

J. M. BURGHARDT.
Water-Wheel Gates.

No. 137,822.

Patented April 15, 1873.

Fig. 3.

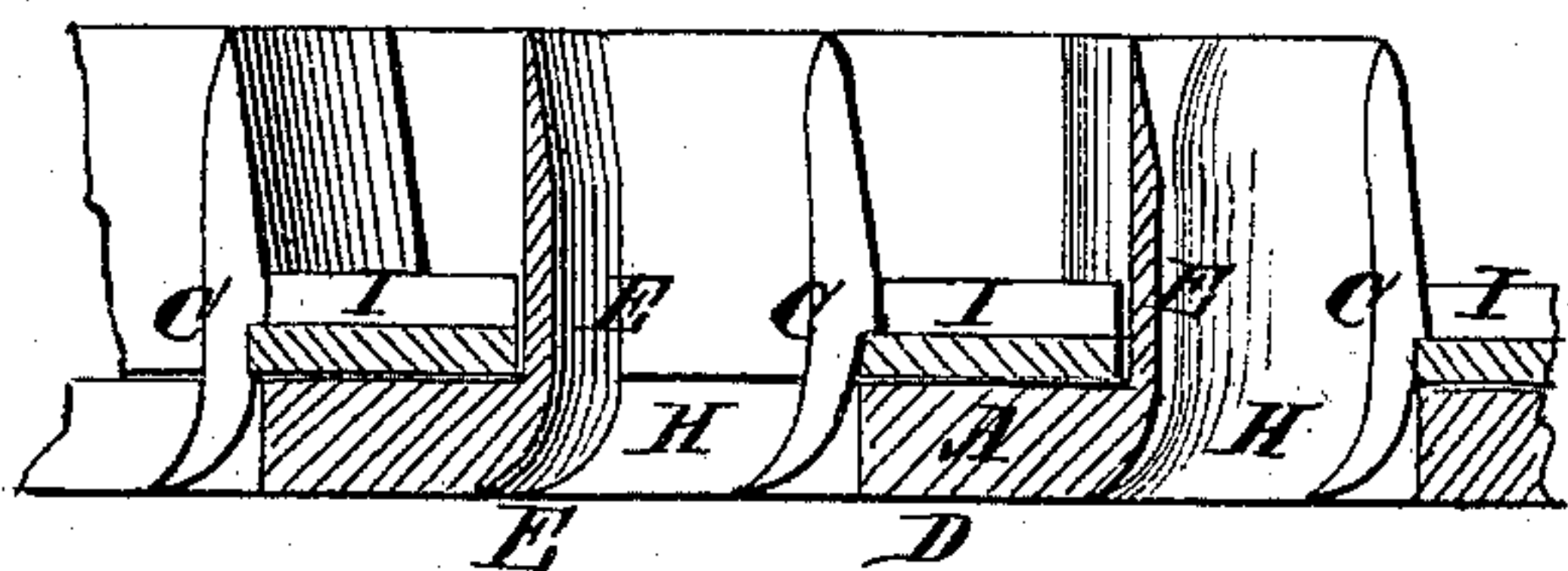


Fig. 2.

