

No. 60,373.

PATENTED DEC. 11, 1866.

S. HICKS.
WATER WHEEL.

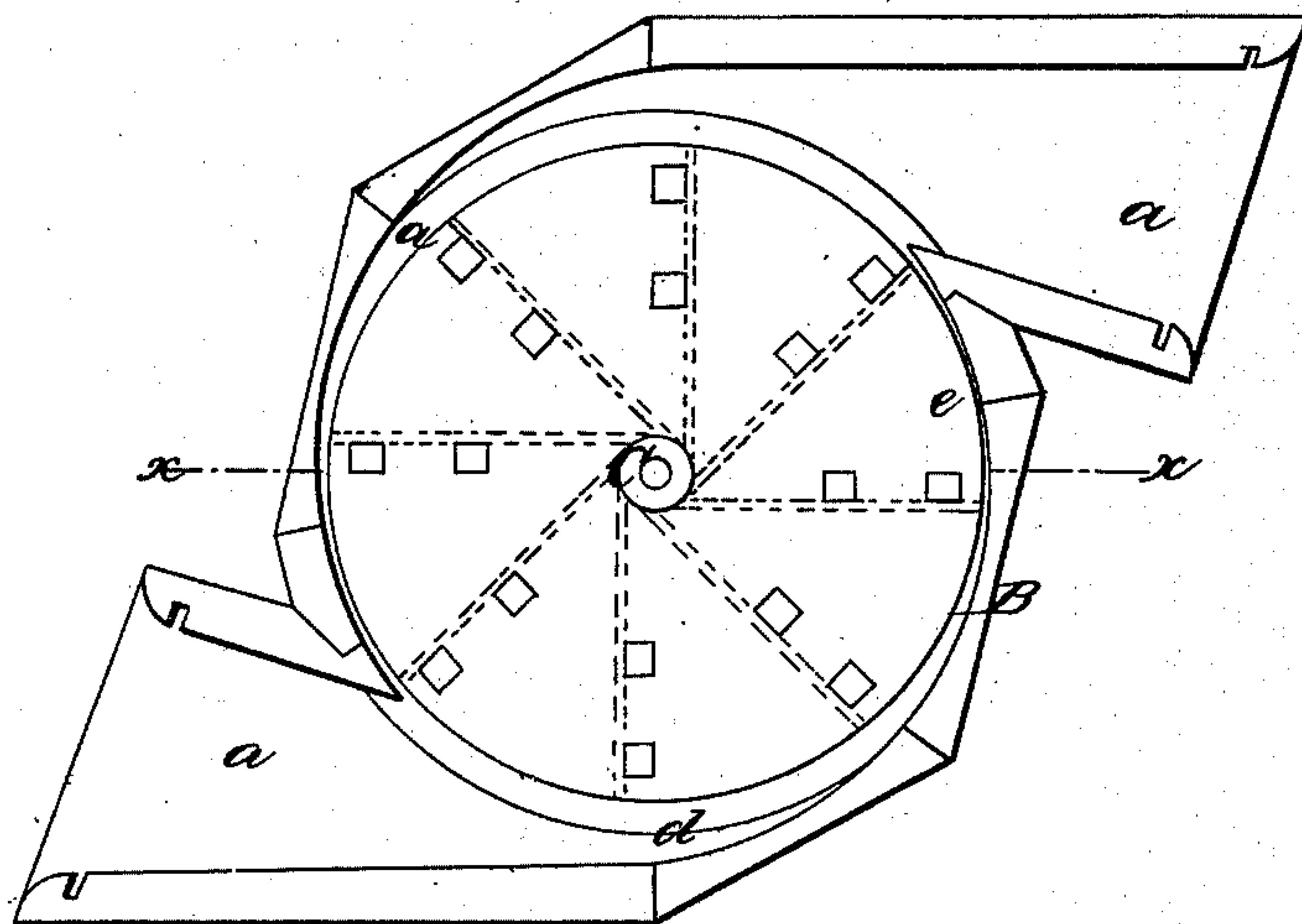


