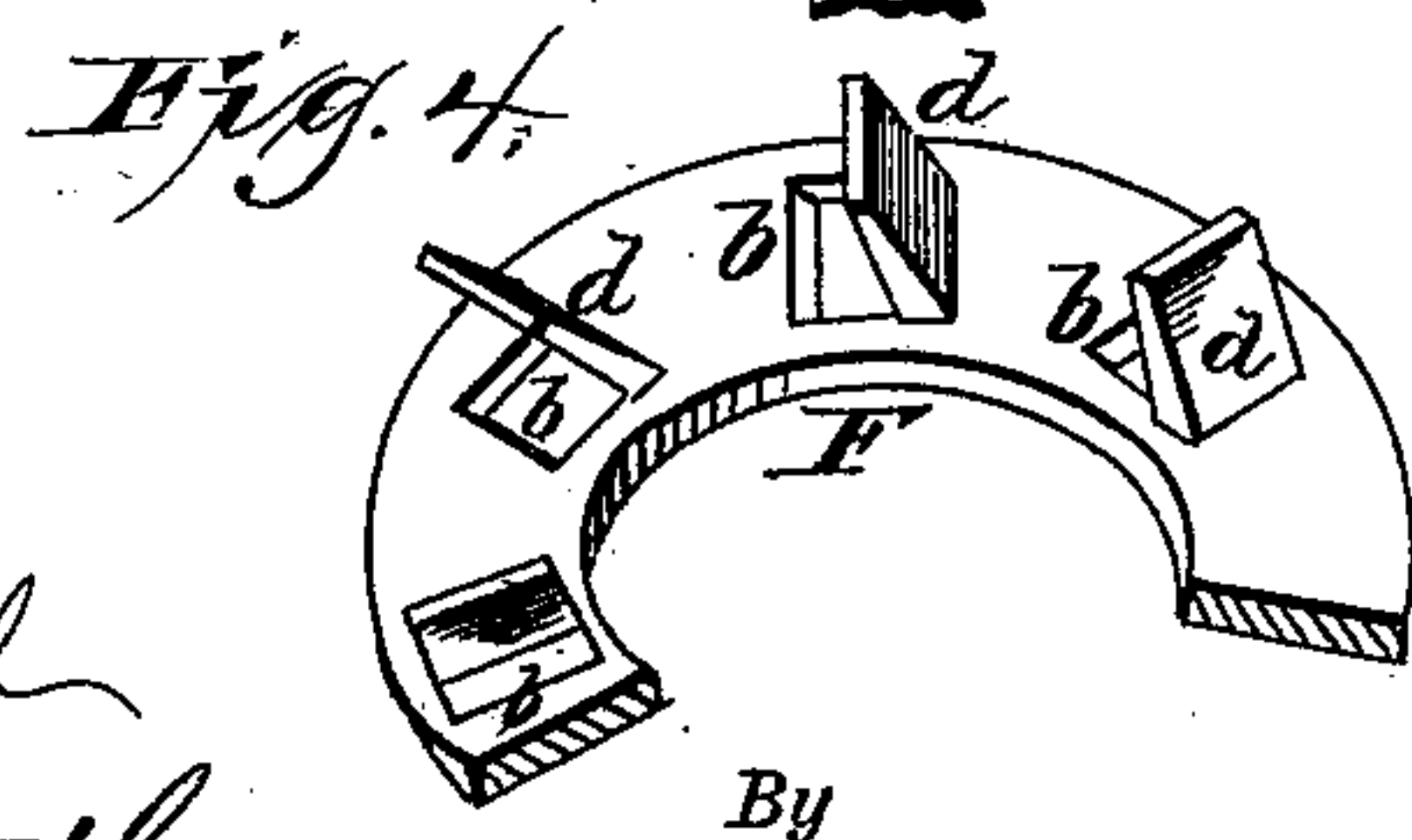
