

J. L. HELMER.
GATE FOR WATER WHEEL.

No. 81,368.

Patented Aug. 25, 1868.

Fig. 1.

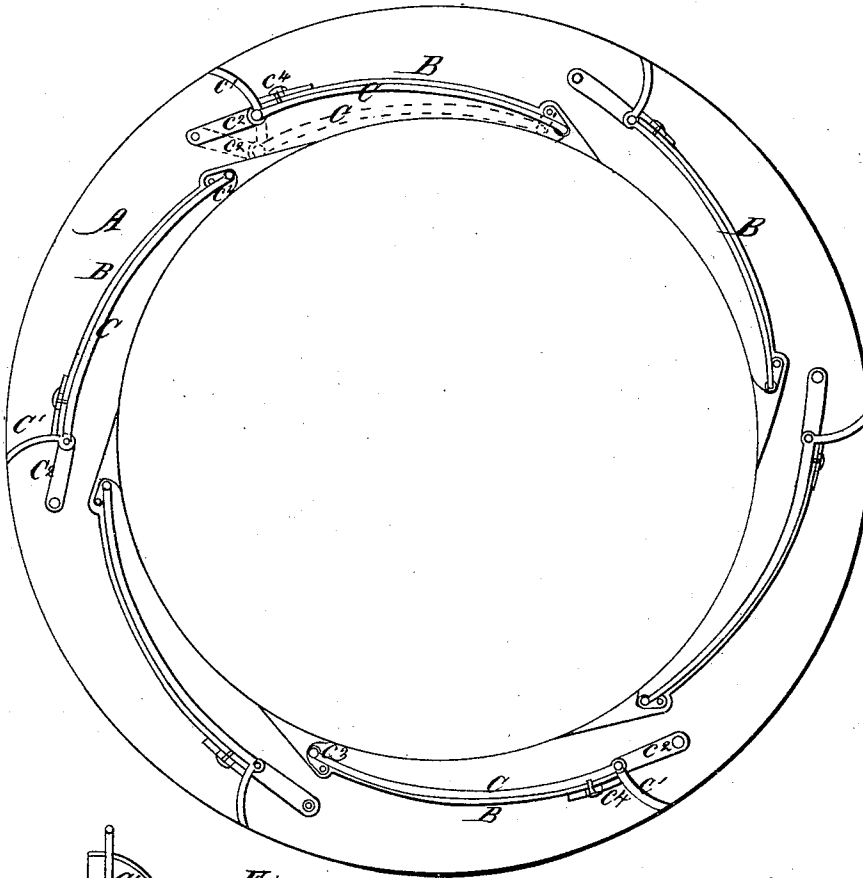


Fig. 2.

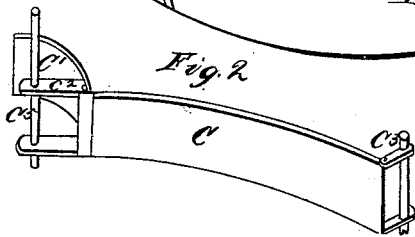
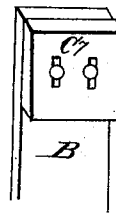


Fig. 3.



Witnesses.

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JAMES L. HELMER, OF ROME, NEW YORK.

Letters Patent No. 81,368, dated August 25, 1868.

IMPROVEMENT IN GATES FOR 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, JAMES L. HELMER, of Rome, Oneida county, New York, have invented a new and useful Improvement in Horizontal Central-Discharge Water-Wheels.

My invention consists in the peculiar form and mode of arrangement and operation of the guides and gates.

And I do hereby declare that the following is a full, clear, and exact description of my said invention, and of the mode of operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 represents a plan of the gates and guides.

Figure 2, a perspective view of the gate and movable part of the guide.

Figure 3, a perspective view of the adjustable end of the guide.

A is the lower rim.

B, the outer or fixed part of the guide.

C, the inner or movable part of the guide.

C¹ is the gate.

C², the arm to operate the gate and movable part C of the guide.

C³, the joint at inner end of C.

C⁴, adjustable end of the guide.

C⁵, the rod which moves the gate and movable part C of the guide.

The guides and gates are arranged between the upper and lower rims A, in the usual way. The guides are in three parts, the whole in the form of a scroll. The outer part, B, is permanent to the rims. On the outer end of B is the adjustable part C⁴, held in place by screws passing through slots, as seen in figs. 1 and 2, which enables the end of the guide to be always adjusted to the gate. The inner part of the guide C is movable. It has an arm at each end. C², on the front end, has attached to its outer end a rod, C⁵, which passes up through the upper rim, and to its inner end is attached the guide C by a joint or hinge. The arm C³, at the rear end of C, is attached to C by a joint or hinge, while its other end turns on a pin passing into the rims A A, by means of which arrangement C may be moved laterally to and from the part B, so as to enlarge or diminish the width of the passage to the wheel, while such passage always maintains the form of a scroll. The gate C¹, which is in the form of a curve, equal to a quarter circle, is permanently attached to the arm C², near where such arm is jointed to the guide C.

The mode of operation will be obvious from the description given. By turning the rod C⁵, to which C² is attached, the gate is opened or closed, and, by the same operation, the width of the passage to the wheel is varied, while the passage will present the same form at all times, and the buckets will be uniformly filled, whatever amount of water may be let on.

The advantages of this form of guides and gates are that the gate, moving in the water in a curve, the water presents the least possible resistance to the movement of the gate, while the movement of the part C of the guide is more certain and uniform, and a more perfectly scroll-form maintained than when one end is fast.

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

The movable part C of the guide, in combination with the arms C² and C³.

J. L. HELMER.

Witnesses:

GEORGE M. WEAVER,

JOHN G. CROCKER.