R. Stewart,

Water Wheel.

No. 45,875. Patented Jan. 10, 1865.

Fig. 1

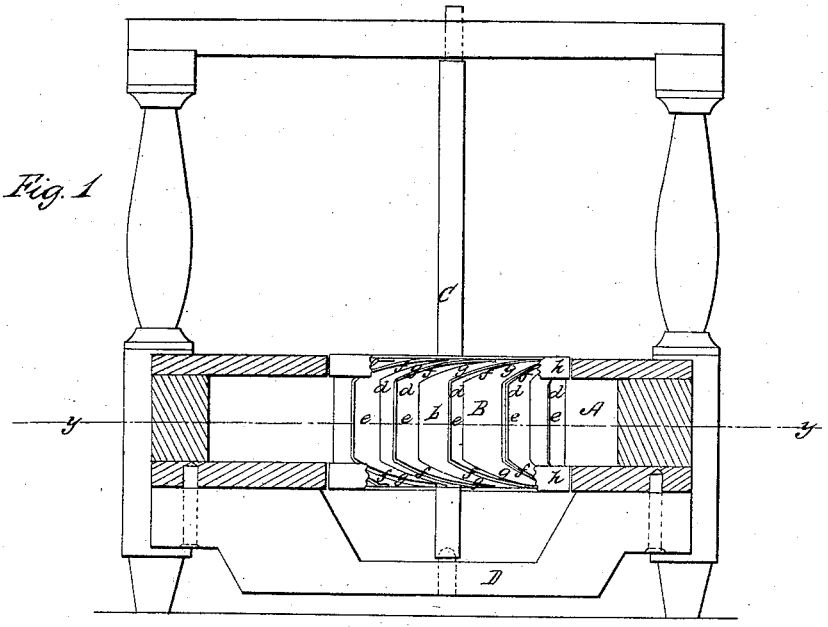
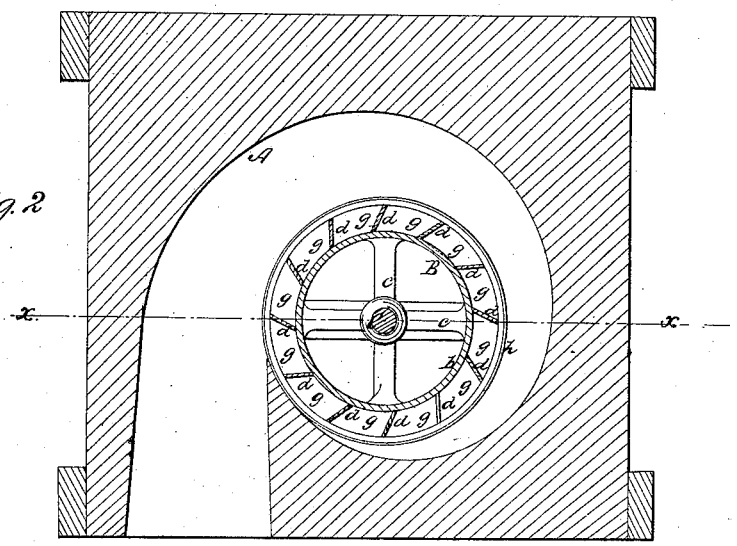


Fig. 2



Witnesses;
Henry Morris
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UNITED STATES PATENT OFFICE.

ROBERT STEWART, OF FULTONHAM, NEW YORK.

IMPROVEMENT IN WATER-WHEELS.

Specification forming part of Letters Patent No. **45,875**, dated January 10, 1865.

To all whom it may concern:

Be it known that I, ROBERT STEWART, of Fultonham, in the county of Schoharie 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 others skilled in the art to make and use the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side sectional view of my invention; Fig. 2, a horizontal section of the same, taken in the line *y y*, Fig. 1.

Similar letters of reference indicate like parts.

This invention relates to a new and improved water-wheel of that class in which the power of the water is obtained both by impact or percussion and reaction.

The invention consists in the peculiar shape of the buckets in connection with their mode of attachment to the wheel, as hereinafter set forth, whereby it is believed that a wheel of economical construction is obtained and one which will give a large percentage of the power of the water.

A represents a scroll, in which the wheel B is placed, said scroll gradually diminishing in width from its outer to its inner end, where an abutment, *a*, is formed. (See Fig. 2.) The shaft C of the wheel has its lower end, stepped in a bridge-tree, D, below the scroll, and the wheel is composed of a cylindrical case, *b*, attached by arms *c* to the shaft, and having buckets *d* attached to its periphery. The buckets *d* are composed of or have three different surfaces for the water to act upon. The central surface, *e*, has a vertical position on the case *b*, and has an oblique position relatively therewith, forming an obtuse angle at the side, against which the water acts, as will be seen by referring to Fig. 2. The upper and lower surfaces, *f f*, of the buckets are inclined from *e* to the upper and lower ends of the case *b*, and in a direction toward or facing the current of the water, said surfaces forming the discharge passages or issues *g*, which gradually contract from their outer to their inner ends, as shown in Fig. 1.

The buckets *d* are encompassed at their upper and lower ends by rims or bands *h h*, which form outer cases for the discharge passages or issues, the outer ends of the latter being flush with the upper and lower surfaces of the scroll, as shown in Fig. 1.

The water in passing into the scroll first acts by impact against the vertical portions *e* of the buckets, and is discharged through the passages or issues *g*, both at the top and bottom of the wheel, the water exerting a reacting force against the parts *f*.

The transverse oblique direction of the central parts, *e*, of the buckets admits of the water passing uninterruptedly around or through the scroll, and still allows it to act effectively upon or against the buckets.

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

The buckets *d*, having the vertical transverse oblique and inclined surfaces *e f f*, and attached to the case *b*, with the bands *h h*, encompassing the inclined surfaces *f f*, in connection with the scroll A, all arranged substantially as set forth.

ROBERT STEWART.

Witnesses:

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