

A. COATES & P. KENNEDY.

Water-Motors.

No. 152,338.

Patented June 23, 1874.

Fig. 1.

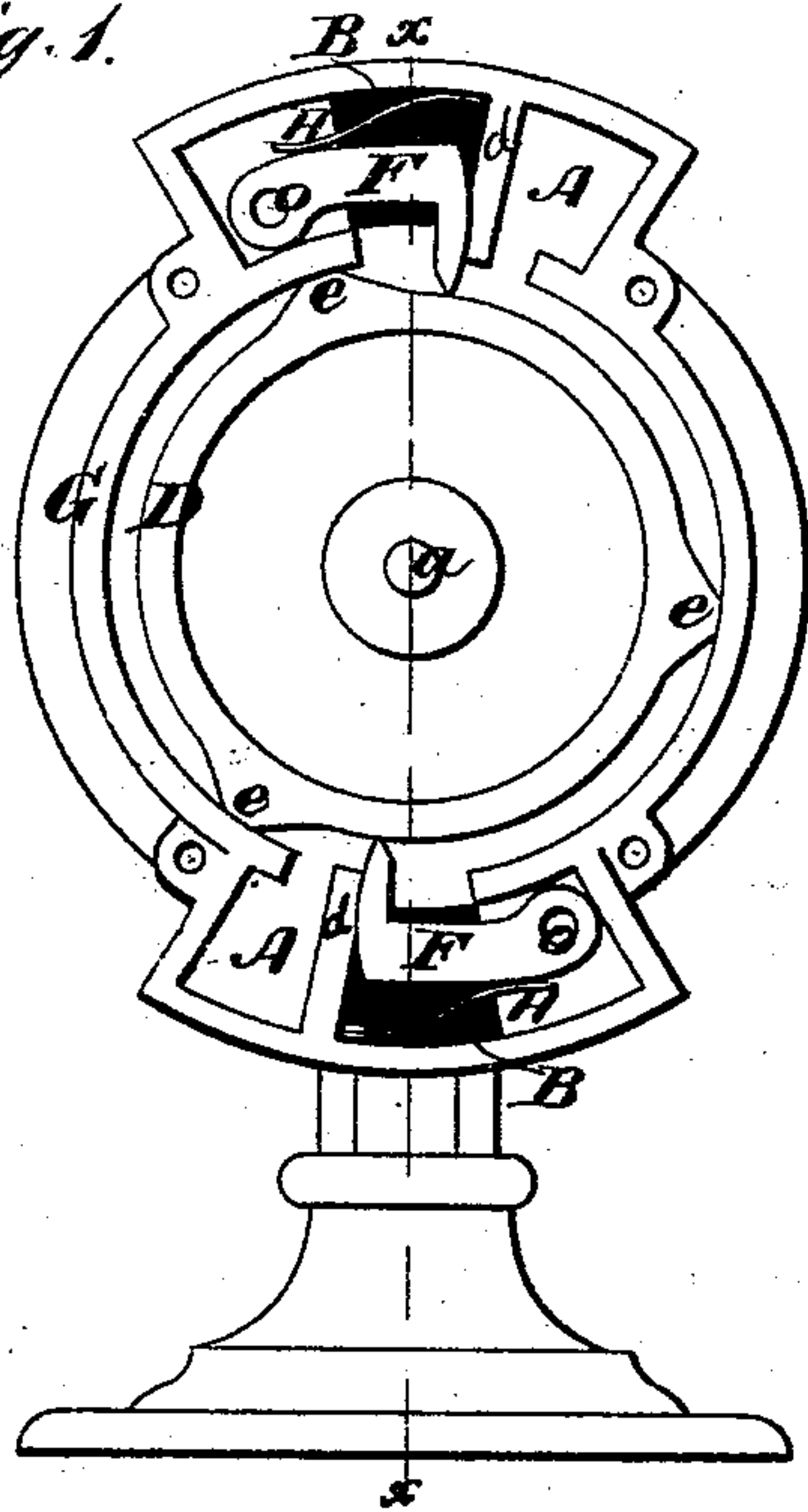


Fig. 2.

