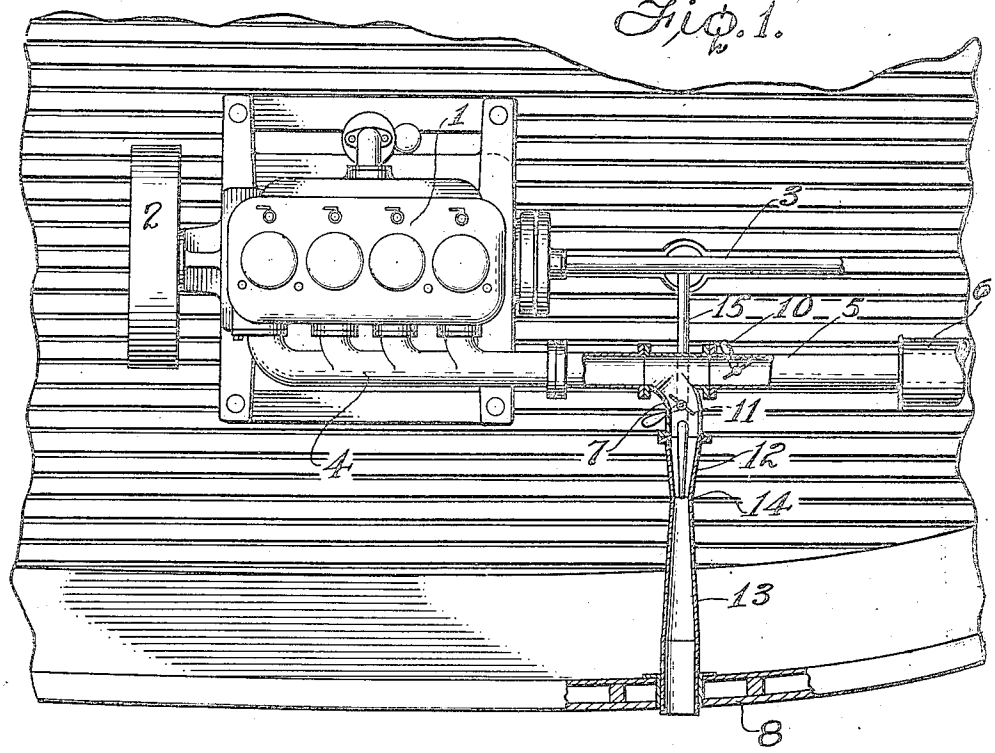
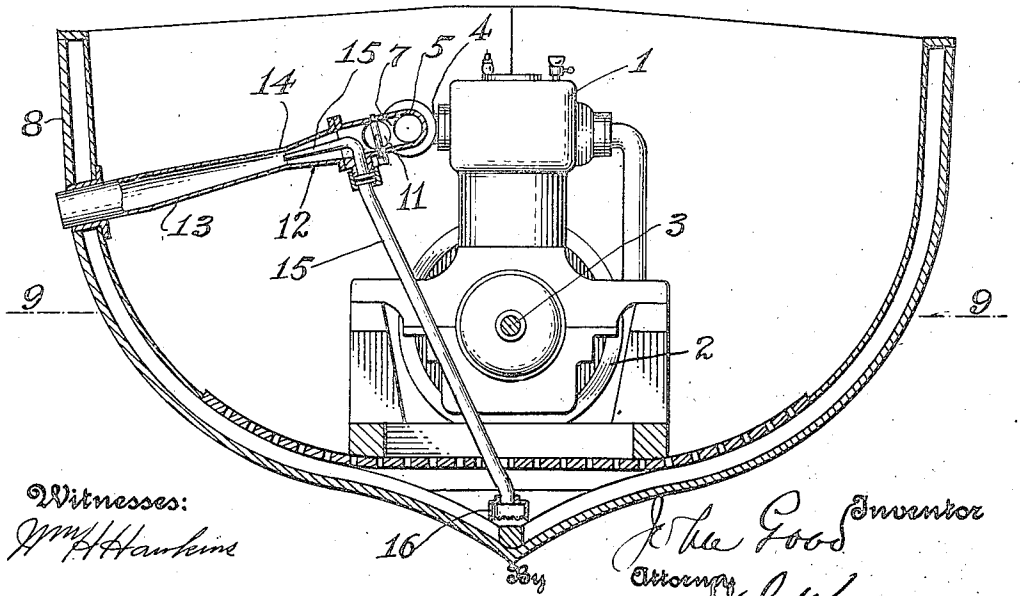


Fig. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

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BOAT-BAILING MEANS.

