2 Sheets—Sheet 1.

M. P. W. BOULTON & J. IMRAY.

ROTARY PUMP.

No. 184,952. Patented Dec. 5, 1876.

Fig. 1.

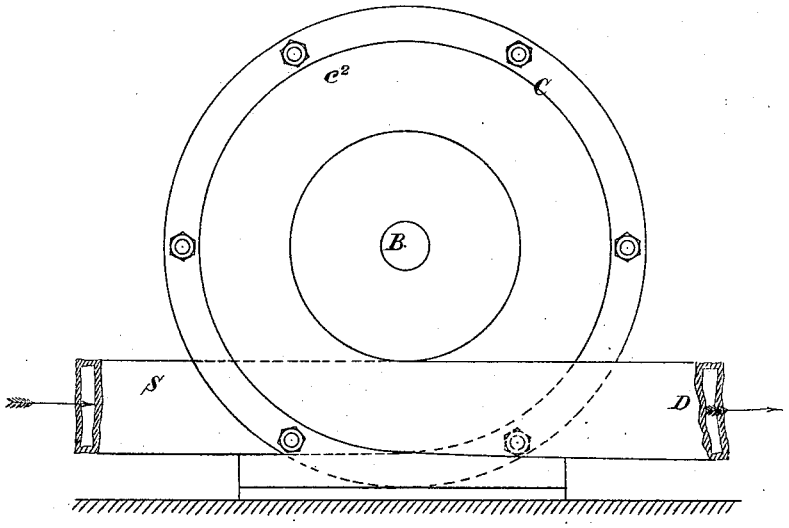
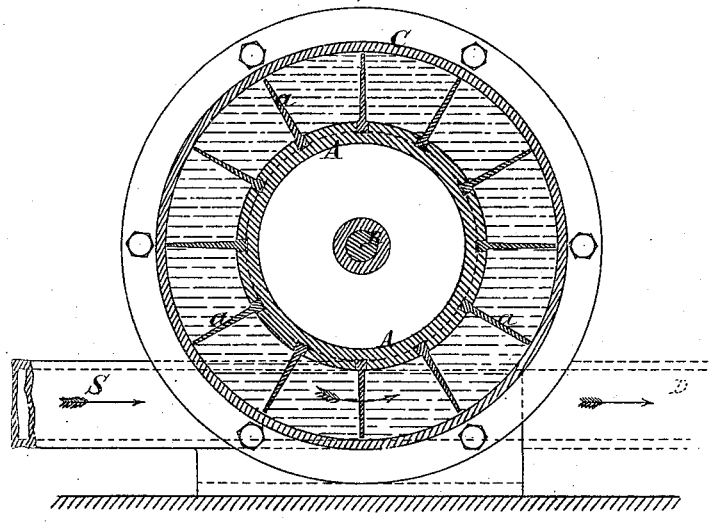


Fig. 2.



Witnesses

Francis L. Clark

Claudius L. Parker.

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by George H. Christy, their Atty

2 Sheets—Sheet 2.

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Fig. 3

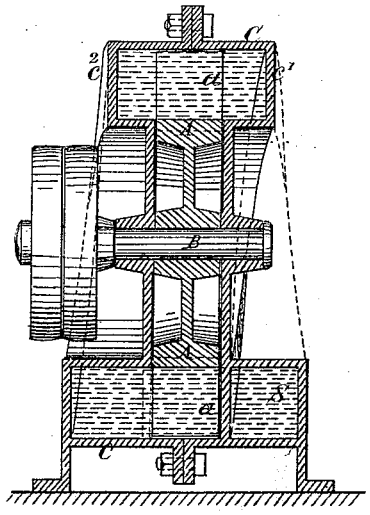
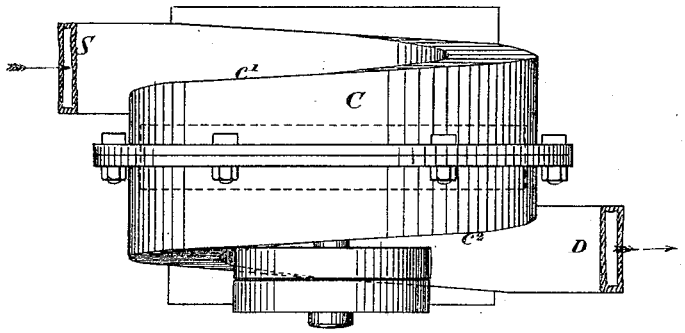


Fig. 4



Witnesses

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UNITED STATES PATENT OFFICE

MATTHEW P. W. BOULTON, OF TEW PARK, AND JOHN IMRAY, OF LONDON, ENGLAND, ASSIGNORS TO GEORGE WESTINGHOUSE, JR., OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN ROTARY PUMPS.

Specification forming part of Letters Patent No. **184,952**, dated December 5, 1876; application filed November 8, 1876.

To all whom it may concern:

Be it known that we, MATTHEW PIERS WATT BOULTON, of Tew Park, in the county of Oxford, England, and JOHN IMRAY, of No. 20 Southampton Buildings, Chancery Lane, London, in the county of Middlesex, England, have invented an Improvement in Rotary Pumps; and do hereby declare that the following description, taken in connection with the accompanying sheet of drawings, hereinafter referred to, forms a full and exact specification of the same, wherein I have set forth the nature and principles of our said improvement, by which our invention may be distinguished from others of a similar class, together with such parts as we claim and desire to secure by Letters Patent—that is to say:

This invention relates to an improved construction of rotary pump, which we will describe, referring to the accompanying sheet of drawings, and to the figures and letters marked thereon.

Figure 1 represents a side view, Fig. 2 a longitudinal section, Fig. 3 a transverse section, and Fig. 4 a plan, of a rotary pump constructed according to this invention.

A is a wheel, fixed on a shaft, B, and provided on its periphery with vanes or floats *a*, parallel to the axis of the wheel. These blades might, however, be portions of helical surfaces or inclined to the axis. The wheel A and its floats *a* are inclosed within a cylindrical casing, C, part of each side of which, at c^1 and c^2, is made of helical form, the pitch of the helix being about the same as the width of that part of the casing C which contains the wheel-floats *a*. A suction-inlet, S, and a discharge-outlet, D, are formed tangentially, one on each side of the casing, and are connected to the suction and discharge pipes of the pump, respectively. When, by turning the shaft B, the wheel A is caused to rotate in the direction of the arrow, (the casing being, in the first instance, charged with water,) the water in the spaces between the floats is put in rotary motion, but is deflected from its direct circular course by the helical side guides c^1 and c^2, so that a continuous supply of water flows in by the inlet S, and there is a continuous discharge of water by the outlet D.

A rotary or helical pump, constructed as above described, may be worked with its axis vertical or inclined, and it may be made to act as a propeller of floating vessels by drawing in and forcing out water on the principle of hydro-propulsion.

Having thus described the nature of our invention, and the best means we know of puting it into practical operation, we claim—

The combination, substantially as herein described, constituting a rotary helical pump, such combination consisting, mainly, of a wheel, A, with floats *a*, mounted within a cylindrical casing, C, having helical sides c^1 c^2, forming guides for fluid, and terminating in tangential channels S and D, so that when the wheel is caused to rotate fluid is drawn in by the one channel and discharged by the other.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses this 24th day of June, 1875.

M. P. W. BOULTON.
JOHN IMRAY.

Witnesses:
G. F. WARREN,
J. LAKE.