

M. K. A. Brooks,

Water Wheel.

No. 113489.

Patented Apr. 11. 1871.

fig. 1

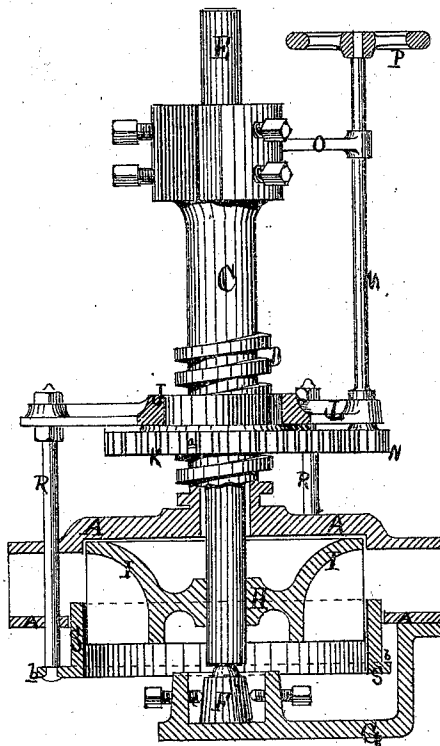
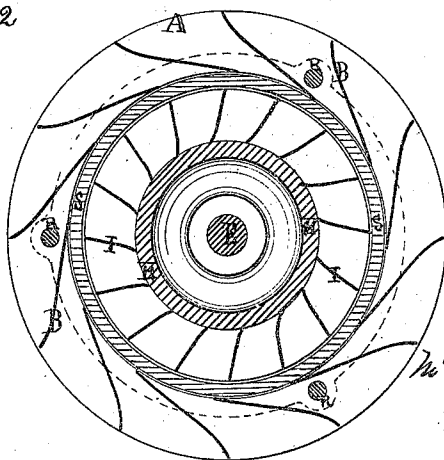


fig. 2



Witnesses:
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MCKENDRE A. BROOKS, OF LA PORTE, INDIANA.

Letters Patent No. 113,489, dated April 11, 1871.

IMPROVEMENT IN TURBINE WATER-WHEELS.

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

To whom it may concern:

Be it known that I, MCKENDRE A. BROOKS, of La Porte, in the county of La Porte and State of Indiana, have invented a new and useful Improvement in Turbine Water-Wheels; and I do declare that the following is a true and accurate description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon and being a part of this specification, in which—

Figure 1 is an elevation showing the case and wheel in section.

Figure 2 is a section on the line $x x$, fig. 1.

Like letters indicate like parts in each figure.

The nature of this invention relates to an improvement in that class of water-wheels which is provided with sliding-ring gate interposed between the buckets of the wheel and stationary chutes, and in the method of operating the same.

The invention consists in giving such a gate a downward movement in opening, whereby the water is directed to the tops of the buckets in a solid column when less than a full gate is given; also in the novel and peculiar construction of the mechanism for operating such gates, as more fully hereinafter set forth.

In the drawing—

A represents the case of my wheel, between the upper and lower portions of which are arranged the chutes B, rising from the top and center of the case A, and rigidly secured thereto in a hollow standard, C, provided with a screw-thread, D.

E is a vertical shaft passing through the standard C and case A.

This shaft is stepped upon an adjustable bearing, F, in the foundation-frame G, upon which the case A is rigidly secured.

H is the hub of the wheel, rigidly secured to the shaft E near its lower end, within the case A.

Radiating from this hub are buckets I.

J is a spider, the hub of which encircles the standard E.

Within this hub is placed a rotating collar, K, threaded on the hollow standard. The portion of this collar below the hub of the spider is provided with a spur-gear, a .

L is a stud projecting from the hub of the spider J, through which is journaled the rod M. The lower end of this rod is provided with a pinion, N, which meshes with the teeth a of the collar K. The upper end of the rod M passes through the guide O, and is provided with a proper hand-wheel, P.

Projecting downward from the outer ends of the arms of the spider J are the rods R, passing through the case A, as shown in fig. 1.

S is a ring-gate, interposed between the chutes B and the buckets of the wheel. To the flange b of this gate are rigidly secured the lower ends of the rods R.

The operation of this device is as follows:

By turning the hand-wheel P to the left it will be seen that the collar K will turn down the screw D of the standard, also carrying with it the spider J; and, by reason of the connection between the spider and the gate by the rods R, the gate will also be moved downward, thus opening more or less communication between the chutes and the buckets when partially closed.

The action of the gate in this manner causes the water admitted through the chutes to strike the upper portion of the buckets of the wheel, acting upon the whole face of the same before it can be discharged. By this means the full force of the water is obtained, a portion of which would be lost if admitted at the bottom of the buckets, by reason of the eddying of the water, which occurs when less than a full gate is given.

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

The construction and arrangement of the threaded hollow standard C, geared collar K, rod M, pinion N, spider J, rods R, and ring-gate S with relation to each other and the buckets and chutes of a turbine water-wheel, substantially as described, for the purpose specified.

MCKENDRE A. BROOKS.

Witnesses:

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