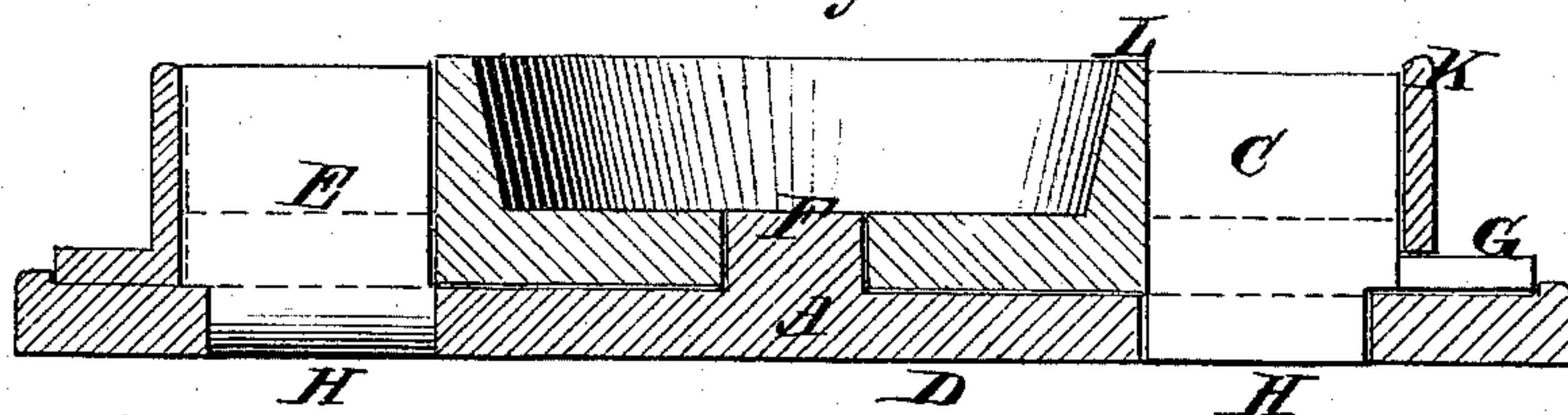
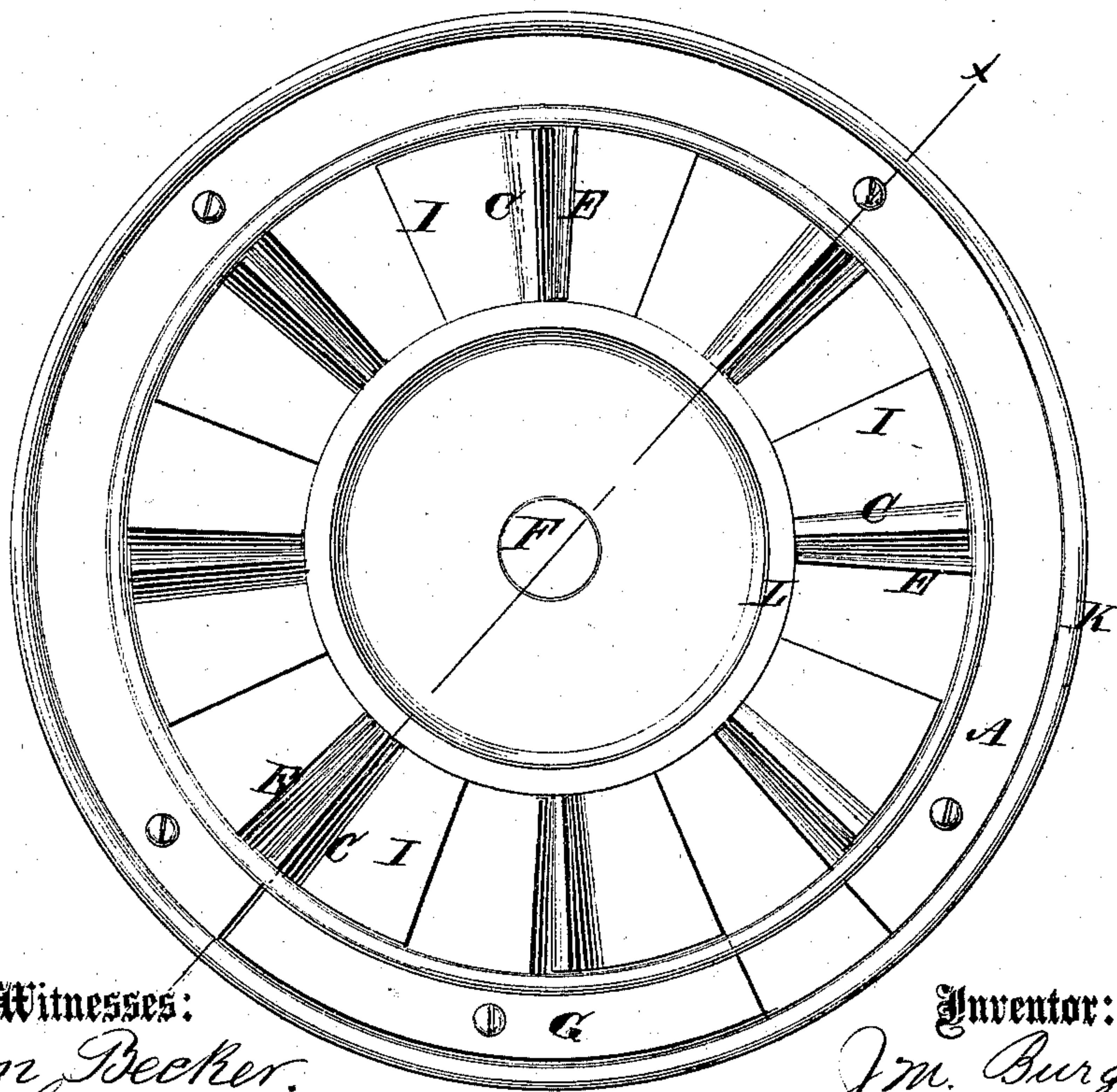


