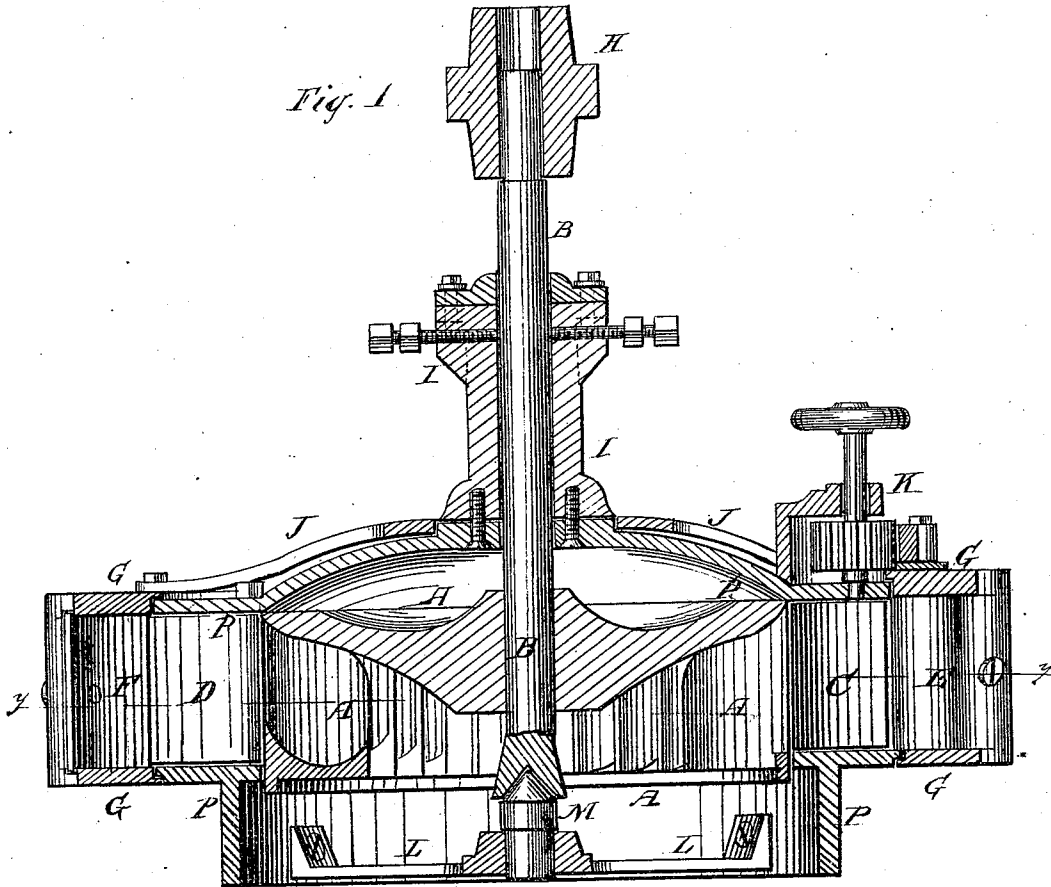


A. N. WOLF.
Water-Wheel.

Patented Feb. 9, 1875.

No. 159,734.



WITNESSES:

P. C. Dieterich

W. B. Weather

INVENTOR:

