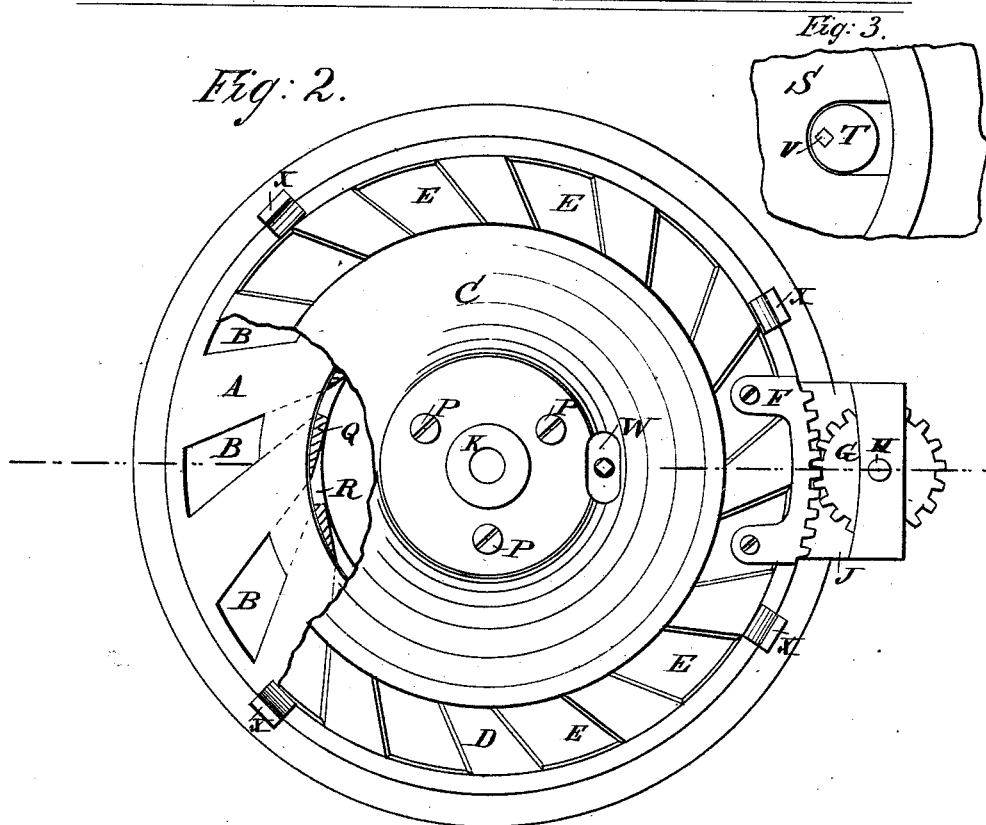
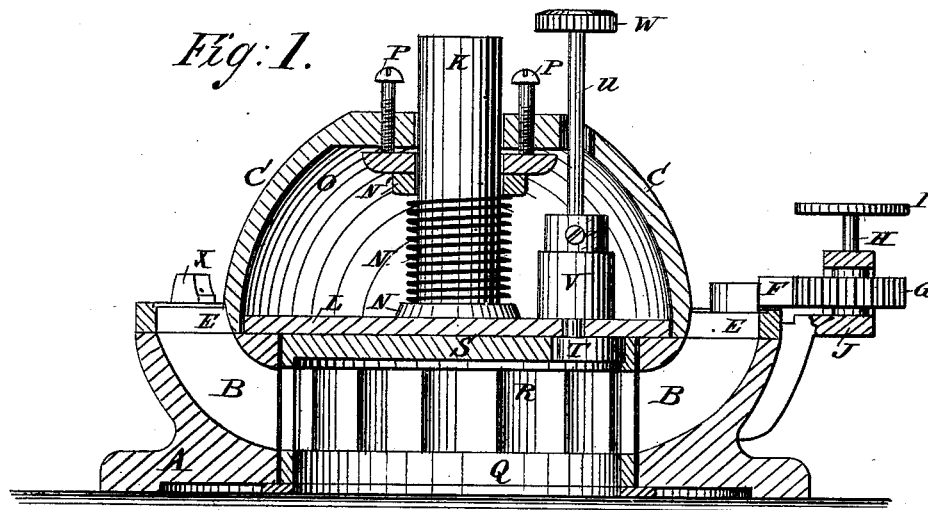


A. MOESSINGER & W. HEATHCOTE.  
Gate for Turbine Water-Wheels.

No. 218,301.

