

J. O. JOYCE,
Cases for Turbine Water-Wheels.

No. 130,055.

Patented July 30, 1872.

Fig. 1

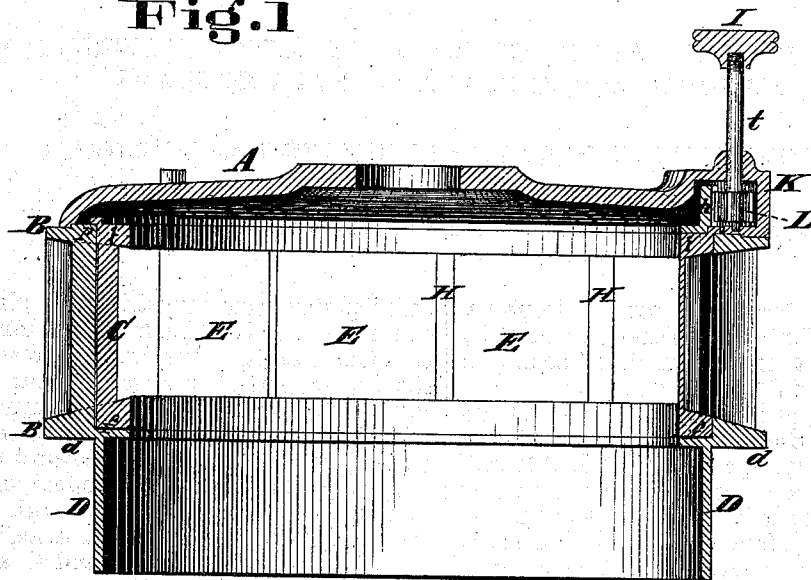


Fig. 2

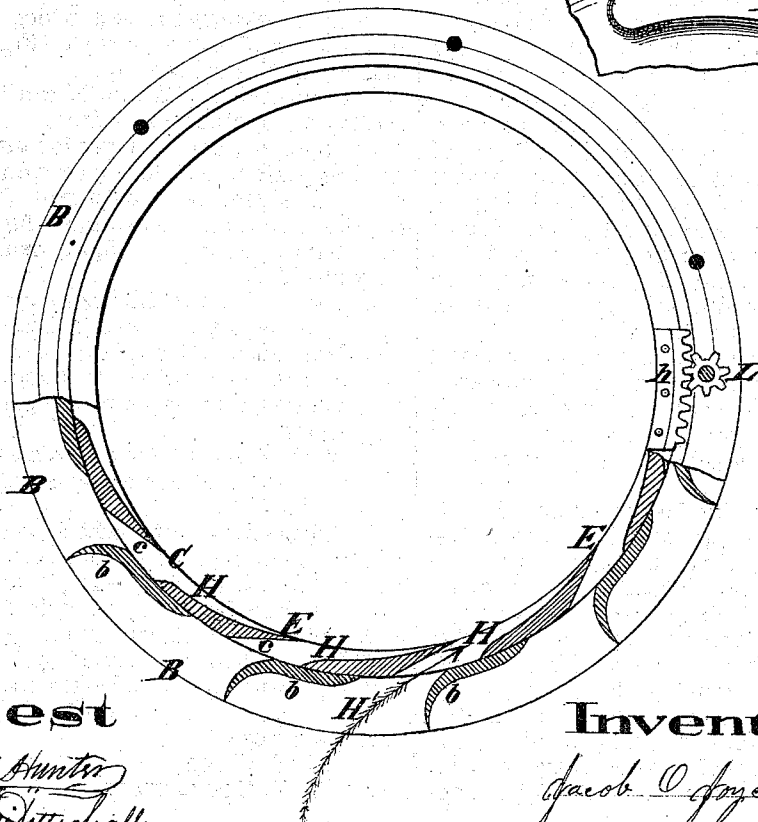
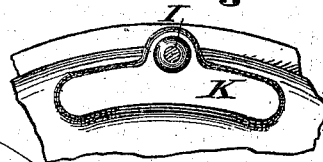


Fig. 3



Attest

R. Hunter
Witness

Inventor

Jacob O. Joyce

UNITED STATES PATENT OFFICE.

JACOB O. JOYCE, OF DAYTON, OHIO, ASSIGNOR TO STILLWELL & BIERCE
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IMPROVEMENT IN CASES FOR TURBINE WATER-WHEELS.

Specification forming part of Letters Patent No. 130,055, dated July 30, 1872.

Specification describing certain Improvements in Cases for Water-Wheels, invented by JACOB O. JOYCE, of Dayton, in the county of Montgomery and State of Ohio.

The first part of my invention relates to an improvement in cases for turbine water-wheels. The object of this improvement is to construct the register or revolving part of the case in such a manner that it will revolve or turn on suitable bearings freely without being materially effected by the weight of the column of water in the flume; and consists in constructing the case so that the outer portion will be stationary, and will act as a column to sustain the crown-plate, and the water in the flume resting on the case allowing the inner part of the case to revolve on a suitable bearing formed on the inner periphery of the stationary part of the case. The second part of my invention relates to an improvement in the method of attaching the devices which are employed to operate the gates, or to open and close the chutes to the case, the object of which is to prevent the operating devices (such as a rack and pinion) from being obstructed by foreign substances which clog or prevent them from operating freely; and consists in providing a housing, either cast with the crown-plate or made of separate pieces of metal, and fastened to the case.

Figure 1 is a vertical section of the case. Fig. 2 is a plan view of Fig. 1, with the crown removed and portions of the rims broken off, showing a plan of the chutes when partially closed. Fig. 3 is a plan view of the housing for the rack.

A is the crown-plate of the case. B D is the stationary or outer portion of the chute-case, B B being rims, between which the chute-plates *b b* are placed. D is the cylindrical portion, which is adapted to project through the flume for the attachment of a bridge as well as a draft-tube, when such a tube is desired. *d* is an annular flange, designed to rest on the floor of the flume to support the entire case and wheel working therein. C is the register portion of the case, revolving inside of the stationary part B D. *i f* are an-

nular plates, between which are placed the chute-plates E E. The inner portions of the case C is maintained in its proper relation to the duplex part B D by an annular bearing, P, and upon which it revolves or turns to open and close the chutes H H'. The chutes are preferably made converging toward the point *c*, which is the throat of the chute, and when so made the converging and diverging feature is maintained with a "partial gate," as seen in Fig. 2. The parts B, D, and C are fitted as shown in Fig. 1.

The crown A, overlapping C and fastened to B, may be made of any desired form. K is a housing, cast with the crown A, with a bearing for the pinion-shaft *t*, which is stepped on the annular plate *b*. L is a pinion, mounted on *t* and meshing in rack *h*, which is properly mounted on plate *i* of part C. Fig. 3 shows a plan view of this housing K.

It is evident that A and K can be cast separately or together, as desired.

I is a hand wheel or lever for turning shaft *t*. The parts B, D, and C form a duplex chute-case. The general character of these chutes and their advantages are more fully set forth in Letters Patent No. 105,808, granted to me July 26, 1870.

It is obvious that the improvements herein described may be used with register-cases with any form of chute, and that the housing K can be readily adapted to many classes of wheels other than those with register and duplex cases.

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

1. A case for a water-wheel, with the inner part C revolving on the outer part of the case, combined with a crown-plate, constructed and arranged substantially as herein set forth.

2. The housing K, surrounding and inclosing the mechanism operating the gates or chutes, substantially as herein set forth.

JACOB O. JOYCE.

In presence of—

E. E. WOOD,

O. M. GOTTSCHALL.