(No Model.)

3 Sheets—Sheet 1.

J. BÊCHÉ.

TURBINE WATER WHEEL.

No. 306,571. Patented Oct. 14, 1884.

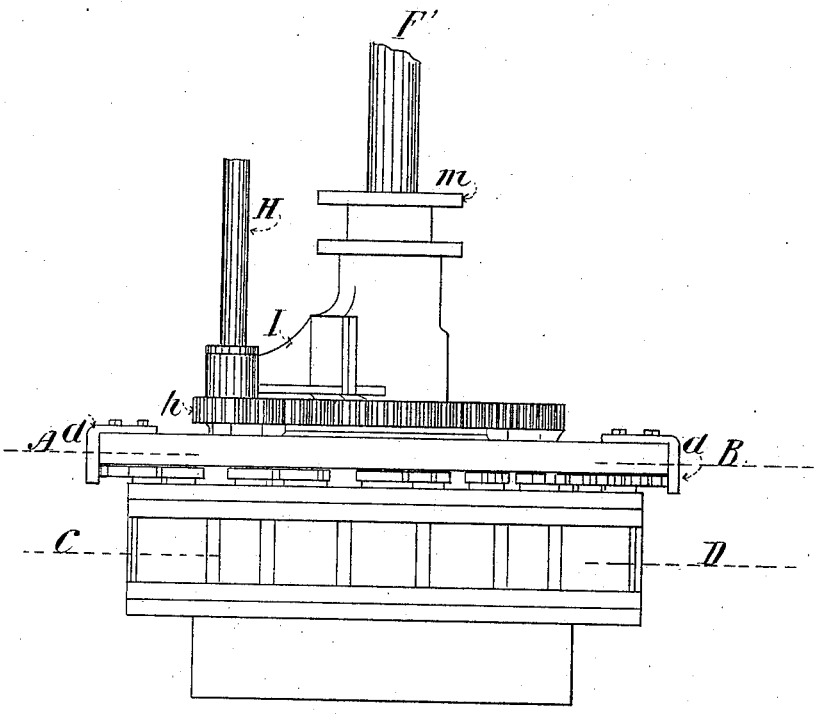

Fig 1

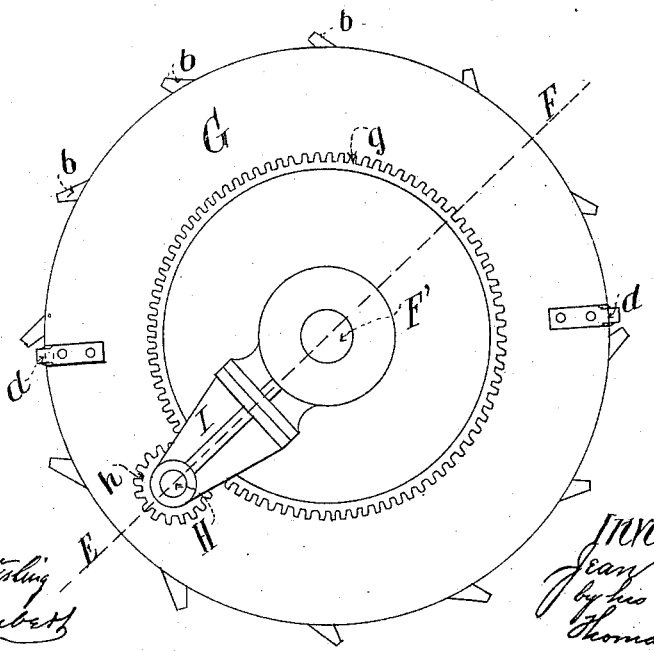

Fig. 2

Witnesses
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Fredk J. Lambert

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Jean Bêché
by his attorney
Thomas D. Howells

(No Model.) 3 Sheets—Sheet 2.

J. BÊCHÉ.

TURBINE WATER WHEEL.

No. 306,571. Patented Oct. 14, 1884.