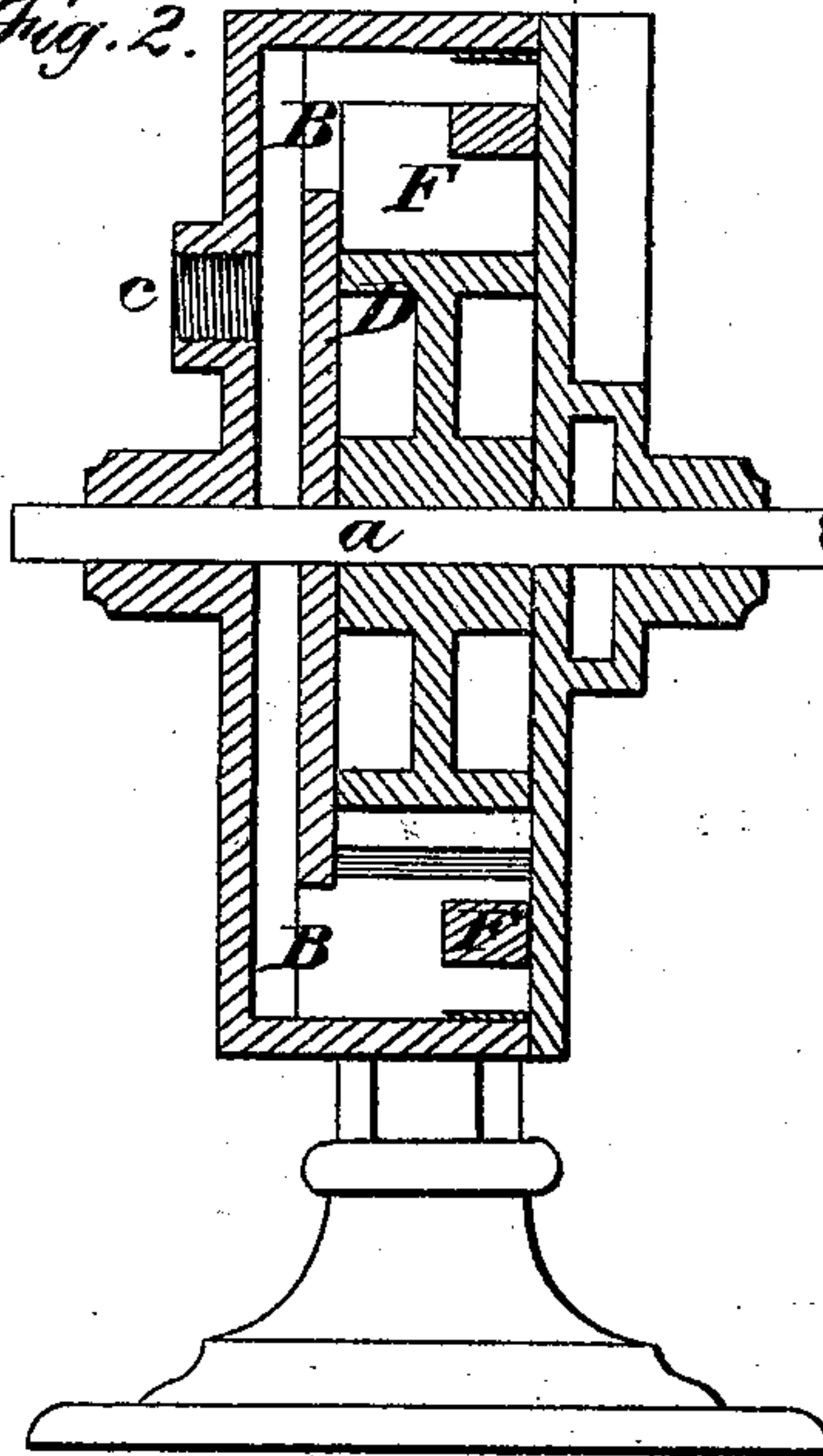