Fig. 2

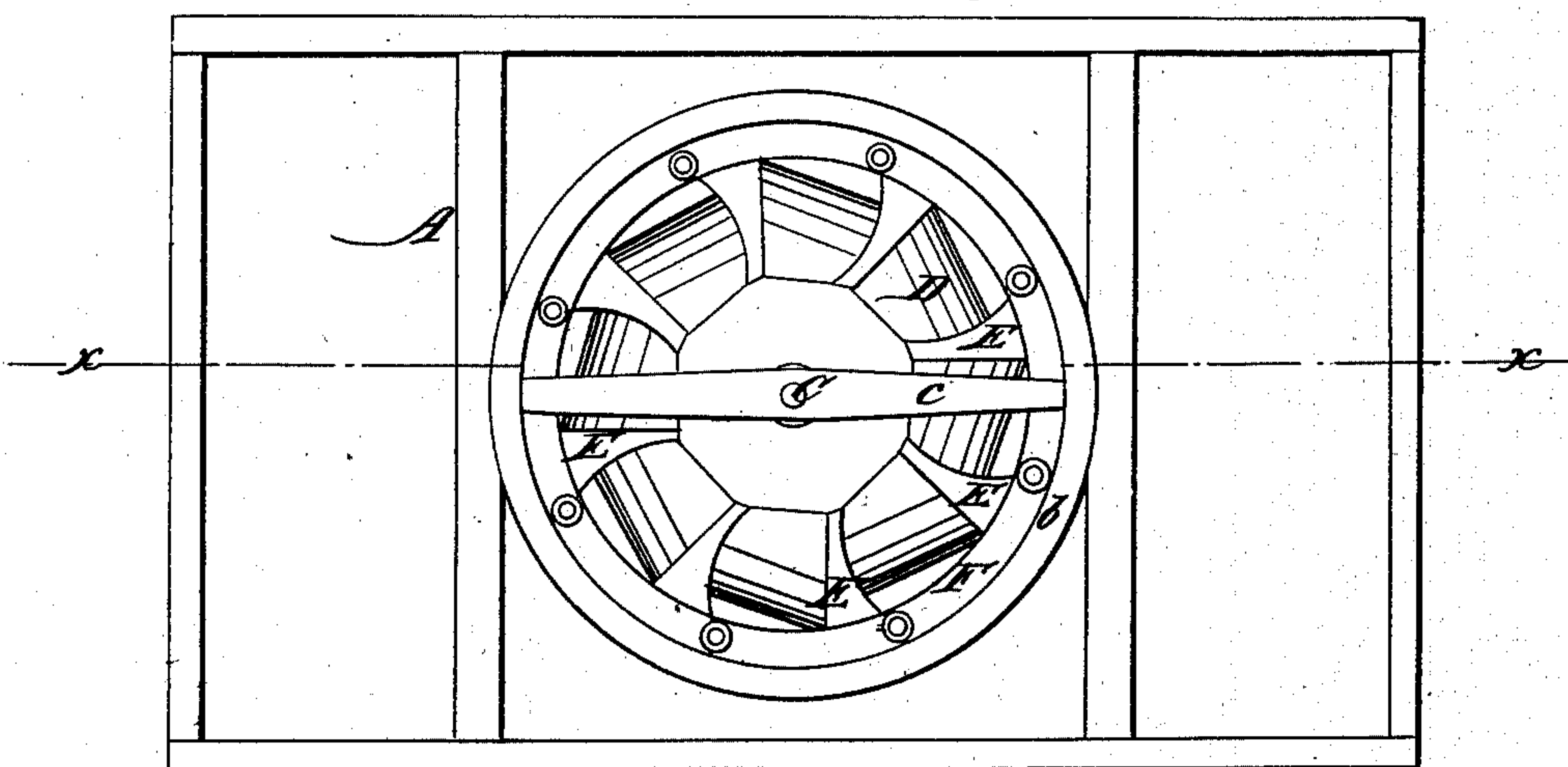
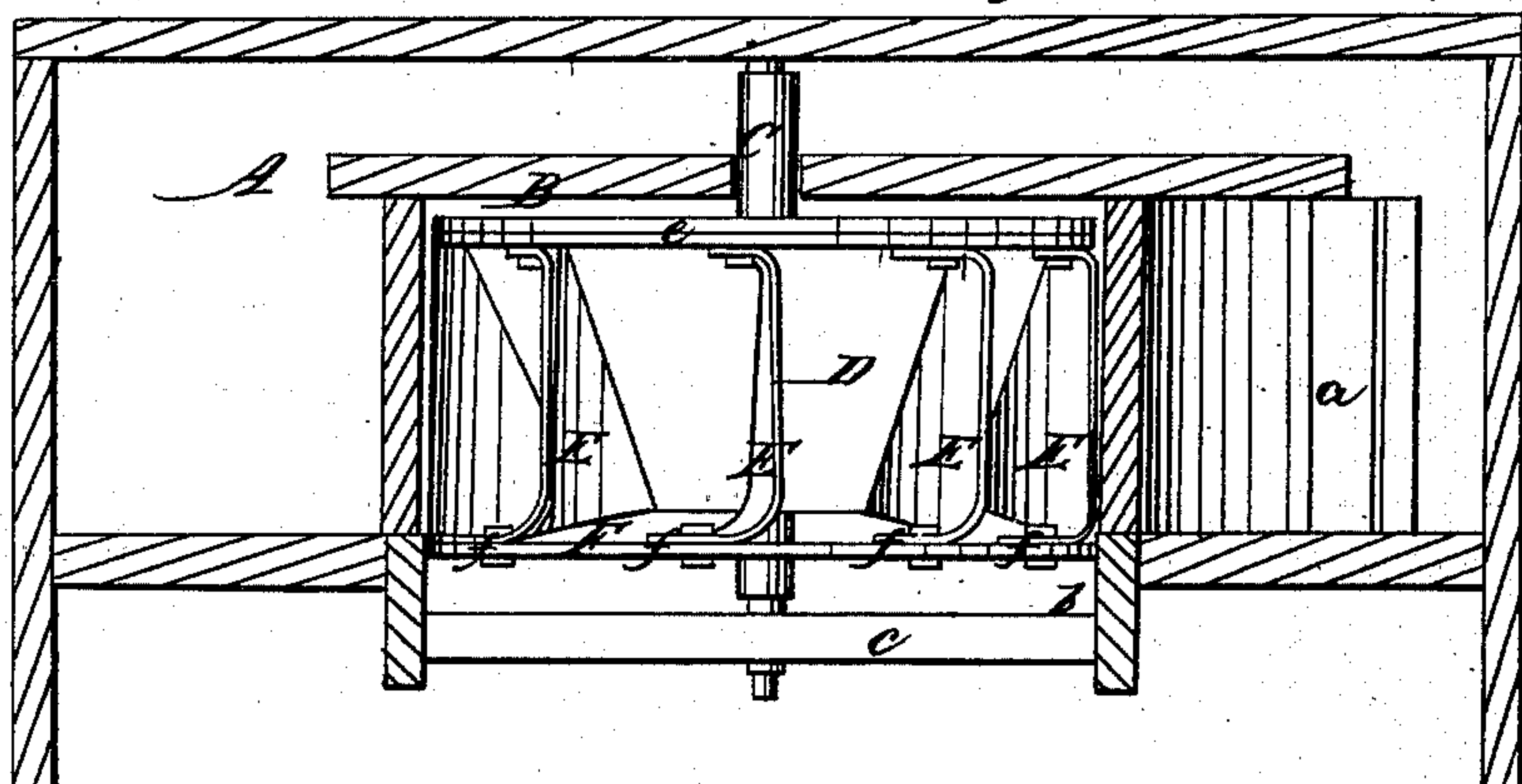


