

EZRA POOLE.

WATER WHEEL.

PATENTED JUL 4 1871

116749

Fig. 1

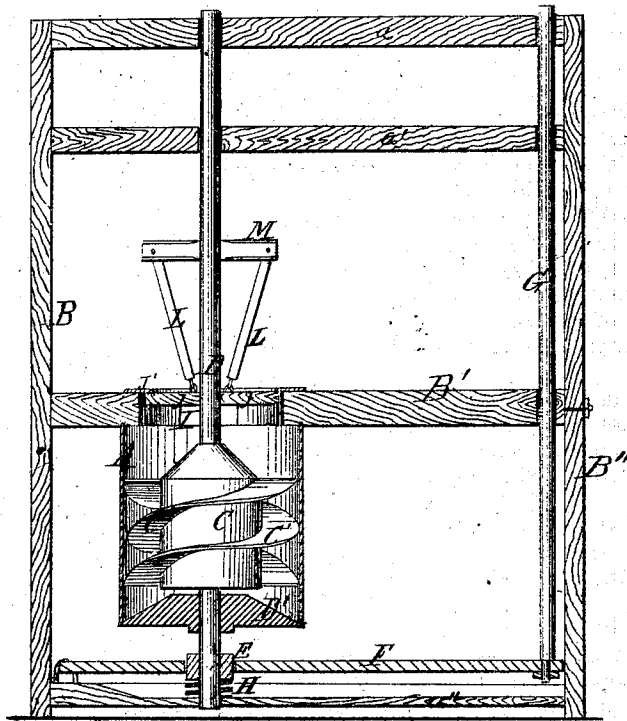


Fig. 3

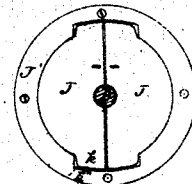
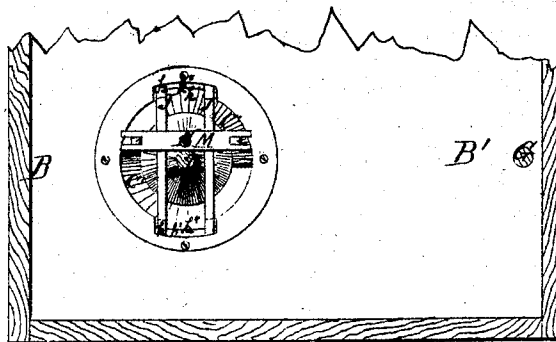


Fig. 2



Witnesses
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UNITED STATES PATENT OFFICE.

EZRA POOLE, OF GOUVERNEUR, NEW YORK.

IMPROVEMENT IN WATER-WHEELS.

Specification forming part of Letters Patent No. 116,749, dated July 4, 1871.

To all whom it may concern:

Be it known that I, EZRA POOLE, of Gouverneur, in the county of St. Lawrence and State of New York, have invented a new and valuable Improvement in Water-Wheels; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawing making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a representation of a vertical transverse section of my invention. Fig. 2 is a horizontal section of the same. Fig. 3 is top view of the wheel-opening, showing arrangement of gates.

This invention has relation to certain improvements in water-wheels; and consists in the construction and novel arrangement of the parts, as hereinafter described.

In the accompanying drawing, A represents a cylindrical wheel-case, supported in a vertical position within a pen-stock, B, which has a horizontal division, B', and a gate, B". C shows a wheel inclosed within the case A, and constructed with the spirally-arranged buckets C', upon which the water acts to rotate the wheel on a vertical axis. D indicates the wheel-shaft having its bearings in the transverse beams *a a* and bottom *a''* of the pen-stock. D' indicates the bottom of the wheel-case, through which the shaft D passes, and upon which the said bottom is arranged to slide up and down. E represents a sleeve encircling the shaft D, and itself encircled by a ring formed on a transverse lever, F, hinged at its rear or inner end to the bottom *a''* of the pen-stock B. A pin on either side of the shaft D connects the lever F and sleeve E, and allows the former to turn on it as a fulcrum or pivot. A vertical rod, G, attached to the outer end of the lever F, and extending above the top of the pen-stock, is employed to operate it. The bottom of the wheel-case rests on the sleeve E, and falls when the lever is pressed down or is raised by it. H denotes a spring coiled around the shaft D underneath the sleeve E, and resting one end against it and the

other on the bottom of the pen-stock. The force of this spring tends to keep the bottom of the wheel-case closed up until overcome by the pressure exerted on the lever through the medium of the rod G. I represents the opening by which the water is made to enter the wheel-case. J J is a pair of semi-circular gates with ears *k k*, which rest on flanges *k'* in recesses *k'* formed at the edges of the opening I. Within these recesses the gates are journaled or hinged and swing open, as clearly represented in Fig. 2 of the accompanying drawing. The ring J' overlaps the edges of the gates. A rod, L, is linked to each of these gates and journaled at its upper end to a cross-head, M, to which it reaches in the oblique direction shown in Fig. 1. A vertical bar, N, is attached to this cross-head and extended above the pen-stock. The raising or lowering of the bar N obviously opens or closes the gates J J. The wheel C is attached rigidly to the case A, and both rotate together.

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

1. The tapering bottom D', as described, in combination with the wheel C, spiral buckets C', case A, shaft D, and lever F, substantially as and for the purpose specified.
2. The gates J J hinged within or at the mouth of the opening I, bars L L, cross-head M, and bar N, combined and applied to a water-wheel, substantially as specified.
3. The combination and arrangement of the sleeve E, lever F hinged to the pen-stock B, spring H, and rod G, applied in connection with the tapering bottom D' of a water-wheel, substantially as specified.
4. The wheel C with spiral buckets C', case A, and shaft D, when combined together substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

EZRA POOLE.

Witnesses:

D. A. JOHNSON,
CHAS. ANTHONY.