

J. T. CASE.
Water Wheel.

No. 108,757.

Patented Nov. 1, 1870.

Fig. 1.

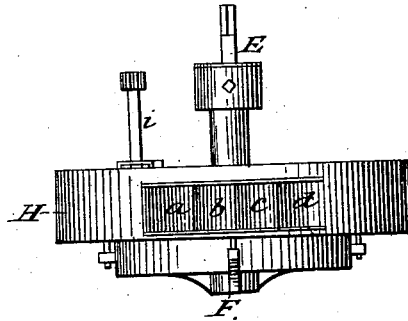


Fig. 2.

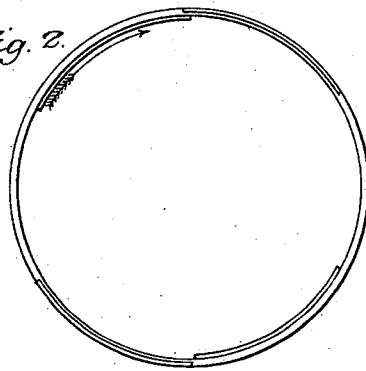


Fig. 3.

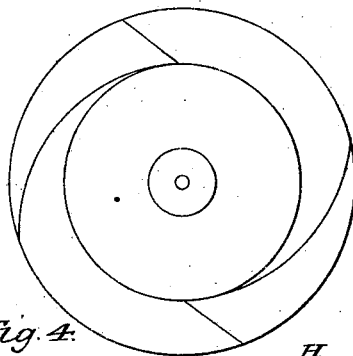
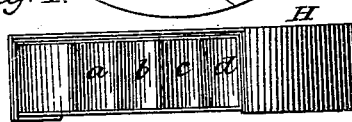


Fig. 4.



Witnesses:
Emiel B.
James W. Ship.

Inventor:

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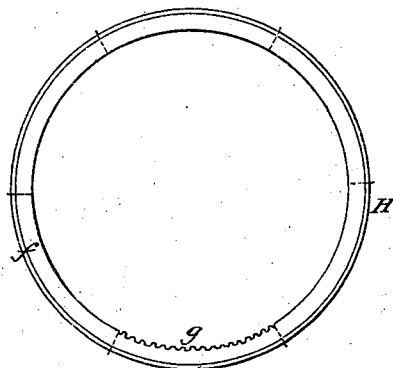


Fig. 3.

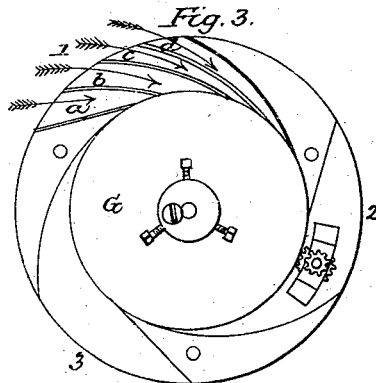


Fig. 1.

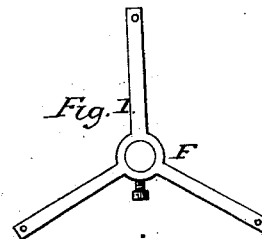


Fig. 4.

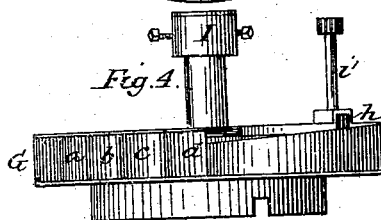
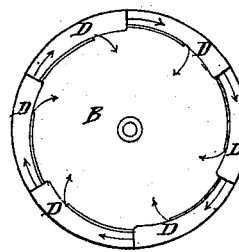
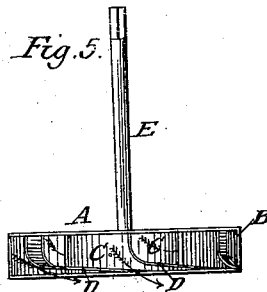


Fig. 5.



Witnesses:

Ernest B. Case
James W. B. Case

Inventor:

Joel B. Case

UNITED STATES PATENT OFFICE.

JOEL T. CASE, OF NEW HARTFORD, CONNECTICUT.

IMPROVEMENT IN WATER-WHEELS.

Specification forming part of Letters Patent No. 108,757, dated November 1, 1870.

