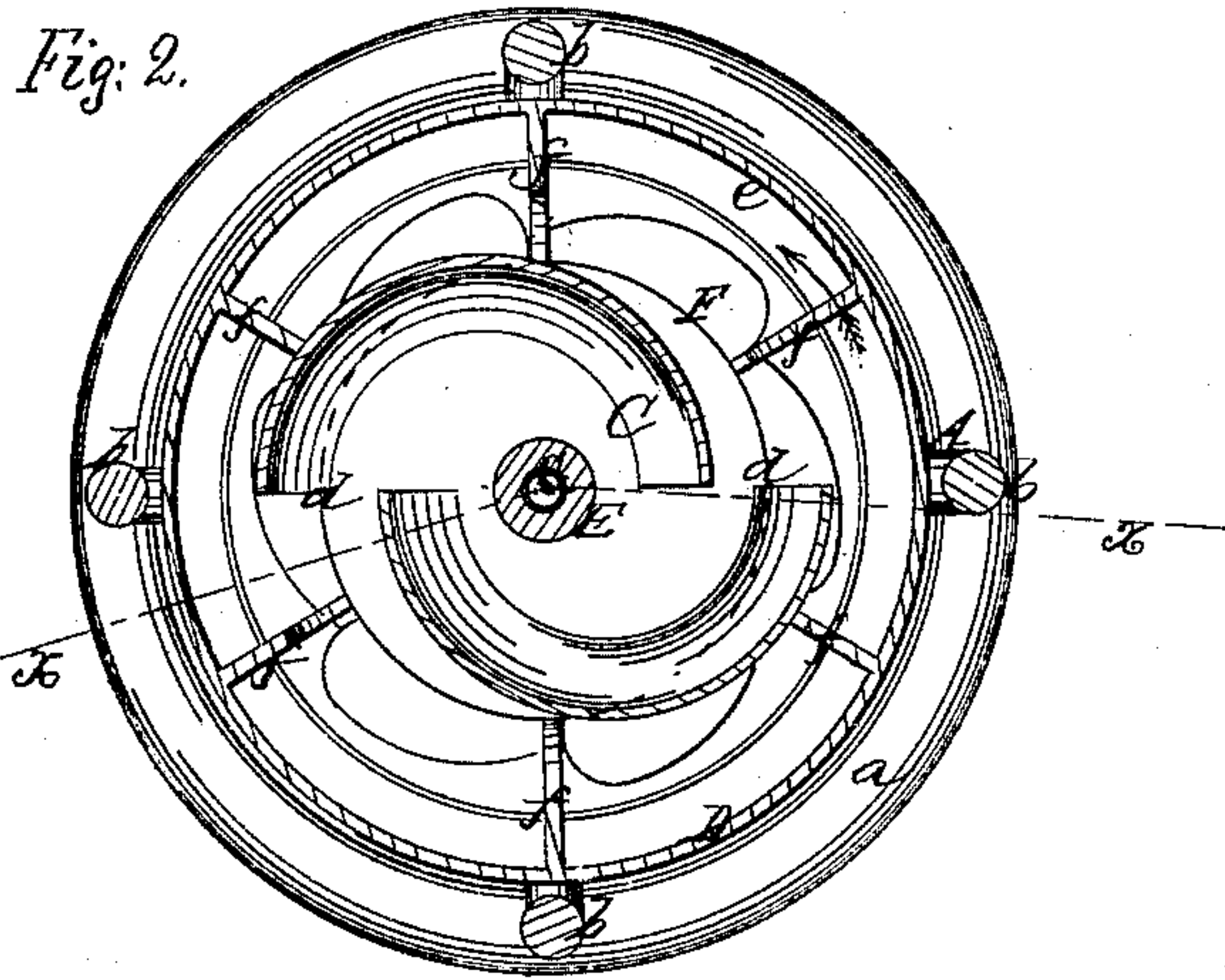
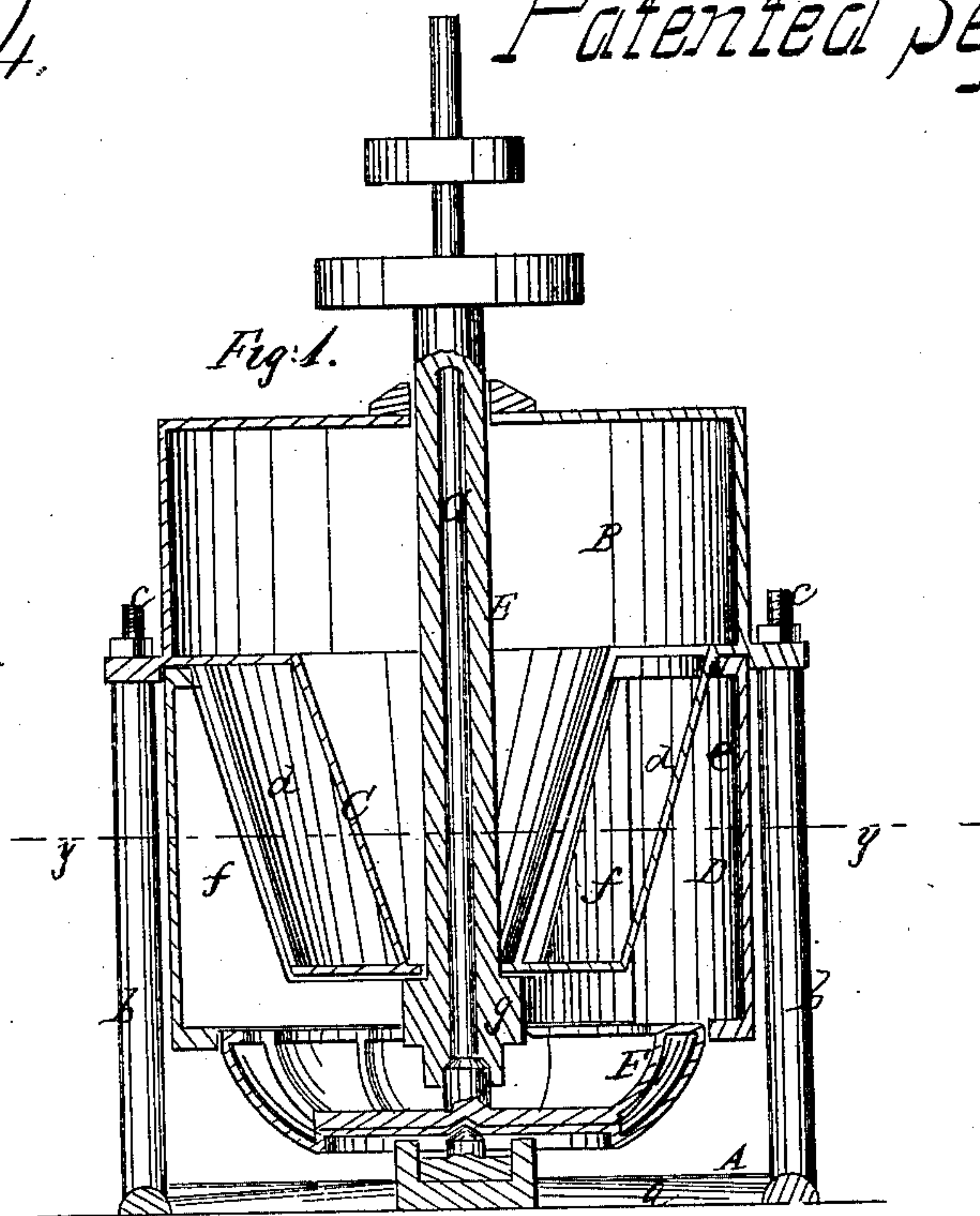