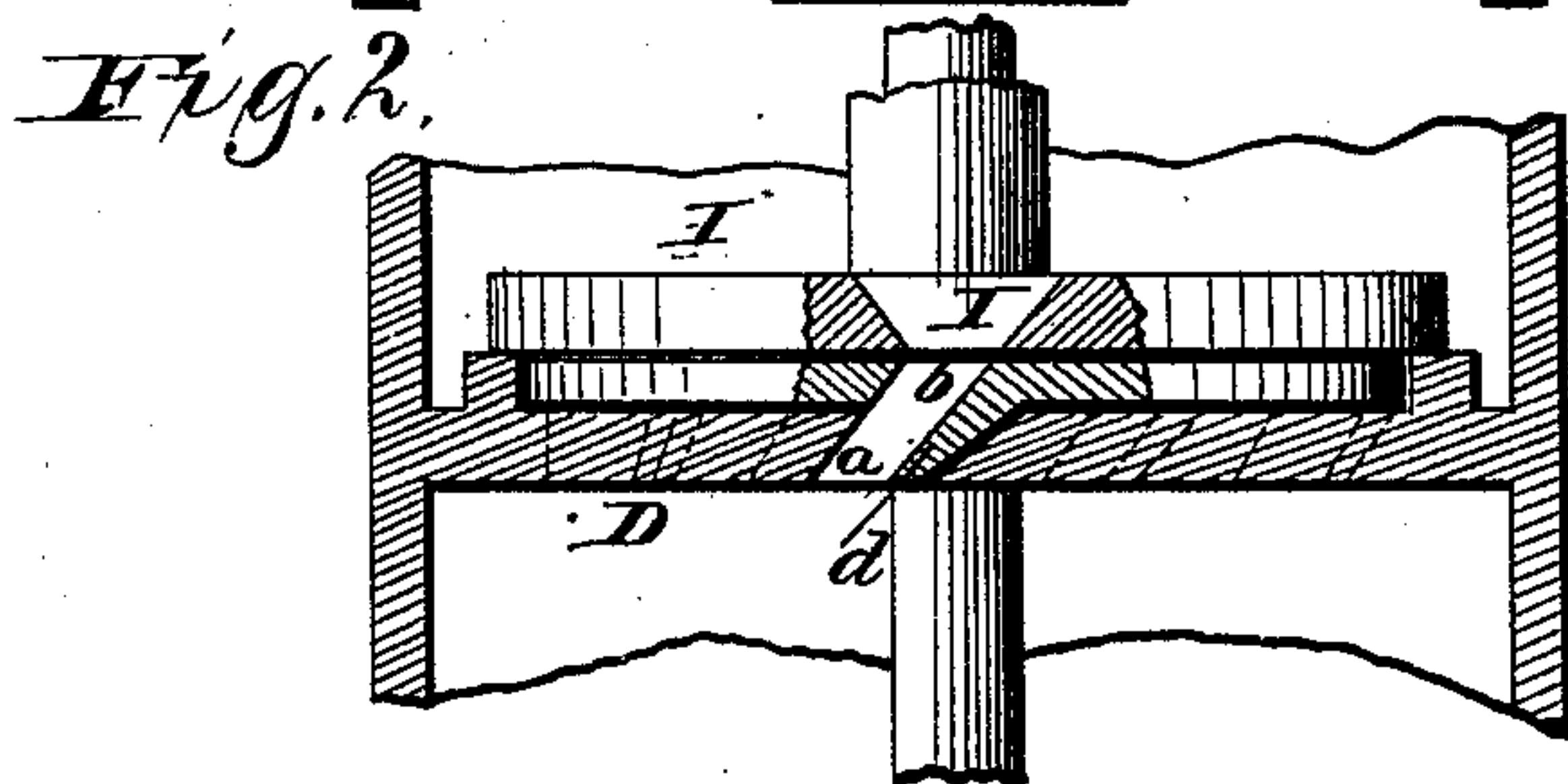
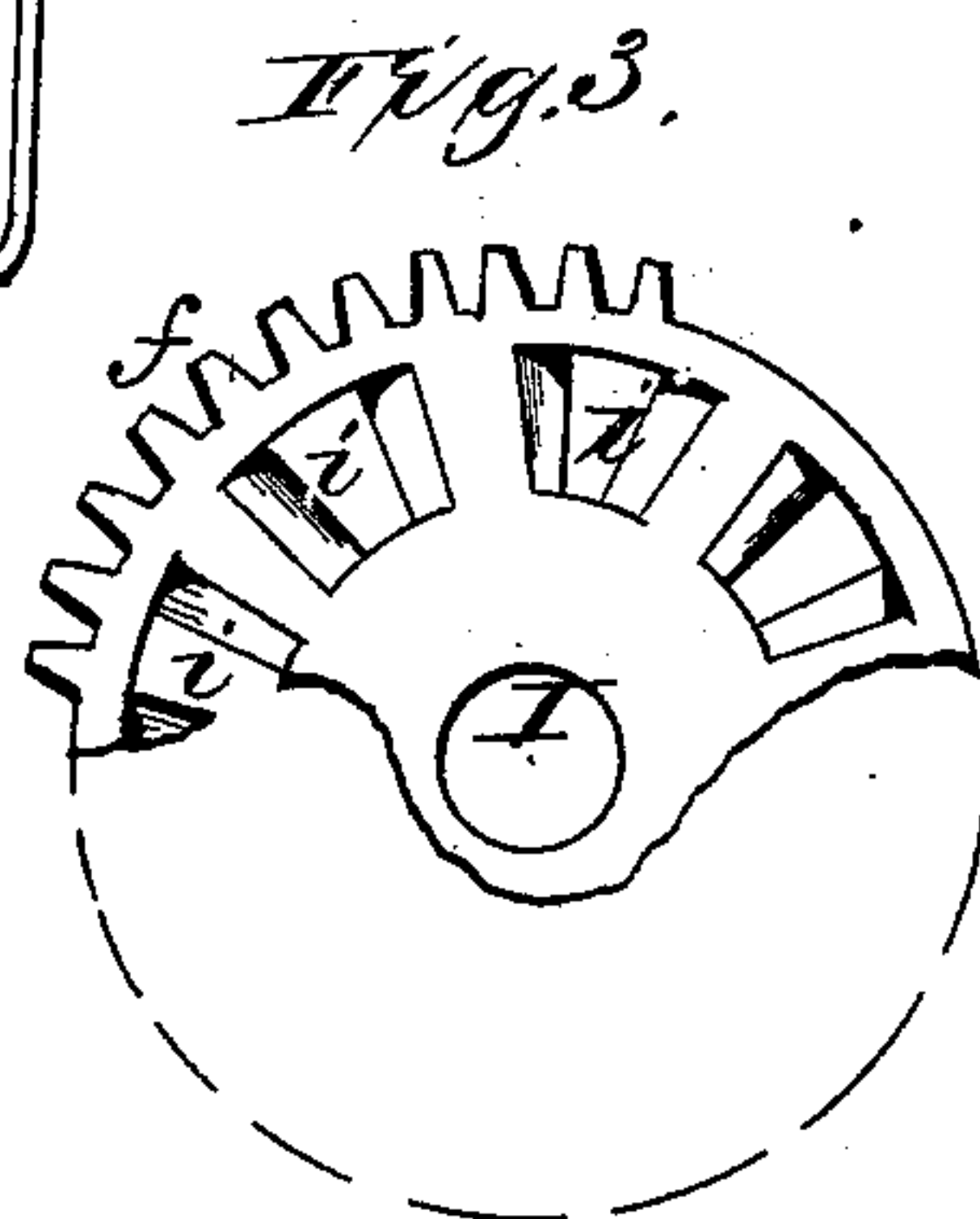
