

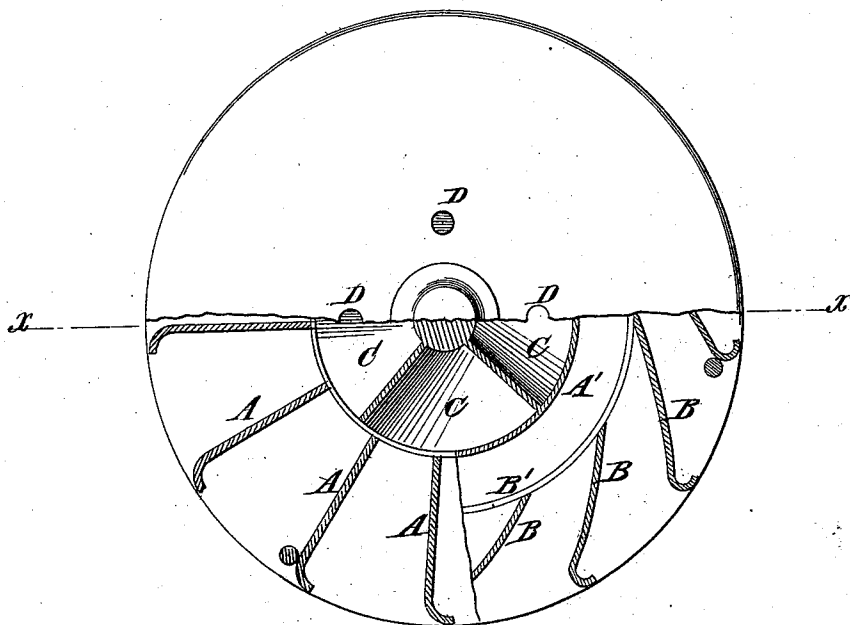
E. B. SHATTUCK & I. STAHLMAN.

WATER-WHEEL.

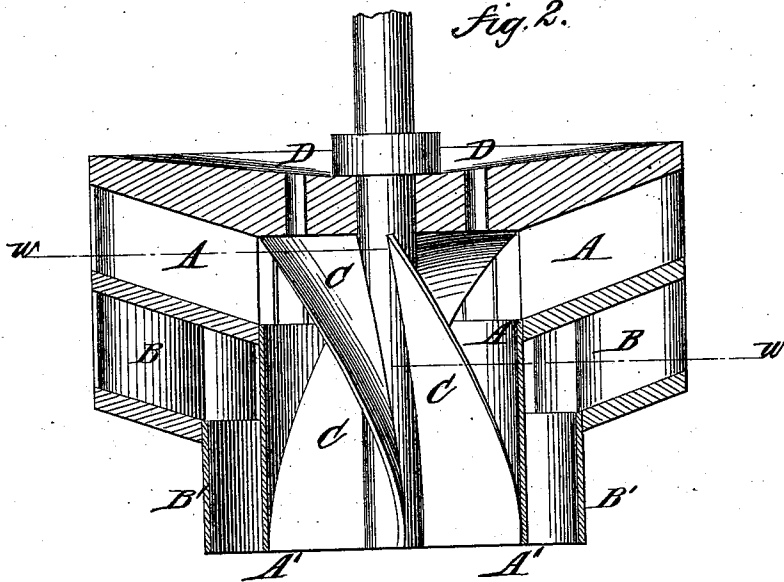
No. 184,550.

Patented Nov. 21, 1876.

*Fig. 1.*



*Fig. 2.*



WITNESSES:  
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# UNITED STATES PATENT OFFICE.

ELISHA B. SHATTUCK AND ISAAC STAHLMAN, OF MOUNT PLEASANT, MICH.

## IMPROVEMENT IN WATER-WHEELS.

Specification forming part of Letters Patent No. **184,550**, dated November 21, 1876; application filed August 14, 1876.

*To all whom it may concern:*

Be it known that we, ELISHA B. SHATTUCK, and ISAAC STAHLMAN, of Mount Pleasant, in the county of Isabella, and State of Michigan, have invented a new and Improved Water-Wheel, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a top view of our improved water-wheel with parts broken off on the line *w w*, to show construction of wheel below, and Fig. 2 is a vertical central section of the same on line *x x*, Fig. 1.

Similar letters of reference indicate corresponding parts.

Our invention relates to improvements in water-wheels by which increased power is obtained, the water freely discharged, and a larger percentage of the water-power utilized.

The invention consists of a double wheel, in which the buckets of the upper wheel connect with an inner tube and spiral buckets around the shaft, while the lower wheel connects with an outer cylinder or tube. The wheel is concaved or dishing, and provided with vent-holes at the top to accelerate the discharge of the water.

In the drawing, A represents the buckets of the upper, and B the buckets of the lower, wheel-section, which sections are both concaved or dishing to inner and outer tubes or cylinder A' and B'. The buckets A, of the upper wheel section, are straight and nearly radial, and communicate with buckets C of the inner cylinder or draft-tube A'. The buckets C are arranged spirally around the shaft of the wheel and extended to the lower end of the

tube A', into the tail-race. The buckets B, of the lower section, are curved and inclined to the exit cylinder or tube B, which forms the discharge for the water of the lower buckets.

The upper and lower sets of buckets are independent of each other in receiving and discharging the water, and produce additional power with the connecting interior buckets. Vent-holes D, in the top part of the wheel, admit air to the interior buckets, and assist in driving the race-water from the discharge, giving additional vent to the wheel. The joint action of the three sets of buckets, together with the separately-discharging draft-tubes, has the effect of utilizing a large percentage of the water-power, and of producing a wheel of increased capacity and power.

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

1. A water-wheel having an upper set of buckets, communicating with an interior spiral set of buckets, and a lower tier of buckets, substantially in the manner and for the purpose set forth.

2. The combination of the two sets of buckets and two draft-tubes, the latter revolving with the wheel, as shown and described.

3. A water-wheel having an upper, a lower, and an interior spiral set of buckets, arranged around the shaft, and an inner and outer cylinder and draft-tube, substantially as specified.

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Witnesses:

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