

# I. D. Seely, Water Wheel.

N<sup>o</sup> 32,004.

Patented Apr. 9, 1861.

Fig. 1

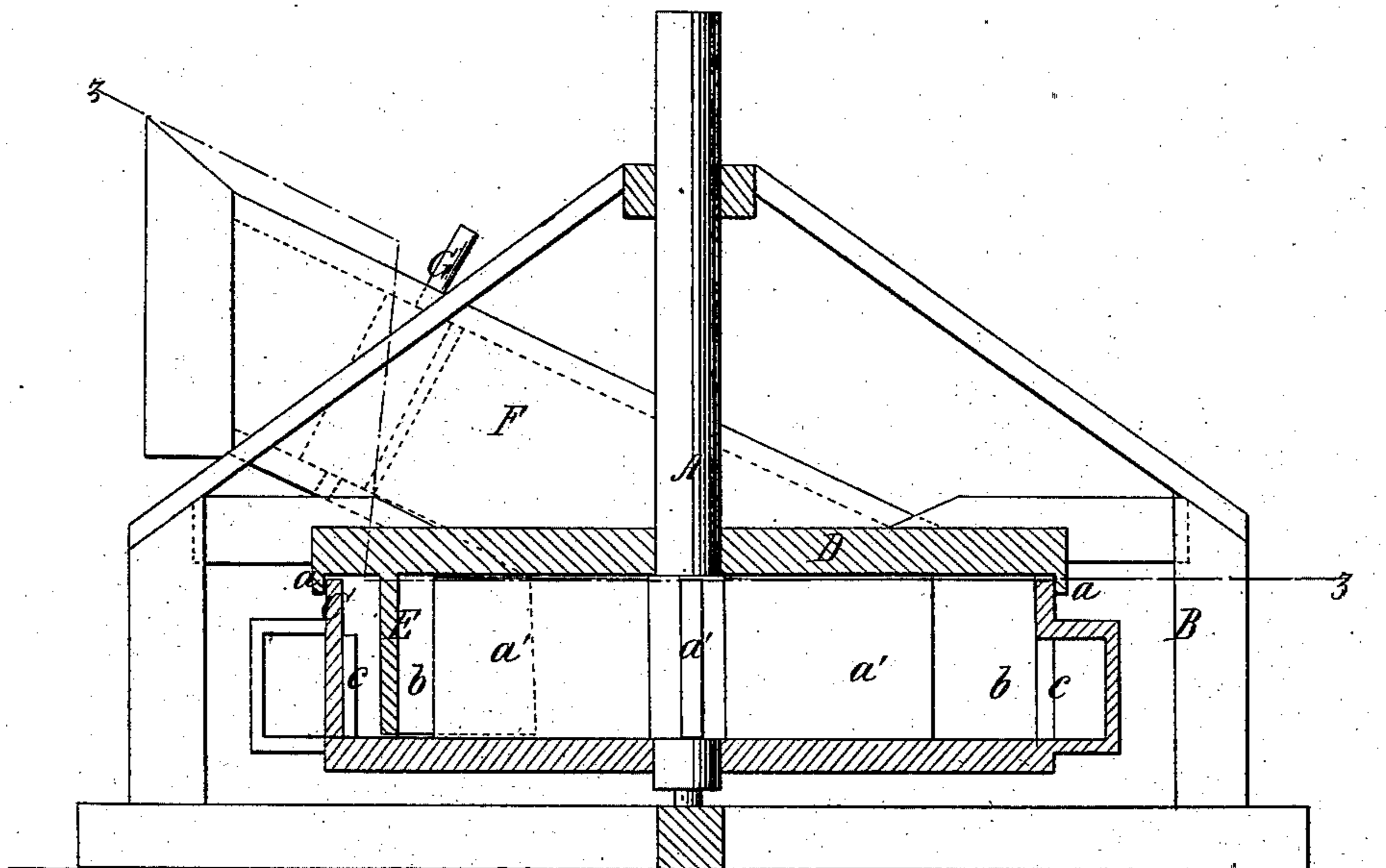
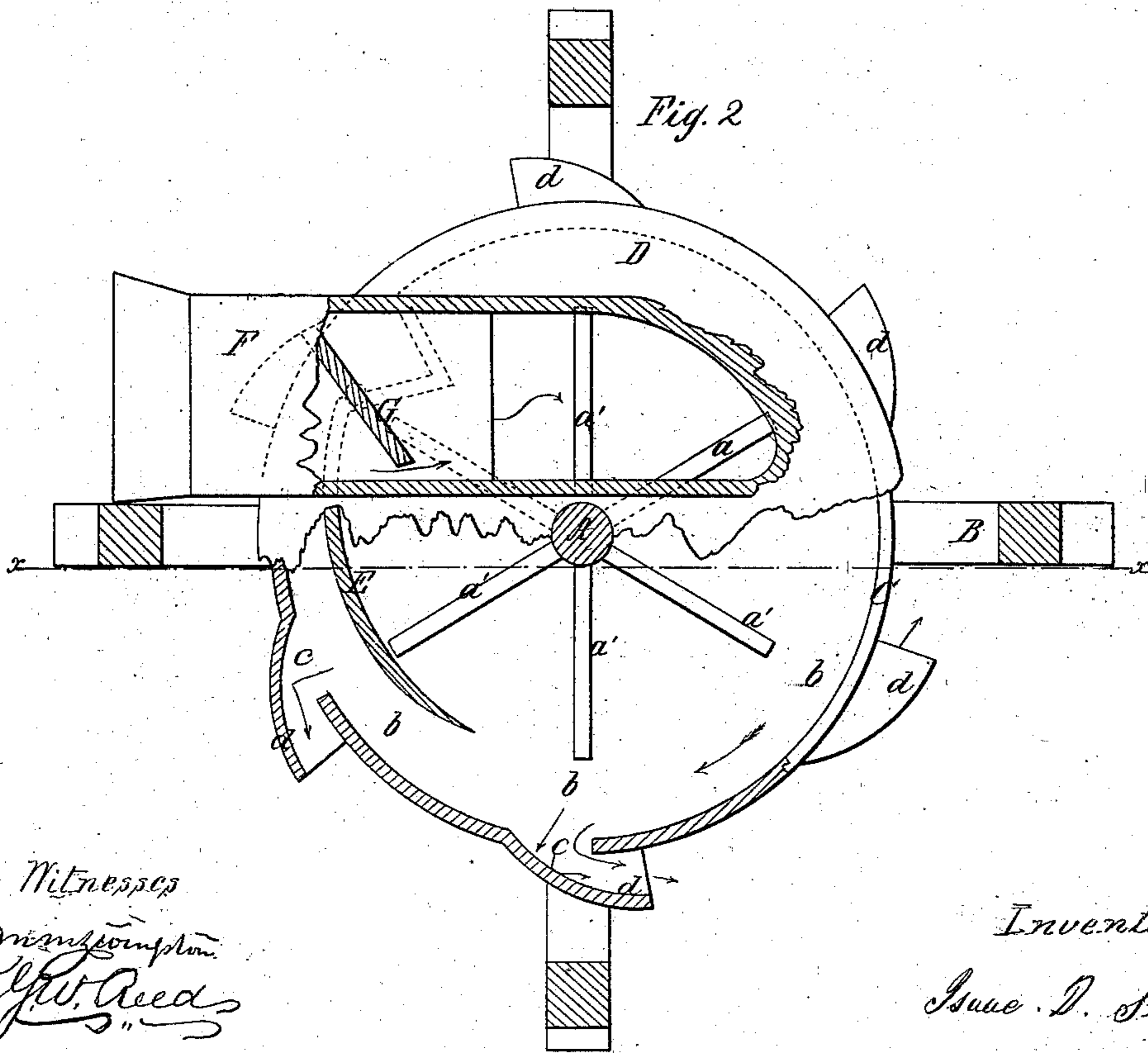


