T. H. RAWLINGS.

MEANS FOR PROPELLING VESSELS.

No. 186,691. Patented Jan. 30, 1877.

Fig. 1

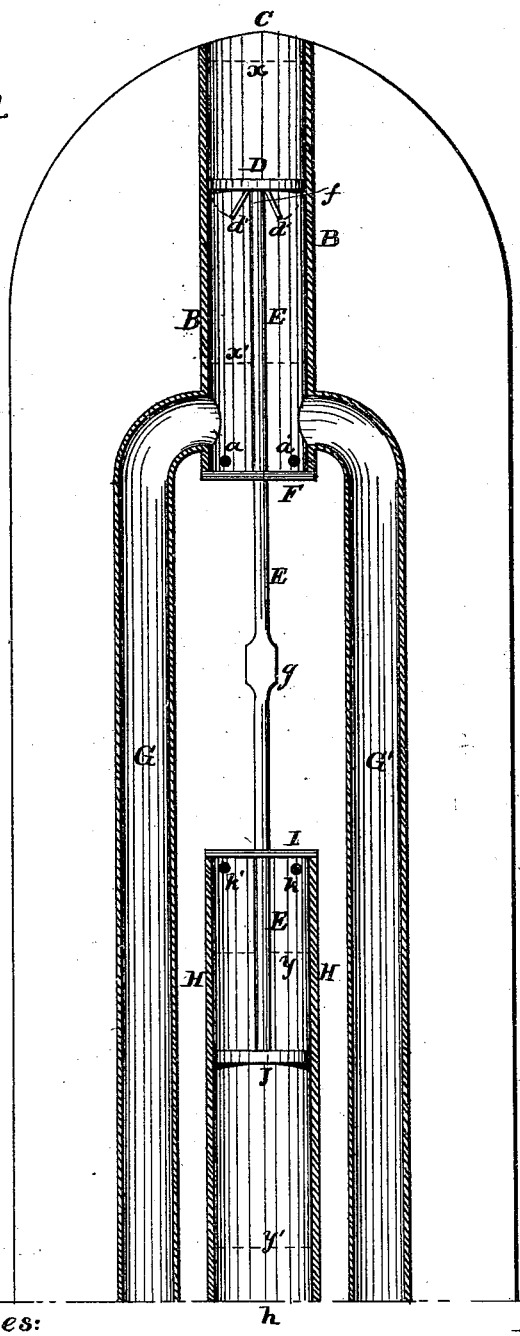
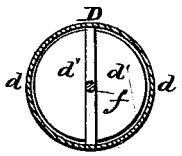


Fig. 2.



Witnesses:
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UNITED STATES PATENT OFFICE.

THOMAS H. RAWLINGS, OF INGERSOLL, ONTARIO, CANADA.

IMPROVEMENT IN MEANS FOR PROPELLING VESSELS.

Specification forming part of Letters Patent No. **186,691**, dated January 30, 1877; application filed May 15, 1876.

To all whom it may concern:

Be it known that I, THOMAS HENRY RAWLINGS, of the town of Ingersoll, in the county of Oxford, Province of Ontario, Canada, have invented a certain new and useful Method of Propelling Vessels through the water; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, where—

Figure 1 is a horizontal section of apparatus constituting my invention. Fig. 2 is a sketch of valve.

A is the hull of vessel, in which is fixed the tube or chamber B, of any required shape and dimensions. The forward end C of this tube is open, and allows perfect freedom of entrance to the water in which the vessel floats. D is a valve, the outer rim *d* of which fits accurately against the inner sides of the tube B. This valve is constructed with a pair of clappers, *d'*, hinged to the center bar *e*, and opening inward or toward the stern of the vessel. A rod, E, is connected to this center bar *e* at the point *f*—that is, in the middle of the valve—which rod passes through the tube B and through a hole in the cap F, covering the rear end of the tube.

Two other tubes, G G', of suitable dimensions, are connected to the main tube B, as shown in drawing, allowing the water in the main tube to flow freely through them, and exit at the stern or any intermediate point, while air-pipes *a a'* allow the escape of air near the end of the tube B.

Near the stern of the vessel is a second tube, H, of similar dimensions to the forward one B; and the rod E enters this tube through a suitable opening in the cap I, covering one end of the tube, the other end, *h*, being left open to allow the unimpeded entrance and escape of the water. The end of the rod E is connected to a plunger, J, the sides of which fit exactly against the inner sides of the tube H.

Action is communicated to the rod, by any suitable machinery, at or about the point *g*, such action causing the rod to move backward and forward within a certain prescribed limit, and with it driving the clapper-valve D and plunger J backward and forward within their respective tubes. The forward push of the rod causes the clappers in valve D to open inward, thus allowing the valve to pass freely through the water contained in tube B to the point indicated by the dotted line *x*. At the same time the plunger J is drawn forward to the line *y*, the air between the plunger and cap I escaping by air-pipes at K K'. The next motion of the rod E backward causes the clappers in valve D to close, and the valve presents a solid surface to the water in the tube B between it and the cap F at end, while it is drawn from the line *x* to the line *x'*. The resistance of the water in this space to the passage of the valve causes the vessel to be pulled forward, precisely as in the case of the blade of an oar pressing against the water surrounding a row-boat. The same motion of the rod backward causes the plunger J to be pushed from the line *y* to the farther line *y'*, in the tube H; and the resistance of the water in this tube between *y* and *h* causes the vessel to be pushed forward simultaneously with the action of the forward valve D.

Tubes B and H may be constructed of any suitable size, shape, and as many of them as required; and in order to cause the vessel to move stern first, separate tube or tubes will be used with the valves, constructed in a reverse manner to that already described.

The tubes and valves may be constructed round or square, as may be thought fit. In all cases the size and number of the tubes and valves will be proportionate to the tonnage of the vessel, while the machinery operating the rod will be of sufficient power to suit the case.

The mode of connecting the machinery is not shown, as this forms no part of my invention, and any one of the many known methods of communicating a backward and forward motion to the rod E from an engine stationed above or at side will be used.

I claim as my invention—

As a new mode of propelling vessels through water, the main tubes B H, side tubes G G', valve D, plunger J, and rod E, all constructed and operating substantially as and for the purpose set forth.

THOMAS HENRY RAWLINGS.

Witnesses:

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