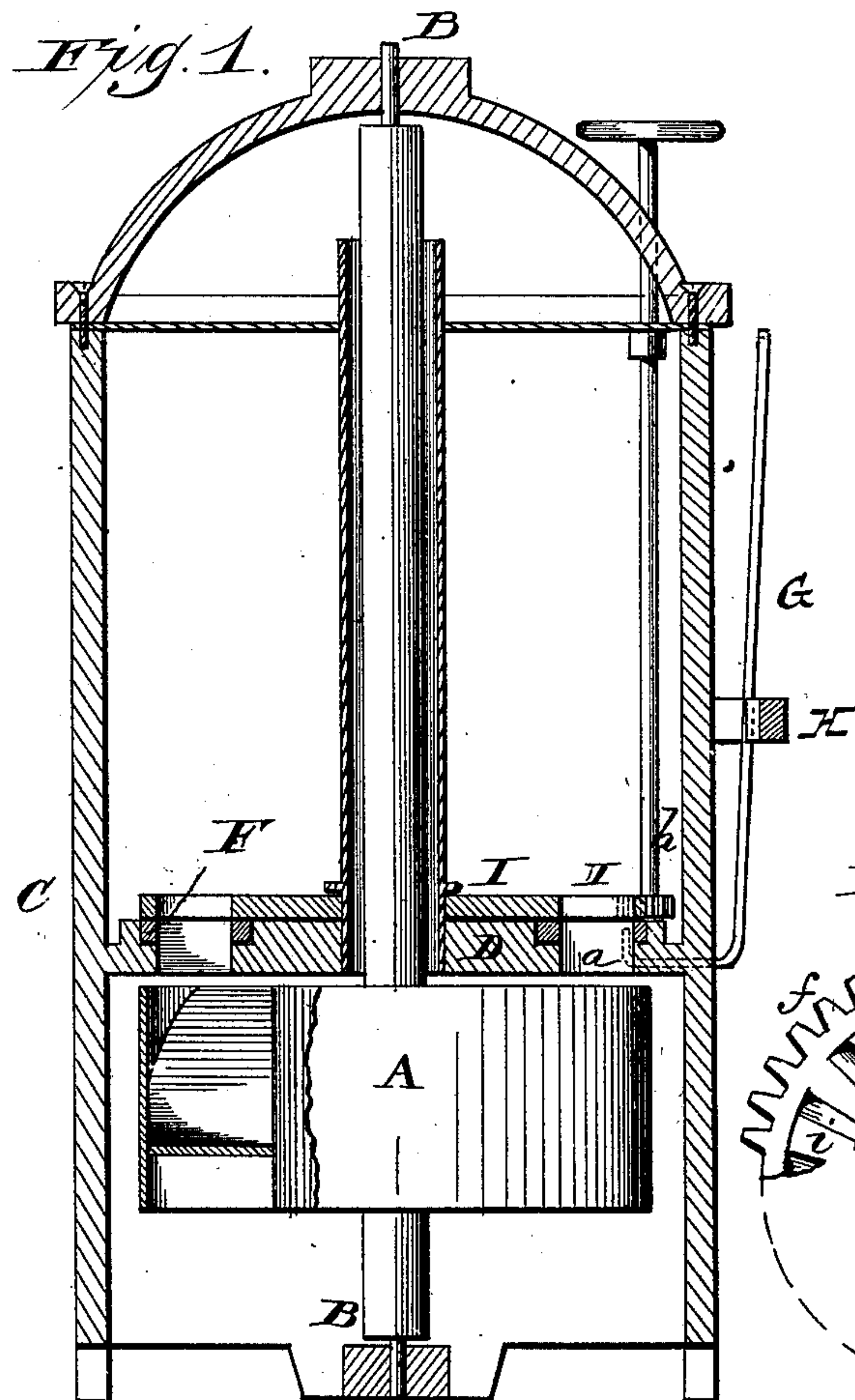


