

# A. A. Wood Water Wheel.

No 61,299-

Patented Jan 15. 1867.  
Fig: 1.

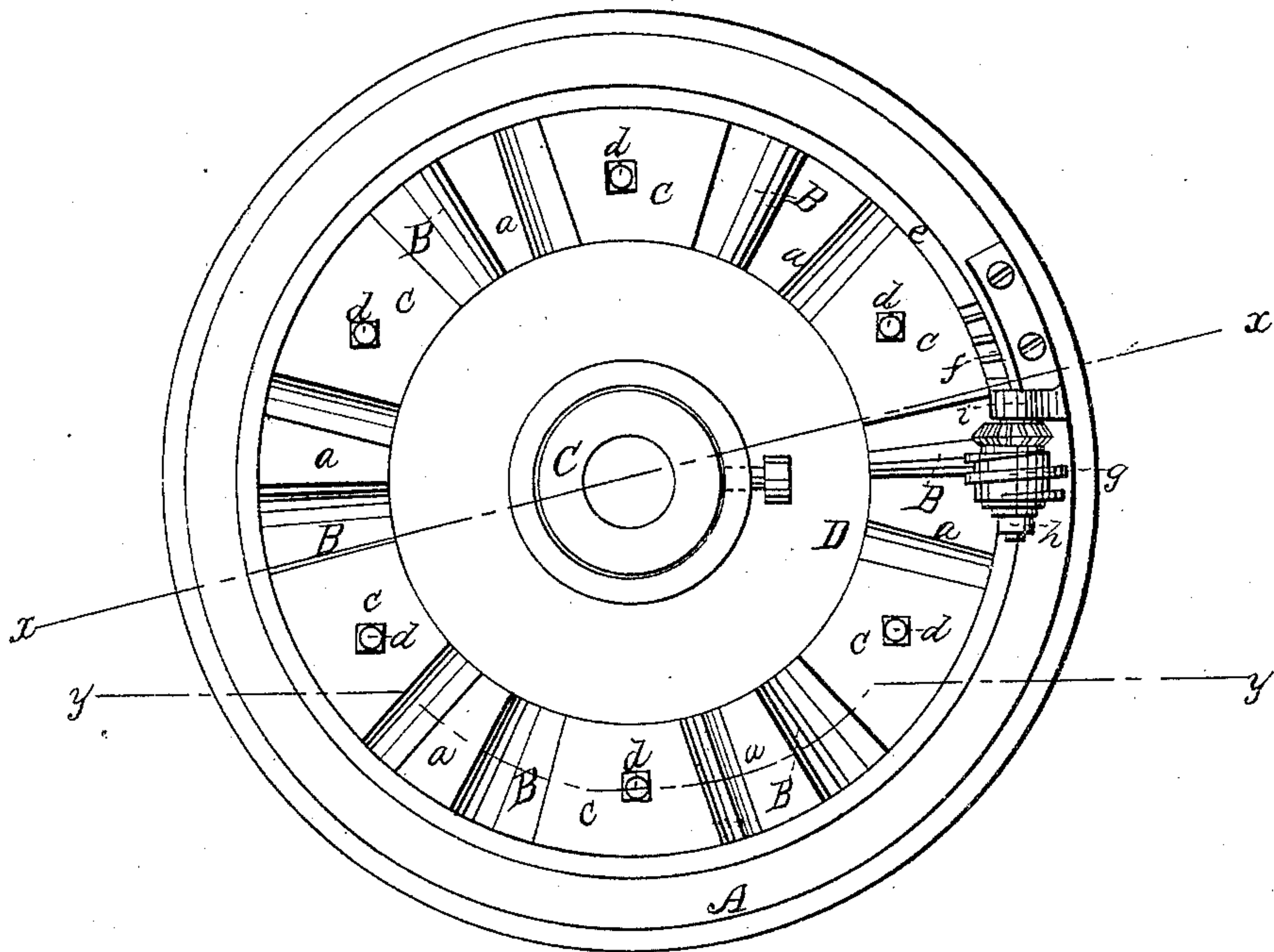


Fig: 2.

