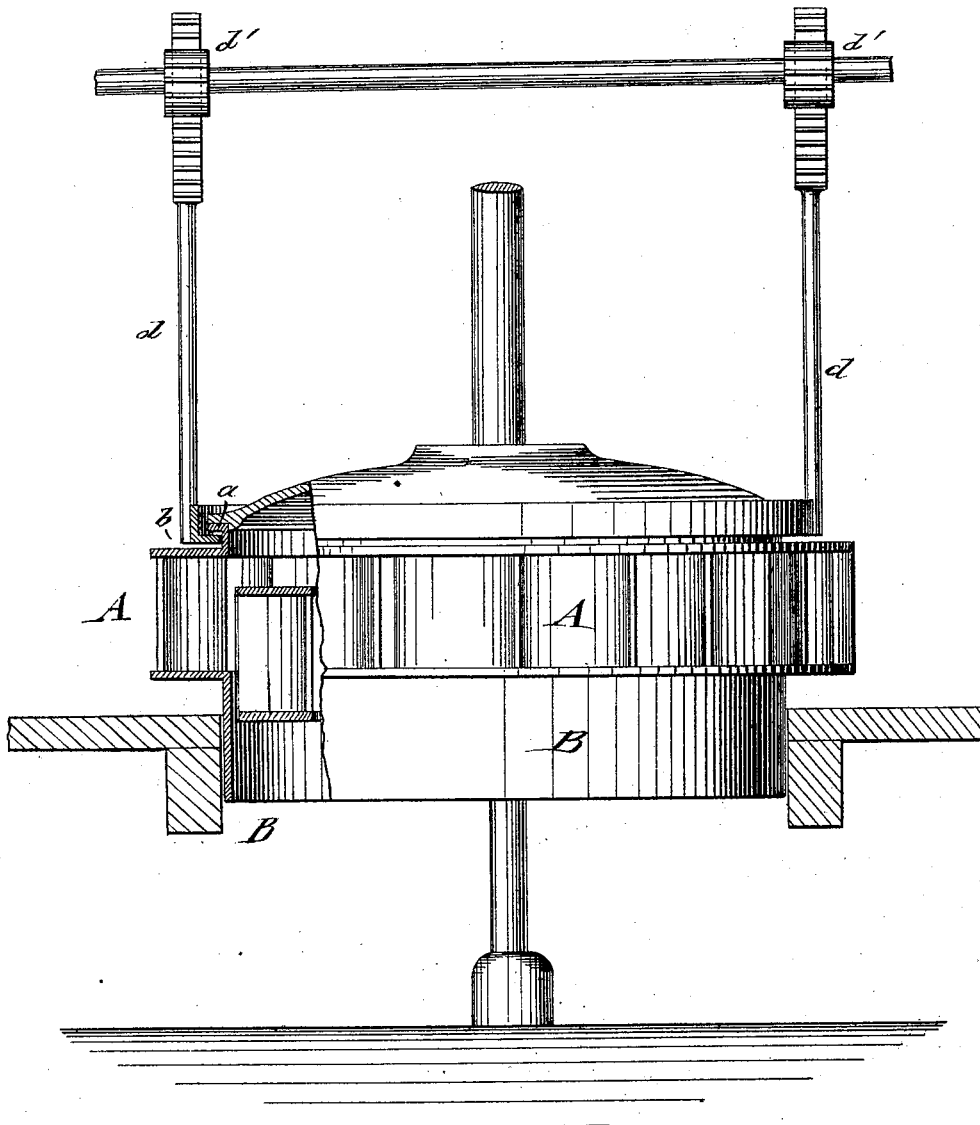


J. M. HART.
Water-Wheel Gate.

No. 163,927.

Patented June 1, 1875.



WITNESSES:

Chas. Lida
A. F. Terry

INVENTOR:

J. M. Hart
BY *[Signature]*
ATTORNEYS.

UNITED STATES PATENT OFFICE

JAMES M. HART, OF APPLE GROVE, VIRGINIA.

IMPROVEMENT IN WATER-WHEEL GATES.

Specification forming part of Letters Patent No. **163,927**, dated June 1, 1875; application filed April 24, 1875.

To all whom it may concern:

Be it known that I, JAMES M. HART, of Apple Grove, Louisa county, Virginia, have invented a new and Improved Water-Wheel Gate, of which the following is a specification:

The accompanying drawing represents a side elevation of my improved water-wheel gate, partly in section, to show position of wheel.

The object of my invention is to simplify the construction of water-wheels with adjustable gates, so that the same effect at full or partial gate may be obtained at considerable less cost than in the present wheels, and also the revolving of the gate with the wheel be rendered possible in case of accident or obstruction. The invention consists in the combination of the chutes and cylindrical gate in one piece, so that the vertical adjustment of the chutes and gates delivers the water at full or partial gate, while the hanging of the chutes admits their turning in case of obstruction.

In the drawing, A represents the chutes, and B the rim or cylindrical gate, which is cast in one piece therewith, to be used in connection with an interior or exterior water-wheel, as desired. A top flange, *a*, of the chute-ring is engaged by an annular ring or band, *b*, attached to vertical and rack-shaped rods *d*, gearing with operating-pinions *d'*.

By raising or lowering the combined chutes and gate the ring-gate takes partially the place of the chutes, and gives a partial or whole gate of any desired effect.

In case of accidental obstruction the gate-casing may turn with the wheel without injury to either.

The simple and readily-adjusted construction of the chute and gate combined renders the water-wheel less complicated without decreasing in any manner its effectiveness.

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

1. As an improvement in water-wheels, the chutes and gate combined in one piece, to be adjusted for full or partial gate of wheel, substantially as specified.

2. The vertically-adjustable chutes and gate combined, hung by an annular top flange to a supporting-ring band, so as to revolve with the wheel in case of accidental obstruction, substantially as described.

JAMES MALCOLM HART.

Witnesses:

JAMES L. JONES,
F. W. JONES.