

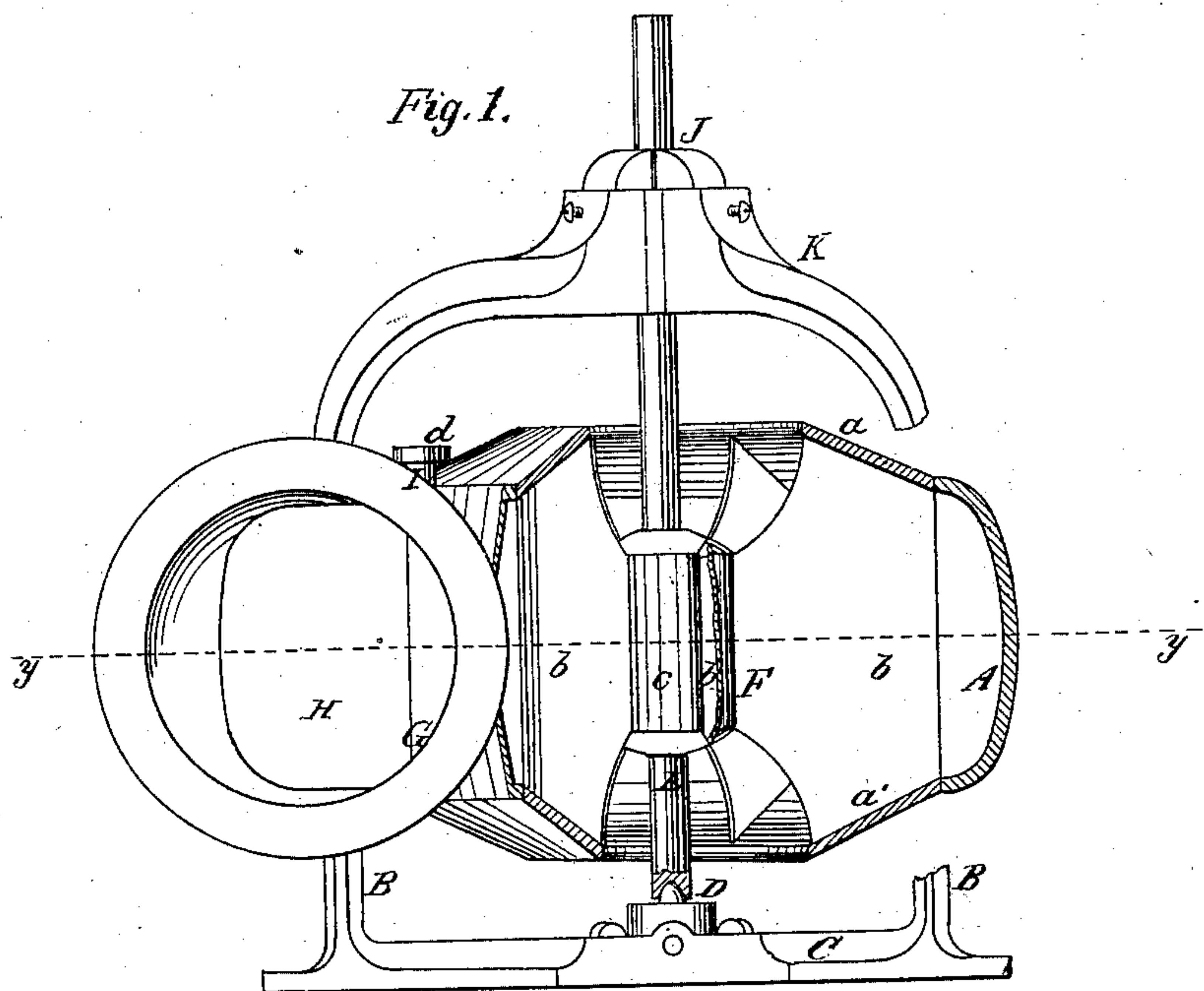
*J. S. Warren,*

*Water Wheel.*

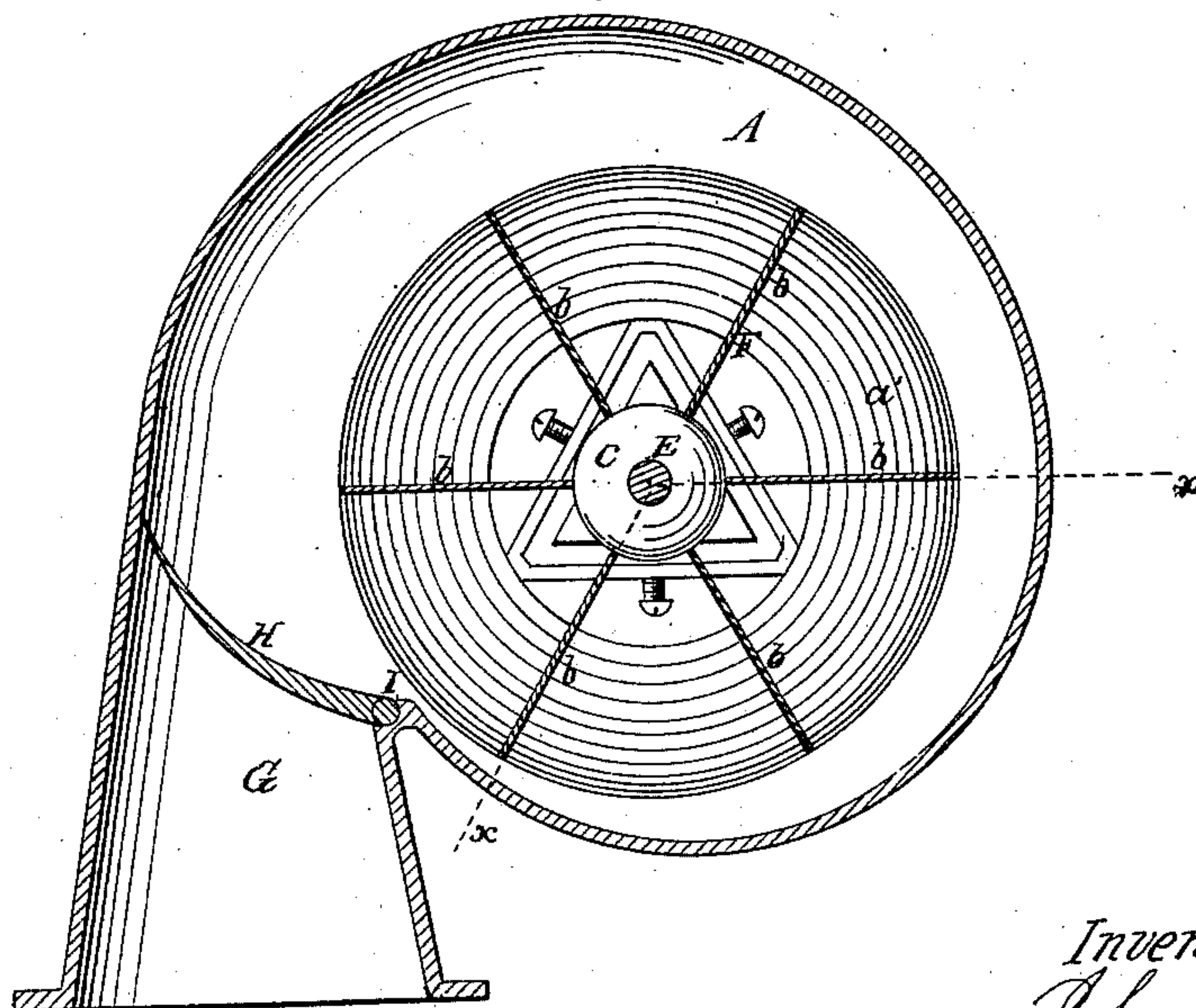
*N<sup>o</sup> 58,008.*

*Patented Sep. 11, 1866.*

*Fig. 1.*



*Fig. 2.*



*Witnesses*

*J. M. Huntington*  
*Geo. A. Service*

*Inventor*  
*John S. Warren*  
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*Munroe*

# UNITED STATES PATENT OFFICE.

JOHN S. WARREN, OF PORT CHESTER, NEW YORK.

## IMPROVEMENT IN WATER-WHEELS.

Specification forming part of Letters Patent No. 58,008, dated September 11, 1866.

*To all whom it may concern:*

Be it known that I, JOHN S. WARREN, of Port Chester, in the county of Westchester 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 thereof, which will enable those 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 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.

This invention relates to a new and improved horizontal water-wheel; and it consists in a novel construction of the scroll and wheel, as hereinafter fully shown and described, whereby the water is allowed to pass through the wheel with less interruption than hitherto, and with less friction, and a greater percentage of the power of the water obtained.

A represents the scroll of the wheel, which is of curved form transversely, so as to avoid all angles, as will be seen by referring to Fig. 1, the top, bottom, and side forming a curve, and not, as hitherto, composed of planes to form angles at their junction. This scroll rests upon suitable supports B, attached to a spider, C, at the center of which the bearing or step D for the lower end of the wheel-shaft E is fitted.

F is the wheel, composed of an upper and lower annular plate, *a a'*, buckets *b*, and a hub, *c*, the upper plate, *a*, being inclined, forming the frustum of a hollow cone, and the lower plate, *a'*, being inclined in a reverse direction, forming the frustum of an inverted hollow cone. (See Fig. 1.) These plates *a a'* fit as snugly as may be within the upper and lower parts of the scroll.

