E. W. BRIGGS & A. V. De PEW.

Marine-Engine Governor.

No. 169,141. Patented Oct. 26, 1875.

Fig. 1.

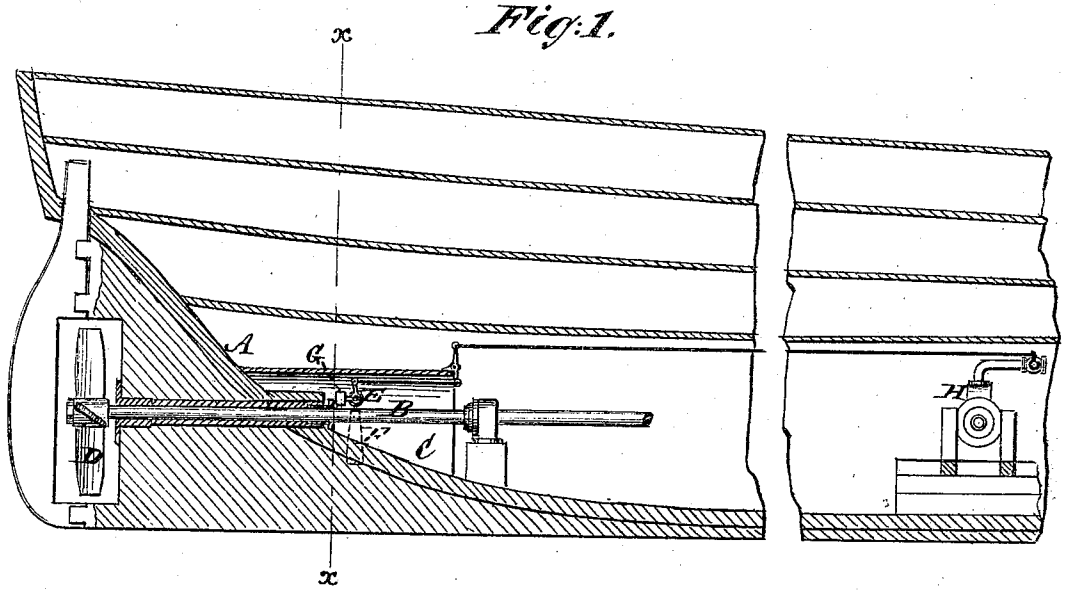


Fig. 3

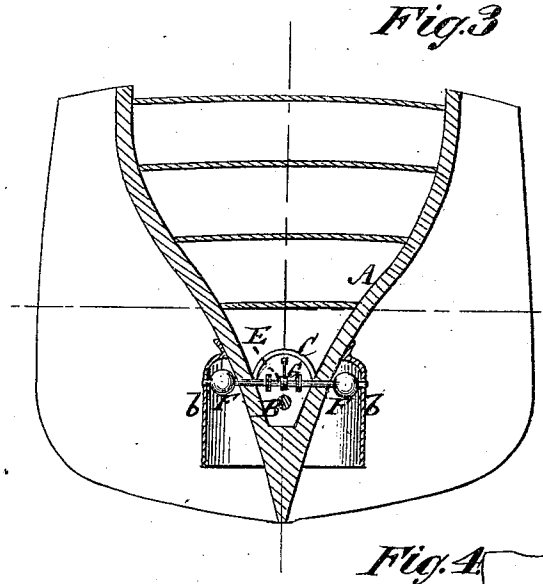


Fig. 2.

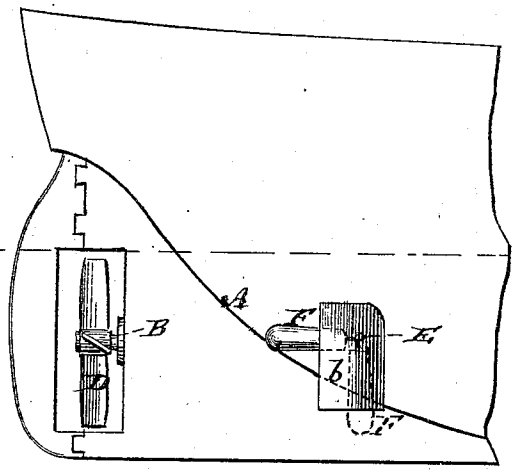
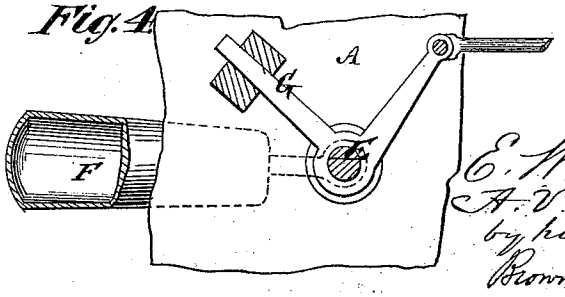


Fig. 4.



