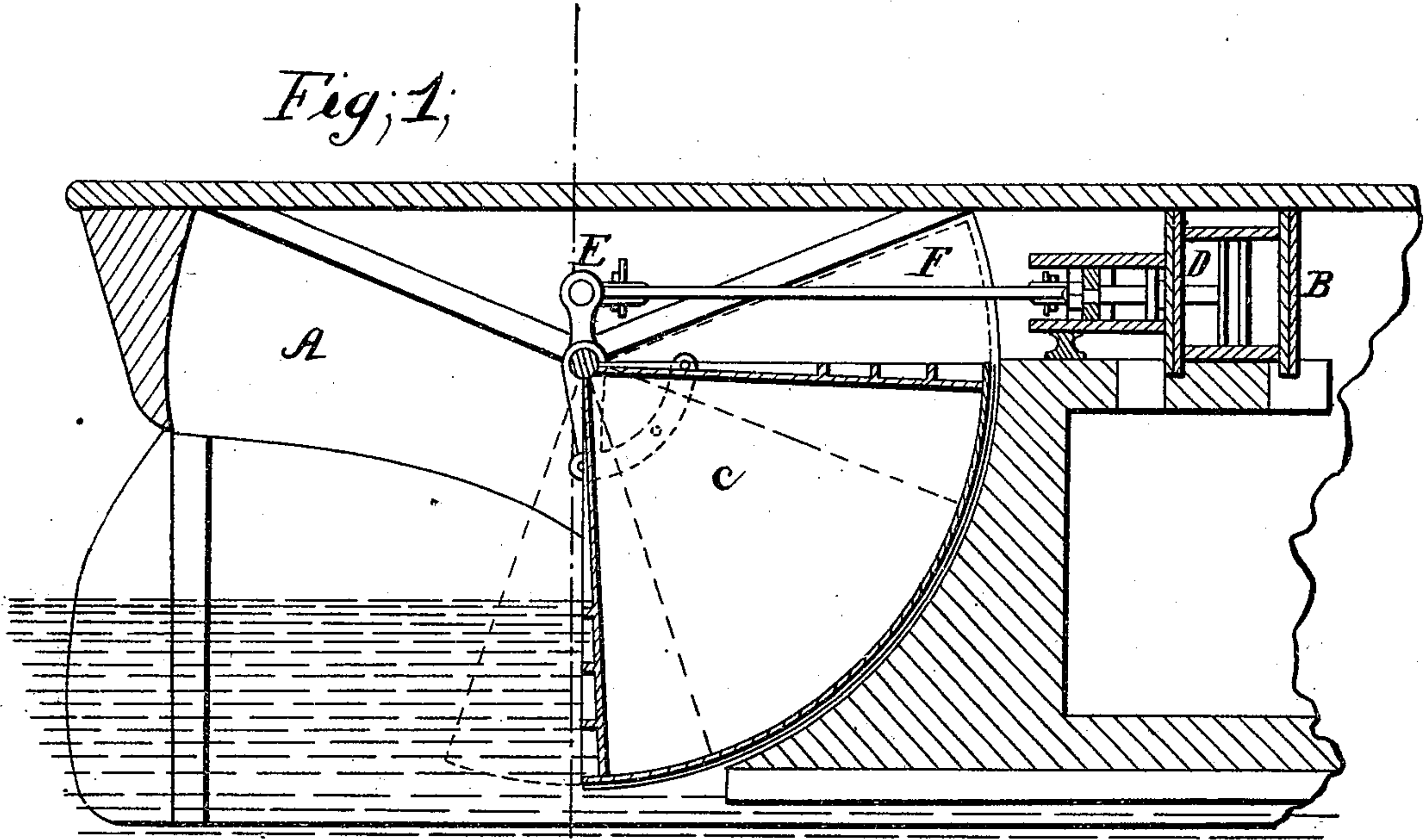


C. M. O'Hara,
Vibrating Propeller.