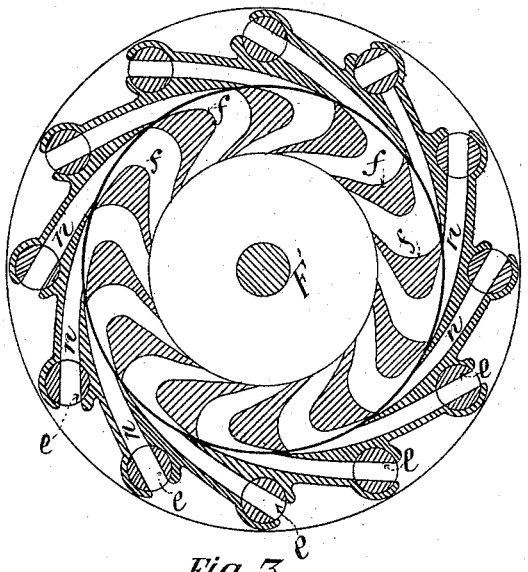

Fig 3

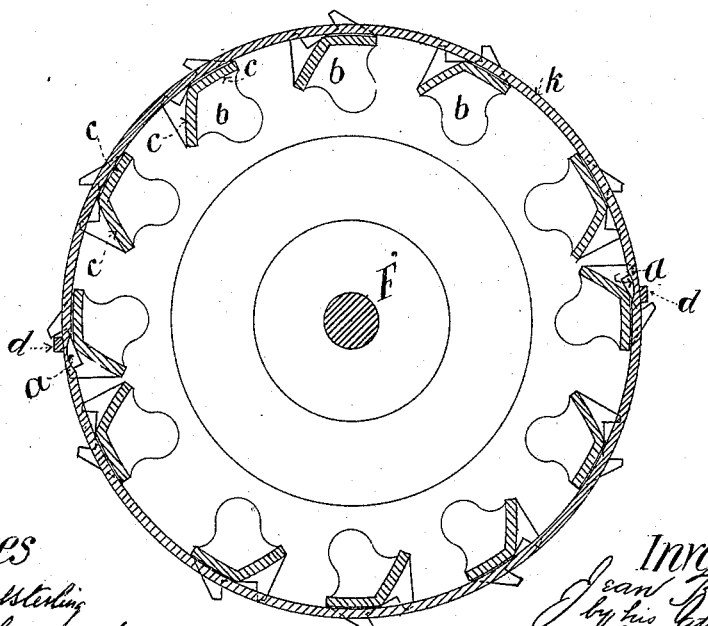

Fig 4

Witnesses
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(No Model.) 3 Sheets—Sheet 3.

J. BÊCHÉ.

TURBINE WATER WHEEL.

No. 306,571. Patented Oct. 14, 1884.

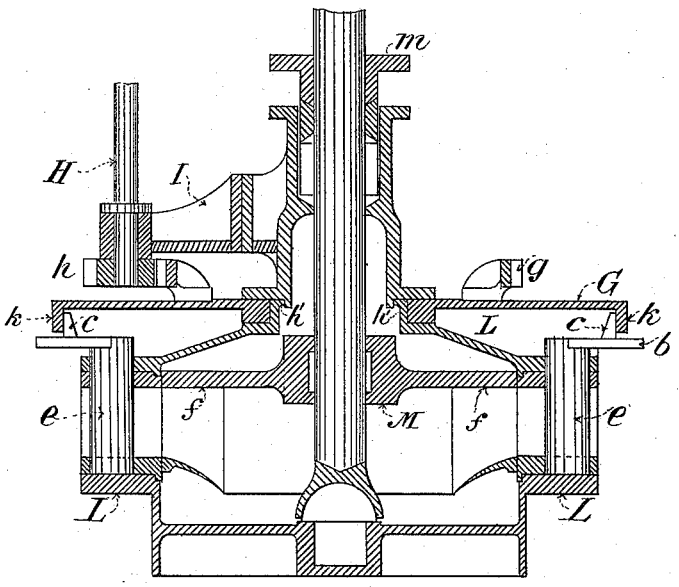

Fig 5

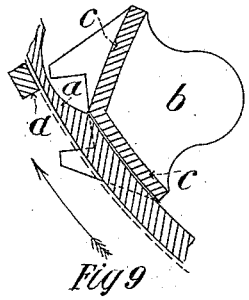

Fig 9

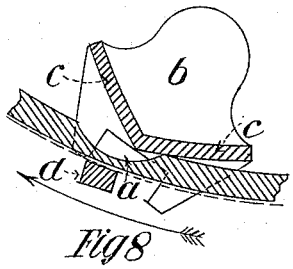

Fig 8

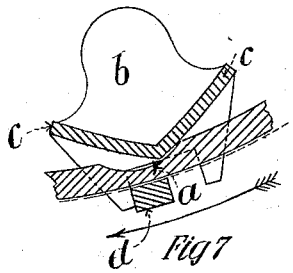

Fig 7

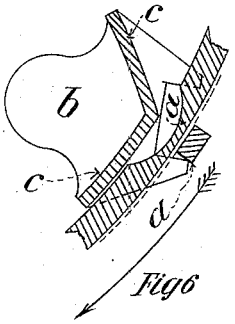

Fig 6

Witnesses
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Fred J. Lambert

Inventor
Jean Bêché
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UNITED STATES PATENT OFFICE.

