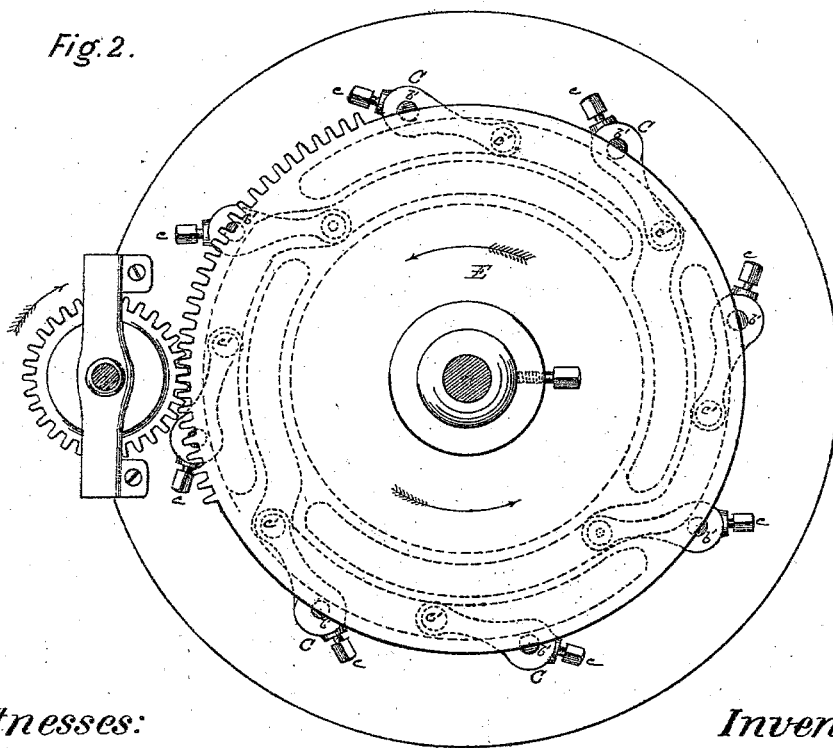
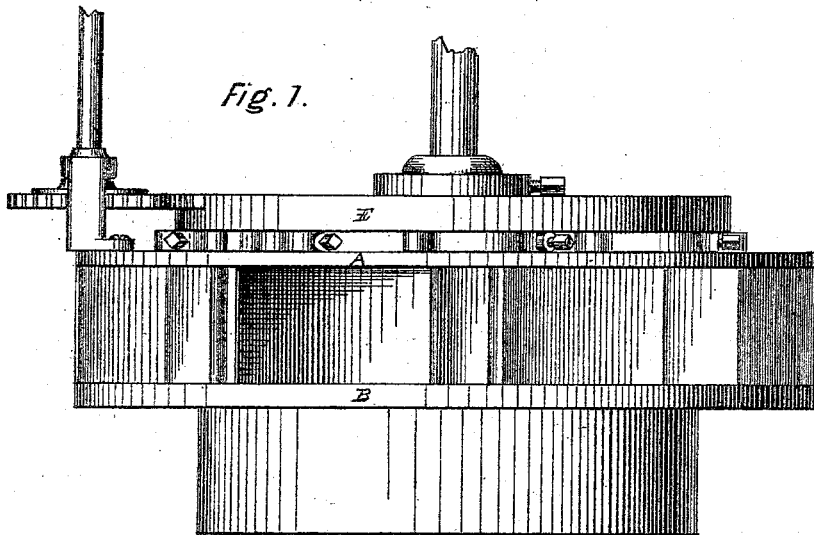


T. WHITMORE.

Improvement in Water Wheels.

No. 115,551.

Patented May 30, 1871.



Witnesses:

Chas. J. Artois
Thos. S. Mervin

Inventor.

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by his Atty.
A. H. & R. K. Evans

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Fig. 3.

