

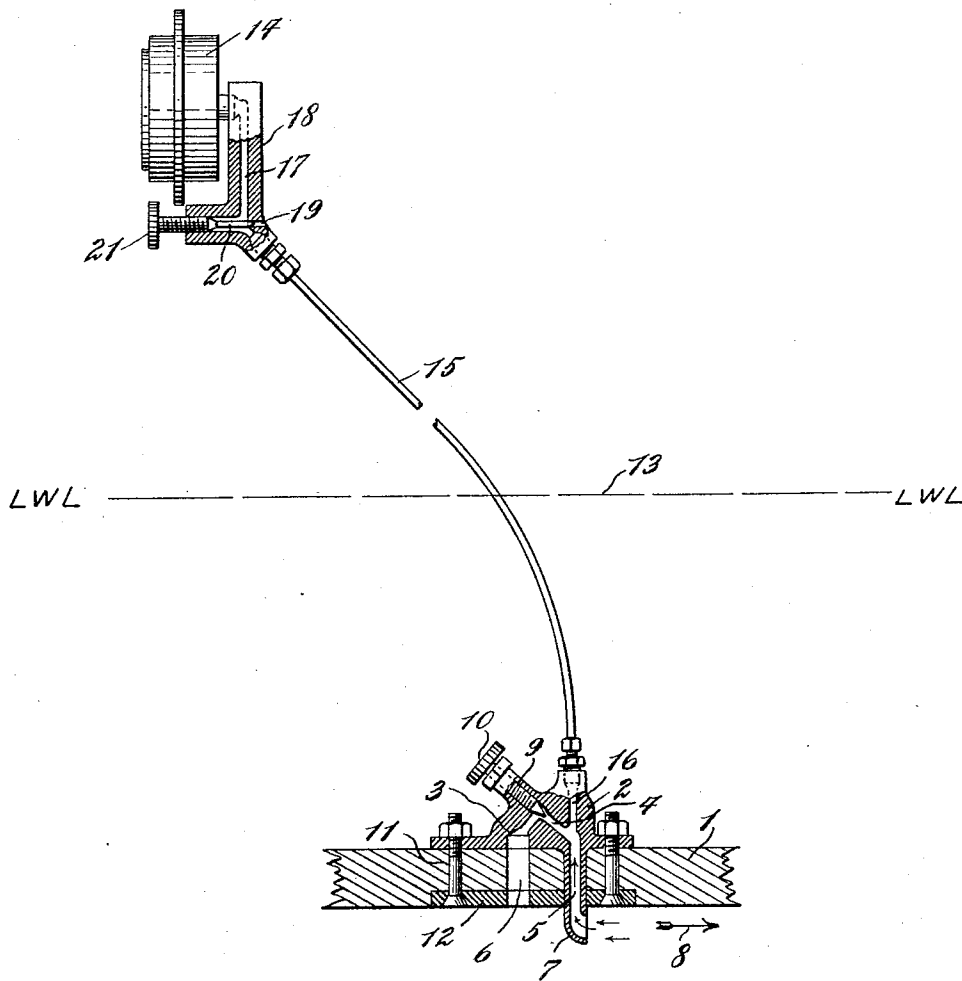
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I. W. MASTERS

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BOAT METER

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INVENTOR
Irvin W. Masters
BY
Gifford & Seall
ATTORNEYS.

UNITED STATES PATENT OFFICE

IRVIN W. MASTERS, OF NEWARK, NEW JERSEY, ASSIGNOR TO THE NATIONAL LOCK WASHER COMPANY, OF NEWARK, NEW JERSEY, A CORPORATION OF NEW JERSEY

BOAT METER

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This invention relates to improvements in boat meters and will be best understood from the following description and the annexed drawing, in which I have shown a selected embodiment of the invention. In the drawing, there is shown a diagrammatic view of the invention as applied to a boat hull.

In the drawing, the numeral 1 designates a portion of a boat hull, preferably near the keel, and mounted within the hull is a fitting 2 having intersecting bores 3 and 4 which together form a passage connecting an inlet 5 to an outlet 6. The inlet and outlet are formed by openings in the hull, and the fitting is shown as having a tube 7 extending through the inlet opening and having its lower end directed towards the bow of the boat, the direction of the bow being indicated by the arrow 8. This arrow also of course indicates the direction in which the boat is usually traveling.

The bore 4 is shown as having an extension beyond the point where it intersects the bore 3, and this extension reaches the outside of the fitting and has threaded therein the stem 9 of a valve which may be operated by the handle 10. This valve is shown as being of the needle type with the point thereof adjacent the intersection between the two bores, so that adjustment of the valve will serve to vary the flow area of the passage which is formed by the two bores 3 and 4. The fitting may be secured to the hull by bolts 11 passing through flanges on the fitting, and through a plate 12 disposed on the outside of the hull.