Fig. 1.



Witnesses:

John Becker.
C. Sedgwick

Inventor:

J. M. Burghardt

PER

Wm. L. G.
 Attorneys.

UNITED STATES PATENT OFFICE.

JOHN M. BURGHARDT, OF GREAT BARRINGTON, MASSACHUSETTS.

IMPROVEMENT IN WATER-WHEEL GATES.

Specification forming part of Letters Patent No. **137,822**, dated April 15, 1873; application filed July 13, 1872.

To all whom it may concern:

Be it known that I, JOHN M. BURGHARDT, of Great Barrington, in the county of Berkshire and State of Massachusetts, have invented a new and useful Improvement in Water-Wheel Gates, of which the following is a specification:

This invention relates to a mode of discharging water onto turbine and other water-wheels; and consists in movable chutes or tongues in combination with a circular gate and curb, the construction and arrangement of parts being as hereinafter set forth and described.

In the accompanying drawing, Figure 1 is a top view of the gate connected with the curb as when in use. Fig. 2 is a vertical section of Fig. 1 taken on the line *xx*. Fig. 3 is an edge view of a broken section of the wheel, showing the curve of the movable and stationary chutes.

A represents the stationary curb. B is the gate with movable chutes. C is the chute. As these parts are arranged in Figs. 1, 2, and 3, the gate is adapted for what is known as the turbine wheel, with the head of water resting on the curb and gate. The wheel revolves in close proximity to the face D of the curb. E are stationary chutes attached to the curb. The gate is confined by the center F of the curb and rests upon the curb, and receives a rotating motion thereon by means of a rack and pinion applied to its projecting flange G, operated by any of the well-known devices prepared for that purpose. The flange G is a segment which passes beneath the flange K of the curb. The power for operating the gate is applied to this segment-flange. H represents the chute-apertures through the curb. The movable chute or tongue C projects from the plate I of the gate and passes through the water-apertures in the curb, as seen in Fig. 3.

The movement of the gate is, consequently, limited by the water-apertures H. When the gate is turned in one direction the chutes C come in contact with the stationary chute E, which cuts off the water. By an opposite movement the water-apertures may be made of any desired size. The ends of the stationary chutes are curved, as seen at J, and the chute C is made to correspond therewith, as seen in Fig. 3. K is the stationary curb-flange, and L is the flange of the gate, and the ends of all the chutes are even therewith.

By this arrangement of the chutes C and E the water is directed to the wheel in unbroken columns, and is brought in direct contact with the buckets. By this arrangement the water-apertures are made variable, and the gate may be adjusted to discharge more or less, according to the quantity of water or the power required, while the shape of the aperture is not varied. This is an important feature of my invention, as, when the chutes are turned on pivots, the form of the discharge-apertures as well as the size is changed. This gate is adapted to either vertical or horizontal turbine wheels. For vertical wheels the curb A forms the bottom of the pen-stock or flume. For horizontal wheels it forms the ends of the flume.

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

The stationary curb A, having apertures H, chutes E, face D, and center F, combined, as described, with rotary gate having plate I with movable chutes C, arranged as and for the purpose described.

JOHN M. BURGHARDT.

Witnesses:

CALVIN ROOD,
BILLINGS PALMER.