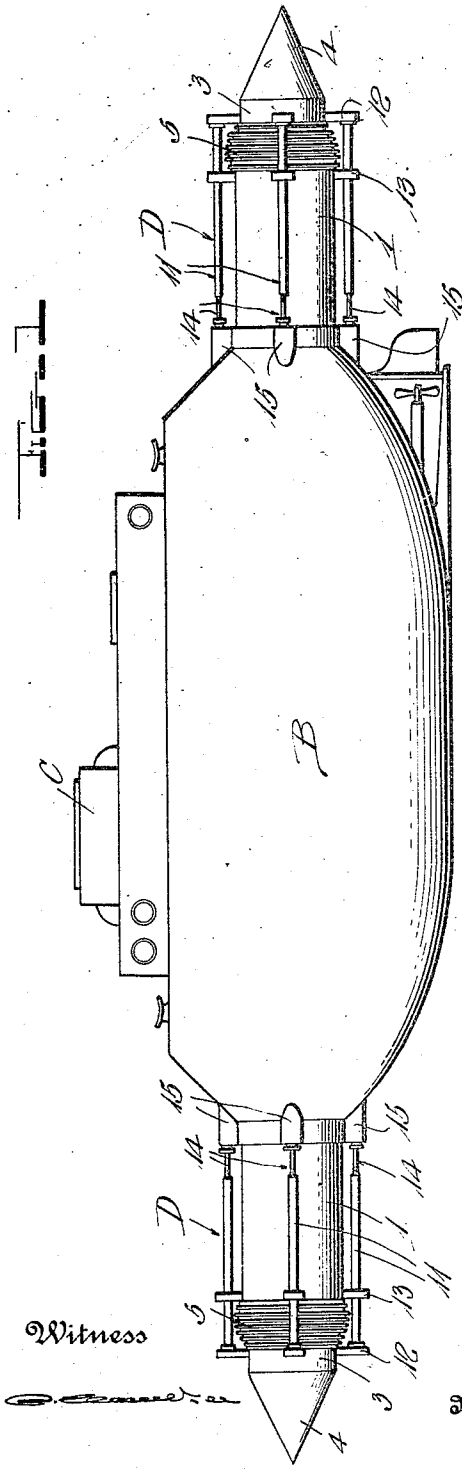
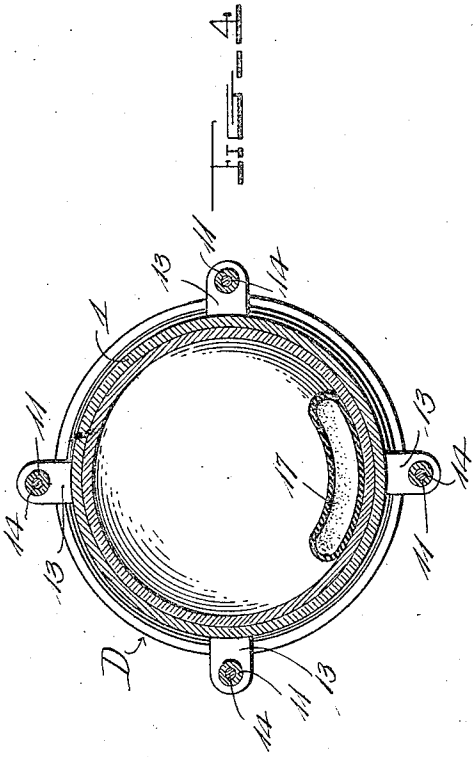
March 30, 1926. 1,579,109