A. N. Wolf

per J. J. Alexander

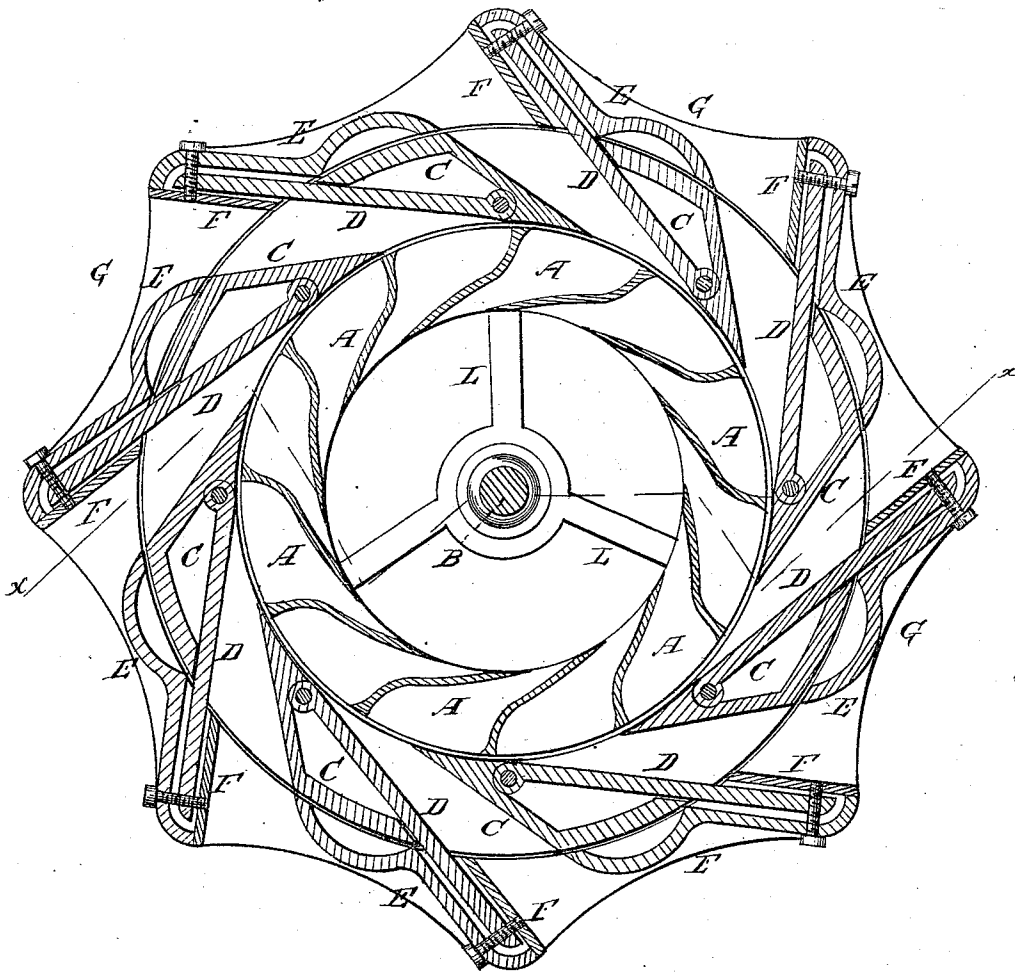
ATTORNEY.

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Fig. 2.



WITNESSES:

P. C. Osterich.

W. C. McArthur.

INVENTOR:

A. N. Wolf

per. J. H. Alexander
ATTORNEY.

UNITED STATES PATENT OFFICE.

ABRAHAM N. WOLF, OF ALLENTOWN, PENNSYLVANIA.

IMPROVEMENT IN WATER-WHEELS.

Specification forming part of Letters Patent No. **159,734**, dated February 9, 1875; application filed January 16, 1875.

To all whom it may concern:

Be it known that I, A. N. WOLF, of Allentown, in the county of Lehigh and State of Pennsylvania, have invented certain new and useful Improvements in Water-Wheels; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

My invention relates to the casing surrounding a water-wheel; and it consists in the construction and arrangement of the water guides and gates, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a vertical section, and Fig. 2 a horizontal section, of a water-wheel with casing embodying my invention.

A represents the water-wheel, secured on the vertical shaft B, which works on the step L at M, and is at its upper end provided with the coupling H. I is the stuffing-box, and J the top spider. K is the ordinary rack and pinion for operating two parallel rings, G G, placed on top and bottom of the casing P surrounding the wheel. Between the rings G G are fastened caps F and curved register-gates E. In slots in the register-gates work the outer ends of the gates D, the inner ends of

which are hinged on the back, and near the inner ends of the water-guides C in the casing. The guides C run at a tangent with the circumference of the wheel, and their outer ends are extended along or forming the outer circumference of the casing.

The gates, being pivoted near the wheel, guide the water to the periphery of the wheel, whether the gates are more or less open; and the gates are balanced by the pressure of the water, and they are protected from all foreign matter by the register-gates E, as well as from the pressure of the water making a water-tight joint.

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

1. The register-gates E, gates D, and caps F, arranged together, in combination with the rings G G, substantially as and for the purposes herein set forth.

2. The combination of the casing P, water-guides C, gates D, register gates E, and caps F, all constructed and arranged to operate substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

ABRAHAM N. WOLF.

Witnesses:

M. H. BEAN,

HENRY T. KLECKNER.