Patented Aug. 5, 1879.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

ADAM MOESSINGER AND WILLIAM HEATHCOTE, OF GLEN ROCK, PA.

## IMPROVEMENT IN GATES FOR TURBINE WATER-WHEELS.

Specification forming part of Letters Patent No. **218,301**, dated August 5, 1879; application filed May 9, 1879.

### *To all whom it may concern:*

Be it known that we, ADAM MOESSINGER and WILLIAM HEATHCOTE, of Glen Rock, in the county of York and State of Pennsylvania, have invented a new and useful Improvement in Gates for Turbine Water-Wheels, of which the following is a specification.

The object of our invention is to provide close and tight fitting gates that can be easily and exactly regulated for turbine water-wheels.

The invention consists in the arrangement of a circular or conical cap with slotted flanges operated by a rack and pinion, the flange covering the upper openings of the water-course, and of a slotted cylindrical ring operated by an eccentric, which covers the lower openings of the water-course.

In the drawings, Figure 1 shows a vertical cross-section; Fig. 2, a ground plan, and Fig. 3 a detail view of the eccentric.

Similar letters of reference indicate corresponding parts.

A is the frame of the turbine, and B B B are the water-courses. C is a conical or circular cap, provided with a flange, D, having slots E, corresponding with the water-courses B B. This cap can be partially rotated by means of the rack F and pinion G on the shaft H, having a hand-wheel, I, and a bearing on the block J, which is attached to the main frame A of the turbine. K is the shaft of the turbine, and is secured to the plate L, which again is fastened to the frame of the turbine, as shown in Fig. 1. M is a spring wound around the shaft K between the two bearing-rings N and N'. On the upper bearing, N', is an adjusting-ring, O, by means of which and the screws P P, that pass through the conical cap C, the spring M can be adjusted.

Q is a slotted cylinder, having slots R R, corresponding to the water-courses. S is the top piece of this cylinder. It is operated by the eccentric T on the shaft U, which has a bearing, V, and a hand-wheel, W. The spaces of the cylinder between the slots are beveled in a direction opposite to that of the water-courses, as is shown in Fig. 2.

The bottom of the flange D and the top of

frame A are well ground in, so as to form close and tight joints.

X X are clamps which hold the flange D down onto the frame A.

The operation is as follows: The water is closed off by means of the flange-ring D, and the flow of water is regulated by the cylinder-ring Q. If the machine is to be put in motion, the ring-flange D is turned by means of the rack and pinion so that the slots E are over the upper openings of the water-course, and the water can enter into the same. The rapidity of the motion is regulated by opening more or less the lower opening of the water-courses by means of slotted cylinder Q and eccentric T. The spring M, which is regulated by the set-screws P P, is to counteract the pressure of the water on the cap C, and to prevent an undue amount of friction between the under side of D and the upper side of A.

In case it may be necessary, several spiral springs may be arranged between the bearing-rings N and N'.

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

1. A gate for turbine water-wheels, consisting of a cap with slotted horizontal flange covering the upper openings and a slotted vertical cylinder covering the lower openings of the water-courses, as and for the purpose set forth.

2. The combination of cap C, provided with a flange, D, having slots E, of the frame A, having water-courses B B, of rack F, and of pinion G, as set forth.

3. The combination of the slotted cylinder Q, of water-courses B, and of eccentric T, operating in the top plate, S, as and for the purpose set forth.

4. The combination of the cap C, of one or more springs, M, wound around the spindle K, of plate O, and of set-screws P P, as and for the purpose set forth.

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Witnesses:

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