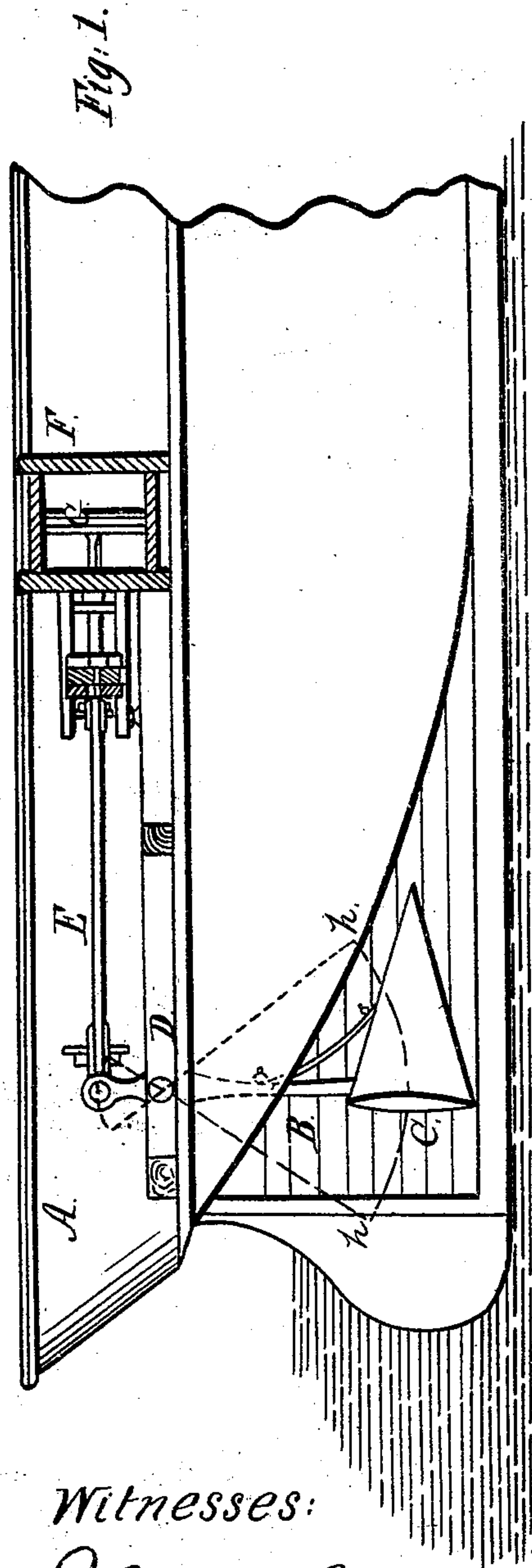
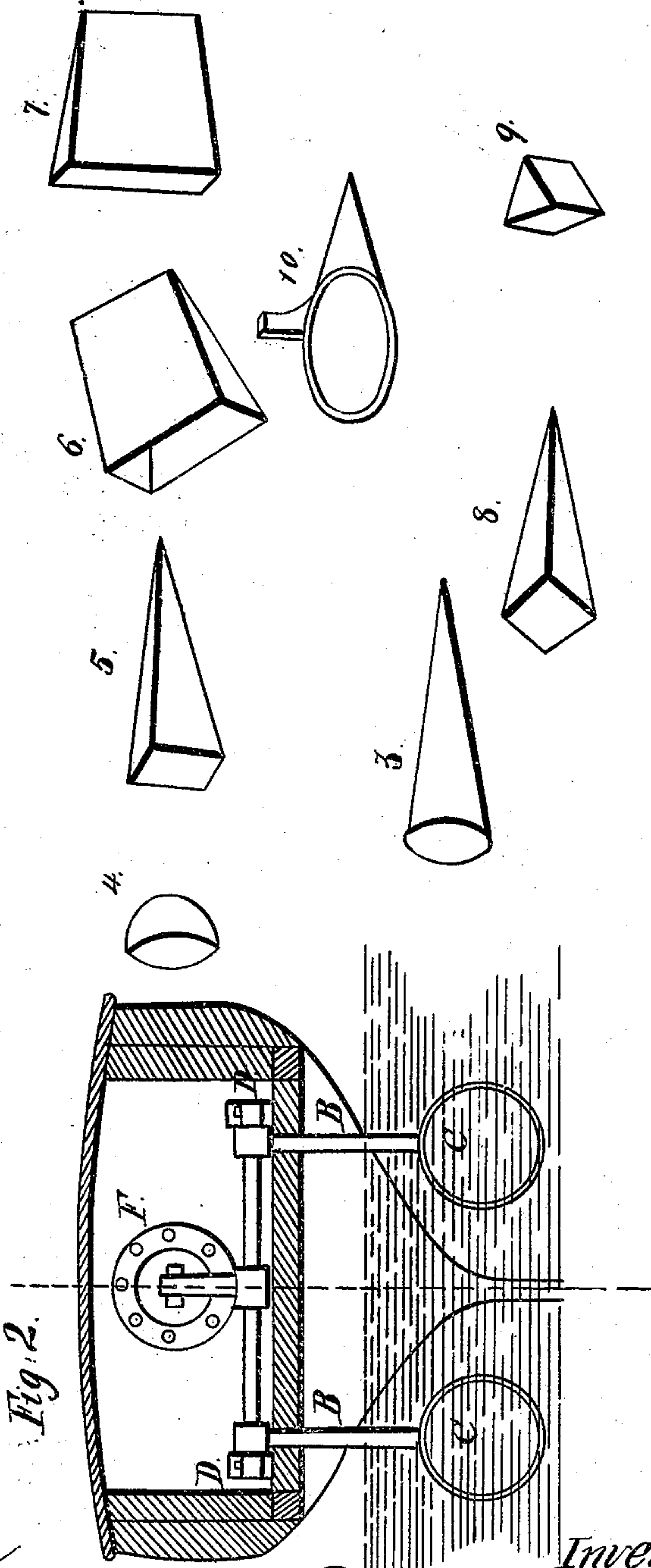


