V. M. Baker,

Water Wheel,

No. 81,866, Patented Sept. 8, 1868.

Fig. 3

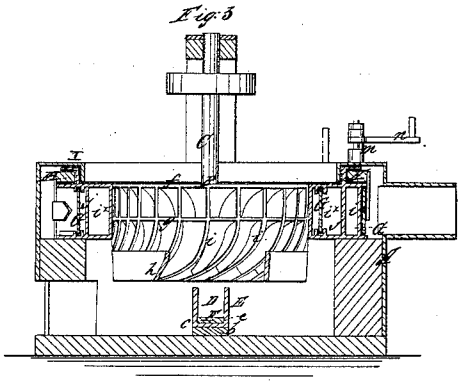


Fig. 1.

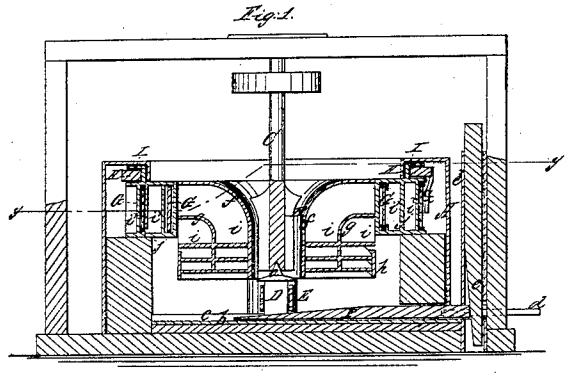


Fig. 4.

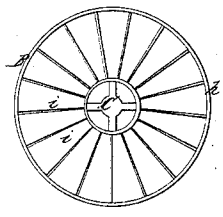
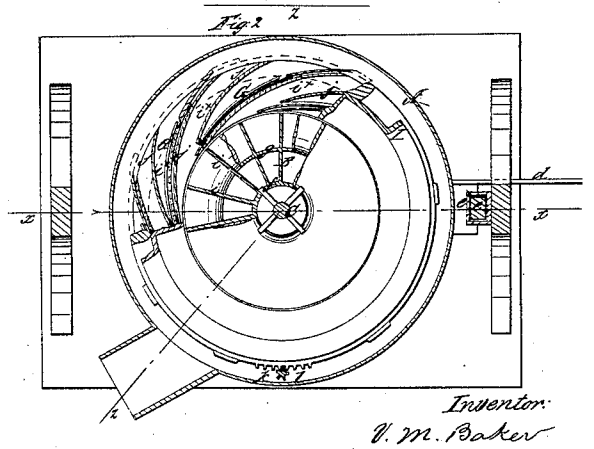


Fig. 2



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VINCENT M. BAKER, OF PRESTON, MINNESOTA.

Letters Patent No. 81,866, *dated September* 8, 1868.

IMPROVEMENT IN WATER-WHEELS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, VINCENT M. BAKER, of Preston, in the county of Fillmore, and State of Minnesota, 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 this specification.

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

The invention consists in a novel arrangement of chutes and gates for regulating the supply of water to the wheel.

In the accompanying sheet of drawings—

Figure 1, Sheet No. 1, is a vertical central section of my invention, taken in the line *x x*, fig. 2.

Figure 2, a horizontal section of the same, taken in the line *y y*, fig. 1.

Figure 3, Sheet No. 2, a vertical section of the same, taken in the line *z z*, fig. 2.

Figure 4, a detached inverted plan of the wheel.

Similar letters of reference indicate corresponding parts.

A represents a cylindrical curb, in which the wheel B is fitted and works.

C being the shaft of the wheel, the lower end of which is concave, and works on a conical point or step, *a*, on a block, D, which is fitted in a socket, E, attached to a cross-piece, *b*, which is secured to the lower part of the curb.

This block D rests on a wedge-shaped or taper bar, F, which is placed on the cross-piece *b*, and fitted between guides or side-pieces *c c*, at the edges thereof, and, by adjusting this bar F, the wheel B may be raised or lowered to the required height.

This will be fully understood by referring to fig. 1.

The bar F may be operated by means of a handle, *d*, and retained in place by a wedge, *e*, fitted within a vertical box, $e^{\times}$, (see fig. 1.)

The wheel B is composed of a central curved plate, *f*, having a concave outer surface, as shown clearly in fig. 1, and another similar curved plate, *g*, placed midway between *f* and a low or narrow plate, *h*, at the lower exterior part of the wheel.

The buckets *i* extend from the top of plate *f* down to the bottom of the same, their upper parts down to the top of plate *g* having a radial position, and from thence downward a curved form, as shown clearly in fig. 3, the plate *g* dividing the buckets, the upper radial parts from the lower curved parts.

By this construction and arrangement of the buckets, the direct power of the water is obtained, and also the reacting power, or that due to weight or gravity; the first being obtained by the water coming in contact with the upper radial parts of the buckets, and the latter by the water passing down over the lower curved parts of the buckets, the water being discharged from the bottoms of the buckets, in consequence of the plate or rim *h* at the lower exterior part of the wheel.

The upper part of the wheel is enclosed by a series of chutes, $i^{\times}$, (see more particularly fig. 2,) and in each chute there is a sliding gate, G.

These gates are fitted, one against each partition *j*, which form the chutes, and the inner end of the gate of one partition *j* works between the inner end of the partition directly in front of it and the exterior of the wheel, and consequently it will be seen that by operating the gates, drawing them in and out, more or less water may be admitted to the wheel, as desired, and in such a direction as to strike the upper radial parts of the buckets at right angles, the position of the gates and chutes being such as to effect that result.

The gates G are attached to a ring, H, which is fitted within a suitable annular guide, I, and has a number of teeth, *k*, attached, into which a pinion, *l*, gears, the latter being on a vertical shaft, *m*, provided with a crank, *n*, on its upper end.

By turning this shaft *m*, the ring H may be turned, and the gates G moved in or out with the greatest facility, and the precise amount of water required let upon the wheel, without any trouble or difficulty whatever.

I claim as new, and desire to secure by Letters Patent—

The chutes *i*×, in combination with the sliding gates G, operated through the medium of the ring H and gearing *k l*, all arranged substantially as and for the purpose set forth.

The above specification of my invention signed by me, this 8th day of January, 1868.

VINCENT M. BAKER.

Witnesses:

L. L. STREETER,

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