I. SHERCK.

Turbine Water Wheel.

No. 201,635. Patented March 26, 1878.

Fig. 1.

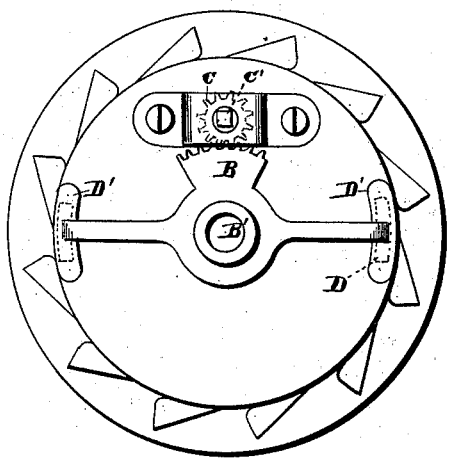


Fig. 2.

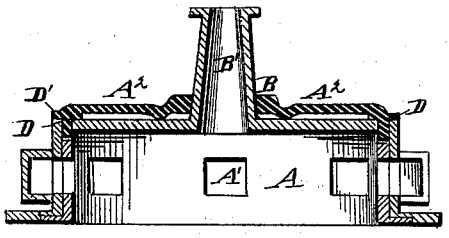
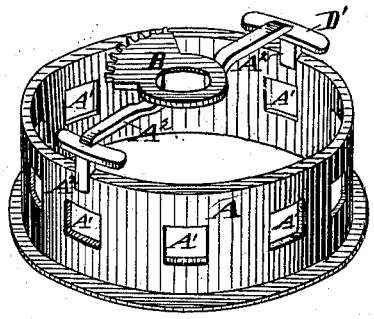


Fig. 3.



WITNESSES

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UNITED STATES PATENT OFFICE.

ISAAC SHERCK, OF FREMONT, ASSIGNOR TO HIMSELF, ISAAC KERN, EDWARD KERN, AND WM. H. KERN, OF BELLEVUE, OHIO.

IMPROVEMENT IN TURBINE WATER-WHEELS.

Specification forming part of Letters Patent No. **201,635**, dated March 26, 1878; application filed February 5, 1878.

To all whom it may concern:

Be it known that I, ISAAC SHERCK, of Fremont, in the county of Sandusky and State of Ohio, have invented certain new and useful Improvements in Turbine Water-Wheels; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to turbine water-wheels, and especially to the valves or gates that govern and control the admission of water to the wings or buckets.

It consists in any suitable mechanism whereby said valves or gates are simultaneously operated by a device having two or more points of attachment upon the rim, body, or periphery of said gates or valves, as will hereinafter more fully appear.

In the drawings, Figure 1 represents a plan view of a device constructed according to my invention; Fig. 2, a view of the same in cross-section, taken through the two arms operating the valves or gates; Fig. 3, a detached view, showing the annular gate, with its attached arms moving and controlling it from more than one point of contact.

It will be observed that the gates are here opened and closed by a ring or annular piece, A, having openings A^1 made therein, corresponding in number, size, and shape to the peculiar necessities of the wheel under construction. Upon these features I do not limit myself, inasmuch as my present invention is equally applicable to wheels of a large variety of description.

Heretofore it has been customary to move the annular valve A from a single point of attachment, and this has resulted in difficulty of turning said valve, owing to the unequal strain brought thus upon it. The pull being only at one point, the result is more or less binding and friction, and consequent difficulty of manipulation.

My invention has for its principal object the obviation of this difficulty, by having more than one point of attachment upon the annular valve A for the power operating to turn it.

My preferred construction is substantially such as shown in the drawings, where this power is applied at two diametrically-opposite points upon the body of the ring A, thus always securing a balance and equality of pressure or pull upon said ring or valve, and effectually preventing any binding or objectionable friction.

It is obvious that my invention might be so modified that, instead of the two opposite points of attachment for the power turning the valve-ring A, there might be three, four, or more such points of attachment. Two, however, serve a good purpose, and this construction I recommend as the most economical. The arms A^2 may be simultaneously operated in any suitable way. The manner here shown is to attach them to a geared collar, B, surrounding and turning upon the column B′. The geared collar meshes with a pinion, C, journaled and attached to the deck of the wheel, and provided with a shaft, C′, which may be turned with a crank hand-wheel or key, thus revolving the pinion C and collar B, to which the arms A^2 are attached, and thereby operating the annular valve-ring A.

In the deck of the wheel are made slots D, through which pass the arms A^2, or parts attached thereto, for connection with the valve-ring A. If these slots D were left open and unprotected, water would pass through them, and work deleteriously to the operation of the wheel. I therefore provide the shields or covers D′, which may be attached to or made a part of the arms A^2. These are so constructed as best to prevent the entrance of water through the slots D.

What I claim is—

1. A turbine water-wheel the valve-ring of which has two or more points of attachment for the power that moves it to open or close the ports admitting water to said wheel, substantially as and for the purpose specified.

2. The valve-ring A, in combination with two or more arms, A^2, or their equivalent, substantially as and for the purpose shown.

3. The combination, with the deck of a turbine water-wheel provided with a slot in which the angular extremity of the valve-ring arm has movement, of the shield formed on said

arm, and adapted to cover said slot, substantially as set forth.

4. In a turbine water-wheel, the two valve-ring arms formed, respectively, with shields or covers at their ends, adapted to protect the slot-openings in the deck of the wheel in which the angular extremities of said arms work, substantially as set forth.

5. The combination of the wheel or geared collar B, two or more arms, A^2, and valve-ring A, substantially as and for the purpose shown.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ISAAC SHERCK.

Witnesses:
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