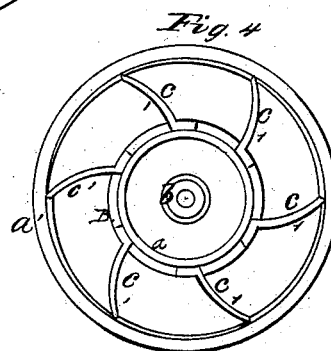
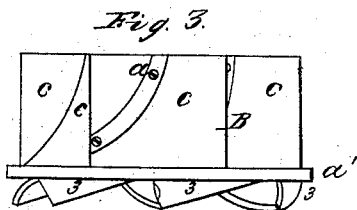
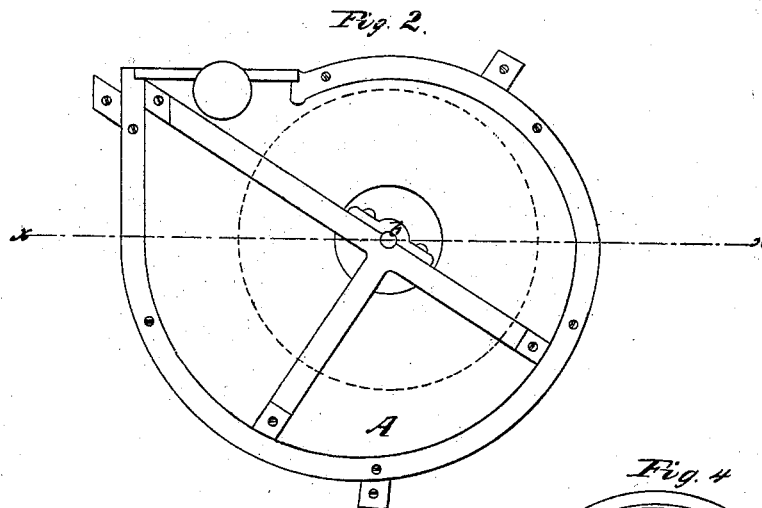
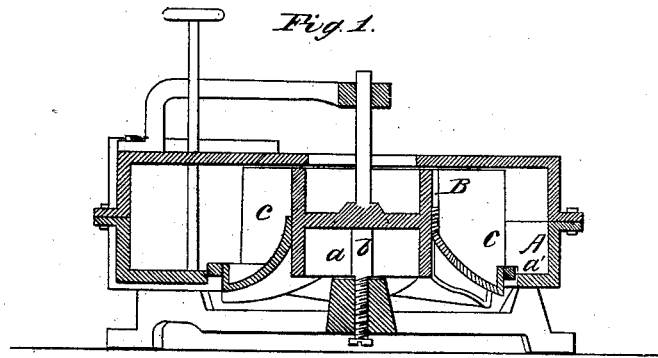


U. H. Goble,

Water Wheel,

N^o 50,928

Patented Nov. 14, 1865.



Witnesses.
Wm. Swann
Thos. Smith

Inventor
U. H. Goble
By *Wm. H. Goble*

UNITED STATES PATENT OFFICE.

URIAH H. GOBLE, OF DUBUQUE, IOWA.

IMPROVEMENT IN WATER-WHEELS.

Specification forming part of Letters Patent No. 50,928, dated November 14, 1865.

To all whom it may concern:

Be it known that I, URIAH H. GOBLE, of Dubuque, in the county of Dubuque and State of Iowa, 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 the specification, in which—

Figure 1 is a vertical central section of my invention, taken in the line *xx*, Fig. 2; Fig. 2, a plan or top view of the same; Fig. 3, a detached side view of the same; Fig. 4, a detached plan or top view of the same.

Similar letters of reference indicate corresponding parts.

This invention relates to a new and improved water-wheel of that class which are placed in a scroll and are on a vertical shaft, and are commonly termed "horizontal" water-wheels.

The invention consists in a new form of bucket and its arrangement on the wheel, as hereinafter fully shown and described, whereby it is believed that the direct force of the water and also its reacting force are obtained with a more favorable result than hitherto.

A represents the scroll in which the wheel B is fitted and works. The wheel B is composed of a hub, *a*, of cylindrical form, firmly keyed on a shaft, *b*, and having buckets *c* attached. These buckets *c* have an inclined position, and are curved both longitudinally and transversely, the curvature being similar to the thread of a screw, commonly termed "spiral form." The upper parts, 1, of the buckets have their face sides concave, as shown in Fig. 4, and said upper parts are acted upon directly by the water, the latter, after thus acting and expending its force by impact, acting by grav-

ity upon the upper surfaces, 2, of the buckets as it passes from them. The buckets extend down below the hub *a* of the wheel and a ring, *a'*, which encompasses their exterior, and the outer sides of the buckets below the ring *a'* are inclosed, as shown at 3, Figs. 1 and 3; but the spaces between the lower ends of the buckets are open, as shown at 4, to admit of the free lateral escape of the water as it passes out from the buckets. The buckets incline the water to the outside of the wheel, thereby adding to the effective force of the water. By this form of bucket, it is believed that the direct and reacting power of the water is obtained in a more eminent degree than by other wheels of the same class, the water being allowed to act upon the buckets in the most efficient manner and to discharge itself readily from the wheel in passing out from the issues or from between the lower ends of the buckets. The scroll A forms a gradually-tapering water-passage all around the wheel, as will be understood by referring to Fig. 2, in which the position of the wheel is shown by dotted lines.

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

A horizontal water-wheel provided with buckets *c*, which are curved spirally in the manner shown, so as to have a concave face side and an inclined surface both longitudinally and transversely, and projecting below the rim *a'* of the wheel into the space inclosed by the curb in such a manner as to give the water a direction toward the outside of the wheel, substantially as and for the purpose herein set forth.

URIAH H. GOBLE.

Witnesses:

J. O'HEA CANTILLON,
J. U. HAMMER.