2 Sheets—Sheet 1.

J. S. BODDIE, Jr.

WATER-WHEELS.

No. 189,547. Patented April 17, 1877.

Fig. 1.

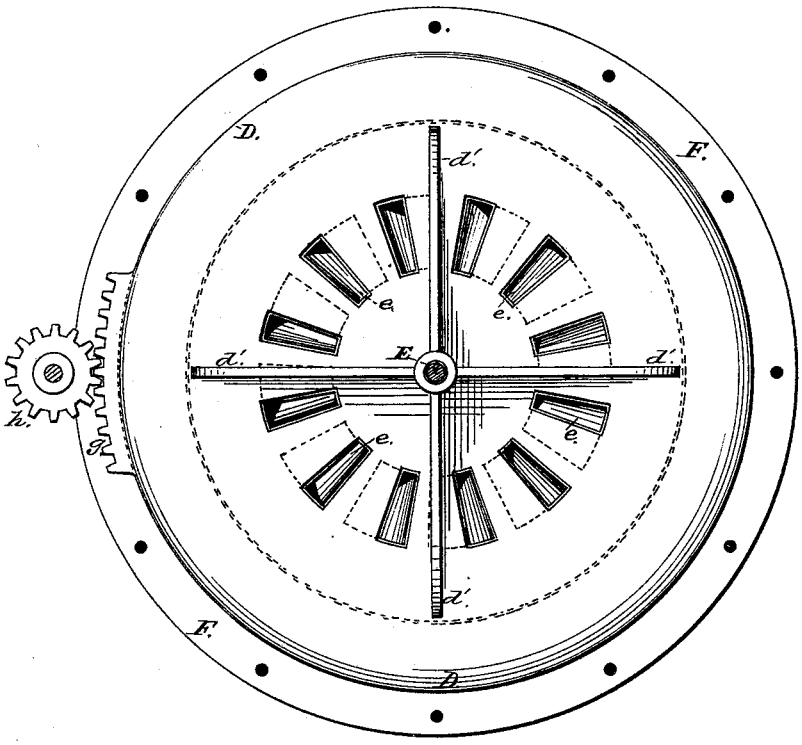
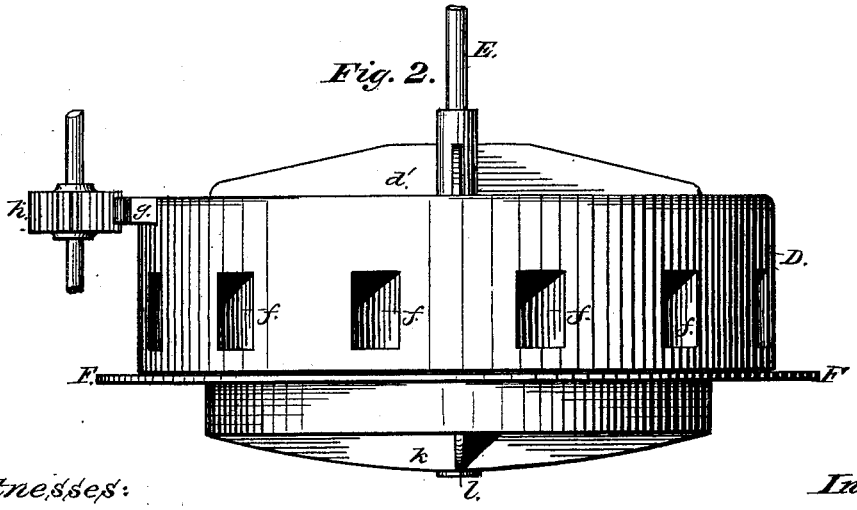


Fig. 2.



Witnesses:

William T. Griffin.

Geo. N. Lewis

Inventor:

John S. Boddie Jr.

2 Sheets—Sheet 2.

J. S. BODDIE, Jr.

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Fig. 3.