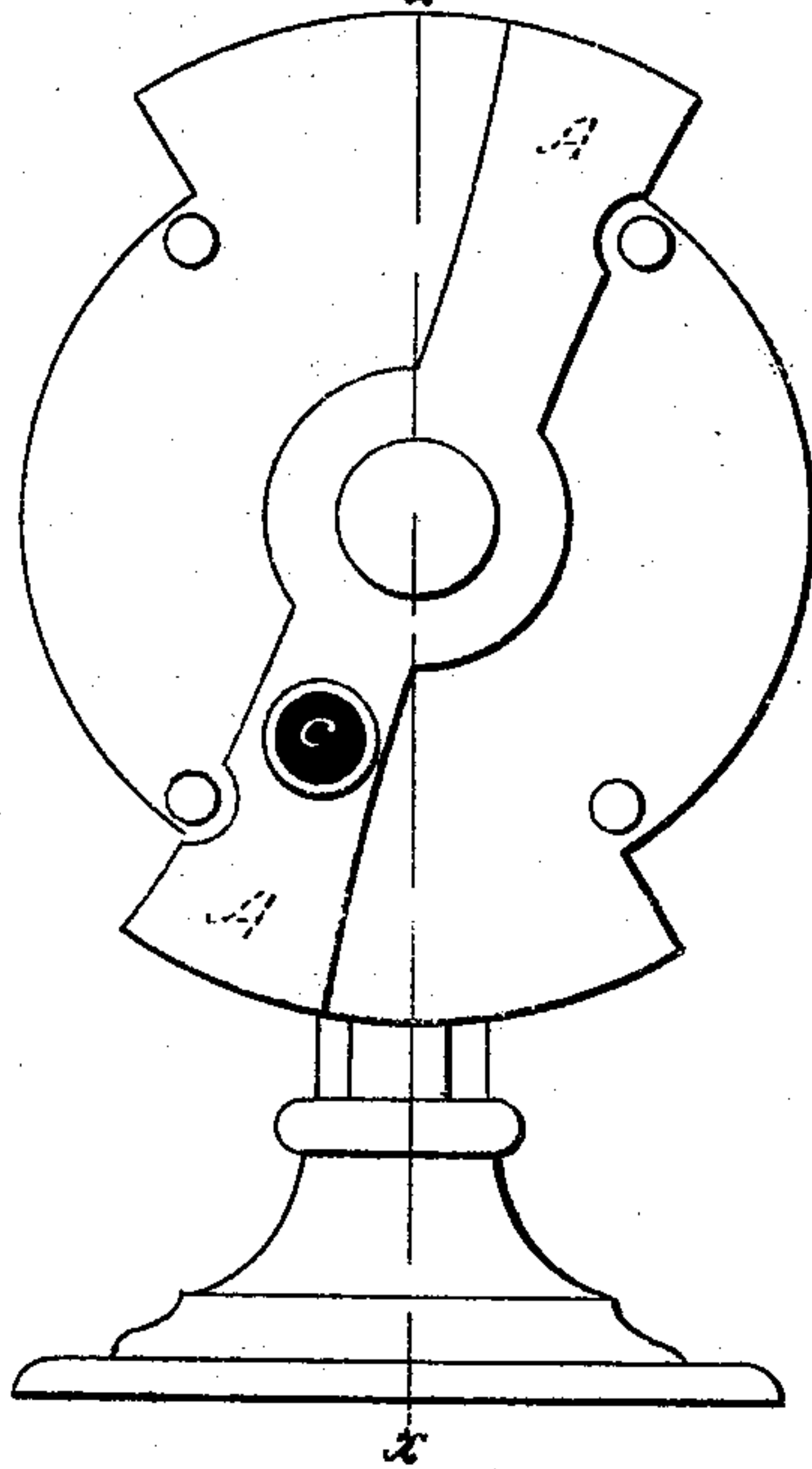


