J. ERIKSON.

Water-Wheel.

No. 164,823. Patented June 22, 1875.

FIG. I.

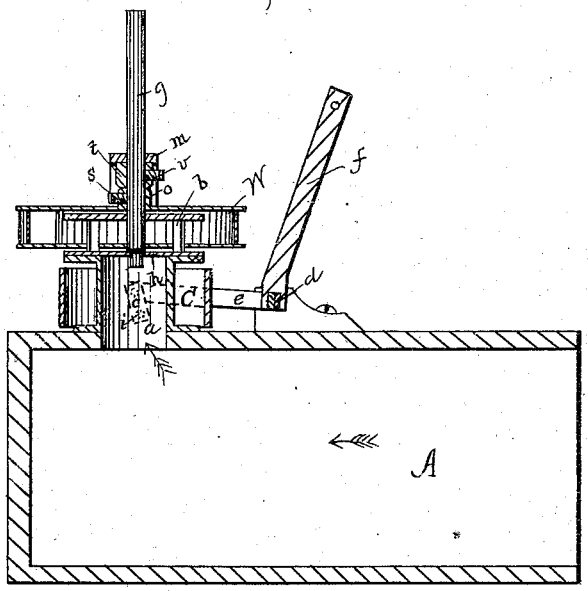
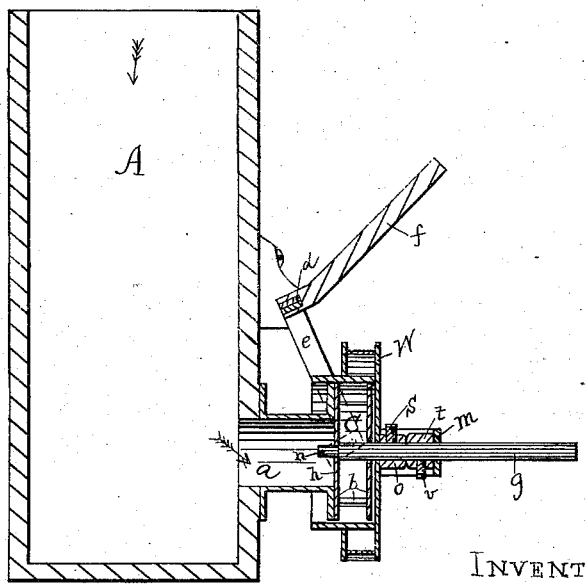


FIG. II.



WITNESSES.

F. B. Townsend

Will H. Moxon

INVENTOR

John Erikson

per attys A.H. Evans & Co

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

UNITED STATES PATENT OFFICE.

JOHN ERIKSON, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR OF ONE-HALF HIS RIGHT TO NELSON OLESON, OF SAME PLACE.

IMPROVEMENT IN WATER-WHEELS.

Specification forming part of Letters Patent No. **164,823**, dated June 22, 1875; application filed January 14, 1875.

To all whom it may concern:

Be it known that I, JOHN ERIKSON, of Minneapolis, Minnesota, have invented certain new and useful Improvements in Water-Wheels; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a vertical longitudinal section, showing the wheel with its operating devices as arranged and combined when placed on top of the flume or water-pipe; and Fig. 2 is a similar section, showing the wheel as arranged when placed upon one side of the flume.

Similar letters of reference indicate corresponding parts in both the figures.

The object of my invention is to provide a water-wheel that may be used with equal advantage and efficiency, and without derangement of any of its operating parts, upon the top or side of the water-carrying flume, according to local conditions and the option of the purchaser, and in which the water can be readily shut off or let on. It consists in the combination of devices, as hereinafter described and claimed.

In the drawings, A represents a flume or water-pipe, on the top or side of which the wheel may be placed. *a* is the pipe, which supplies the wheel with water. The water passes through the pipe *a* into a skeleton cylinder, *b*, attached to said pipe, and from this cylinder passes into the wheel. C is a sliding sleeve or jacket, placed below the cylinder *b*, and just enough larger to fit snugly over it. This sleeve, when raised, fits snugly over the cylinder *b*, shutting entirely off the supply of water to the wheel.

When it is desired to admit water to the wheel, all that is necessary is to lower the sleeve to its former position.

Attached to the sleeve C are two short arms, *c*, pivoted at *i*, to which are pivoted the two long arms *e*, which, with the bar *d* and long lever-arm *f*, act as a lever for raising or lowering the sleeve C.

When the wheel is running in a perpendicular position, one end of the shaft *g* has its bearing in the bar *h*, which is placed across the top of pipe *a*, and the opposite end in the bent arm *m*; but when running in a horizontal position, the shaft *g* turns on a pivot, *n*, which is inserted in the bar *h*, the opposite end of the shaft being supported by the bent arm *m*.

Attached to the wheel W is a collar, *o*, and set-screw *s*, by which the shaft *g* is fastened in proper position to the wheel; and on the shaft is another collar, *t*, and set-screw *v*.

By means of these two set-screws the shaft may be raised so as to turn on the pivot *n*, or lowered so as to turn in the bar *h*.

It will be observed, from the foregoing description, that the wheel W, with all its appurtenances, is placed entirely outside of the flume, no part thereof projecting within the same; and, also, that the wheel may be used with equal efficiency either in its horizontal or vertical position, as local conditions may render most desirable, by simply adjusting the shaft *g* either on the pivot *n* and bent arm *m*, or in the bar *h* and bent arm *m*, which is easily done by the collars *o t* with their respective set-screws *s v*.

It will also be observed that the shaft *g* does not, as is usually the case in turbines and water-wheels where the supply of water is regulated by a circular gate or sleeve, revolve within a tube, thereby causing considerable friction, that detracts from the working power of the machine, but that the shaft is entirely clear of the flume, and that the only points of friction are the bearings in the bar *h* and bent arm *m*.

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

1. The combination of the stationary pipe *a*, skeleton cylinder *h*, wheel W, and sleeve C with the adjustable shaft *g*, having the collar *t* and set-screw *v*, and all arranged exteriorly to the flume or water-pipe A, substantially as and for the purpose hereinbefore set forth.

2. The sleeve C, in combination with the arms *c* and *e*, bar *d*, and long lever-arm *f*, when arranged and operating exteriorly to the flume A, substantially as and for the purpose hereinbefore set forth.

In testimony that I claim the foregoing I have hereunto set my hand.

JOHN ERIKSON.

Witnesses:
JAMES C. SMITH,
LEWIS MAISTO.