The load water line of the boat is indicated by the line 13, and the fitting just described is disposed below that water line. Disposed above this water line is an indicator designated generally by the numeral 14, and this indicator may be any of the usual kinds for showing the speed at which the boat is traveling. The indicator is operated by the pressure in a tube 15 connecting the indicator to the fitting in the bottom of the boat. This tube is connected to a bore 16 communicating with the passage formed by the bores 3 and 4. When the boat is at rest, the water will normally rise in the tube 15 as high as the load water line, and when the boat is in motion, a

pressure is induced by the flow of water through the inlet, the passage in the fitting, and the outlet. This pressure is transmitted to the water in the tube 15 and consequently to the indicator 14. By operation of the valve 9, the amount of pressure transmitted to the water in the tube 15 may be accurately regulated, so that the indicator will show the correct speed. There are a number of conditions, any one or all of which may affect the operation of the indicator, and which it is practically impossible to foresee when assembling the apparatus disclosed in this application. These conditions vary with different boats in which the apparatus is installed, and the valve 9 furnishes a device by means of which the pressure may be accurately regulated at the time the installation of the apparatus in the boat is made.

Pressure in the tube 15 is transmitted to the indicator through a passage 17 in a fitting 18, and this passage is provided with an air vent 19 controlled by a needle valve 20 threaded into the fitting and operable by a handle 21. This valve is used to release air from the tube 15 above the load water line, so as to permit water to rise to that line when the boat is at rest. In other words, this valve is provided in order to prevent air under pressure accumulating in the tube 15 above the water line, which of course would result in false indication on the face of the indicator.

While I have illustrated and described a specific embodiment of the invention, it is to be understood that I contemplate other embodiments which may come within the scope of the appended claims.

I claim:—

1. In combination, a boat hull having two openings therein, a tube projecting from one opening and forming an inlet and the other forming an outlet for water when the boat is in motion, means forming a passage connecting said inlet and outlet, a pressure tube communicating at one end with said passage between said inlet and outlet, an indicator connected to said tube and adapted to be operated by the pressure in said tube, and a valve controlling the flow area of said passage.
2. In combination, a boat hull having two

- openings therein, a tube projecting from one opening and forming an inlet and the other forming an outlet for water when the boat is in motion, means forming a passage connecting said inlet and outlet, a pressure tube communicating at one end with said passage between said inlet and outlet, an indicator connected to said tube and adapted to be operated by the pressure in said tube, and means to adjust said pressure.
3. In combination, a boat hull having two openings therein, a tube projecting from one opening and forming an inlet and the other forming an outlet for water when the boat is in motion, a fitting secured on the inside of the hull and having a passage therethrough connecting said inlet and outlet, a pressure operated indicator disposed in the boat, a pressure tube connected at one end to said indicator and communicating at the other end with the passage in said fitting, and a valve having threaded engagement with said fitting and adapted to vary the flow area of said passage.
4. In combination, a boat hull having two openings therein, a tube projecting from one opening and forming an inlet and the other forming an outlet for water when the boat is in motion, a fitting secured on the inside of the hull and having two intersecting bores therein forming a passage connecting said inlet and outlet, one of said bores having an extension beyond said intersection, and a valve threaded in said extension and adapted to vary the flow area of said passage.
5. In combination, a boat hull having two openings therein, a tube projecting from one opening and forming an inlet and the other forming an outlet for water when the boat is in motion, means forming a passage connecting said inlet and outlet, an indicator disposed within the hull and above the load water line, a tube connecting the indicator to said means, and a valve adapted to admit or discharge air from the tube.
6. In combination, a boat hull having two openings therein, a tube projecting from one opening and forming an inlet and the other forming an outlet for water when the boat is in motion, means forming a passage connecting said inlet and outlet, a pressure tube communicating at one end with said passage between said inlet and outlet, and an indicator connected to said tube and adapted to be operated by the pressure in said tube.
7. In combination, a boat hull having two openings therein, a tube projecting from one opening and forming an inlet and the other forming an outlet for water when the boat is in motion, means forming a passage connecting said inlet and outlet, a pressure tube communicating at one end with said passage between said inlet and outlet, an indicator connected to said tube and adapted to be operated by the pressure in said tube, and a valve constructed and arranged to control the pressure in said second tube.
8. In combination, a boat hull having two openings therein, a tube projecting from one opening and forming an inlet and the other forming an outlet for water when the boat is in motion, means forming a passage connecting said inlet and outlet, a pressure tube communicating at one end with said passage between said inlet and outlet, an indicator connected to said tube and adapted to be operated by the pressure in said tube, a valve controlling the flow area of said passage, and a valve constructed and arranged to control the pressure in said second tube.
- IRVIN W. MASTERS.