J. Clark,

Water Wheel,

No. 77,256. Patented Apr. 28, 1868.

Fig: 1.

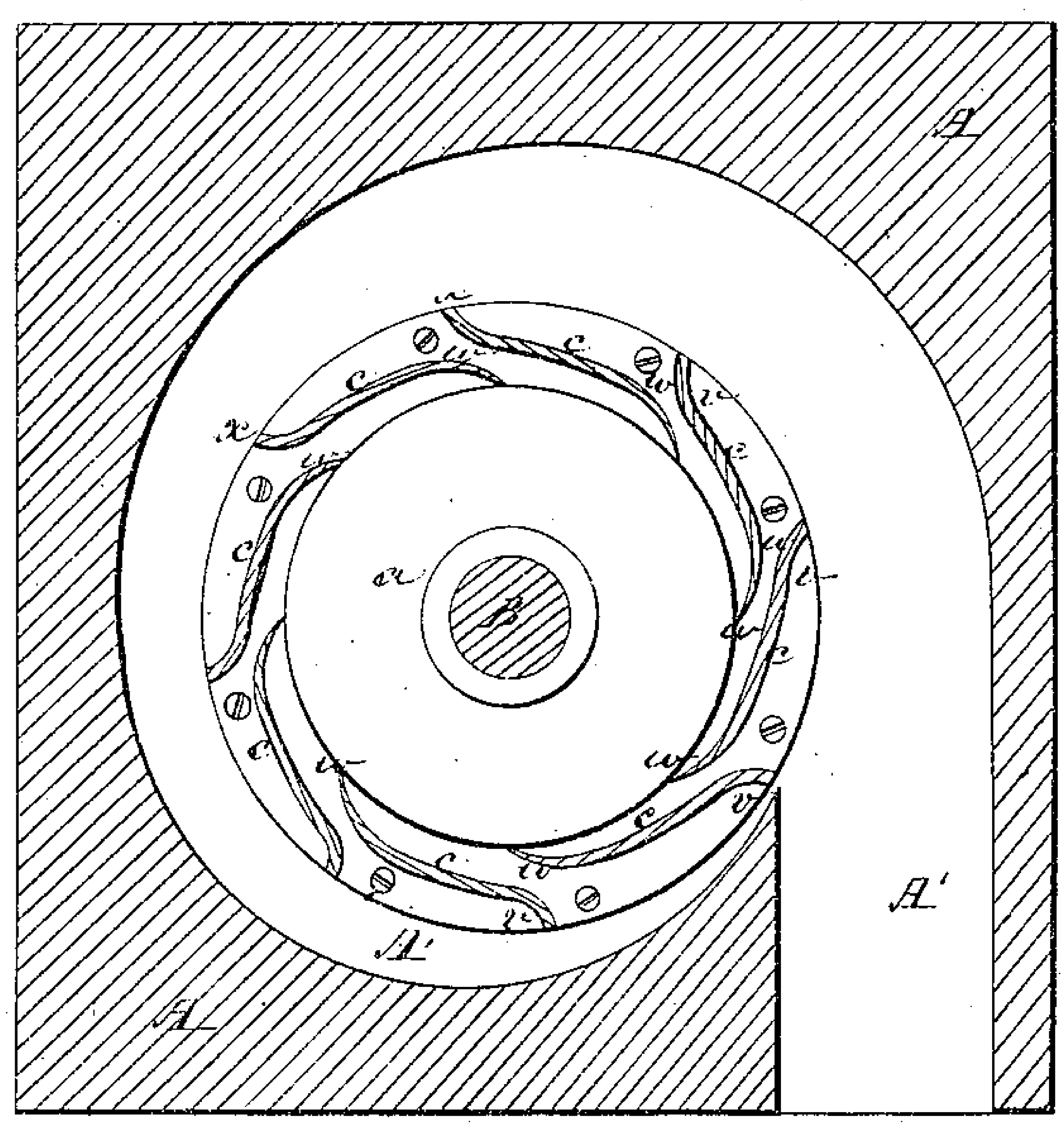
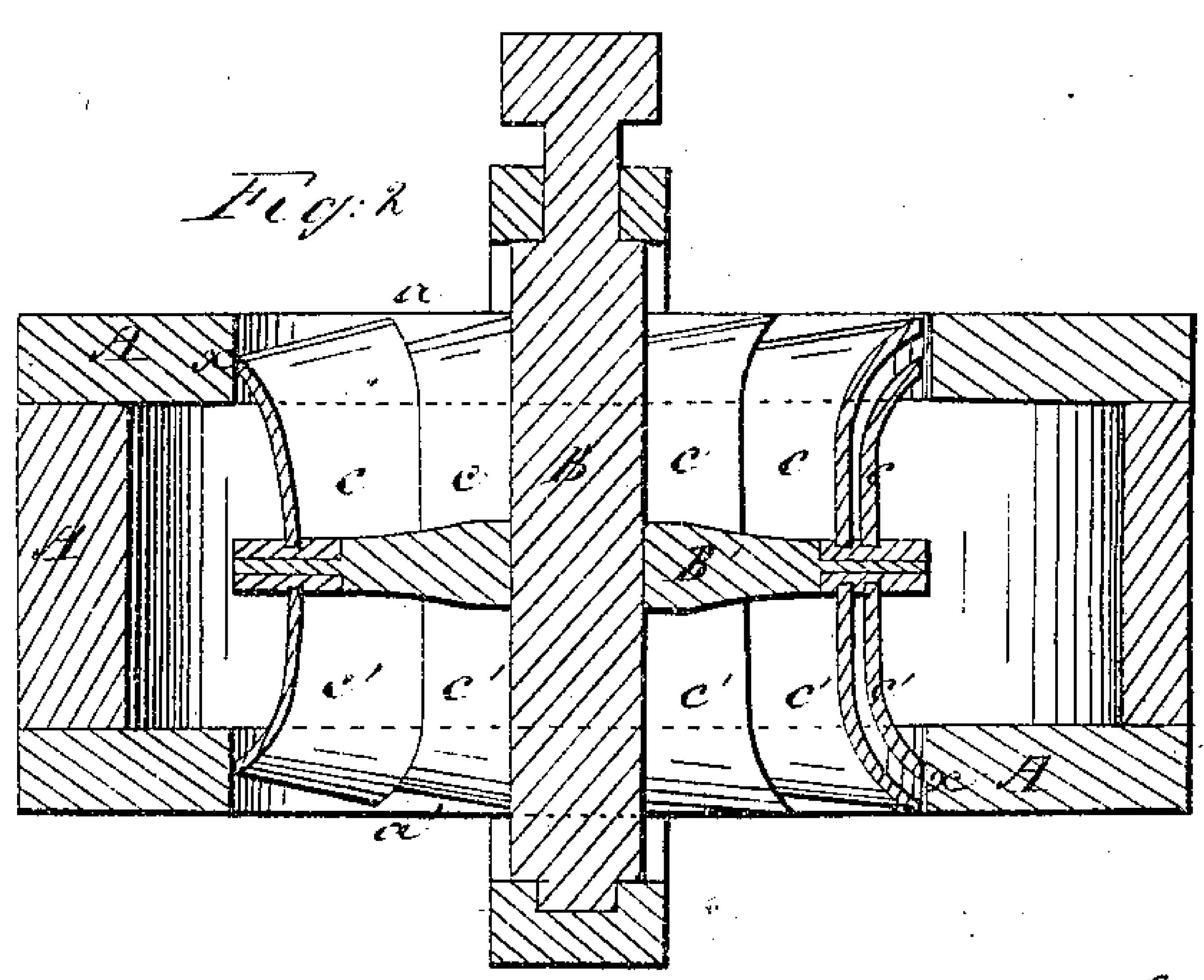


