T. DEHART.
Water-Wheel.

No. 209,667. Patented Nov. 5, 1878.

Fig. 3

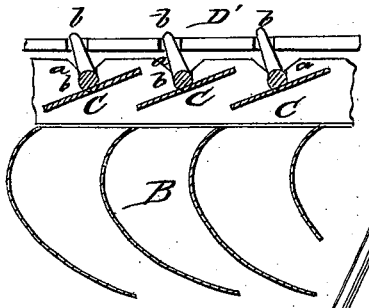


Fig. 1

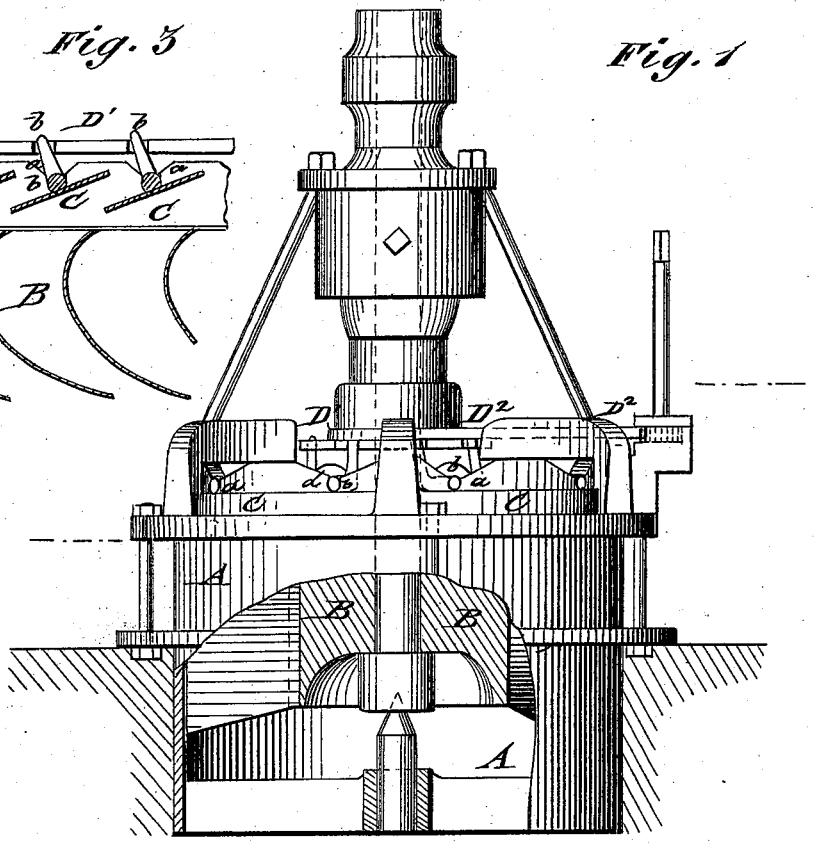
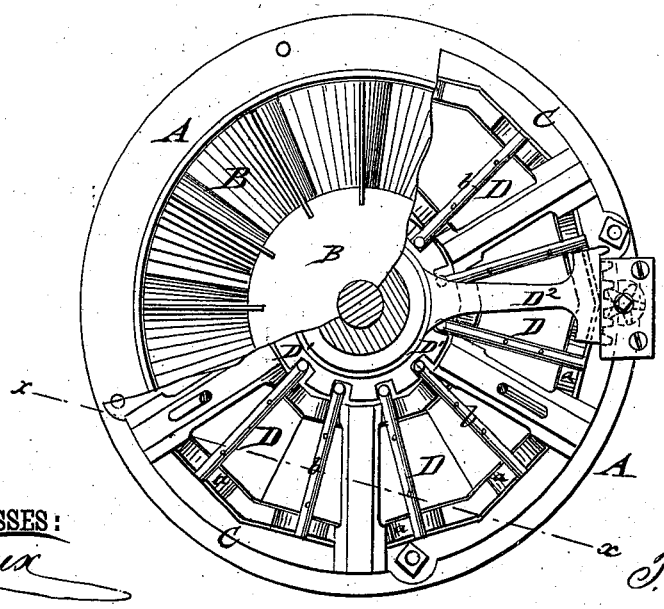


Fig. 2.



WITNESSES:
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UNITED STATES PATENT OFFICE.

THOMAS DEHART, OF MEADOWS OF DAN, VIRGINIA.

IMPROVEMENT IN WATER-WHEELS.

Specification forming part of Letters Patent No. **209,667**, dated November 5, 1878; application filed June 7, 1878.

To all whom it may concern:

Be it known that I, THOMAS DEHART, of Meadows of Dan, in the county of Patrick and State of Virginia, have invented a new and Improved Water-Wheel, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a side elevation of my improved water-wheel with part broken out. Fig. 2 is a top view of the same with part of the cover broken off; and Fig. 3 is a detail vertical transverse section on line *x x*, Fig. 2, showing the adjustable gates and buckets.

Similar letters of reference indicate corresponding parts.

The invention will first be described in connection with drawing, and then pointed out in the claim.

Referring to the drawing, A represents the casing of my improved water-wheel B, which is supported on a conical bottom step and by a suitable top bearing, the casing of the top bearing being braced in a suitable manner to the casing A. The top part of the casing A is secured to a gate-ring, C, which is provided with a number of radial open recesses or grooves, *a*, that form the bearings of the pivot-rods *b* of the radial gates D. The pivot-rods *b* extend centrally over the gates, which are wider at one side than at the other, so as to overlap the adjoining gate when the gates are closed. The inner ends of the pivot-rods are turned up in the shape of cranks and set into recesses of a central disk or wheel, D^1, that turns on a collar of the casing of the top bearing, and that may be turned to either side by means of a fixed arm, D^2, which is provided at the outer end with a toothed rack, that is engaged by a pinion operated by a hand-wheel. By turning the pinion in one direction the central disk is turned, and thereby the gates either raised or lowered, according to the direction in which the pinion is turned.

If branches or any other obstruction should get in between one or more of the gates, so as to prevent their entire closing, such obstruction will not interfere with the closing of the remaining gates, as, owing to the recesses being open on top, each gate is allowed an independent upward movement.

By raising the gates into inclined position the water will readily pass through the same to the wheel B, and set the same in motion by acting on the buckets of the same.

When the gates are lowered they lap over each other, and close tightly by the pressure of the water thereon, so as to shut out the water from the buckets of the wheel. The upper parts of the buckets are at about the same width from each other, and at about the same inclination as the gates, the middle part of the bucket being then curved toward the straight or slightly-curved lower parts of the buckets, where they are also closer to each other.

The water is conducted from the gates to the buckets and taken up by the wider or middle part of the same, so as to exert its full power thereon and be finally discharged without any shock or reaction. The water is discharged at the lower parts after having done its work.

The water-wheel is of cheap and compact construction, and capable of utilizing the water-power in effective manner without liability to stoppage or interruption by obstructions.

I am aware that it is not new in turbine wheels to use radial top gates so connected with a ring as to operate simultaneously, and I therefore do not claim such invention; but,

Having fully described my invention, what I do claim is—

The combination, with case A, of the wheel B, the gate-ring C, having recesses *a*, open on top, the radial gates D, having cranked pivot-rods *b*, and the recessed wheel D^1, the latter vibrated as and for the purpose specified.

THOMAS DEHART.

Witnesses:

WILLIAM A. RONALD,

JOHN C. A. BLACKARD.