S. L. Valentine,

Water Wheel.

No. 2,736. Patented July 23, 1842

Fig. 2

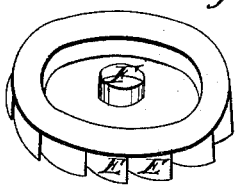


Fig. 1

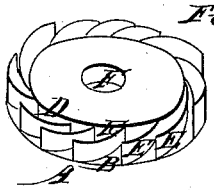
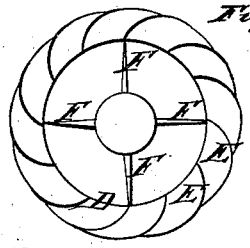


Fig. 3



Witnesses.
William Bartlett Jr.
John C. Hayward

Inventor.
Samuel L Valentine

UNITED STATES PATENT OFFICE.

SAMUEL L. VALENTINE, OF BANGOR, MAINE.

IMPROVEMENT IN WATER-WHEELS.

Specification forming part of Letters Patent No. **2,736**, dated July 23, 1842; antedated March 28, 1842.

To all whom it may concern:

Be it known that I, SAMUEL L. VALENTINE, of Bangor, county of Penobscot, and State of Maine, have invented a new Combination Percussion and Reaction Water-Wheel for Propelling Machinery; and I do hereby declare that the following is a full and exact description.

The nature of my invention consists in constructing a tub-wheel in such a manner that it can be made of cast-iron either whole or in segments, allowing the water to escape at the periphery of the wheel, permitting the wheel to move beneath the water and combining the power of the percussion and reaction.

To enable others skilled in the business to construct my wheel, I will proceed to describe its construction and operation.

My wheel is formed of the usual thickness of tub-wheels—say from eight to fourteen inches—and are of various sizes. From the periphery of the wheel A, Fig. 1, toward the center is an inclined plane B B, Fig. 1, extending from A toward the center from twelve to fourteen inches, more or less, according to the size of the wheel, with a perpendicular shoulder at the termination of the inclined plane toward the center of about half the thickness of the wheel. (Letter D.) Upon this inclined plane I cast about twelve buckets, more or less, according to the size of the wheel. Their bottom is cast upon the inclined plane and their top edge coming up level with the top of the center part of the wheel. They are joined at the shoulder on the inner edge of the inclined plane, and are curved with a sweep of about a quarter of a circle from the shoulder where joined to the periphery of the wheel. These buckets are about three-eighths of an inch thick at the bottom and about one-fourth of an inch at the top. The top of the wheel in the center has an opening with a collar to receive the shaft F F in those that are cast whole, while those of large size, cast in segments, the rim formed of the segments is secured to iron or wooden arms which are secured to the shaft F F. The buckets E E are the width of the depth or thickness of the wheel at its periphery and level with the top or center of the wheel.

The advantages of this wheel are its durability and cheapness, the water escaping at the periphery instead of the bottom of the wheel, as is usual, produces more power and admits of its being placed nearer the apron or flooring, and thus increases the head of water The inclined plane and form of the buckets are such as to secure the full power of percussion by the water being let onto the wheel, and in its escaping it gives a reacting power. The bottom of the wheel is about the shape of an inverted coffee-saucer, presenting a smooth surface to the water, which, with the little obstruction offered by the ends of the buckets, allows the wheel to traverse when covered with backwater.

I apply the water to this wheel in any of the usual forms. The usual method is with one or more conductors with a little sharper pitch than common, applying it to the top of wheel. Sometimes it may be more conveniently applied to the periphery of the wheel, in which case I cover the top of the buckets with a flange. When the wheel is six feet in diameter or less, I cast it whole, and when more than six feet I cast it in segments. When the wheel is attached to arms and is exposed to backwater, I flow over and beneath the arms in the center to give as smooth a surface as possible.

Figure 1 represents a view of the model of the wheel right side up. Fig. 2 is a view of the wheel when upside down. Fig. 3 is a view of the top of the wheel when placed on arms attached to a shaft.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination of the buckets of the form described with the beveled or inclined form of the rim supporting the buckets, as set forth and described.

SAMUEL L. VALENTINE.

Witnesses:
JOHN WILKINS,
JOHN S. SAYWARD.