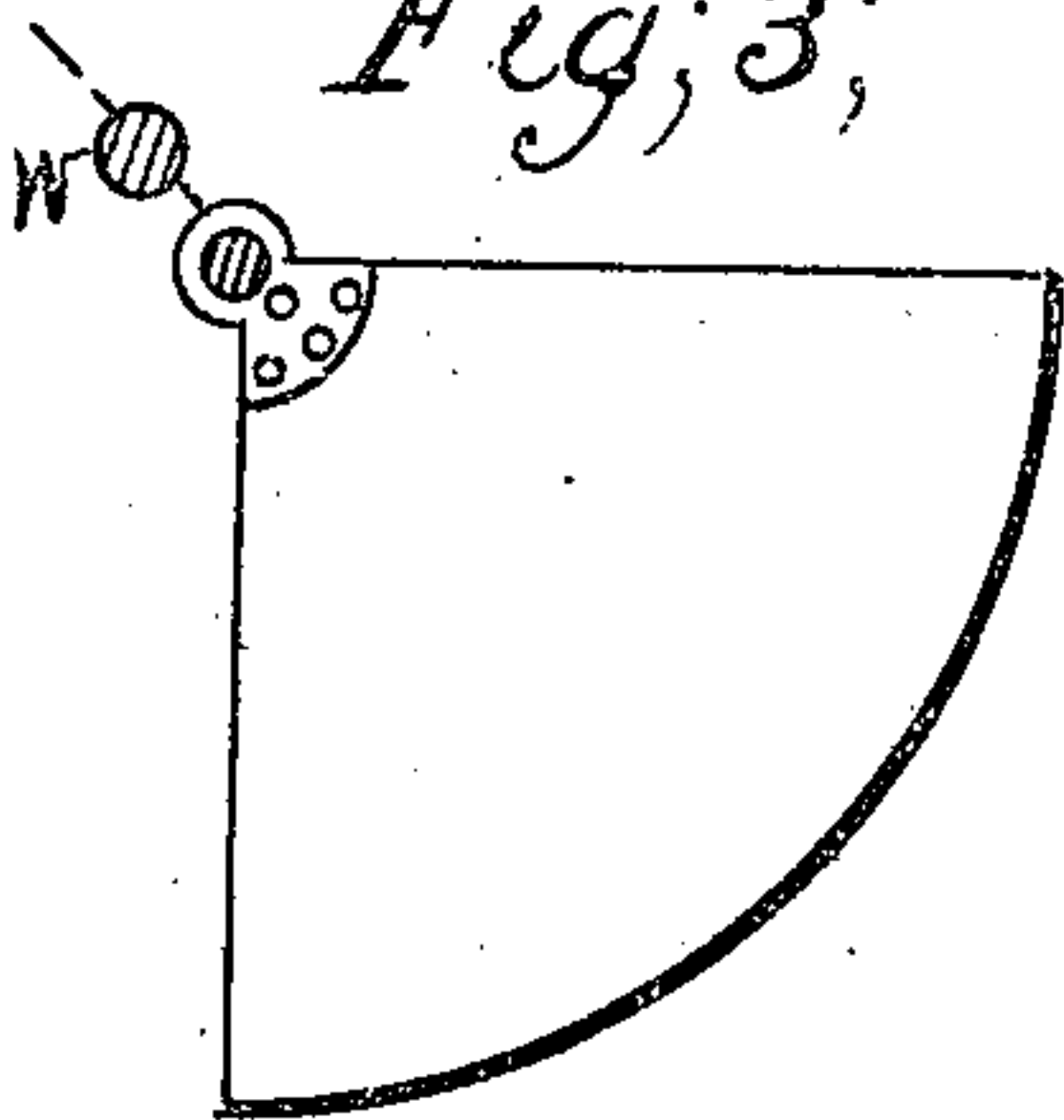
N^o 76,651.

Patented Apr. 14, 1868.