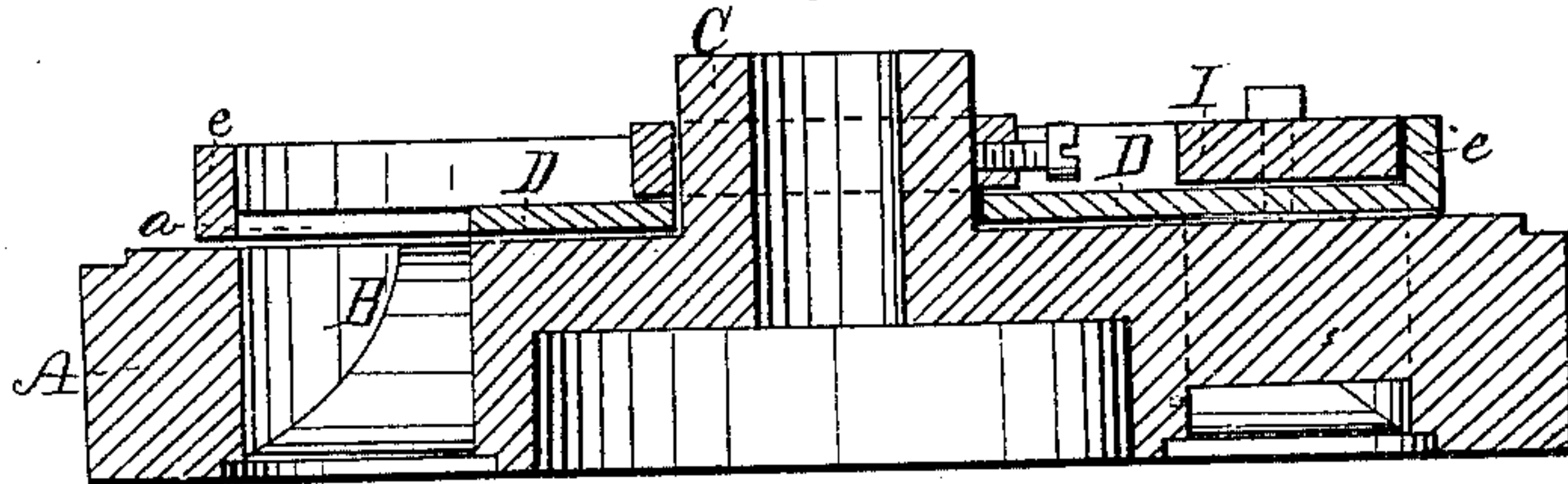
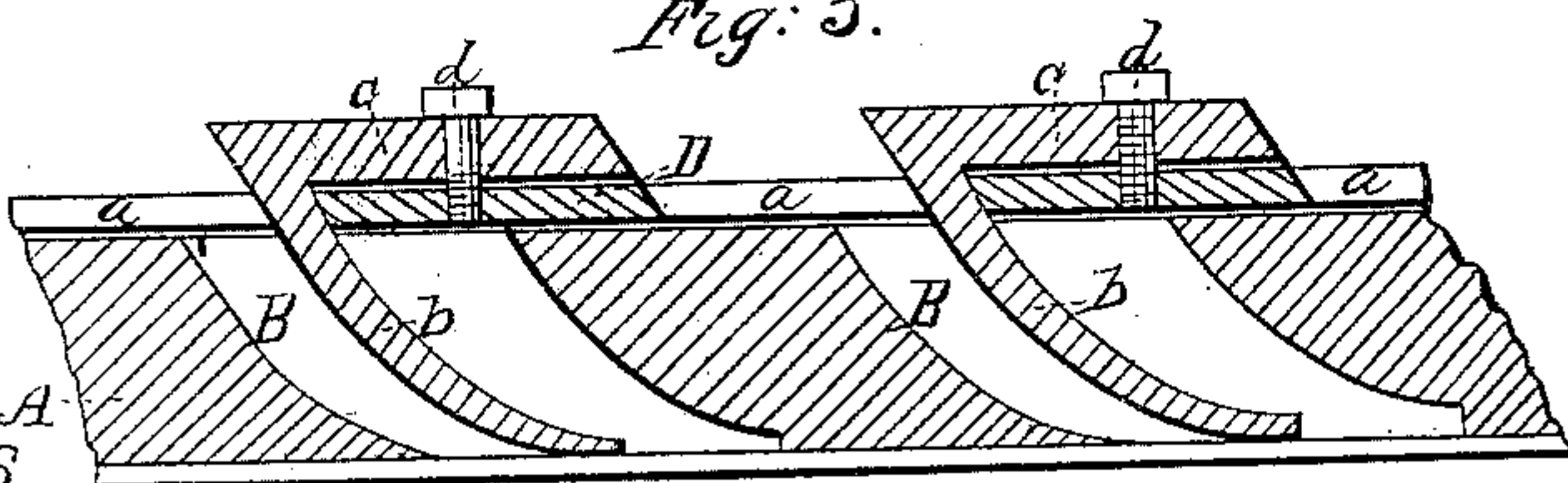


Fig: 3.



