

L. D. WYNKOOP.
Turbine Water Wheel.

No. 201,584.

Patented March 19, 1878.

Fig. 1.

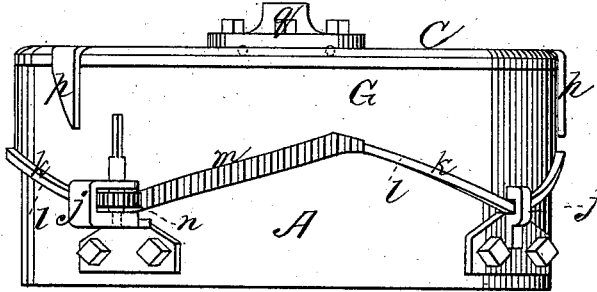


Fig. 2.

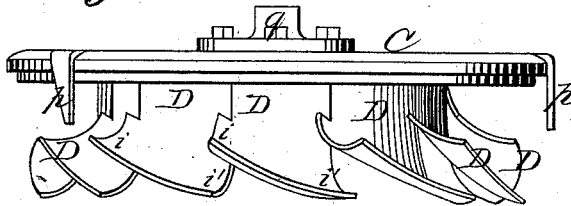
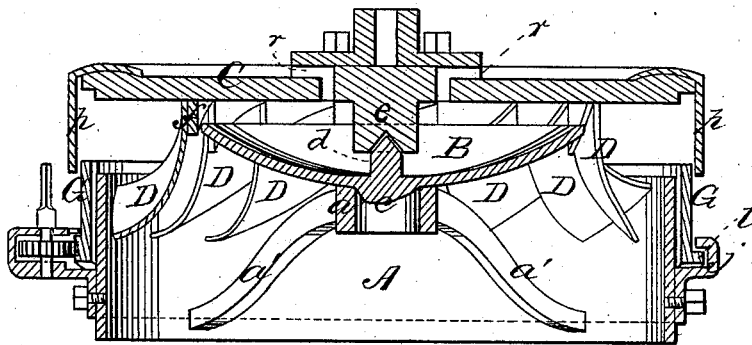


Fig. 3.



WITNESSES

Villette Anderson.
F. J. Massi.

INVENTOR

LeGrand D. Wynkoop,
by E. W. Anderson.

ATTORNEY

UNITED STATES PATENT OFFICE.

LEGRAND D. WYNKOOP, OF OWOSSO, MICHIGAN.

IMPROVEMENT IN TURBINE WATER-WHEELS.

Specification forming part of Letters Patent No. 201,584, dated March 19, 1878; application filed February 2, 1878.

To all whom it may concern:

Be it known that I, LEGRAND D. WYNKOOP, of Owosso, in the county of Shiawassee and State of Michigan, have invented a new and valuable Improvement in Turbines; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a side view of my improved turbine wheel. Fig. 2 is a detached view of the wheel proper, and Fig. 3 is a vertical central section of the wheel and its attachments.

This invention has relation to improvements in turbine water-wheels.

The nature of the invention consists in certain novel combinations of parts, as will be hereinafter more fully set forth.

In the annexed drawings, the letter A designates a strong metallic annulus, of suitable dimensions, having a central hub, *a*, and radial arms *a'*, extending from said hub to the annulus.

B represents a dished disk, having upon its under side a tapered socket, *c*, that is seated in the opening of the hub, and holds the disk in a horizontal position. This disk is concentric with the annulus, and its concavity is upward. It is provided upon its upper side, at its center, with a projecting spur, *d*, having a conical extremity, that is received in a corresponding recess upon the lower end of a bearing, *e*, that projects downward from a circular metallic plate, C, to which the buckets D are secured. These latter are secured to a serrated flange, *f*, upon the under side of plate C, and flare outward therefrom. They are also curved transversely, this curvature being set on two angles, the one being forty-five degrees and the other twenty-two and a half degrees, as shown at *i* and *i'*, respectively, the part *i* being that which receives the direct impulse of the latter, and the part *i'* its weight.

The space between the upper edge of the annulus A and plate C admits the water from the flume to the buckets, and the quantity of water is regulated by means of an adjustable

gate, G. This gate is annular, and fits snugly around the annulus A, being supported by means of brackets *j*. The lower edge of the gate is provided with the double inclines *k* and a projecting lip, *l*, over which the brackets *j* are engaged in such manner as not to bind.

One of the inclines is provided with a ratchet, *m*, with which a pinion, *n*, journaled in one of the brackets *j*, is adapted to engage. This pinion is actuated by means of a wrench, or other equivalent device, to rotate the gate and open or close the inlet, according to the direction of such rotation. When the gate is rotated the inclines come in contact with the brackets *j* forcibly, and is either raised, thereby closing or partly closing the inlet, or is lowered, opening the same to a greater or less extent.

The plate C is provided with guard-arms *p*, extending downward and spanning the inlet. These arms prevent floating wood or other débris from getting into the wheel as they spin around therewith, and consequently project all such objects outward therefrom. The plate C is provided at or near the coupling *q*, with a number of perforations, *r*, which allow the water upon the wheel to escape downward into the cup, filling which it covers the bearing of the wheel thereon and effectually lubricates it, any sediment which the water may have settling into the bottom of the cup, below the said bearing.

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

1. In a turbine water-wheel, the combination, with the outer casing A, carrying the wheel-base and pivot *d*, and having the brackets *j* and the wheel-disk C arranged above the casing, to have a water-space of the annular rotary gate G between said casing and disk, having its lower edge formed with the double inclines *k*, flanged to engage with the brackets *j* of the outer casing, to raise and lower the gate to and from the disk, substantially as specified.

2. The combination, with a casing and a cup within said casing, of a water-wheel journaled in said cup, with its bearings below the upper edge thereof, and water-conduits in said wheel, substantially as specified.

3. A turbine water-wheel consisting of the

flanged disk C and the buckets D, secured thereto, the said buckets being concave transversely, as well as from their attachments downward and outward, their upper portions in the transverse curvature being at an angle of forty-five degrees to the disk, and the lower portion at an angle of twenty-two and a half degrees thereto, substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

LEGRAND D. WYNKOOP.

Witnesses:

HARRISON H. FRAIN,
JOHN A. ROGERS.