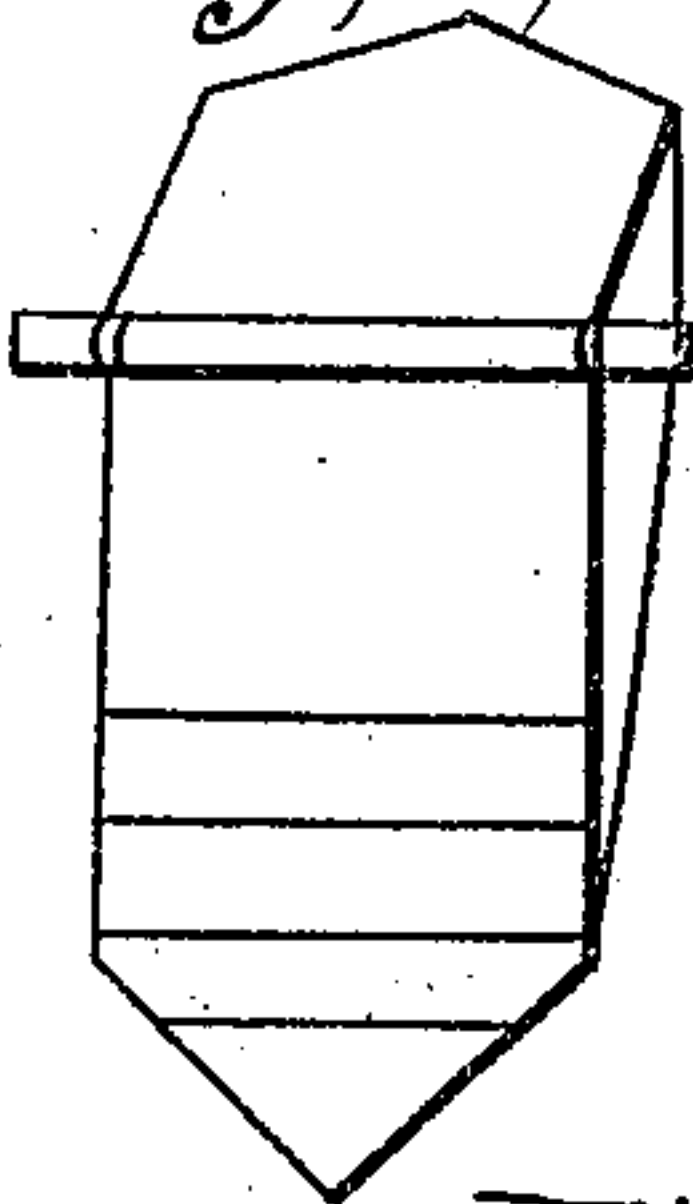
Fig; 1;



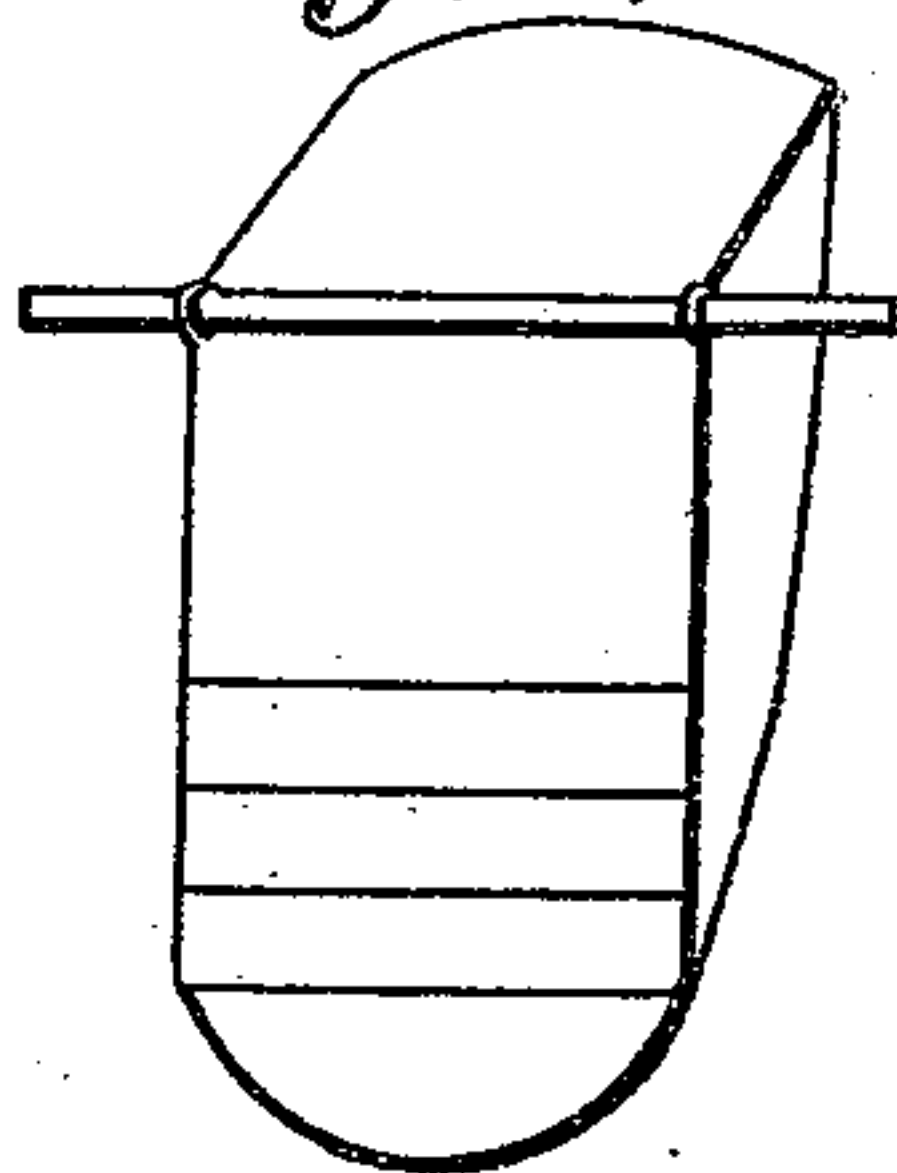
Fig; 3;



