

W. L. R. Valentine,

Water Wheel,

N^o 42,242.

Patented Apr. 5, 1864.

Fig. 1.

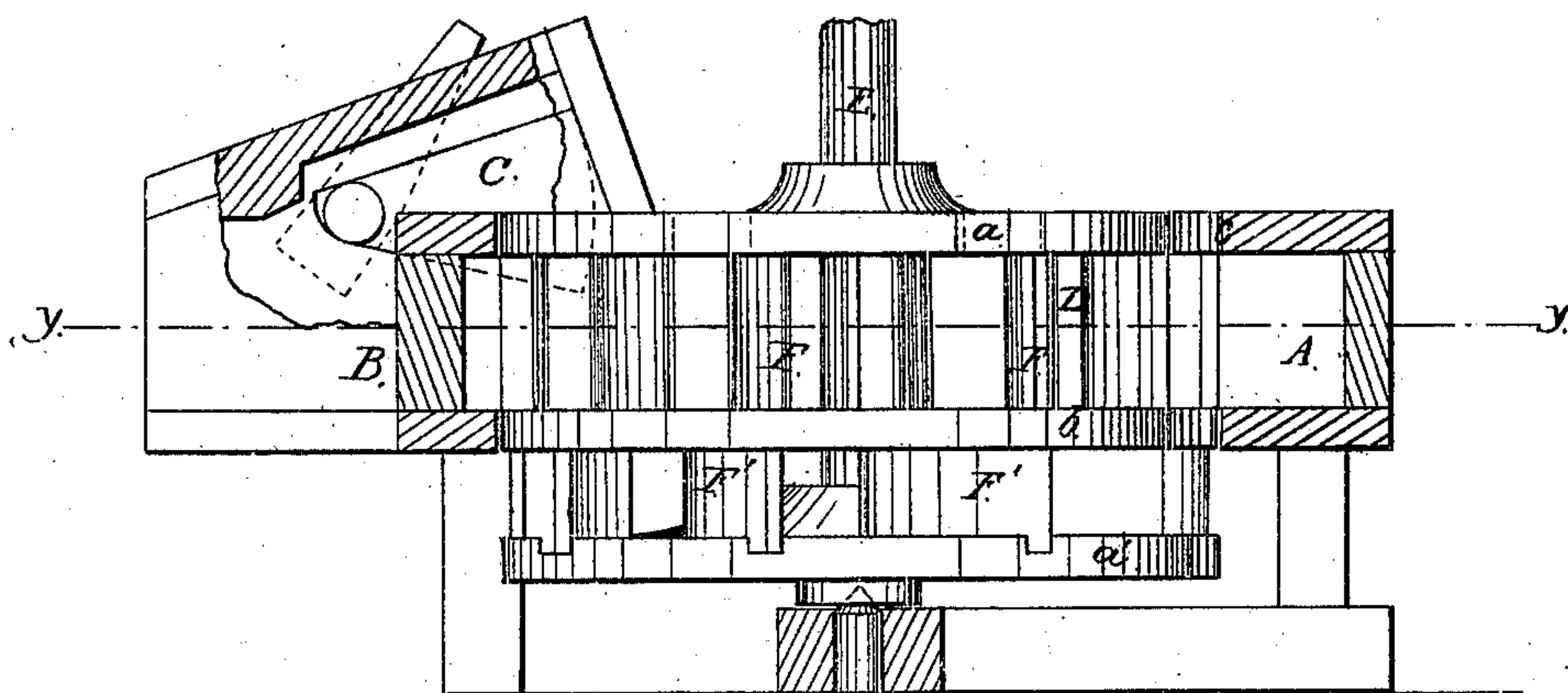
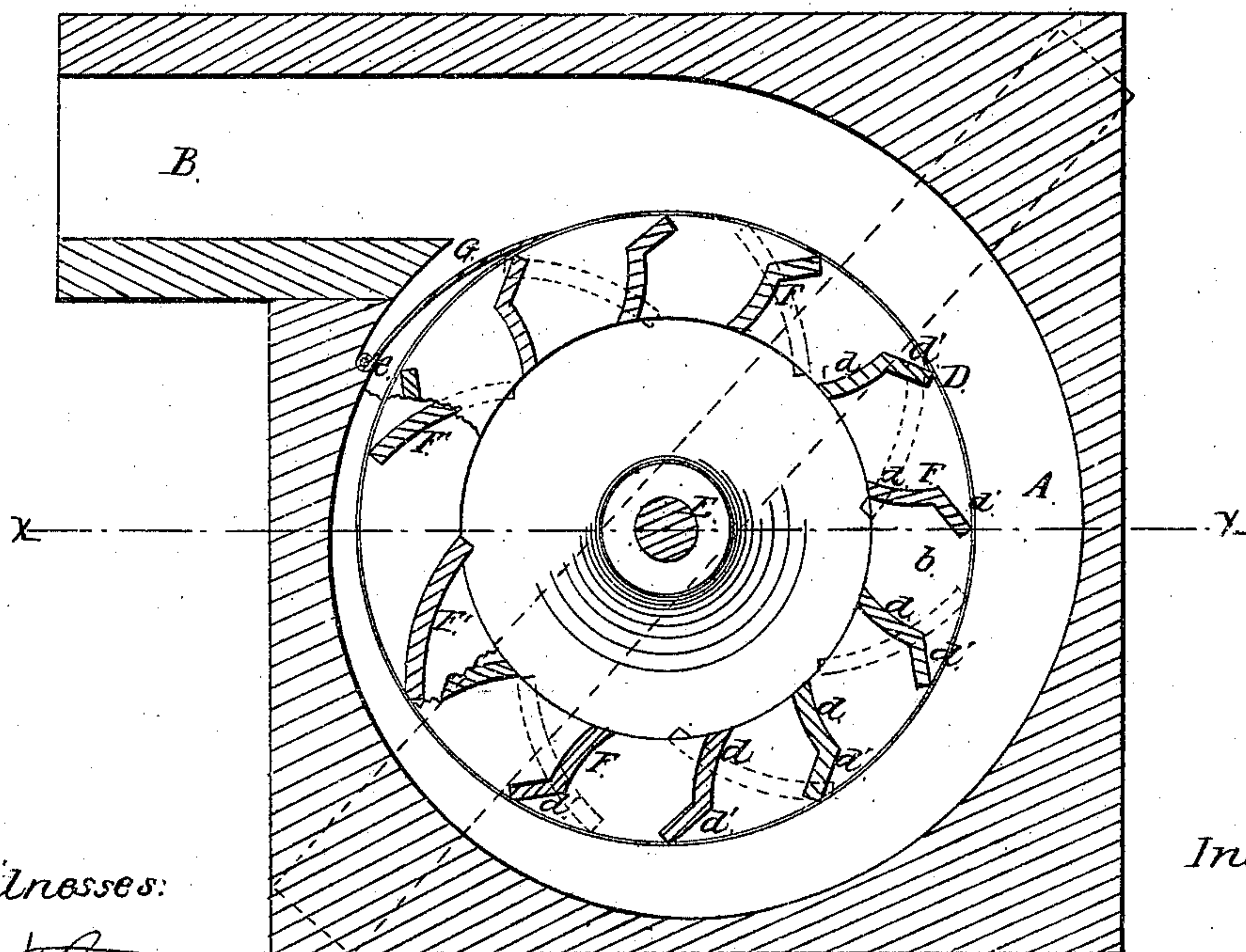


