

R. H. PALMER.

Water-Wheel.

No. 128,901.

Patented July 9, 1872.

Fig. 1.

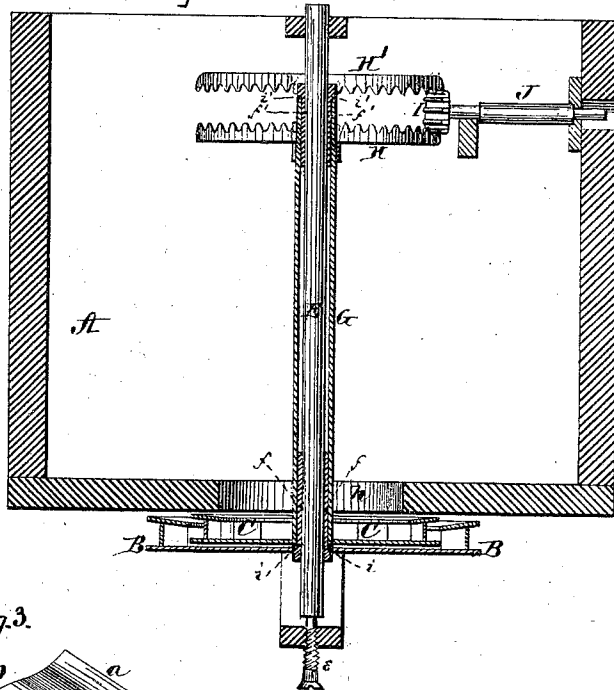


Fig. 3.

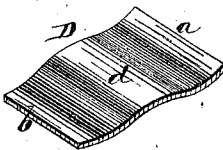
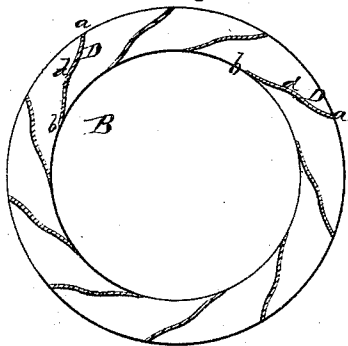


Fig. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

RODERICK H. PALMER, OF DEPOSIT, NEW YORK.

IMPROVEMENT IN WATER-WHEELS.

Specification forming part of Letters Patent No. 128,901, dated July 9, 1872.

To all whom it may concern:

Be it known that I, RODERICK H. PALMER, of Deposit, in the county of Delaware and in the State of New York, have invented certain new and useful Improvements in Water-Wheels; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon making part of this specification.

The nature of my invention consists in the construction and arrangement of a "water-wheel," 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 of my water-wheel. Fig. 2 is a horizontal section of the outer wheel; and Fig. 3 is a perspective view of one of the buckets.

A represents the box through which the water falls from the dam through the wheel to the mill-race, said box having an opening, *a*, in the center of its bottom, under which the wheels B and C work. These wheels are constructed precisely alike, except that the buckets run in opposite directions, and the wheel C fits inside of the wheel B. Each wheel consists of a bottom wheel, upon which the buckets D D are placed, and connected by a top rim, leaving the center open on top for the water to pass in. The buckets D D are constructed as shown in Figs. 2 and 3, the outer end *a* of each bucket being wider than the inner end *b*, making the top rim inclined downward and inward toward the center, as shown in Fig. 2. The center of each bucket has a backward concavity, *d*, from which the outer end *a* curves backward, as shown. The buckets of the two wheels running in opposite directions causes the wheels to revolve in opposite directions, and as the water is discharged from the flaring end of each bucket of the inner wheel C, it strikes the concavity of the buckets of the outer wheel B, and also during

the revolution forming regular cut-offs. The outer wheel B is attached to a sleeve or collar, *f*, firmly secured to an upright shaft, E, which rests upon a center pivot, *e*, at the lower end, and has a suitable bearing for its upper end at the top of the box A. The sleeve or collar *f* forms a shoulder, *i*, immediately above the bottom plate of the wheel B, upon which shoulder rests a tube, G, which passes over the central shaft E and upper part of the sleeve *f*, said sleeve or collar and its shoulder *i* forming the bearing for the lower end of the tube G. To this lower end of the tube G the inner wheel C is firmly secured. The upper bearing for the tube G is formed of a similar sleeve or collar, *f'*, with shoulder *i'* attached in inverted position to the shaft E. Upon the upper end of the tube G is secured a contrate or crown-wheel, H, having the spurs or cogs on its upper side, and on the shaft E, above the collar *f'*, is attached a similar wheel, H', in an inverted position, and said wheels gear with a pinion, I, on a horizontal shaft, J, which connects with the machinery to be driven, and thus imparts motion to the same. By means of the sleeves or collars *f f'*, with their respective shoulders *i i'* forming bearings for the tube G, the friction is considerably reduced, and the wheels will run with greater speed under the same head of water than they would without said bearings.

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

The within-described water-wheel, consisting of the wheels B and C, both having buckets D, bent as shown in Fig. 3 at *b d a*, shaft E, tube G, bearings *f f' i i'*, wheels H H', shaft J, and pinion I, all the parts being constructed, arranged, and operating substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 20th day of April, 1872.

R. H. PALMER.

Witnesses:

A. N. MARR,
C. L. EVERT.