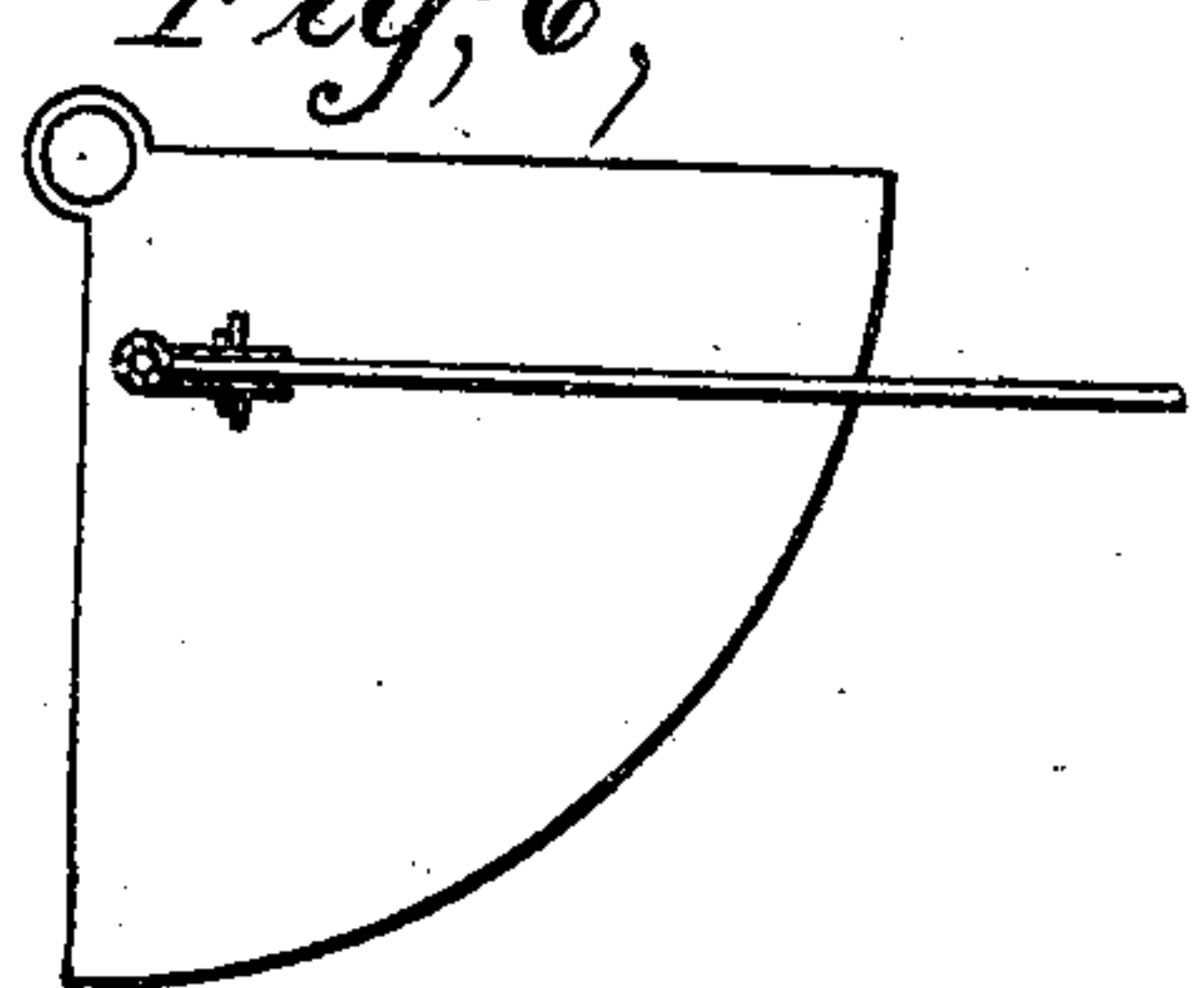
Fig; 4;



