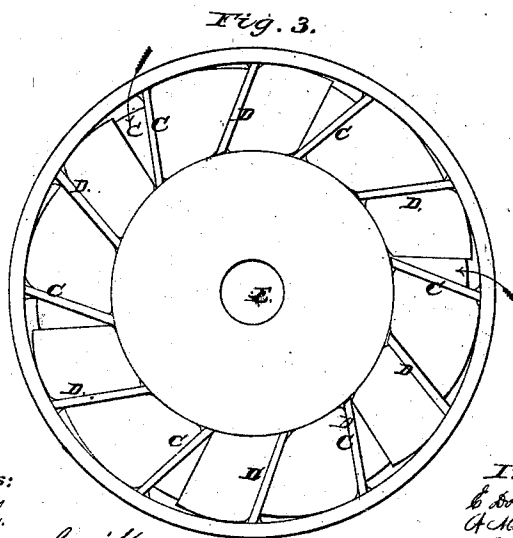
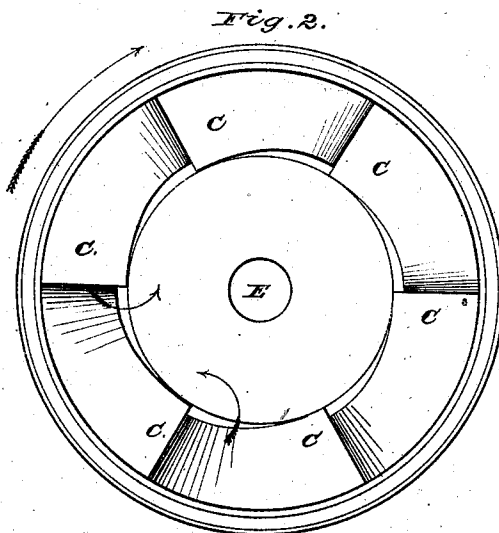
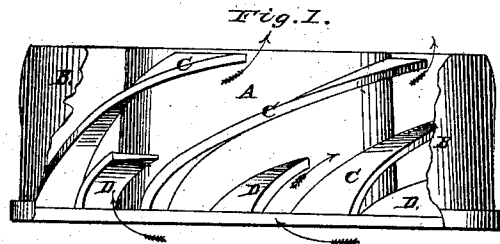


Dohner & Bruckhart

Water Wheel,

N^o 37,337.

Patented Jan. 6, 1863.



Witnesses:
Charles Smith.
J. A. Lauberschmidt.

Inventor:
E. Dohner
A. M. Bruckhart
By H. M. Smith, Atty.

UNITED STATES PATENT OFFICE.

ELIAS DOHNER, OF LANCASTER, AND A. M. BRUCKART, OF BRUNNERSVILLE, PENNSYLVANIA.

IMPROVEMENT IN WATER-WHEELS.

Specification forming part of Letters Patent No. 37,337, dated January 6, 1863.

To all whom it may concern:

Be it known that we, ELIAS DOHNER, of the city and county of Lancaster and State of Pennsylvania, and A. M. BRUCKART, of Brunnersville, in the same county and State, have invented a new and useful Improvement in Water-Wheels; and we do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a side elevation of our improved wheel with a part of the outer rim removed. Fig. 2 is a plan or top view of the same. Fig. 3 is an under-side view thereof.

Similar letters of reference indicate corresponding parts in the several views.

The subject of our invention is an improvement in turbine water-wheels; and the invention particularly consists in a certain improved construction, combination, and arrangement of buckets, which will avail more fully the percussive and gravitating force of the water and permit its free discharge.

To enable others skilled in the art to which our invention appertains to fully understand and use the same, we will proceed to describe its construction and operation.

A represents a conical hub, and B a conical rim concentric therewith, connected by spiral buckets C D, of unequal length, disposed alternately, as shown in Fig. 1. The hub A and rim B have each the form of the frustum of a cone or conoid, converging upward. The form of the buckets is such as to adapt them to receive and avail the centrifugal as the percussive and gravitating force of the water, as will be hereinafter explained.

E is the eye, within which the shaft is keyed in customary manner.

The casing surrounding the wheel, and within which it turns, may be of common construction, and therefore does not require specific description.

The black arrows indicate the course of the water through the wheel. The red arrows

show the direction in which the wheel revolves.

The operation is as follows: The water, entering from beneath in the direction indicated by the black arrows in Fig. 1, impinges forcibly against the buckets D and against the lower ends of the buckets C, by which it is deflected upward and inward, its continued upward pressure, produced by the gravity of the descending column, being exerted by reaction against the oblique upper ends of the long buckets C. By these means the full power of the water is used in the most advantageous manner until it has passed completely through the wheel and beyond the reach of the pressure of the descending column, after which it flows away with entire freedom without any disadvantageous reaction.

From the above description it will be apparent that the position of the buckets on the lower side of the wheel is such as to avail to the fullest extent the percussive force of the water, while at the upper side, where the vertical space between the buckets is necessarily less by reason of their greater obliquity, the absence of the intermediate buckets, D, affords space sufficient to admit of a free and unobstructed discharge. It will also be observed that by reason of the upper convergence of the hub and rim and the depression of the outer edges of the buckets the centrifugal force of the water is made use of and prevented from obstructing the motion.

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

The combination of the short intermediate buckets, D, with the buckets C, hub A, and rim B, all constructed and arranged in the manner and for the objects set forth.

ELIAS DOHNER.
A. M. BRUCKART.

Witnesses:

G. SHAFFNER,
JOHN SHELLY.