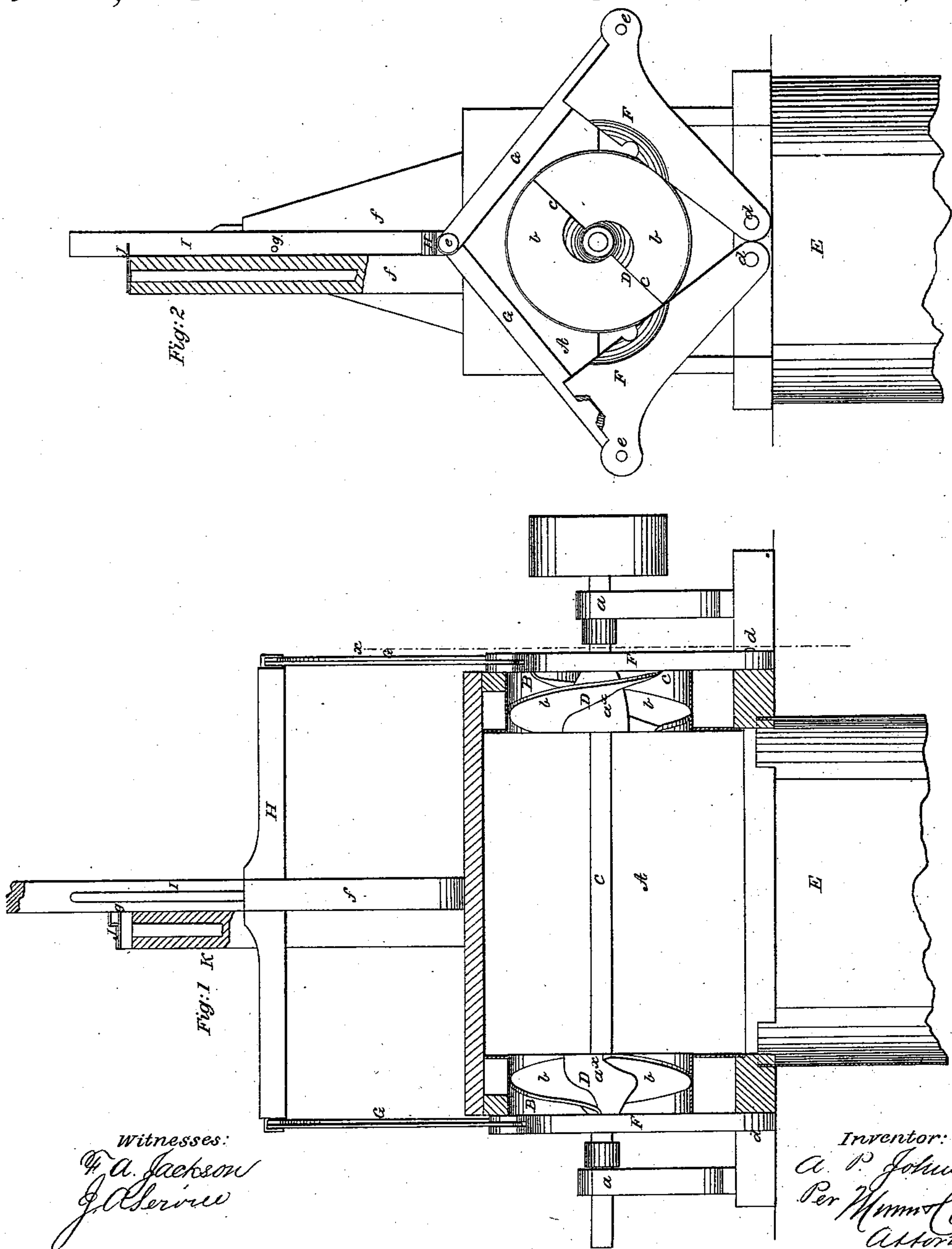


A. P. Johnson,

Water Wheel,

N^o 61,667.

Patented Jan. 29, 1867.



Witnesses:
A. Jackson
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A. P. JOHNSON, OF EDWARDS, NEW YORK.

Letters Patent No. 61,667, dated January 29, 1867.

IMPROVEMENT IN WATER-WHEELS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, A. P. JOHNSON, of Edwards, in the county of St. Lawrence, and State of New York, have invented a new and improved Water-Wheel; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side view of my invention, the case being bisected in a longitudinal vertical direction.

Figure 2, a transverse vertical section of the same, taken in the line *x x*, fig. 1.

Similar letters of reference indicate like parts.

This invention relates to a new and improved water-wheel, of that class in which screw or spiral buckets are employed; and it consists in providing the wheel case with a tube containing a valve which is automatically opened where the gates are closed to admit of the discharge of the water from the case and draught-tube.

A represents a case which has a circular opening, B, in each end of it, and C is a shaft which passes longitudinally through the case A, the bearings *a a* of said shaft being at the outer side of the case A. On this shaft C there are placed two wheels, D D, composed of spiral buckets *b b*, two or more, two being shown in the drawings. These buckets *b b* have what may be termed a gaining twist, the pitch gradually decreasing from the front to the inner ends of the buckets, and the wheels are fitted in circular openings in the ends of the case A, as shown clearly in fig. 1. The outer ends *c* of the buckets *b b* are sharp or knife-edged, so that they will cut drift-wood which may pass into the wheels, and admit of the same passing through the wheels without the liability of clogging or choking them up. The wheels are provided with conical hubs *a x*, which force the water to the outer parts of the wheels, where there is a greater leverage power. E represents a draught-tube, the upper end of which communicates with the lower part of the case A. This draught-tube extends down into the tail-race, as usual. The gates of the wheels are attached to each end of the case A. These gates are composed each of two or more parts, F F, the lower ends of which are pivoted to the lower part of the case, as shown at *d d*, and the upper ends of the parts F F are connected by bars G G to the ends of a horizontal bar, H, the bars being attached to the parts F F of the gates and to the ends of the bar H by pivots *e*. The horizontal bar H has a vertical bar, I, framed centrally into it, the latter being fitted between guides *f f*, on the top of the case. The bar I has a rod, *g*, projecting horizontally from it to lift or open a valve, J, on the top of a vertical tube, K, which communicates with the case A.

It will be seen from the above description that by raising the bar I the gates will be closed, the two parts F F of each gate coming in contact and completely closing the outer sides of the openings in which the wheels work or rotate, the gates being opened by shoving down the bar I. The parts F F of the gates are easily operated, the bars G G, in connection with the parts F F, acting like toggles. In raising the bar I to close the gates, the rod *g*, as the gates close, raises or opens the valve J, and the water within the case and draught-tube is allowed to pass down into the tail race. The case A is placed within a suitable penstock, sufficient space being allowed at each end of the case for the water to enter and act upon or against the wheels. The gaining twist of the spiral buckets causes the water to act in the most favorable manner upon or against the wheels.

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

The tube K, provided with the valve J, operated automatically from the gate-rod I, substantially as shown and described.

A. P. JOHNSON.

Witnesses:

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