Fig. 2.



Witnesses:

*Thos. Douglas
Geo. W. Reed*

Inventor.

*W. L. R. Valentine
per Munn & Co
Attorneys*

UNITED STATES PATENT OFFICE.

WILLIAM L. R. VALENTINE, OF FORT EDWARD, NEW YORK.

IMPROVEMENT IN WATER-WHEELS.

Specification forming part of Letters Patent No. 42,242, dated April 5, 1864.

To all whom it may concern:

Be it known that I, WILLIAM L. R. VALENTINE, of Fort Edward, in the county of Washington and State of New York, have invented a new and Improved Water-Wheel; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side sectional view of my invention taken in the line *x x*, Fig. 2; Fig. 2, a horizontal section of the same taken in the line *y y*, Fig. 1.

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

This invention relates to an improved water-wheel of that class which are fitted on a vertical shaft, and are commonly termed "horizontal water-wheels."

The invention consists in the employment or use of two sets of buckets, constructed of such a form and combined with a scroll in such a manner as to obtain a large percentage of the power of the water.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents the scroll of the wheel, which may be constructed of wood or metal, and provided with an induction-spout, B, in which a gate, C, is fitted to regulate the flow of the water into the scroll.

D represents the wheel, which is placed upon a vertical shaft, E. This wheel is composed of two circular plates, *a a'*, which form its top and bottom, and an annular plate, *b*, which forms a partition between two sets of buckets, F F', the upper set of buckets, F, being somewhat deeper than the lower set, F'. The top and bottom plates, *a a'*, are firmly keyed to the shaft E, the top plate, *a*, fitting in a circular opening, *c*, in the top of the scroll A, and the annular plate *b* fitting in the circular opening *c'* in the bottom of the scroll, the lower buckets, F', being consequently below the bottom of the scroll, as

shown clearly in Fig. 1. The upper buckets, F, are each formed at their face sides of a concave surface, *d*, and a straight surface, *d'*, having a tangential position, as shown clearly in Fig. 2. The lower buckets, F', have their face sides of concave form, and in a reverse position to the concave surfaces *d* of the upper buckets, as shown clearly in Fig. 2. The lower plate, *a'*, of the wheel has its upper surface of conical form, to admit of the ready egress of the water from the lower part of the wheel. The water acts directly or by impact against the upper buckets, F, and passes into the center of the wheel, and in passing out therefrom between the lower buckets, F', exerts a reaction force against the latter.

Within the scroll A, at its narrow end or terminus, there is a wicket or gate, G, which is attached at one end to the scroll by a hinge, *e*, the opposite and free end of the gate being in contact with the side of the wheel. This wicket or gate is kept in a closed state by the pressure of the water against its outer side, but in case of any sticks or small drift-wood passing into the scroll the wicket or gate will open and allow them to pass out and then close again. By this means the wheel is prevented from becoming choked or clogged and injured by sticks and foreign substances passing into the scroll.

I do not claim the wicket or gate G, for that has been previously used; but,

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

The wheel D, constructed with two sets of buckets, F F', one set being above the other, and the upper set, F, formed at their face sides with a straight tangential surface, *d'*, and a concave surface, *d*, and the lower set, F', formed with concave face sides, in combination with the conical lower plate, *a'*, of the wheel and the scroll A, all arranged as herein set forth.

WM. L. R. VALENTINE.

Witnesses:

JAMES L. REYNOLDS,
CHAS. ROBERTS.