Fig. 3.



Witnesses.

C. F. Brown.

Wm. H. Church.

Inventors
Abm. Coates.
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by their Attys.
Hill & Olmstead

UNITED STATES PATENT OFFICE.

ABRAHAM COATES AND PATRICK KENNEDY, OF WATERTOWN, NEW YORK,
ASSIGNORS OF ONE-THIRD THEIR RIGHT TO CHARLES D. BINGHAM, OF
SAME PLACE.

IMPROVEMENT IN WATER-MOTORS.

Specification forming part of Letters Patent No. **152,338**, dated June 23, 1874; application filed
March 21, 1874.

To all whom it may concern:

Be it known that we, ABRAHAM COATES and PATRICK KENNEDY, of Watertown, in the county of Jefferson and State of New York, have invented certain new and useful Improvements in Water-Motors; and we do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figures 1 and 3 are side elevations; and Fig. 2 is a section through line *x x*, Figs. 1 and 3.

Similar letters of reference in the accompanying drawings denote the same parts.

Our invention relates to improvements in water-motors, which can also be used as a rotary pump, a rotary steam-engine, or a water-meter.

In that class of rotary pumps which may also be employed as rotary steam-engines, in which the valves are made to slide back and forth radially in grooves by cams or other suitable means, the pressure of the water or steam is exerted directly upon the face of the valves, thereby increasing the friction of the sliding valves on the drum, and also on the axis of the latter.

To remedy this defect is one of the objects of our invention; and to this end it consists in pivoting the valves in the eduction-recesses of the outer cylinder, and in so arranging them that they receive the pressure of the water or steam endwise instead of crosswise, whereby the friction of the valves on the drum is in a great degree obviated.

In the accompanying drawings, G represents the outer cylinder of a rotary pump or steam-engine, made in the usual manner. D is the drum, the journal or axis *a* of which has its bearings in the side plates of the machine, supported by a suitable pedestal. The drum D is provided with suitable bosses or projections *e e*, which fit steam and water tight against the inner recess in the outer cylinder G, three being employed in the construction shown, though more may be used. A A are the induction, and B B the eduction ports, connected with openings *c c* on either

side of the cylinder. Each induction-port is adjacent to an eduction-port, and the induction and eduction ports are arranged opposite each other on the cylinder, as shown in the drawings. F F are valves, pivoted at *o o* in recesses in the outer cylinder G, and H H are springs attached to the cylinder, and bearing upon the upper surface of the valves, so as to force their bent ends down upon the drum D, and preserve a water or steam tight joint between the lower edge of the hook-shaped valves F F and the drum D. The bent end of the valve abuts against a division-plate, *d*, between the induction and eduction ports, forming a steam or water tight joint therewith.

It will be seen from this construction and arrangement of the valves that they present their ends to the current of steam or water. The pressure of the currents upon the valves is, therefore, endwise, or in the direction of the greatest resistance, and no binding action is had upon the valves, as in the ordinary construction of sliding valves moving in grooves, and the friction is reduced by the above-described construction.

The machine may be used as a water-motor, a rotary pump, a steam-motor, or, by attaching an indicator to the drum D, to denote the number of revolutions, it may be employed as a water-meter.

The valves F F may be held against the surface of the wheel by a cam operating against the inside of rim of wheel, and acting either in conjunction with or independently of the spring.

We claim as our invention—

The valves F F, pivoted in the eduction-ports B B, and abutting steam or water tight against the division-plates *d d*, and springs H H, in combination with the induction-ports A A, in juxtaposition with the eduction-ports and drum D, provided with the bosses *e e*, the whole constructed, arranged, and operating in the manner and for the purposes set forth.

ABM. COATES.

Witnesses: PATRICK KENNEDY.

WM. R. BAKER,
LOUIS DISS.