JEAN BÊCHÉ, OF HÜCKESWAGEN, PRUSSIA, GERMANY.

TURBINE WATER-WHEEL.

SPECIFICATION forming part of Letters Patent No. 306,571, dated October 14, 1884.

Application filed December 26, 1883. (No model.) Patented in Germany March 19, 1882, No. 20,013; in Belgium August 16, 1882, No. 58,610, and in France September 2, 1882, No. 150,920.

To all whom it may concern:

Be it known that I, JEAN BÊCHÉ, a citizen of Prussia, residing at Hückeswagen, Rhine Province, Germany, have invented certain new and useful Improvements in Turbine Water-Wheels, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to turbine water-wheels; and the improvement consists in providing means whereby any number of the gates may be opened or closed at will, and securely held in position free from the liability of being misplaced or disturbed by any irregular means, such as the vibration of the whole wheel or from objects floating in the water.

In the accompanying drawings, in which similar letters of reference indicate like parts, Figure 1 shows an elevation of a wheel containing my improvements. Fig. 2 is a plan of the same. Fig. 3 is a horizontal section on the line C D, (see Fig. 1.) Fig. 4 is a horizontal section on line A B, (see Fig. 1.) Fig. 5 is a cross-section on line E F, (see Fig. 2.) Figs. 6, 7, 8, and 9 are enlarged views of the gates in different positions.

F′ is the main shaft, upon which the wheel M is secured.

f f are the buckets on the wheel M.

e e are the gates or cocks through which the water passes. These gates or cocks are made on the plan of the ordinary stop-cock, and have the usual water-way cut therein.

b b are the tops of the gates *e e*, and are shaped as shown in Fig. 4.

c c represent two curved flanges on the tops *b* of the gates. These flanges are placed in the position shown in Figs. 4, 6, 7, 8, and 9, and are made on a circle slightly smaller than the inside of the circular flange *k*, situated on the edge of the crown-plate G.

n n are chutes or spouts to convey the water to the buckets *f f* after it has passed through the gates *e e*.

I is an outwardly-extending arm, the inner end of which surrounds the shaft F′, and is fastened rigidly to the main frame of the wheel at *h′*.

H is a shaft passing through the outer end of the arm I, at right angles therewith.

h is a small cog-wheel gearing into another cog-wheel, *g*, secured on the top of the crown-plate G.

m is a collar fitting round the shaft F′, and forming a bearing for the upper end of said shaft.

d d are two cams attached to the crown-plate G on opposite sides.

a a are two notches cut into the inner side of the flange *k*, immediately underneath the cams *d d*.

To open or close the gates *e e*, the shaft H is turned in the required direction. This turns the small cog-wheel *h*, which conveys the motion to the wheel *g*, thus revolving the crown-plate G and cams *d d*. The cams *d d*, in moving round, strike the projecting points of the tops *b b* of the gates *e e* and turn them in the direction in which the cams are moving. As the flanges *b b* form an angle on the top of each gate, and are made on a circle slightly smaller than the inside of the flange or rim *k*, it will be readily seen that the gates *e e* can only be moved when the notches *a a* in the flange *k* are brought immediately over or opposite the points or angles formed by the flanges *c c* on the gates *e e*. After the cams *d d* and notches *a a* have passed over any gate, it is securely held in position by the flange or rim *k* operating on the flanges *c c* on the top of the gates. If necessary, the wheel may be operated with only one of the notches *a a* and cams *b b;* but two of said cams and notches placed on opposite sides, as herein shown, will be found to work much more smoothly and better.

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

1. A water-wheel having the crown-plate G, provided with the rim or flange *k*, and one or more of the notches *a a* and cams *d d*, in combination with the gates *e e*, having the flanges *c c*, substantially as and for the purpose shown and described.

2. In a water-wheel, the combination, with a crown-plate, G, provided with the flange or rim *k*, having a switch or notch, *a*, and cam *d*, of gates *e*, having tops *b*, provided with flange *c*, and suitable means for revolving said crown-plate, substantially as shown.

In testimony whereof I affix my signature in presence of two witnesses.

JEAN BÊCHÉ.

Witnesses:
ALB. NEYER,
CARL DEIMANN.