Fig. 2



Witnesses  
Mansfield  
J. W. Reed

Inventor  
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# UNITED STATES PATENT OFFICE.

ISAAC D. SEELY, OF MILFORD, NEW YORK.

## WATER-WHEEL.

Specification of Letters Patent No. 32,004, dated April 9, 1861.

*To all whom it may concern:*

Be it known that I, ISAAC D. SEELY, of Milford, in the county of Otsego 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 annexed drawings, making a part of this specification, in which—

Figure 1, is a vertical central section 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 in which it is designed to obtain power from both the direct and re-acting force of the water; or, in other words by impact and re-action.

The object of the invention is to obtain a very simple wheel of the kind specified, one that may be economically constructed and will give a large percentage of the power of the water employed to operate it.

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

A, represents a vertical shaft which is placed in a proper framing B, and C, is a hollow cylinder which is placed on shaft A, and fitted under a stationary cap or cover D, which is attached to the framing B, said cap or cover being provided with a flanch  $a$ , which projects down a short distance over the sides of the cylinder C, as shown clearly in Fig. 1.

To the bottom of the cylinder C, there are secured a series of radial buckets  $a^1$ , said buckets extending from the shaft A, to points about two thirds the distance of the space between the shaft A, and the side of the cylinder C, a space  $b$ , being allowed within the cylinder C, between its inner side and the ends of the buckets  $a^1$ , as shown clearly in Fig. 2, the buckets being of equal length.

At the periphery of the hollow cylinder C, there are a series of issues  $c$ , or discharge apertures. These issues or apertures are each covered by a hood  $d$  the sides of which are curved and form tangential discharge passages for the water from the cylinder C, as will be clearly seen by referring to Fig. 2. There is an issue  $c$ , directly opposite and in

line with each bucket  $a$ , and within the cylinder C, there is placed a stop or cut-off E, a portion of which is of curved form concentric with the shaft A, and having a position at the ends of the buckets  $a^1$ , beneath the chute F. This stop or cut-off is connected with the inner side of the cylinder C, as shown by the dotted lines in Fig. 2.

F, is a chute which leads from the penstock to the cylinder C, the chute being connected to the cap or cover D, and communicating with the interior of the cylinder at a point near the inner part of the cut-off E, as shown in Fig. 2. The chute F, is slightly inclined and is provided with a gate G, which may be arranged in any proper way.

The above parts may be constructed entirely of iron, the shaft A, being wrought, and the other parts cast-iron, or wood may be used in certain cases where desired. Cast-iron however would be the material most generally used with the exception of the shaft, that being of wrought iron.

The operation of the wheel is as follows: The water passes down the chute F, and first acts against the buckets  $a^1$ , by impact and rotates the cylinder C, the latter of course filling with water which escapes through the issues  $c$ , and in so doing acts against the curved sides of the hoods  $d$ , with a re-acting force. The red arrows in Fig. 2, indicate the direction of the water, and the black arrow indicates the direction in which the cylinder C, moves.

The stop or cut-off E prevents the water in cylinder C from passing around with the cylinder more than one revolution. This is an important feature of the invention, for if the water were allowed to pass around with cylinder C more than one revolution, the efficiency of the wheel would be greatly reduced.

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

The stop or cut-off E, in connection with the buckets  $a^1$ , cylinder C, and chute F, arranged relatively with each other for joint operation as herein described.

ISAAC D. SEELY.

Witnesses:

M. M. LIVINGSTON,  
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