

J. ABELL.

Adjustable Chutes for Turbine Water Wheels.

No. 138,978.

Patented May 20, 1873.

FIG. 1.

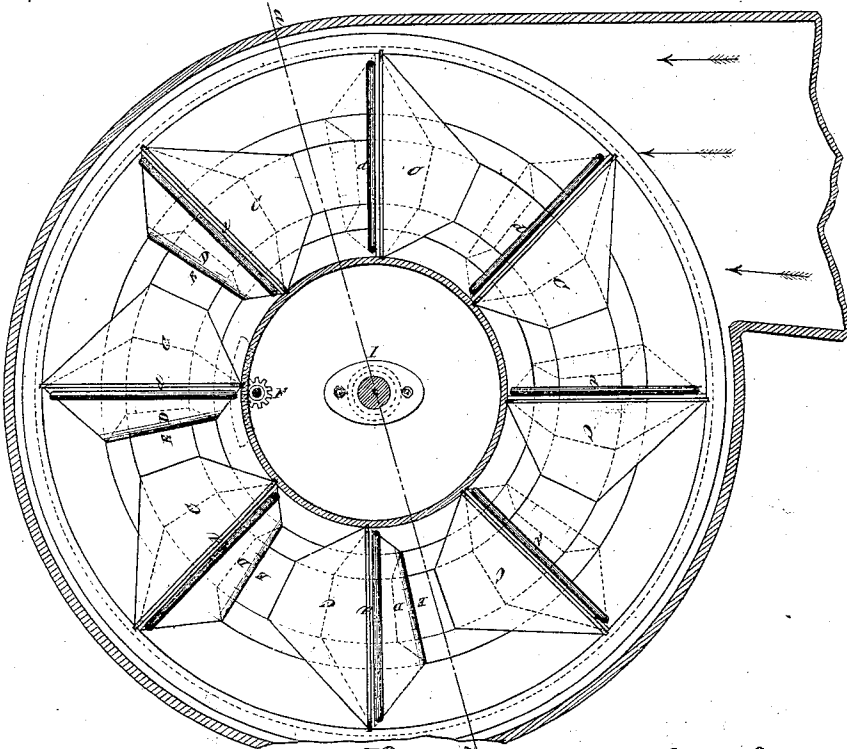
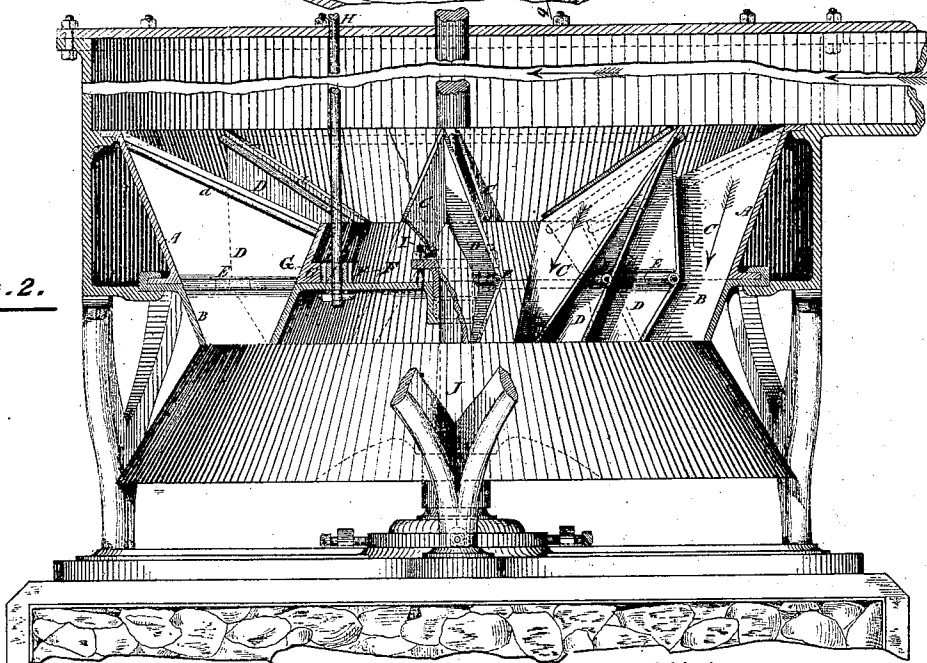


FIG. 2.



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WITNESSES

INVENTOR
John Abell
per
Donald. C. Ridout & Co.
his Attorneys.

UNITED STATES PATENT OFFICE.

JOHN ABELL, OF WOODBRIDGE, CANADA.

IMPROVEMENT IN ADJUSTABLE CHUTES FOR TURBINE WATER-WHEELS.

Specification forming part of Letters Patent No. **138,978**, dated May 20, 1873; application filed September 20, 1872.

To all whom it may concern:

Be it known that I, JOHN ABELL, of the village of Woodbridge, county of York, Province of Ontario, Canada, have invented certain Improvements in Adjustable Chutes, of which the following is a specification:

Nature and Object of the Invention.

The only difficulty experienced in operating the Jonville or Samson turbine wheel has been the almost impossibility of regulating the supply of water, thereby economizing it and regulating the power as required. This has been the object of my invention, which I have effected in an arrangement by which I am enabled to adjust the chutes, closing or opening them as required, without approaching the wheel or requiring it to be stopped.

Description of Accompanying Drawing.

Figure I, plan showing chutes closed on one side and open on the other side of the line *a b*; Fig. II, sectional elevation, showing chutes arranged as in plan.

General Description.

A is a cast-iron ring, flanged and resting on stationary ring B, as shown, proper mechanical means being adopted to fit them together and prevent their falling apart, and at the same time admit of the circular motion required. C is a steel plate, riveted to A, and into the inner casting of which the rack G forms part. This plate C forms one side of each chute, and extends the full depth of the two outer rings A and B. D are two steel plates, hinged at E, the lower one being riveted to B and the inner casting before referred to; the upper one is merely hinged at E, and is loose between the bar *d* and top of the plate A. The pinion F gears into the rack G; this rack, as I before said, forms part of the upper inner casting, and is connected to the ring A.

The vertical shaft H for working the pinion may be carried up into the building above, and any suitable mechanical contrivance for working the same, attached in the most convenient place and manner. The rack G, plate C, and outer casting A, being all connected as described, will move together as the pinion F is made to revolve, carrying with them the loose plate D.

From this description, and with the assistance of the accompanying drawing, any mechanic will understand with what ease the chutes (formed by the plates C and D) can be closed or opened, it being simply necessary to turn the shaft H, when the plates C close upon or recede from the plates D, thereby regulating the supply of water admitted into the wheel J. It is, of course, understood that B remains stationary, and with it D. Connected to and worked by the center shaft I a governor attachment is sometimes applied and connected to the shaft H in such a manner that the same is made to open the chutes when necessary to increase the power of the wheel and close them when required to decrease it in a corresponding manner.

What I claim as my invention is—

1. Combination of the movable cast-iron ring A, steel plate C, and inner upper casting, of which the rack G forms part, operated by the pinion F on the vertical shaft H, substantially as and for the purpose specified.

2. The combination of the stationary part B and lower steel plate D with the upper steel plate D, hinged at E, and held between the bar *d* and plate C, substantially as and for the purpose specified.

Toronto, August 22, 1872.

JOHN ABELL.

Witnesses:

DONALD C. RIDOUT,
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