

No. 122,588.

2 Sheets--Sheet 1.
Patented Jan. 9, 1872.

William H. Elmer's Water Wheel

fig. 1

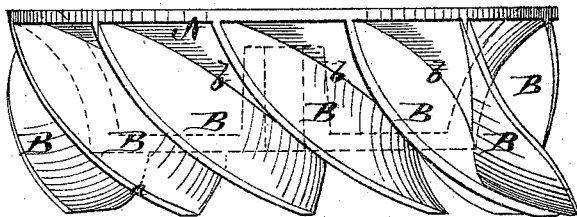
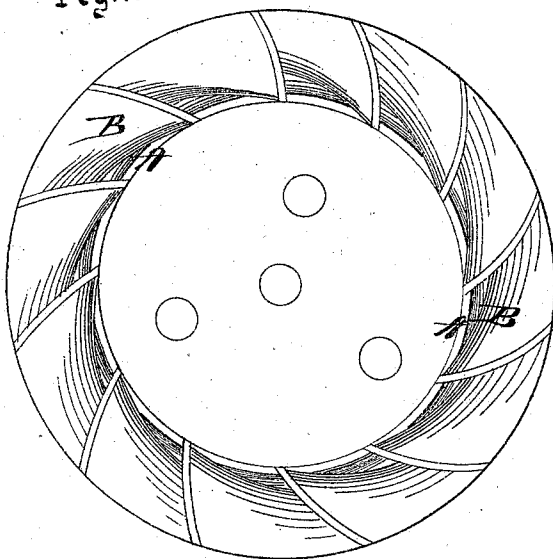


fig. 2



Witnesses.

C. L. Ewer
Jas. E. Hutchinson

Inventor.

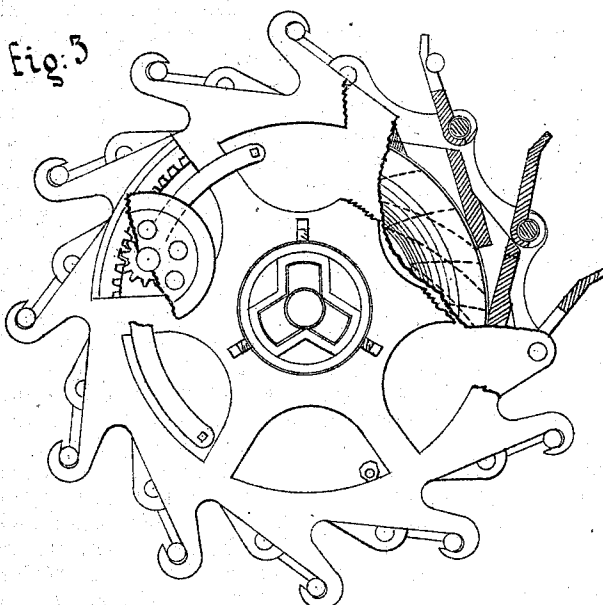
Wm H. Elmer
per
Alexander Mason
Atty.

No. 122,588.

2 Sheets--Sheet 2..

Patented Jan. 9, 1872.

William H Elmer Water Wheel



Witnesses.
C. L. Ewert.
Jas. C. Hutchinson

Inventor.
Wm H. Elmer
per
Alexander M. Maddy
attys.

UNITED STATES PATENT OFFICE.

WILLIAM H. ELMER, OF BERLIN, WISCONSIN.

IMPROVEMENT IN WATER-WHEELS.

Specification forming part of Letters Patent No. 121,588, dated January 9, 1872; antedated January 6, 1872.

Be it known that I, WILLIAM H. ELMER, of Berlin, in the county of Green Lake and in the State of Wisconsin, have invented certain new and useful Improvements in Water-Wheel; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon making a part of this specification.

The nature of my invention consists in the construction and arrangement of a "water-wheel" designed to be used with or in the water-wheel casing for which Letters Patent were granted me December 6, 1870.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a side view, and Fig. 2 a bottom view of the wheel. Fig. 3 is a plan view, part in section, of the casing, showing the position of the wheel within the same.

My wheel is constructed upon the Jonval or downward plan, but the hub or foundation A is tapering, as shown by dotted lines in Fig. 1. This hub or foundation is to be keyed to a central upright shaft. B B represent the buckets, which are rounded at the inside corners *a*. To keep the correct position of each bucket next the hub, the first requisite is the taper or funnel-shaped hub, in order to let the water, to a certain amount, pass freely through the wheel. It will be noticed that at the top of the wheel the bucket is just the width of the chute through which the water passes in going to the wheel; but at the bottom the bucket is as wide as the chute is high, so as to allow its free escape; but in order to prevent the water from rushing too easy to the center the buckets are raised on the inside or center edge *b*, which obliges the water to pass an incline to the center and downward in going from the wheel. The second point is the position of the bucket, which is on an incline from the top to the bottom.

It will be seen that when the wheel is in the

case the water is flowing on two buckets from one chute at the same time. One object of this is to equalize the water so that when the bucket is passing the point of the guide, and is taking water on the point of the bucket from one chute, it is also taking water on the bottom of the bucket from the next chute, which prevents any direct cut off of the water and keeps the buckets always full, giving a very even and steady motion. Another object of leaning the bucket over is to prevent a too ready discharge of the water.

It is practically correct that water presses both ways or all ways alike, and as there is as much pressure down as there is directly to the wheel, it is necessary to set the bucket in such a position that the water coming into the wheel will, in a measure, hold itself in the wheel, and the pressure down will force the water out of the wheel. The position that these buckets are placed is about twenty-two and a half degrees at the lowest point of pressure, which has a tendency to force the water upon the bucket, and the pressure down forces it out, which brings the two points of pressure in contact with each other before the water leaves the wheel. By this means the strongest possible motion of any turbine-wheel is obtained, and also the least amount of water is run through in proportion to the measurement of the gates and issues.

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

The buckets B B, attached to the tapering hub A, and constructed as herein described—that is, inclined from top to bottom, the inside corners *a a* rounded and the inside or center edges *b b* raised—all substantially in the manner and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 26th day of May, 1871.

WM. H. ELMER.

Witnesses:

WM. R. DAVIS,
CLEMENT S. PECK.

(168)