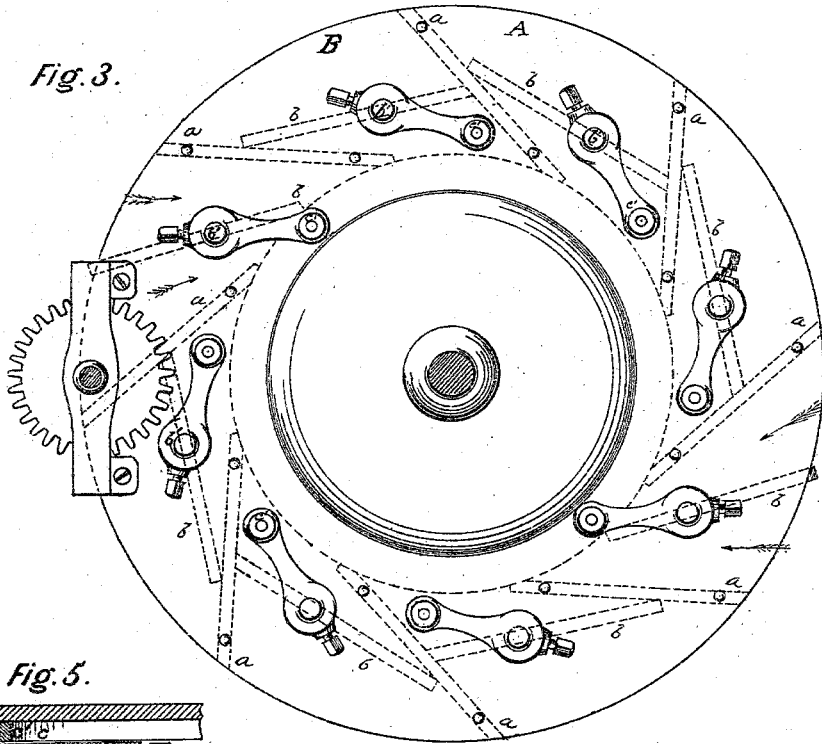


Fig. 5.

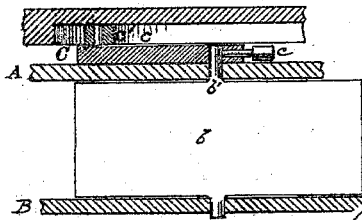
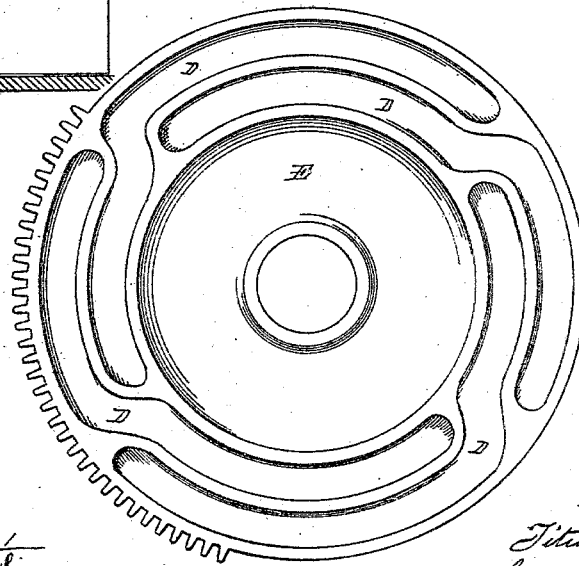


Fig. 4.



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UNITED STATES PATENT OFFICE.

TITUS WHITMORE, OF WATERLOO, IOWA.

IMPROVEMENT IN WATER-WHEELS.

Specification forming part of Letters Patent No. 115,551, dated May 30, 1871.

To all whom it may concern:

Be it known that I, **TITUS WHITMORE**, of Waterloo, Iowa, have invented a new and useful Improvement in Water-Wheels, of which the following is a clear, full, and exact description, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 is a side elevation of my improved water-wheel. Fig. 2 is a top view of same. Fig. 3 is a top view with the gates and stationary guides exposed, in dotted lines. Fig. 4 is a view of the lower or slotted side of the upper plate. Fig. 5 is a separate view of a gate-lever, showing adjusting-screw.

My invention relates to that class of wheels known as turbine water-wheels; and consists in so constructing the wheel as to have two gates, and these on the opposite sides of the wheel, to open simultaneously, and thus secure equal force on the opposite sides of the wheel; and, secondly, in having all the gates of the wheel thus to open in successive pairs and on opposite sides of the wheel.

To enable others skilled in the art to make and use my invention, I will proceed to describe the manner in which I have carried it out.

A and B are two plates, between which are secured the guides *a a*. Between these guides *a* are pivoted the gates *b b*. The pivots or bolts *b'*, by which the gates *b* are moved, pass up through the plate A and have attached to them, on the upper side of the plate, the adjustable levers *C C*, as shown in Fig. 2. The

levers *C C* are adjustable on and are secured to the bolts *b'* by means of the set-screws *c c*, and are provided at their opposite ends with anti-friction rollers or pulleys *c' c'*, (see Fig. 5,) which move snugly in the slots or cam-grooves *D D* on the under side of the cam-wheel or plate E. (See Fig. 4.) These cam-slots are so arranged that, by turning the wheel E, the gates *b*, numbered one on the opposite sides of the wheel, will be the first opened, and a full percussion of the water given to the wheel on its opposite sides. The gates numbered two will be the next pair opened, and those numbered three and four will successively open by pairs and on the opposite sides of the wheel, thus securing the water at the same angle and in a solid stream upon the wheel; the advantage of which arrangement and construction must be evident to every one familiar with the operation of a turbine water-wheel.

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

The plate E, with its cam-slots *D D*, in combination with the adjustable levers *C C* and gates *b b*, when constructed and arranged so as to open the gates of a turbine water-wheel in pairs and on the opposite sides of the wheel, substantially as and for the purpose set forth.

TITUS WHITMORE.

Witnesses:

P. M. CHAFFEE,
GORDEN WHITMORE.