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To all whom it may concern:

Be it known that I, JOHN GOOD, a citizen of the United States, residing in the borough of Brooklyn, county of Kings, and State of New York, have invented the following described Improvements in Boat-Bailing Means.

The invention consists in the novel employment of the velocity of the exhaust gases from boat-propelling engines of the internal combustion engine class, for discharging bilge water. The purpose of the invention is to substitute for the engine-driven pumps heretofore employed for bailing motor boats, a simple but effective contrivance having no moving parts and incapable of derangement under ordinary conditions of use. For this purpose the invention utilizes the velocity of movement of the discharging exhaust gases from the combustion engine, which I have ascertained is sufficient to remove large accumulations of bilge water with rapidity.

The preferred form of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is a top plan partly in section of so much of a boat and internal combustion engine as is necessary for understanding the invention; and

Fig. 2 is a cross section of Fig. 1, through the supplementary exhaust pipe.

In Fig. 1, the internal combustion engine 1, consisting of four cylinders, is mounted as usual on the framing or floor of the boat, with its fly-wheel 2 mounted on one end of crank shaft and the propeller shaft 3 connected to the other end in the usual manner. The exhaust gases from the several combustion cylinders are collected in the usual exhaust pipe or manifold 4, for escape thence through the normal exhaust pipe 5 and muffler 6, to the outside of the boat. This normal exhaust pipe may, and conveniently does, debouch below the water-line, or at least in the rear of the boat.

The supplemental exhaust pipe 7 is connected to the pipe 5 and this pipe preferably extends directly overboard through the wall 8 of the boat and preferably above the water-line indicated at 9—9. Valvular means are provided whereby some or all of the exhaust gases may be caused to pass through the supplemental exhaust pipe. Such means are herein indicated as comprising a butterfly valve 10 in the normal pipe and a similar valve 11 in the supplemental pipe and their manipulation to control the flow of gases will be obvious without explanation. The supplemental exhaust pipe comprises or contains a Venturi tube consisting of two converging pipe portions 12 and 13, forming a throat or point of narrowest diameter at the point marked 14. The normal flow of the exhaust gases through this contraction thus provided results in a diminution of pressure at the throat 14, which is considerably less than atmospheric pressure and sufficient to raise a column of water several feet. The bilge water pipe 15, which may be mounted in any desirable manner, extends from the lowest part of the boat, where it is provided with a strainer 16, and leads thence to the throat 14, where it is subject to the depression of pressure just referred to, and as a consequence, the bilge water is compelled to flow to and into the Venturi tube whence it finds escape overboard in the obvious manner, the supplemental exhaust pipe 7 being desirably inclined downwardly, as indicated in Fig. 2, so that bilge water will have no tendency to flow back into the engine.

From the foregoing it will be evident that the purposes of this invention as first above stated have been realized in an extremely simple form and at a very low cost of manufacture inasmuch as the Venturi tube is an inexpensive part and the other parts are standard pipe fittings or stock devices. The principle of operation of the Venturi tube I do not explain herein, as they are well understood and have heretofore been employed in many and various relations. I believe myself to be the first, however, to have discovered and utilized the applicability of said tubes to a motor-boat gas-engine in substitution for engine-driven pumps or hand-pumps.

It will be understood that the invention is not confined to the specific arrangement or connections of the several parts above described, nor to the proportions thereof as indicated in the drawing, but that various differentiations therefrom and modifications thereof may be resorted to within the scope of the following claims.

I claim:

1. The combination in a marine vessel, of an internal combustion engine adapted to propel the same, an exhaust pipe for said engine leading overboard and having incorporated therein a Venturi tube with a water pipe leading from the bilge water of said

boat to a point within the throat of said Venturi tube, and adapted to discharge bilge water into said exhaust pipe and thence overboard.

2. In a boat, the combination of an internal combustion engine for propelling the same, having a normal exhaust pipe and a supplementary exhaust pipe connected therewith, valvular means for directing the exhaust through either of said pipes, a Venturi tube in said supplemental pipe, a water pipe leading from the bilge water of the boat to the throat of said Venturi tube and adapted for discharging said bilge water therein.

In testimony whereof, I have signed this specification in the presence of two witnesses.

JOHN GOOD.

Witnesses:
JOHN T. CROWLEY,
K. L. GRANT.