Fig. 3.



Witnesses
Wm. H. Houghton
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Inventor
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United States Patent Office.

IMPROVEMENT IN WATER WHEELS.

SAMUEL HICKS, OF ORANGEVILLE, INDIANA.

Letters Patent No. 60,373, dated December 11, 1866.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL TO WHOM IT MAY CONCERN:

Be it known that I, SAMUEL HICKS, of Orangeville, in the county of Orange, and State of Indiana, 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 plan or top view of my invention detached from the penstock.

Figure 2, an inverted plan of the same in the penstock.

Figure 3, a side sectional view of the same in the penstock, taken in the line *x x*, figs. 1 and 2.

Similar letters of reference indicate corresponding parts.

This invention relates to a new and useful improvement in that class of water wheels which are placed on a vertical shaft, and are commonly termed horizontal water wheels. The invention consists in a novel manner of constructing the wheel and the scroll, and arranging said parts within a penstock, as hereinafter fully shown and described, whereby a very simple, economical, and efficient wheel is obtained; one which will give out a larger percentage of the power of the water, and will operate favorably in back water.

A represents a penstock, in which the scroll B of the wheel is placed. This scroll is constructed with two inlets *a a* at opposite sides, as shown clearly in fig. 1. The lower part *b* of the scroll extends below the bottom of the penstock, as shown in fig. 3, the inlets *a a* being above the bottom of the penstock. C represents the shaft of the wheel, the lower end of which is stepped in a cross-bar *c* in the lower part of the scroll. This lower part *b* of the scroll is circular, but the upper part above the bottom of the penstock is composed of two eccentric or taper passages *d d*, with which the inlets *a a* communicate, as shown clearly in fig. 1. The shaft C of the wheel is of wrought or cast iron, with an inverted conical head D firmly keyed or otherwise secured upon it; said head having a flange *e* projecting horizontally from its upper end, and extending all around it. E are the buckets of the wheel, which have a tangential position with the shaft C, and are bolted at their upper ends to the flange *e*, and have their inner edges fitted in grooves in the head D. The lower parts of the buckets are curved and scooped or hollowed out, and are of such a form as to admit of horizontal projections *f* being fitted in and bolted to a ring or annular iron bar F. The buckets E may be of wrought-iron plate of any suitable thickness, and the head D may be of wood. The inverted conical head D causes the buckets E to have a gradually increasing width from their upper to their lower ends, and a free discharge is allowed the water from the wheel, the water not serving, in the least, as a drag upon the wheel, and at the same time acting upon or against the buckets in the most favorable manner. Foreign substances which may chance to enter the scroll are allowed to escape freely, and, in consequence of having two inlets *a a* at opposite sides of the wheel, the step and bearing of the wheel shaft is preserved from much friction. The water also flows smoothly through the wheel in an unbroken current, and in consequence of having the buckets placed tangentially with the wheel shaft, the water will have a tendency to flow outward instead of inward towards the wheel shaft.

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

The wheel, having an inverted conical head D, with buckets E attached, curved at the lower ends, and secured to a ring or annular bar F, substantially as described for the purpose specified.

SAMUEL HICKS.

Witnesses:

J. F. PITTMAN,

WM. V. WEATHERS.