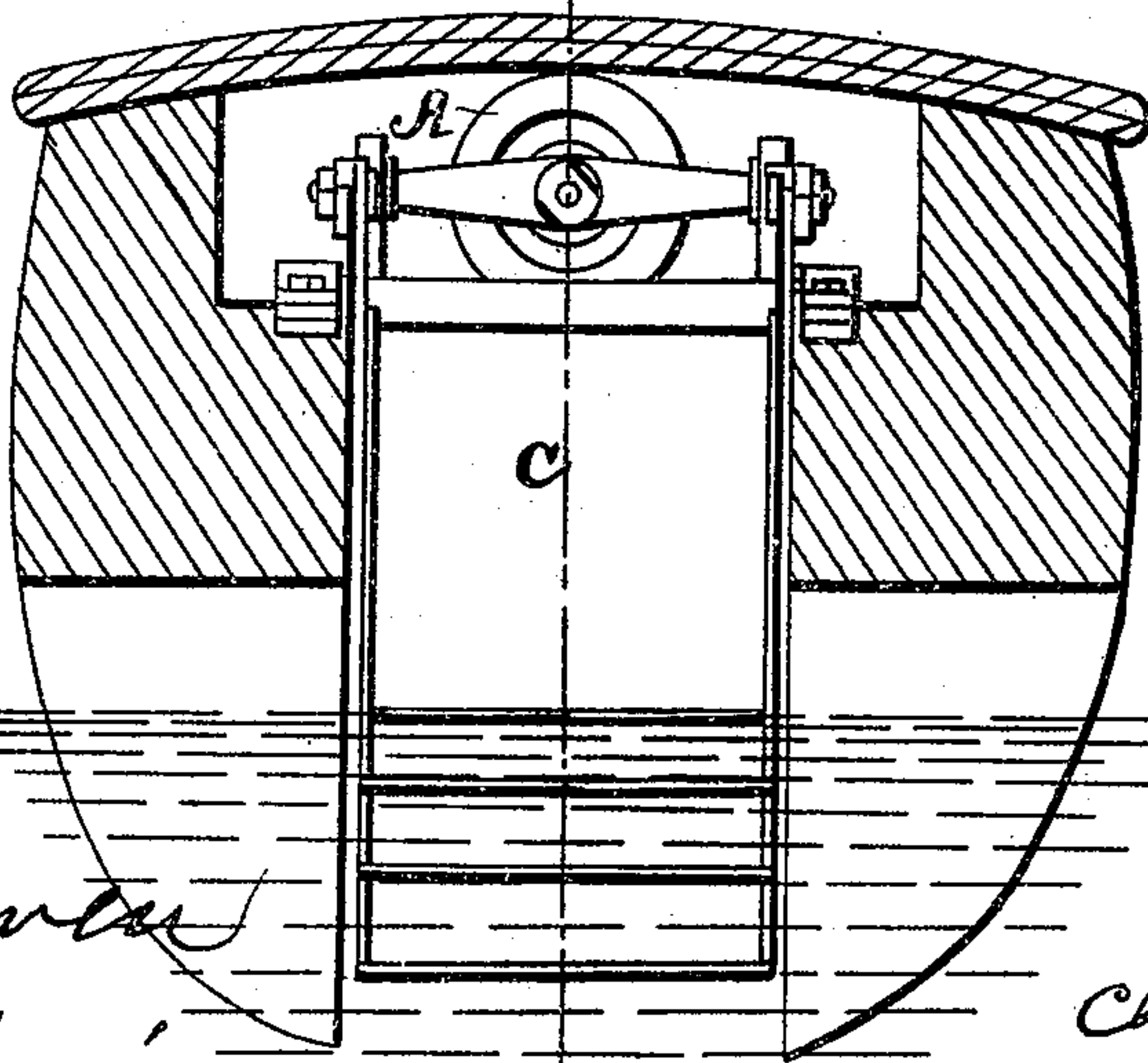
Fig; 5;



Fig; 6;



Fig; 2;



Witnesses;
J. E. M. Dowler
E. D. Morrison

Inventor;
Charles M. O'Hara

United States Patent Office.