R. Hunter.
Vibrating Propeller.
No. 79,657. *Patented Jul. 7, 1868.*



Witnesses:
J. M. Bowen.
Wm. H. Breton



Inventor:
Robert Hunter
By Knight & Bro. atty

United States Patent Office.

ROBERT HUNTER, OF NEW YORK, N. Y.

Letters Patent No. 79,657, dated July 7, 1868.

IMPROVEMENT IN PROPELLERS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, ROBERT HUNTER, of No. 9 Brevoort Place, in the city of New York, and State of New York, United States of America, have invented a new and improved Propeller for Steam-Vessels; and I do hereby declare that the following description furnishes a full, clear, and exact account thereof, sufficient to enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, as forming part of this specification.

The invention consists of one or more levers placed in a vertical position through the stern, sides, or bottom of a vessel, and caused to vibrate on an axis between two given points by means of a horizontal engine, the connecting-rod of which is attached to the end of the lever above the axis, while the lower end of the said lever is immersed in the water, and furnished with a hollow or concave structure, so fashioned as to offer the least possible resistance to the water while moving in the line of the vessel's motion, and the greatest possible resistance when moved by the lever in the opposite direction.

In the accompanying sheet of drawings—

A represents the stern of a vessel, B the lever adjusted thereto, and working on centre D.

C represents the hollow or concave structure aforementioned, with which the lever B is furnished.

E represents the connecting-rod attached to the upper end of the said lever.

F represents the cylinder, and G the piston of the engine.

Figures 3 to 10, inclusive, show different forms in which the apparatus attached to the lower extremity of the lever may be constructed.

It will be understood from the above description that the movement of the piston G will cause the lever, and the propelling-apparatus with which its lower extremity is furnished, to move backwards and forwards between the points *h h*. The impinging-surface, owing to its hollow or concave form, offers the greatest resistance in its action against the water, while its external surface, being of a sloping or angular shape towards the line of the vessel's movement, reduces the reaction to the lowest possible quantity.

It will also be apparent that the construction and adaptation of this invention to vessels can be accomplished at little cost, while its great simplicity and strength render it less liable to be deranged or damaged than the propellers ordinarily used. The engine, too, is distinguished for much simplicity, and the expensive and complicated driving-mechanism of other methods completely dispensed with.

The following is what I claim as new, and desire to secure by Letters Patent:

The propelling-apparatus herein described, consisting of a hollow tapering bucket, C, vibrated by a lever, B, under the stern or run of the vessel, substantially as specified.

ROBERT HUNTER.

Witnesses:

OCTAVIUS KNIGHT,
J. E. M. BOWEN.