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UNITED STATES PATENT OFFICE.

EDWARD W. BRIGGS AND AARON V. DE PEW, OF NEW YORK, N. Y.

IMPROVEMENT IN MARINE-ENGINE GOVERNORS.

Specification forming part of Letters Patent No. **169,141**, dated October 26, 1875; application filed May 29, 1874.

To all whom it may concern:

Be it known that we, EDWARD W. BRIGGS and AARON V. DE PEW, both of the city, county, and State of New York, have invented an Improvement in Marine-Engine Governors, of which the following is a specification:

Our invention relates to what may be termed direct and self-acting governors for marine engines, in which the speed of the engine to different immersions of the propeller is controlled by means of outside floats.

The invention is mainly designed to be applied to vessels having screw or other stern propellers, and consists generally in radial outside air-vessels or floats attached to a cross-shaft, which is connected by suitable devices with the throttle or slide valve of the engine.

In the accompanying drawing, Figure 1 represents a central longitudinal vertical section of a vessel, in part, with our invention applied; Fig. 2, a side view in part thereof, and Fig. 3 a transverse section on the line *x x*. Fig. 4 is a side view, upon a larger scale, of one of the floats, with accompanying parts or mechanism.

A is the rear portion of the hull; B, the propeller-shaft, working in the usual alley, C; and D, the screw or propeller. E is a cross-shaft passing through the rear portion of the hull, the shaft-alley C, and supported in outside brackets *b b*, said shaft lying above the propeller-shaft. Attached to this cross-shaft E, outside of the hull or between it and the brackets *b b*, in a radial relation with said shaft, are hollow air-vessels or floats F F, one on either side of the vessel. The brackets *b b* also serve to protect the floats from injury. Said floats are made hollow in preference to solid, in order that their buoyancy will give them a quick and sensitive action, and are attached to the cross-shaft E on its one and the same side. These floats F F are kept in any desired position approximating a horizontal one, when the vessel is sailing in smooth water, by a counterbalance weight or lever, G, attached to the shaft E, and which may be made capable of regulation to suit different drafts, or as circumstances generally may require. The shaft E should be made in sections, united by flanges or couplings within the alley, to provide for removal of the intermediate portion of said shaft, with pertaining devices, when necessary to take out the propeller-shaft. The range of motion of the floats F F is from a horizontal one, or thereabout, to a downward vertical one, or thereabout, and the same have their limits of motion restricted by suitable stops.

Supposing the floats F F to be in the position represented by full lines in the drawing, and the vessel, when sailing in a rough sea, to have its stern thrown upward, then said floats, which lie below the water-line, will be turned downward, as represented by dotted lines in Figs. 1 and 2, by reason of the resistance the floats encounter with the water, and the shaft E, in turning, will be caused, by means of cranks or other suitable connections, to more or less close the throttle-valve H of the engine, or to adjust the slide or cut-off valve thereof, and so prevent the engine running away as the propeller D becomes less deeply immersed. On the stern of the vessel being thrown downward again, and the propeller becoming more or less deeply immersed, the floats F F will move upward, and, by turning the shaft E in a reverse direction, the throttle or slide valve of the engine will be more or less opened, and thus the engine have increased power given it to work the more deeply-immersed propeller. By arranging the shaft E above the propeller-shaft B the floats F F will leave the water before the propeller is wholly out of it, when the stern of the vessel is thrown upward, so that the floats will not only be thrown down by the resistance they encounter with the water, but by their being unsupported when out of the water. This will insure or hasten their dropping to close the valve and check the speed of the engine. The weight or counterbalancing-lever G and the natural buoyancy of the floats will assist in quickening the operation, as described, of the floats.

I claim—

1. The combination, substantially as herein described, with the stern-propeller D and its shaft B, of the transverse shaft E, arranged above the propeller-shaft, and carrying the

rotating air-vessels or floats F, the whole constructed to operate as and for the purpose specified.

2. The combination, with the shaft E, arranged above the propeller-shaft, and carrying the radial air-vessels or floats F, with the counterbalance-lever G, attached to the shaft E, for regulating the movement of the floats, substantially as herein shown and described.

EDWARD W. BRIGGS.
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Witnesses:
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