To all whom it may concern :

Be it known that I, JOEL T. CASE, of New Hartford, county of Litchfield and State of Connecticut, have invented certain new and useful Improvements in Water-Wheels; and to enable others skilled in the art to make and use the same I will proceed to describe, referring to the drawings, in which the same letters indicate like parts in each of the figures.

The nature of this invention will be understood from the specification and drawings.

In Figure 2, Sheet 2, is shown a side elevation of this improvement. On Sheet 1 is shown the various portions of this wheel, in detached parts. Fig. 3 is a top view of the case in which the wheel is arranged, and the chutes which conduct the water to the wheel. These chutes are formed in three sectional portions, 1 2 3, each having four chutes, *a b c d*. Each section occupies one-sixth of the diameter of the case. Fig. 4 is an edge view of the case. Fig. 2 is a top view of the partially-rotating gate, the rim of which covers the edge of the case, and is provided with three openings corresponding with the sections in which the chutes are arranged, and are sufficiently large, so that, when over the ports of the chutes, they will allow a full flow of water, equal to the dimensions of the ports to the chutes, the supporting-rim *f* of which is provided with a segment of gear for opening and closing the gate by means of an upright shaft, *i*, and gear *h*. Fig. 5 is an edge view of the wheel proper, and its shaft. Fig. 1 is a spider secured to the water-chute case, in which is arranged a step to support the lower end of the wheel-shaft. Fig. 6 is an under-side view of the wheel.

In Sheet 2, Figs. 2, 3, 4, is shown a double gate, which I propose to use sometimes, when it may be desirable to admit the flow of water to a greater number of chutes through the case.

A is the wheel proper. The top plate *B* is of one flat piece of metal. The buckets are formed of two pieces of metal, *C D*. The piece *C* forms the back and one end of the bucket. The piece *D* forms the bottom of the buckets, and alternately the end of every other alternate bucket. The water is discharged

from the buckets, as indicated by darts. First, one bucket discharges directly under the succeeding bucket, and the next discharges from its inside edge toward its shaft, alternately first under one bucket, then inwardly back of the other, thus securing a free discharge of the water from the wheel, and thereby prevent reaction friction upon the wheel. This wheel is secured to the shaft *E*, the lower end of which takes its bearing in or on the step, arranged in the center of the spider *F*, and the upper end in the box *I* of the wheel-case.

The spider is constructed and secured to the wheel-case in the common way.

G is the wheel-case, in which the chutes *a b c d* are formed. The ports of these chutes in each section 1 2 3 occupy one-sixth of the diameter of the case. They are made in circular form from the outside to the inner edge of the case, or the point of discharge into the wheel. *H* is the gate, which partially rotates to open and close the ports to the case, the cylindrical rim of which covers the openings or ports *a b c d*, the rim *f* of which is provided with a segmental gear, *g*, and, by means of a gear, *h*, secured on or near the lower end of the shaft *i*, the gate is opened and closed; or, in other words, by means of the shaft and gearing the gate is moved on the case *G*, so that one, two, or more of the ports to the chutes will be opened at three equal points around the wheel. By the use of the double gate, as shown on Sheet 2, Figs. 2, 3, 4, the wheel-case may be made with chutes occupying, on two opposite sides of the case, about one-third of the diameter of the wheel-case, leaving between the chutes a space about one-sixth of the diameter of the wheel-case to be occupied by the double gate, when it is fully open. Thus one, two, or all of the ports to the chutes may be open, as desired, to allow the water to flow to the wheel. The two closing portions of this double gate, one part being actuated to open or close by the action of the other, cover all the ports of the chutes. By turning or opening one portion full open, one-half of the ports will be open; then, by turning it still further, this first part will move the other portion, and when both ports are fully open and occupy the space between the ports all the ports will be open. The gate is

operated by the shaft *i*, gear *h* working into the segment-gear *g* of the rim *f* of the wheel-case.

I believe I have thus shown the nature, construction, and advantage of this invention so as to enable others skilled in the art to make and use the same therefrom.

What I claim, and desire to secure by Letters Patent, is—

1. The wheel A, constructed as shown and described, so as to give full and free discharge

of water alternately under the wheel and from its inner edge, substantially as set forth.

2. The rotating gate H, in combination with the case G, constructed as set forth, with the shaft *i*, gear *h*, segment *g*, as and for the purpose set forth.

JOEL T. CASE. [L. S.]

Witnesses:

E. W. BLISS,

JEREMY W. BLISS.