L.D. Wynkoop,

Water Wheel,

N^o 69,294.

Patented Sept. 24, 1867.



Witnesses
Theo. Fische
Wm. Spreun

Inventor
L. D. Wynkoop
Per [Signature]
Attorney

United States Patent Office.

LEGRAND D. WYNKOOP, OF OWASSO, MICHIGAN.

Letters Patent No. 69,294, dated September 24, 1867.

IMPROVEMENT IN WATER-WHEELS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, LEGRAND D. WYNKOOP, of Owasso, in the county of Shiawasse, and State of Michigan, have invented a new and improved Water-Wheel; and that the following description, taken in connection with the accompanying drawings, hereinafter referred to, forms a full and exact specification of the same, wherein I have set forth the nature and principles of my said improvements, by which my invention may be distinguished from all others of a similar class, together with such parts as I claim, and desire to have secured to me by Letters Patent.

This invention relates to a new and useful improvement on a water-wheel, for which Letters Patent were granted to me bearing date January 30, 1866.

The improvement consists in a modification of the upper part of the wheel, whereby a case for the same is dispensed with, and the wheel simplified and rendered more efficient and durable than hitherto. In the accompanying sheet of drawings—

Figure 1 is a vertical section of my invention, taken in the line *x x*, fig. 2.

Figure 2, a horizontal section of the same, taken in the line *y y*, fig. 1.

Similar letters of reference indicate like parts.

A represents a frame, composed of a circular skeleton base, *a*, having uprights *b* attached, in which bolts *c* are fitted, and by which the penstock B is secured to the uprights of the framing, as will be fully understood by referring to fig. 1. To the bottom of the penstock B there is attached a double chute, C, of inverted conical form, and having two escape passages *d d*, which extend upward at opposite sides the whole height of the chute. D represents the upper wheel, which is composed of a hollow cylinder, *e*, having buckets *f* attached radially to its inner surface, and extending across its bottom to a central hub, *g*. The shape of these buckets is clearly shown in fig. 1. E is the shaft of the upper wheel, which is tubular, and has its lower end fitted in the hub *g*. The chute C extends down within the wheel D, its lower end just clearing the upper edges of the bottom parts of the buckets *f*, as shown in fig. 1. F is the lower wheel, which is of dish-form, its buckets *h* lapping over each other, with issues between for the escape of the water. The shaft G of this wheel passes up through the tubular shaft E of wheel D. The water passes from the penstock B down into chute C, and escapes through the passages *d d*, acting directly or by impact against the buckets *f* of the cylinder *e* of the upper wheel, and then operating against the buckets *h* of the lower wheel by reaction.

The principle of the wheel is precisely the same as that of the one formerly patented and previously referred to, but the advantage of the present invention consists in the dispensing with a case for the upper wheel, the cylinder *e* of said wheel answering such purpose.

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

The upper wheel D, consisting of a hollow cylinder, *a*, provided with buckets *f* at its inner side and bottom, in combination with the chute C and lower wheel F, all arranged to operate in the manner substantially as and for the purpose set forth.

LEGRAND D. WYNKOOP.

Witnesses:

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