Fig: 2



Witnesses.
M. K. Ellsworth
S. C. Kemon

Inventor
Jacob Clark
Per Munn & Co
Attys

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

United States Patent Office.

JACOB CLARK, OF CLARKSVILLE, PENNSYLVANIA.

Letters Patent No. 77,256, *dated April* 28, 1868.

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, JACOB CLARK, of Clarksville, in the county of Mercer, and State of Pennsylvania, have invented a new and improved Water-Wheel Bucket; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, and in which—

Figure 1 represents a horizontal section of my invention.

Figure 2 shows a vertical section of the same.

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

In this invention the bucket has two curves, one of which receives the direct impulse of the water as it enters the bucket, the other receiving an indirect or "reacting" impulse as the water leaves the bucket.

In order that others skilled in the art to which my invention appertains may be enabled to make and use the same, I will proceed to describe it in detail.

In the drawings, A represents the case or enclosing-box of the wheel, having circular central apertures, *a* and *a'*, in its top and bottom, and furnished with the chute A'.

B is the shaft of the wheel, passing through the centre of the apertures *a a'*, and provided with a circular plate, B', which fits closely into the box A, parallel to its top and bottom, and equidistant between them, and revolves with the shaft.

c c c c' c' c' are the buckets of the wheel—one set, *c c c*, being attached to the rim of the plate B' on its upper side; the other set, *c' c' c'*, being attached in a similar manner to its rim on the under side.

The number of these buckets is not fixed, but may be varied according to the size of the wheel and the work required of it. They are arranged so as to work within the apertures *a a'*, fitting closely against the concave walls of those apertures, as shown in the drawings at the points *x x*.

These buckets are made with a curve, *v*, so as to present a concave surface directly athwart the current of water entering the chute, and thus receive and utilize the full force of that current by its direct impact upon the bucket. At their opposite extremity they are provided with another curve, *w*, against which the discharging water acts indirectly or "reacts," to use the term generally employed, thus, also, utilizing the force exerted by the water at the moment of its escape from the bucket into and through the apertures *a a'*. The bucket therefore combines the advantages of the overshot or undershot with those of the inward-flow turbine-wheels, the water acting in the former manner as it enters, and in the latter manner as it leaves the wheel.

The gates are so arranged that the water can be let upon the upper or lower buckets, or both, as may be desired.

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

1. The wheel having the shaft B, the plate B', and the two series of buckets, the latter constructed in the form described, and arranged, one above and one below the plate B', substantially as specified.

2. The buckets *c c'* having the curves *v* and *w*, in combination with the plate B', substantially as and for the purpose specified.

JACOB CLARK.

Witnesses:

JOSEPH MCCLURE,

SETH FRUIT.