J. J. HASELEY

DISPLACEMENT VARYING MEANS

Filed April 27, 1925 2 Sheets-Sheet 1





Witness

Inventor

Jonas J. Haseley

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Attorneys

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DISPLACEMENT VARYING MEANS

Filed April 27, 1925 2 Sheets-Sheet 2

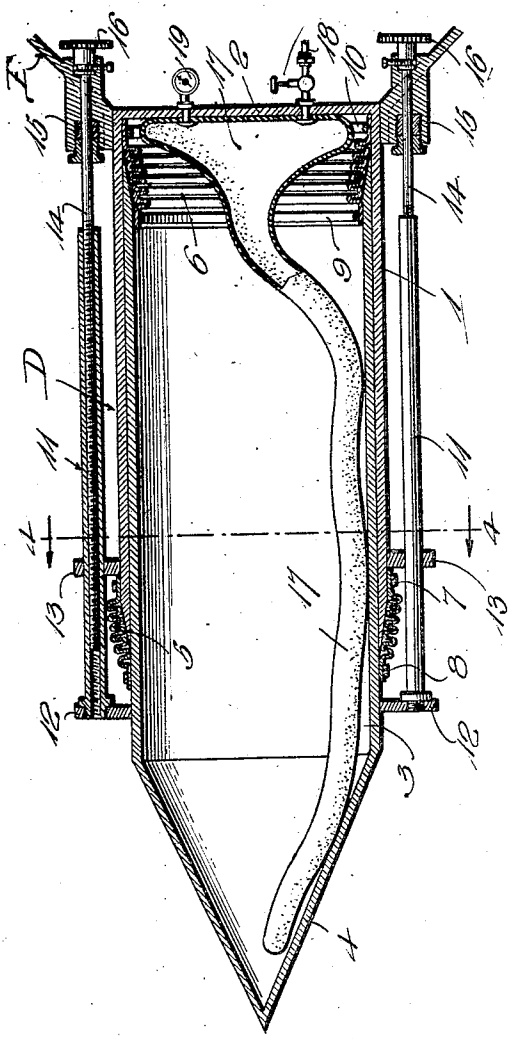


Fig. 2

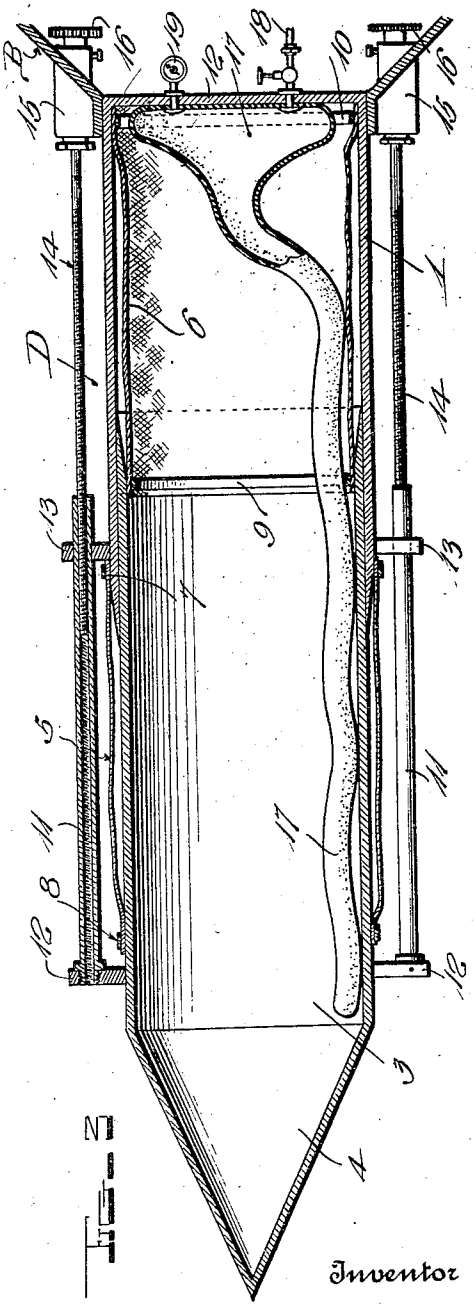


Fig. 1

Witness

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Patented Mar. 30, 1926. 1,579,109

UNITED STATES PATENT OFFICE.

JONAS J. HASELEY, OF SANBORN, NEW YORK.

DISPLACEMENT-VARYING MEANS.

Application filed April 27, 1925. Serial No. 26,201.

To all whom it may concern:

Be it known that I, JONAS J. HASELEY, a citizen of the United States, residing at Sanborn, in the county of Niagara and State of New York, have invented certain new and useful Improvements in Displacement-Varying Means; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in means for varying the displacement of either air or water craft, so that they may be made to ascend or descend at the will of the person or persons in command.

Further objects are to make novel provision to enable a boat to float on top of the water, just even with the surface of the water, or under water at any desired depth; to make provision whereby a boat may be caused to either sink or rise, either bow first or stern first, or to ascend or descend uniformly at both its bow and stern; to provide a boat that will travel safely at the surface of the water, through heavy seas and storms and through large breakers.

With the foregoing and minor objects in view, the invention resides in the novel subject matter hereinafter described and claimed, the description being supplemented by the accompanying drawings.

Figure 1 is a side elevation of a submergible ship embodying my invention.

Figure 2 is a vertical longitudinal sectional view through one of the devices for varying the displacement of the ship, showing it in sinking position.

Figure 3 is a view similar to Fig. 2, but showing the displacement varying device in rising position.

Figure 4 is a vertical transverse sectional view as indicated by line 4—4 of Fig. 2.

