

J. S. MEHERG.
Gate for Water-Wheels.

No. 212,148.

Patented Feb. 11, 1879.

Fig. 1.

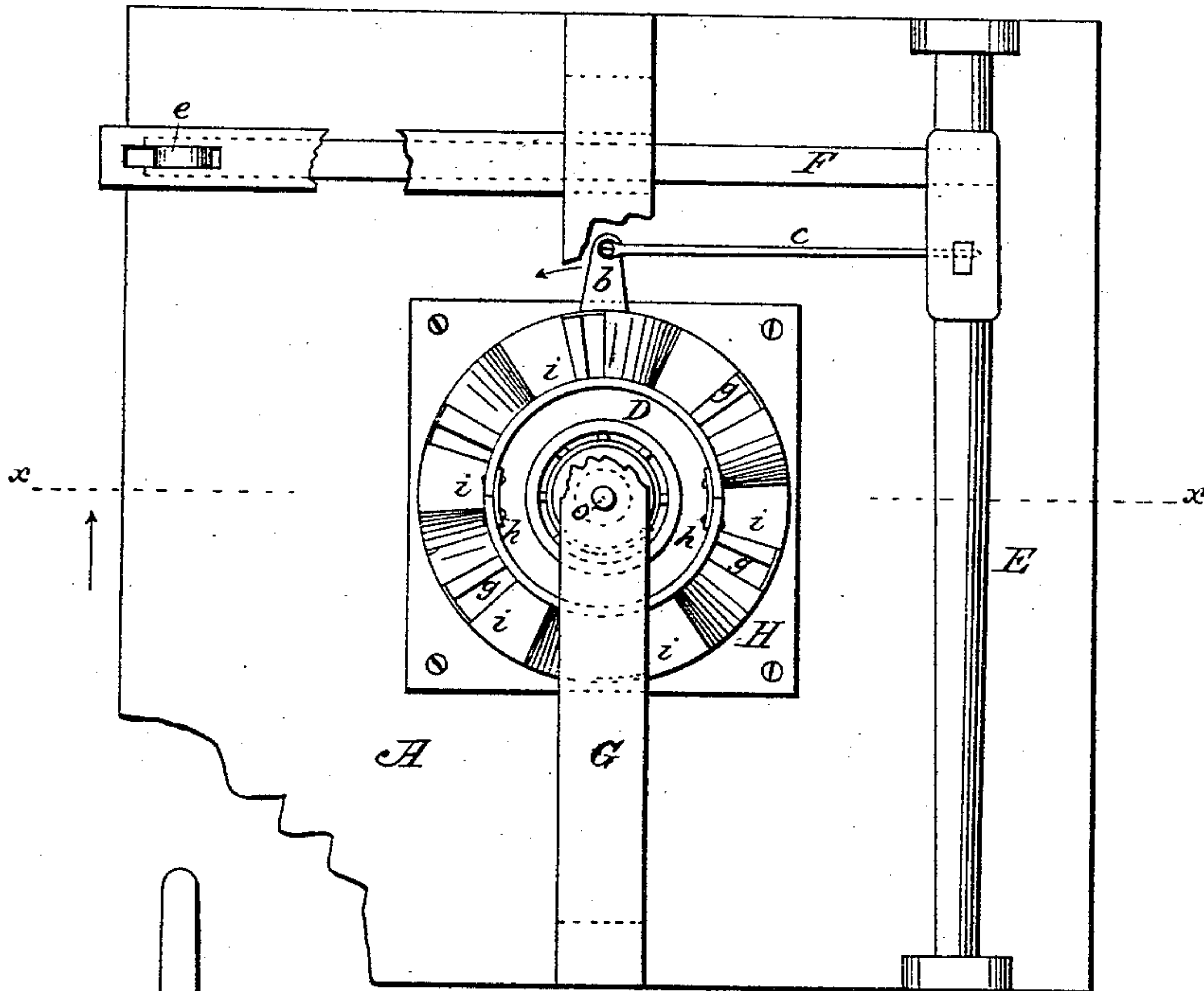


Fig. 2.