The buckets *b* have a radial position in the

wheel, and they are planes fitted vertically in the wheel, and having their outer edges flush with the peripheries of the plate *a a'*. The inner edges of the buckets are scooped or scalloped out at their upper and lower parts above and below the hub, as shown in Fig. 1, so as to allow a free escape for the water at the top and bottom of the wheel. The inner edges of the buckets are fitted in the hub *c*, and their upper and lower edges fitted in the plates *a a'*.

The water is admitted into the scroll A through an induction-passage, G, provided with a gate, H, which is secured to a vertical shaft, I, extending up through the top of the inner end of the passage G at its junction with the scroll, and having a hand-wheel or button, *d*, on its upper end for the convenience of turning the shaft I and opening and closing the gate H. This induction-passage G is of cylindrical form.

The upper part of the wheel-shaft E has its bearing J fitted in a spider, K, secured on the top of the scroll.

The advantage of this invention consists in the free or unobstructed passage of the water through the wheel, there being no angles or corners in the scroll to impede the flow of the water, while the upper and lower inclined or conical plates of the wheel, with the scalloped inner edges of the buckets, admit of the free escape of the water from the wheel through the centers of the plates *a a'*.

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

The upper and lower inclined or conical plates *a a'* of the wheel, with the buckets *b*, scalloped at their inner edges, in combination with the scroll A, all arranged substantially as and for the purpose specified.

JOHN S. WARREN.

Witnesses:

M. E. CLINTON,  
H. B. STRONG.