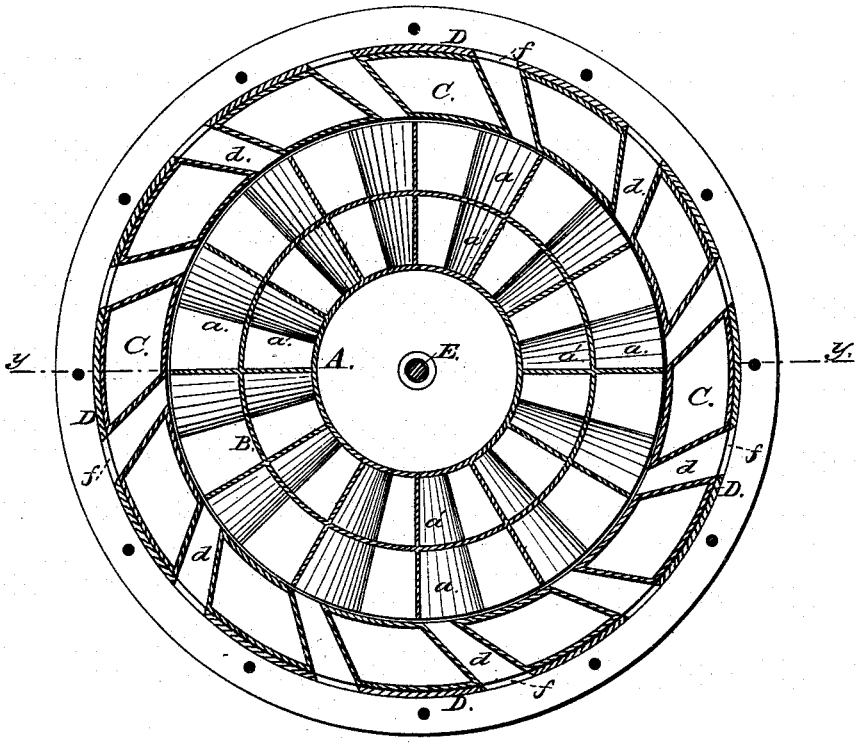
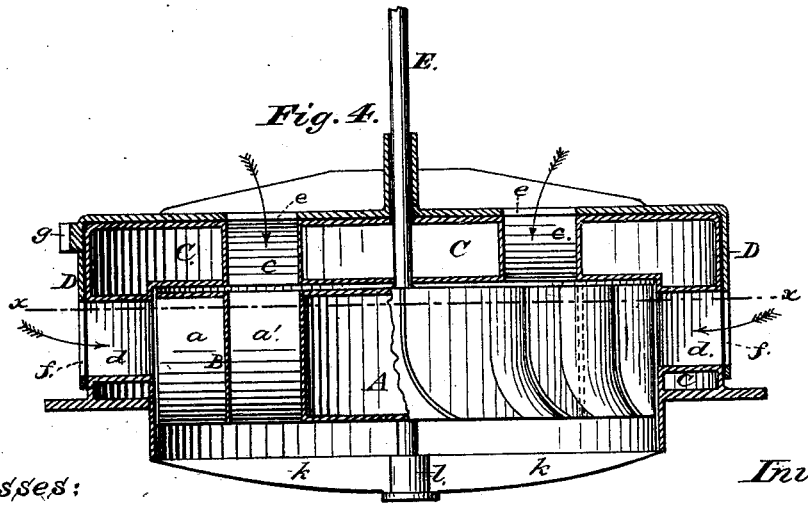


Fig. 4.



Witnesses:

William T. Griffin.

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Inventor:

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UNITED STATES PATENT OFFICE.

JOHN S. BODDIE, JR., OF NASHVILLE, NORTH CAROLINA.

IMPROVEMENT IN WATER-WHEELS.

Specification forming part of Letters Patent No. **189,547**, dated April 17, 1877; application filed March 2, 1877.

To all whom it may concern:

Be it known that I, JOHN S. BODDIE, Jr., of Nashville, in the county of Nash and State of North Carolina, 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, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The object of my invention is to produce a water-wheel that is simple in its construction, of great power, and can be easily manipulated.

The invention consists of a wheel having a double set of radial buckets, divided by a partition, in connection with a single gate, having one set of ports or openings in the top to correspond with the inner row of buckets, and another set of ports or openings in the side, to correspond with the outer row of buckets, and which can be adjusted to suit the requirements of the work, all of which will be more fully described in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 is a top view of my improved wheel. Fig. 2 is a side view of the same. Fig. 3 is a horizontal section on line *x x*. Fig. 4 is a vertical cross-section on line *y y*.

In the drawing, A represents the water-wheel, provided with two separate and distinct sets of radial curved buckets, *a a'*, separated from each other by a circular wall or partition, B. The outer shell or cover C is provided with a suitable set of openings or ports, *c*, in the top or crown-plate, which correspond with, and give impact to, the inner set of buckets. In the vertical side of the case or shell C is arranged another set of inclined wedge-shaped openings or ports, *d*, through which the water passes to the outer set of buckets. Over this case or shell C is fitted the gate D, having the ports *e* and *f* in its top and side to correspond with the ports in the top and side of the case C, and this gate regulates the amount of water admitted to both sets of buckets, by opening or closing the same, more or less, by means of the teeth *g* and pinion *h*, which may be operated in any suitable manner. The gate D is strengthened by ribs *d'* extending to near the periphery, and the case C is provided with radial arms *k*, having a central step, *l*, for the shaft or spindle E. The case is also provided with a flange, F, by which, and suitable bolts, it is secured in its position to the foundation.

The operation is as follows: The water-wheel and case having been placed in position, and the water being admitted to it, the water passes through the upper ports or openings to the inner set of buckets, and, also, at the same time, through the outer or wedge-shaped ports in the side of the case to the outer set of buckets. It passes out from both sets of buckets at the open bottom. There is thus a larger amount of water admitted to a greater surface of buckets in a smaller diameter of wheel than is known to me in any similar water-wheel in existence.

The whole apparatus may be made of any suitable material, and the curves and shape of the buckets may be varied according to taste and as desired. The amount of water can be regulated to a nicety by the single gate, with its openings or ports corresponding with those in the case at the top and side.

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

1. The water-wheel herein described, provided with an inner and outer set of buckets divided by a partition, in combination with an outer case, provided with openings in its top and wedge-shaped openings in its side, and a single gate, having openings corresponding with said openings, substantially as shown and specified.

2. The combination of the water-wheel A, having inner and outer buckets *a a'*, with the case C, provided with ports *c* in its top and wedge-shaped ports *d* in its side, and a single gate, D, having ports *e* and *f*, and teeth *g*, operated by pinion *h*, all constructed and arranged as shown, and for the purpose specified.

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

JOHN S. BODDIE, JR.

Witnesses:

WILLIAM T. GRIFFIN,

GEO. N. LEWIS.