In the drawings above briefly described, B designates the hollow body of a submersible ship which may well be provided with any desired form of conning tower C, equipped preferably with self-closing hatches to prevent entrance of water when the ship submerges. At the stern and bow of the body B, I have shown devices D for varying the displacement of the ship either uniformly or unequally at its opposite ends, so that it may be made to ascend or descend either stern first or bow first, or ascend or descend uniformly at both ends. The constructions of the two devices D are identical and hence only one is shown and described in detail.

The numeral 1 designates a stationary cylinder rigidly secured to the body B and open at its outer end, while its inner end 2 is closed. Telescopically engaged with this stationary cylinder 1, is a slidable cylinder 3 which may either fit within or around said stationary cylinder. The cylinder 3 is open at its inner end but is closed at its outer end, the latter being preferably conical as indicated at 4. To form fluid-tight seals between the two cylinders, two flexible sleeves 5 and 6 have been shown. The sleeve 5 surrounds the outer end of the cylinder 1 and is suitably secured thereto as indicated at 7. This sleeve also surrounds the cylinder 3 and is secured thereto at 8. The sleeve 6 is within the two cylinders, and has its ends connected thereto in a fluid-tight manner as indicated at 9 and 10.

Means are provided for either projecting or retracting the cylinder 3 and it will thus be seen that the displacement of the ship may be varied, as occasion may demand. For illustrative purposes, to effect this adjustment of the cylinder 3, I have shown internally threaded tubes 11 extending longitudinally of the cylinders and disposed at the exterior thereof, these sleeves being suitably secured to lugs 12 carried by the cylinder 3 and passing slidably through guides 13 which are secured to the stationary cylinder 1. A number of screws 14 are threaded into the sleeves and extend through appropriate stuffing boxes 15 into the interior of the body B to be simultaneously driven by any preferred means. Gears 16 have been shown on the inner ends of these screws.

Preferably, a bag 17 is provided in the telescopic cylinders, suitable provision 18 being made for inflating or deflating said bag. By inflating the bag, to a pressure approximating that of the fluid around the ship (either air or water), the cylinder 3 may be more easily adjusted and the external pressure is counteracted so that it will have no tendency to crush the cylinders. Moreover, when the invention is used on a submarine, the air-filled devices D will assist materially in bringing the ship to the surface in case of accident. A suitable pressure gauge 19 may be connected with the bag 17 so that the

latter may be inflated to any adequate extent, without guesswork.

From the foregoing, taken in connection with the accompanying drawings, it will be seen that simple provision has been made for varying the displacement of a ship which is sustained by displacement of fluid (either water or air). Thus, the ascent and descent of such ship may be readily controlled as occasion may require, it being of course well known that the bouyancy of the ship increases proportionately with increase of its displacement, and decreases as the displacement is decreased. Of course, when the invention is used on an airship having a gas bag, provision will be made for introducing gas into the bag 17, but when the invention is used on a submarine, both the body B and said bag will contain air.

While good results may be obtained from the details disclosed, it is to be understood that they are for illustrative purposes only and that within the scope of the invention as claimed, modifications may be made.

I claim:

1. In a ship sustained by displacement of fluid; a displacement varying device comprising a cylinder stationarily carried by the body of the ship, said cylinder having an open outer end, a slidable cylinder telescopically engaged with the stationary cylinder and having an open inner end and a closed outer end, sealing means preventing entrance of surrounding fluid into the cylinders, said sealing means comprising flexible sleeves disposed one around and one within said cylinders, the ends of said sleeves being secured to the stationary and slidable cylinders respectively, and means for sliding the slidable cylinders either outwardly or inwardly.

2. In a ship sustained by displacement of fluid; a displacement varying device comprising a cylinder stationarily carried by the body of the ship, said cylinder having an open outer end, a slidable cylinder telescopically engaged with the stationary cylinder and having an open inner end and a closed outer end, sealing means preventing entrance of surrounding fluid into the cylinders, an inflatable bag within said cylinders, a closure for the inner end of the stationary cylinder, and means for sliding the slidable cylinder either outwardly or inwardly.

3. In a ship sustained by displacement of fluid; a displacement varying device comprising a cylinder stationarily carried by the body of the ship, said cylinder having an open outer end, a slidable cylinder telescopically engaged with the stationary cylinder and having an open inner end and a closed outer end, sealing means preventing entrance of surrounding fluid into the cylinders, and means for sliding the slidable cylinder either outwardly or inwardly, said sliding means comprising radial lugs at the outer end of the stationary cylinder, internally threaded tubes slidable through the lugs and having their outer ends fixed to the outer end portion of the slidable cylinder, and screws mounted on the inner end of the stationary cylinder and rotatable in the tubes to effect movement of the sliding cylinder either inwardly or outwardly.

In testimony whereof I have hereunto affixed my signature.

JONAS J. HASELEY.