S. GOUTNER.  
Turbine Water-Wheel.

No. 214,904.

Patented April 29, 1879.



WITNESSES  
F. L. Curran  
J. J. McCarthy.

INVENTOR  
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By Alexander Mason  
ATTORNEYS

# UNITED STATES PATENT OFFICE.

SAMUEL GOUTNER, OF YORK, PENNSYLVANIA.

## IMPROVEMENT IN TURBINE WATER-WHEELS.

Specification forming part of Letters Patent No. **214,904**, dated April 29, 1879; application filed February 10, 1879.

*To all whom it may concern:*

Be it known that I, SAMUEL GOUTNER, of York, in the State of Pennsylvania, have invented certain new and useful Improvements in Turbine Water-Wheels; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

My invention relates to turbine water-wheels; and it consists in the construction and arrangement of gates for regulating the head and direction of the water, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawings, in which—

Figure 1 is a vertical section of a turbine water-wheel curb embodying my invention. Fig. 2 is a section through one of the chutes. Figs. 3 and 4 are detailed views of the gates.

A represents a turbine water-wheel, constructed in any of the known and usual ways, and having its shaft-bearings in bridge-trees B B, at the top and bottom of the curb C. Immediately above the wheel in the curb C is the horizontal partition D, through which the water is admitted into the wheel by means of inclined ports or chutes *a a*, for directing the water at a proper angle thereto. In the upper surface of the partition D is made an annular recess, in which is placed an annular plate, F, having openings *b*, corresponding with the chutes *a* of the partition D, and at one end of each opening extends an inclined lip, *d*, downward through the chute *a*, as shown more particularly in Fig. 2.

The annular plate F is capable of rotation only as far as the distance the lips *d* can travel from one side of the chutes *a* to the other, and the plate is moved by means of a lever, G, adjustable in a rack, H, for holding the plate F at any desired point.

It will readily be seen that by adjusting the plate or gate F the chutes *a* are contracted or expanded, while the angle remains the same at all times, so as to admit the water in proper direction to the wheel.

On top of the partition D, and above the annular gate F, is placed the circular gate I, provided with the beveled openings *i*, and operated by the usual rack *f* and pinion *h*.

I am aware that a water-wheel having a movable gate with lips projecting downward through the chutes is, of itself, not new; but in my case I employ another movable gate on top, in addition, for regulating the amount of water, while the intermediate gate directs the water to the buckets.

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

The combination, in a water-wheel, of the partition D, having chutes *a*, the upper movable gate, I, for regulating the amount of water, and the intermediate movable gate, F, having projecting lips *d* for directing the course of the water, substantially as herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand.

SAMUEL GOUTNER.

Witnesses:

J. F. GABLE,  
D. F. YOST.