CHARLES M. O'HARA, OF NEW YORK, N. Y.

Letters Patent No. 76,651, dated April 14, 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, CHARLES M. O'HARA, of London, England, but now residing in the city of New York, in the county and State of New York, have invented certain Improvements in a Propeller, for which said propeller, Letters Patent of the United States were granted to me, bearing date November 5, 1867, and numbered 70,460; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

In my present improvement I combine a horizontal engine with the propeller aforementioned. The engine is distinguished for a peculiar shortness of stroke and compactness of form, with its piston-rod or connecting-gear attached so near to the propeller's axis that the distance therefrom does not exceed one-fourth part of the propeller's radius.

The engine being adjusted in a horizontal position, and in a direct line with the vessel's motion, the power applied to the propeller is communicated to the vessel in the most effective manner possible. If, however, it be more convenient, the engine can be adjusted so that its piston-rod, when taken with the line of the vessel's motion, will form an angle not exceeding forty-five degrees. But I prefer the position first mentioned, as the nearer the engine is placed in the line of the vessel's movement, the more effective are the results obtained.

When it is necessary that the engine should occupy a small space and be close to the propeller, it may be made to oscillate, and thereby correspond with the movement of the propeller, without the complication of guides and connecting-rods. The engine may also be constructed with a trunk, after the manner of ordinary trunk-engines, to effect the same purpose. In the accompanying drawings—

Figure 1 is a side view of my engine and propeller, applied at the stern of a vessel.

Figure 2 is a rear view, showing the impinging surface of the propeller surrounded with a rim or flange, in combination with horizontal plates running parallel with each other; also an arm or bell-crank at each extremity of the propeller's axis, to which two connecting-rods are attached from a cross-head on the piston-rod of the engine.

Figure 3 is a side sectional view of the propeller, arranged with a weight or adjustable counterpoise.

Figures 4 and 5 show propellers with their convex surfaces constructed of a round or angular form.

Figure 6 shows the propeller with the piston-rod or connecting-shaft of the engine attached below the axis of the same.

A represents the stern portion of a vessel, having a trunk or chamber to receive the propeller, C. B represents the engine, with its piston-rod, D, connected to the propeller by means of an arm or bell-crank, E, and connecting-rod F. This arm or bell-crank is rigidly attached to the propeller, either above or below the axis, and, when the propeller is at half stroke, is in a vertical position. The piston-rod D being attached to the propeller, in the manner before shown, and working in the same manner as in an ordinary engine, actuates the propeller in the manner required, the extent of the stroke being indicated by the red lines in the accompanying drawings.

By adjusting two propellers on the same axis, one engine can be made to work both of them, either at the stern or at the sides of a vessel. If they be adjusted at the side of the vessel, I purpose constructing the convex or cylindrical surface of each propeller round or angular, in order to offer as little resistance as possible while passing through the water in the direction of the vessel's movement.

The other improvements referred to consist of constructing the propeller with such a degree of lightness that its own buoyancy will render it in a manner self-acting, and cause it to return to its initial or starting-point, without the aid of steam-power. This self-acting tendency may be greatly increased by creating a vacuum in the steam-engine at the termination of each driving-stroke. In order, however, to prevent the propeller returning to its initial or starting-point with too great a velocity, it will be necessary to adjust a valve or stop-cock to the ports or ducts of the engine, so as to moderate or shut off the steam when required.

For the purpose of balancing the propeller on its axis, and to regulate its action when the vessel is carrying a light or heavy draught of water, a weight or adjustable counterpoise (W, fig. 3,) is attached to the axis or any other part of the propeller, in such a manner that it can be adjusted in any position that may be necessary. The impinging surface of the propeller is surrounded with a flange or rim, in combination with a series of plates running in a horizontal position, and parallel with each other, as shown in fig. 2 of the accompanying drawings, the object of which is to prevent a too rapid displacement of the water that opposes the propeller's action.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The reversible buoyant propeller, constructed and arranged to operate as herein described.

CHARLES M. O'HARA.

Witnesses:

J. E. M. BOWEN,
GEO. A. MORRISON.