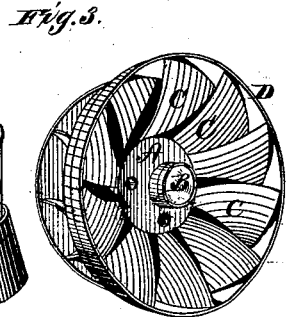
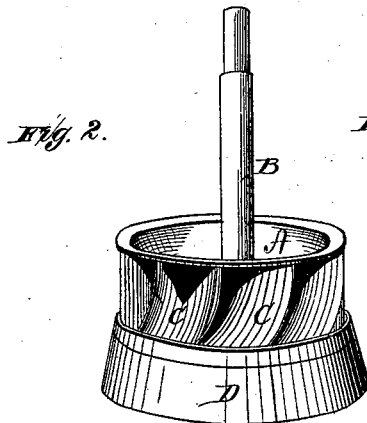
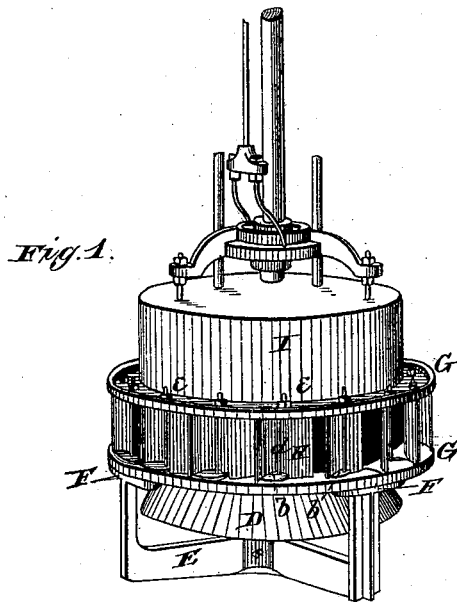


W. H. ELMER.
Water-Wheel.

No. 209,873.

Patented Nov. 12, 1878.



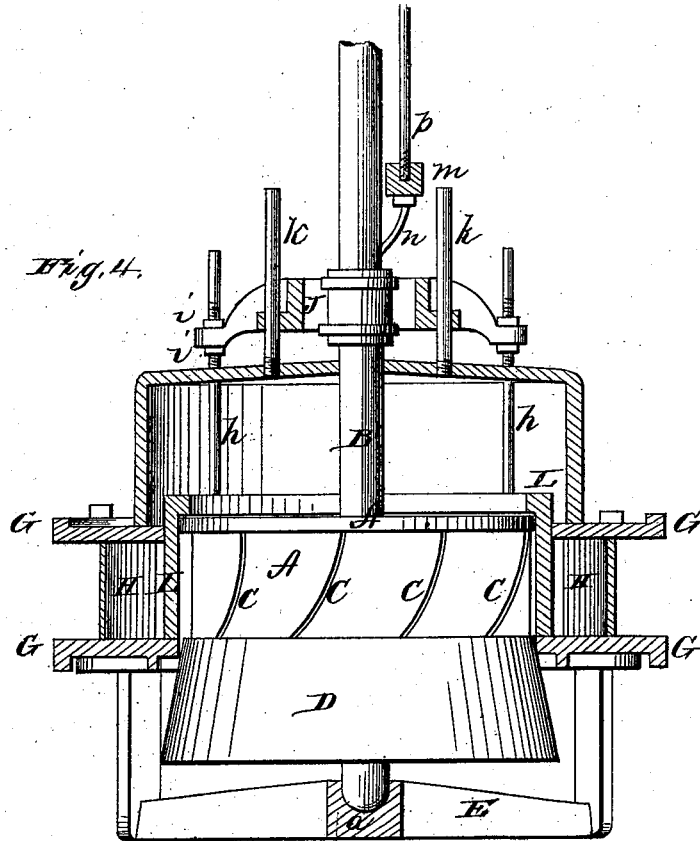
WITNESSES
Frauch L. Osband.
J. J. O'Carthy.

INVENTOR
Wm H. Elmer
BY *Alexander Mason.*
ATTORNEYS.

W. H. ELMER.
Water-Wheel.

No. 209,873.

Patented Nov. 12, 1878.



WITNESSES
F. L. O'neal
J. J. McCarthy.

INVENTOR
W. H. Elmer
BY Alexander Watson
ATTORNEYS

UNITED STATES PATENT OFFICE.

WILLIAM H. ELMER, OF BERLIN, WISCONSIN.

IMPROVEMENT IN WATER-WHEELS.

Specification forming part of Letters Patent No. 209,873, dated November 12, 1878; application filed July 25, 1878.

To all whom it may concern:

Be it known that I, WILLIAM H. ELMER, of Berlin, in the county of Green Lake, and in the State of Wisconsin, have invented certain new and useful Improvements in 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.

The nature of my invention consists in the construction and arrangement of a water-wheel, 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 side elevation of my improved water-wheel, its casing, &c. Fig. 2 is a side elevation of the wheel itself, and Fig. 3 is a bottom perspective view of the wheel proper. Fig. 4 is a central vertical section of the entire wheel.

The wheel proper is composed of a conical hub, A, secured on the upright shaft B, and provided with the buckets C C. These buckets are set inclined both with relation to a horizontal and a perpendicular line, and their lower portions are inclined still farther forward, and extend at the outer edges a suitable distance below the hub.

The lower portions of the buckets are surrounded by a tapering ring or band, D, for confining the water to the buckets. The lower end of the shaft B rests in a step, *a*, in the center of a bridge-tree, E. This bridge-tree is constructed with three arms, each of which has a head, F, fastened to the under side of the wheel-casing by means of two bolts.

The casing is composed of two annular plates or rings, G G, between which the chutes H are placed, said chutes being formed at top and bottom with central ears *b b*, and through these ears are passed the bolts *d*, which also go through the two rings G G; and nuts *e e*,

screwed on the ends of the bolts, secure all the parts firmly together.

It will readily be seen that the chutes can easily be adjusted at any angle desired by simply loosening the nuts *e*, when they are turned on the bolts as upon pivots, and by then tightening the nuts they are held firmly in the desired position.

I represents a top cap, placed over the wheel on the top ring of the casing, with a central aperture, through which the shaft B passes.

The cap I as well as the spider E is fastened to the casing by certain of the bolts *d*, as shown.

L represents the gate of the wheel, which is made in cylindrical form, and provided with three rods, *h h*, that pass upward through the cap I and are passed through the arms of a three-armed spider, J, and fastened thereto by nuts *i*.

The spider J surrounds the shaft B, and is guided vertically up and down by means of rods *k k*, rigidly fastened in the cap I, and extending vertically upward from the same.

To the spider J are attached rods *n n*, connected by a cross-bar, *m*, and from the center of this cross-bar extends a rod, *p*, to connect with a lever for raising and lowering the gate as required.

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

1. The combination of the hollow conical hub A, shaft B, inclined buckets C, and tapering bottom band D, substantially as and for the purposes herein set forth.

2. The combination, with the wheel-casing and top cap, of the gate L, with rods *h*, spider J, nuts *i*, and guide-rods *k*, substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 25th day of June, 1878.

WM. H. ELMER.

Witnesses:

J. J. MCCARTHY,
M. L. KIMBALL.