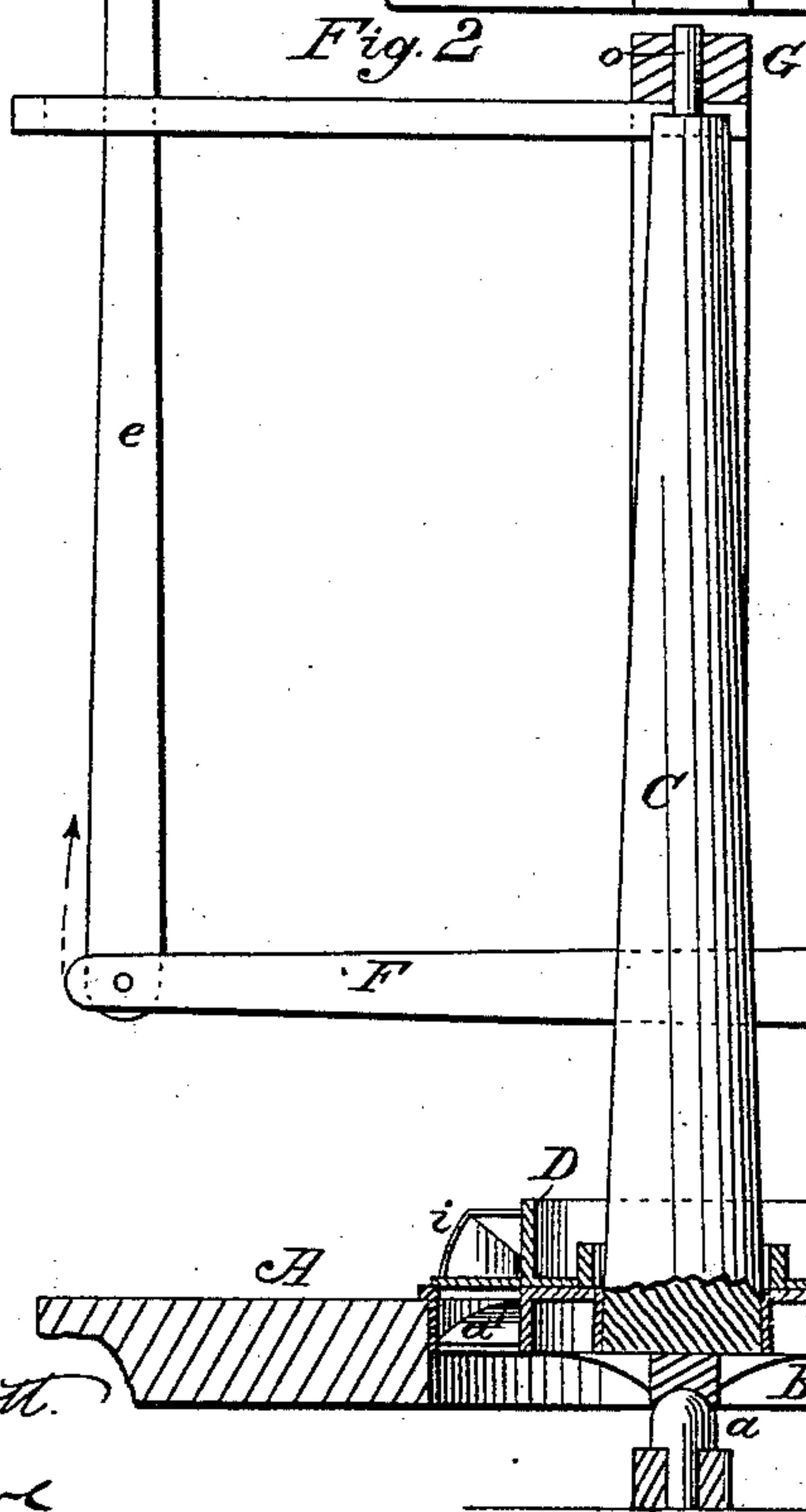