Witnesses

Gas. A. Service  
Wm. Frewin

Inventor

Albert A. Wood  
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# United States Patent Office.

ALBERT A. WOOD, OF MANLIUS, NEW YORK.

*Letters Patent No. 61,299, dated January 15, 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, ALBERT A. WOOD, of Manlius, in the county of Onondaga, and State of New York, have invented a new and useful Improvement in Turbine 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 make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a plan or top view of this invention.

Figure 2 is a transverse vertical section of the same, the line  $x x$ , fig. 1, indicating the plane of section.

Figure 3 is a similar section of the same taken in the plane indicated by the line  $y y$ , fig. 1.

Similar letters of reference indicate like parts.

This invention relates to a new gate, which is intended particularly for that class of turbine wheels known as Jouval's turbine wheels, but may be applied with advantage to water-wheels of various different construction. It consists of a ring or segment provided with one or more lips, which correspond in number and position to the guide-curves, and which are themselves curved in such a manner as to be parallel throughout their length with the guide-curves, so that the space or spaces through which the water passes to the buckets of the wheel can be enlarged or diminished and the water can be always made to run on the buckets in a solid stream. The ring which carries the curved lips is operated by an endless screw and suitable gear-wheels.

A represents a cylindrical or dish-shaped casting, which contains the guide-curves B, and which is arranged in relation to the body of the water-wheel in the usual manner. The dish-shaped casting A is provided with a hub, C, that forms the guide for the circular gate D, which is fitted over the guide-curves and provided with a series of apertures,  $a$ , corresponding in number and position to the openings between the guide-curves in such a manner that by turning the gate D said guide-curves can be opened and closed at pleasure. From the edges of the openings in the gate D extend lips,  $b$ , which are curved parallel with the guide-curves and fitted into the apertures between the guide-curves so as to work water-tight against the concentric sides thereof. By turning the gate D, therefore, the lips  $b$  are moved closer to or further from the guide-curves, and the spaces through which the water has to pass in order to reach the buckets of the wheel are diminished or increased, and said openings can at any moment be adjusted according to the disposable quantity of water, so that the water will at all times pass to the buckets in solid sheets and thus give the best possible effect. The form of the lips  $b$  and their position in relation to the guide-curves is best shown in fig. 3 of the drawing; and said lips are provided with flanges,  $c$ , which extend over the solid parts between the apertures in the gate D and are fastened to the same by screws  $d$ . Said lips may, however, be fastened to the gate in any other suitable manner. From the circumference of the gate rises a rim,  $e$ , a portion of which is provided with cogs,  $f$ , and into these cogs gears a worm,  $g$ , which revolves freely on a stud,  $h$ , secured in a standard,  $i$ , which rises from the body, A, of the guide-curves. A revolving motion is imparted to the worm  $g$  by a suitable bevel gear, and by these means the gate can be readily brought in the desired position.

I am aware that Letters Patent, granted July 31, 1855, to C. C. Taylor, describe a gate having lips projecting down between the guide-boards of the scroll. My invention differs essentially from Taylor's in forming and arranging the said lips so that they are parallel with the surface of the guide-board itself. I am thus enabled when the gate is closed to effectually exclude water from between the guide-board and lip and avoid any pressure of water in a direction tending to open the gate. The parallelism of the two sides of the chute also causes the water to be delivered in a more uniform and "solid" stream and with less agitation.

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

The adjustable chute-board or lip  $b$ , extending down between the guide-curves, and parallel therewith, to conduct the water in an unbroken stream and always in the same direction upon the wheel, substantially as and for the purpose set forth.

The above specification of my invention signed by me this 18th day of July, 1866.

ALBERT A. WOOD.

Witnesses:

WM. F. McNAMARA,

W. HAUFF.