

J. P. Allen,

Water Wheel.

No. 111,601.

Patented Feb. 7. 1871.

Fig. 1.

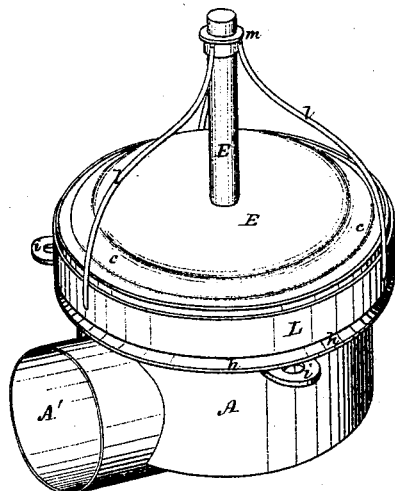


Fig. 3.

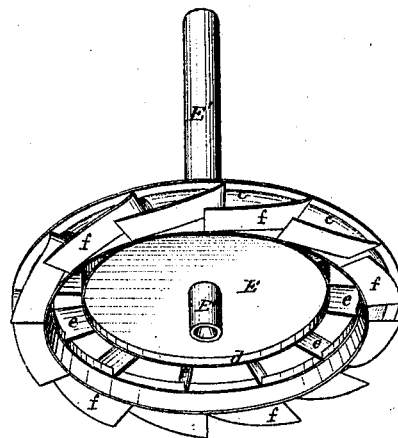


Fig. 4.

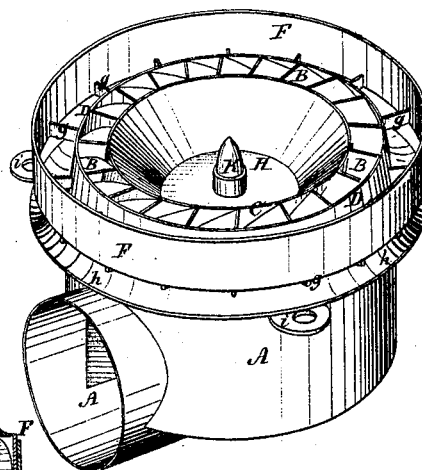
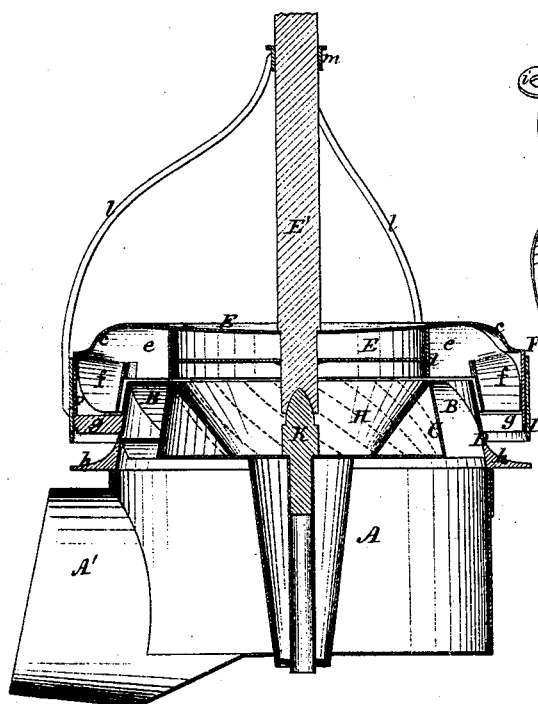


Fig. 2.



Witnesses.
A. B. Stoughton
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United States Patent Office.

JOHN P. ALLEN, OF SPRINGFIELD, OHIO.

Letters Patent No. 111,601, dated February 7, 1871.

IMPROVEMENT IN WATER-WHEELS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JOHN P. ALLEN, of Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Water-Wheels; and that the following is a full and exact description of the construction and operation of the same, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 represents a perspective view of my water-wheel, complete.

Figure 2 represents a vertical section through the same.

Figure 3 represents a perspective view of the under side of the wheel proper, detached from its casing.

Figure 4 represents a perspective view of the casing, and the stationary guides which direct the water to the wheel.

Similar letters of reference, where they occur, denote like parts in all the figures.

My invention relates to that class of horizontal water-wheels in which the water is directed to the wheel from underneath; and

It relates to the manner in which the directing-guides, inclined at the proper angle, are arranged between two conical rings inclined toward the inside of the wheel, so as to utilize better the whole power of the water than if the guides were inclined around a cylinder only.

My invention relates also to the manner in which the wheel is made, with two concentric rows of buckets connected by openings, so that while the inner row receives the water the outer row directs it against a series of vertical plates radiating from the conical guides to the outer ring inclosing the wheel, the top of the wheel being made concave near its outer rim, for receiving the centrifugal force of the water and guiding it downward.

My invention relates also to the manner in which the wheel is inclosed in a vertical ring or hoop extending lower than the outer buckets of the wheel, and serving as a guide for the cylindrical gate in closing up the exit of the water from the wheel.

To enable others skilled in the art to make and use my invention I will proceed to describe the same with reference to the drawing.

A represents a cylindrical chamber, which is placed under a series of inclined guides, B.

These guides B are placed between two conical rings or bands, C D, by which means the water is directed against the buckets *e* of the wheel E.

These buckets *e* are formed of vertical plates arranged radially around the cylinder *d*, and extended outward to the periphery of the wheel, where their vertical position is changed to an incline, *f*, to direct the water in its exit from the wheel.

The top plate of the wheel E is inclined downward and made concave near its periphery, so as to resist

the centrifugal motion of the water and direct it downward to the outer inclines *f* of the wheel.

F is a stationary ring which incloses the wheel. It is connected to the cone D by a series of radiating bars or plates, *g*, on which the water reacts in escaping from the wheel, giving it an additional impulse.

The lower end of the cone D is curved outward at *h*, where it has lugs *i*, through which the apparatus is bolted to the foundation.

The wheel E is attached to a spindle, B', which is supported by a conical bearing-point, K, on which it revolves.

The bearing K being kept under the water, which accumulates in the conical chamber H, is, in that manner, kept cool and lubricated.

L is a cylindrical gate which surrounds the stationary ring F.

It is raised or lowered, to regulate the exit of the water from the wheel, by means of rods *l* attached to it, and united to a ring, *m*, which encircles the spindle B', and by which it can be operated by any well-known means.

The operation of my improved water-wheel is as follows:

The water entering the opening A' of the chamber A, rushes, when the gate L is raised, up the inclined guides B, between the cones C and D, against the vertical portion *e* of the buckets of the wheel, from which it is deflected by the concave form *c* of the top of the wheel to the inclined buckets *f*, from which it passes against the radiating bars *g*, to the opening between the curved bottom *h* of the cone D and the bottom edge of the gate.

Having thus fully described the construction and operation of my water-wheel,

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

1. In combination with a water-wheel receiving the water on the under side, the inclined guides B, when arranged between two conical rings C and D, substantially as and for the purpose described.

2. In combination with the conical guide-rings C and D, the wheel E, made with two rows of buckets connected together, the inner row being made of vertical plates to receive the water, and the outer row inclined to discharge it, with the top plate concave near its outer edge, substantially as and for the purpose set forth.

3. In combination with a water-wheel having two rows of buckets, as described, the ring F, when connected to a conical ring, D, by bars *g* placed immediately against the discharge of the wheel, substantially as shown and described.

JOHN P. ALLEN.

Witnesses:

A. B. STOUGHTON,
EDMUND MASSON.