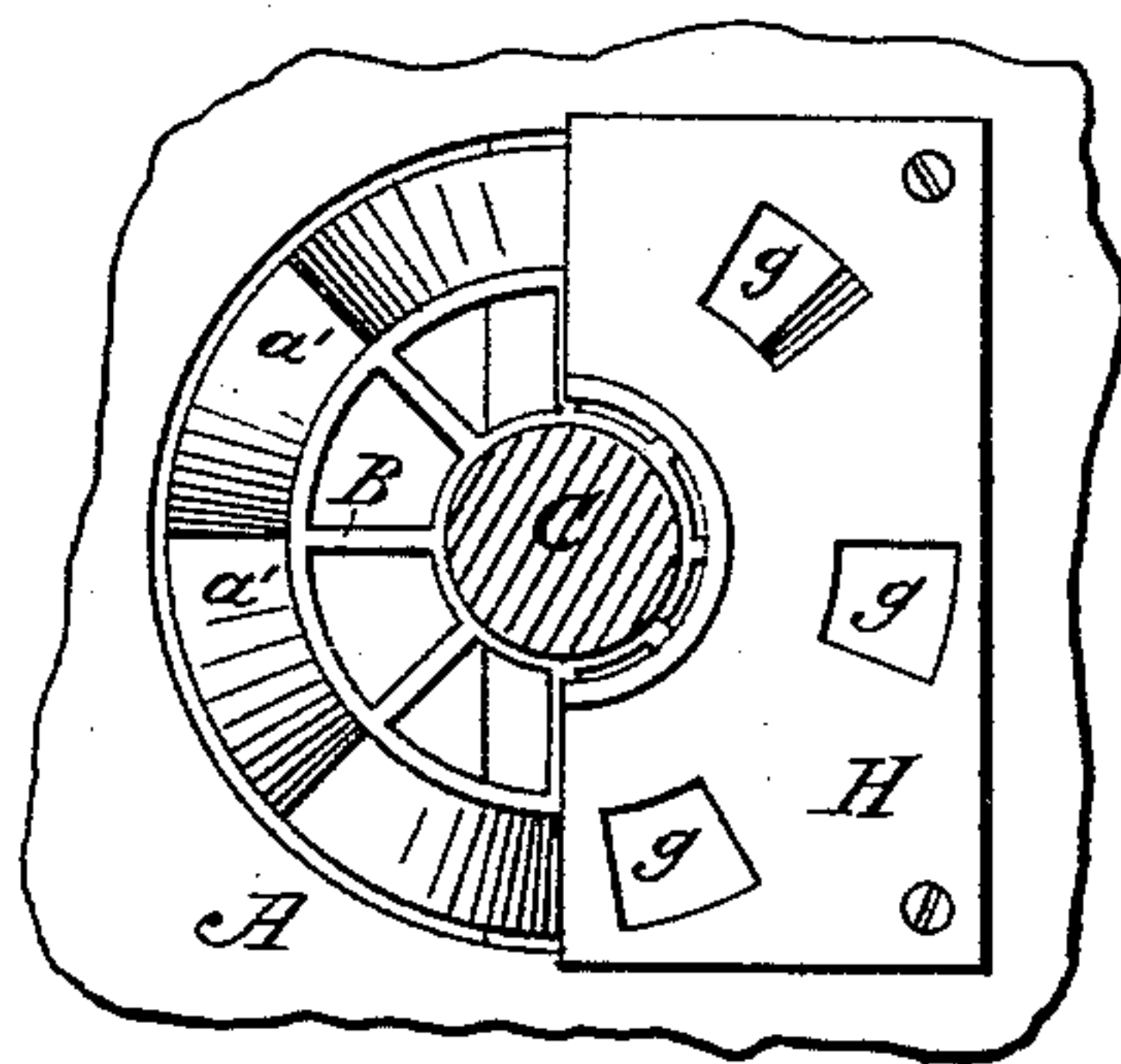


Fig. 3.



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UNITED STATES PATENT OFFICE.

JAMES S. MEHERG, OF COOSA COUNTY, ALABAMA.

IMPROVEMENT IN GATES FOR WATER-WHEELS.

Specification forming part of Letters Patent No. **212,148**, dated February 11, 1879; application filed November 13, 1878.

To all whom it may concern:

Be it known that I, JAMES S. MEHERG, of the county of Coosa and State of Alabama, have invented certain new and useful Improvements in Gates for Water-Wheels; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to that class of water-wheels through which the water passes from above downward, acting in its passage against the buckets of the wheel, and thereby causing it to revolve. The object is to so construct the gate which admits the water to the wheel that its chutes shall give to the water that direction which will best enable it to impart its whole force to the work of turning the wheel.

The invention consists in the construction and arrangement of the gate and its operating mechanism, as will be hereinafter fully described.

In the drawings, Figure 1 is a plan, showing the top of the gate, its operating devices, and the relative position of the parts to each other. Fig. 2 is a vertical section on the line *xx* of Fig. 1. Fig. 3 is a plan of the wheel, also showing part of the covering-plate or wheel-case, the gate being removed.

As before stated, the especial advantage gained by constructing the gate in the manner hereinafter described consists in the solid unbroken flow of water which it delivers upon the wheel, the water having that direction which will render it most effective. In order to accomplish this result I construct and arrange the parts as follows:

A represents the floor of the fore-bay or water-house, through which a circular opening large enough to receive the downwardly-projecting rim of the casing H and wheel is formed. Beneath the floor is placed, upon a substantial support, the step *a*, upon which the water-wheel shaft C rests and revolves, the upper end of this shaft being carried by the journal *o*, revolving in a suitable journal-box in the beam G. The wheel B, which revolves within the casing H, is firmly secured

to this shaft C, and is provided at or near its periphery with a series of inclined passages, divided by suitable partitions or buckets *a'*. The impinging of the water against the buckets in its passage through the wheel produces the rotation of the latter. In order to give a proper direction to the water as it enters the wheel, it is caused to pass downwardly through the inclined chutes or passages of the gate D, which is placed upon the case H above the wheel, and encircling the shaft C, upon which it turns freely.

This gate may be constructed in two or more pieces, united by straps and bolts, as shown at *h h*, Fig. 1, which will allow of its being much more easily handled, especially when applying it to wheels already in use.

The lower ends of the chutes *i* of the gate are straight upon their under surface for such a distance as will give sufficient area to completely cover the openings *g* in the top of the wheel-case H, which openings equal in number the chutes of the gate, so that when the gate is turned in one direction the flat part of its chutes covers the openings *g* in the wheel-case, thus completely shutting off the water from the wheel; but when the movement of the gate is reversed these openings in the case are uncovered, allowing the water to pass through them and strike the buckets of the wheel, the chutes of the gate directing its course in such a manner that it strikes the buckets nearly at right angles, so that they are moved forward by its direct impact, as well as by the reaction of the water as it leaves the wheel.

The case H is securely fastened to the floor, and is provided with a downwardly-projecting rim, which closely encircles the wheel, thus preventing the water from escaping sidewise until after it has wholly passed through the wheel. This case may also be constructed in two or more parts for convenience in handling, if desired, the parts being united after the case is in position by straps and bolts similar to those employed for holding the parts of the gate together. Attached to one side of the gate is an arm, *b*, to the outer end of which is pivoted one end of the bar *c*. The opposite end of this bar *c* is attached to the lower end of the arm *d*, which projects downward from

the rock-shaft E. A long arm, F, is also attached to the rock-shaft, projecting horizontally and at right angles to the arm *d*, and carrying at the extremity farthest from the rock-shaft the gate-stem *e*, the raising and lowering of which operates the gate by rotating it upon the shaft C, which forms a journal for it to turn on.

It will be apparent that the quantity of water admitted to the wheel can be readily gaged by turning the gate so as to uncover the whole of the openings in the wheel-case or any desired part thereof; but whether the quantity of water passing to the wheel be more or less, it still has the proper direction imparted to it by the chutes of the gate.

Having thus described my invention, I claim as new, and desire to secure by Letters Patent, the following:

1. The gate D, provided with chutes *i*, having a straight portion at their lower ends, in combination with the wheel-case H, having

openings *g*, for the passage of the water to the wheel, as set forth.

2. The combination of the gate D, constructed as described, the shaft C serving as a journal for the gate to turn on, with the wheel B and case H, substantially as and for the purpose set forth.

3. The gate D, provided with inclined chutes, and the arm *b*, in combination with the bar *c*, rock-shaft E, its arms *d* F, and gate-stem *e*, all constructed and arranged for joint operation in the manner shown and described.

In testimony that I claim the foregoing as my own I hereunto affix my signature in presence of two witnesses.

JAMES S. ^{his} + MEHERG.
mark.

Witnesses:

J. A. MCGILMEY,
HORNY PEARSON.