(No Model.)

D. B. JAMES.

WATER AND AIR WHEEL.

No. 257,166. Patented May 2, 1882.

Fig. 1.

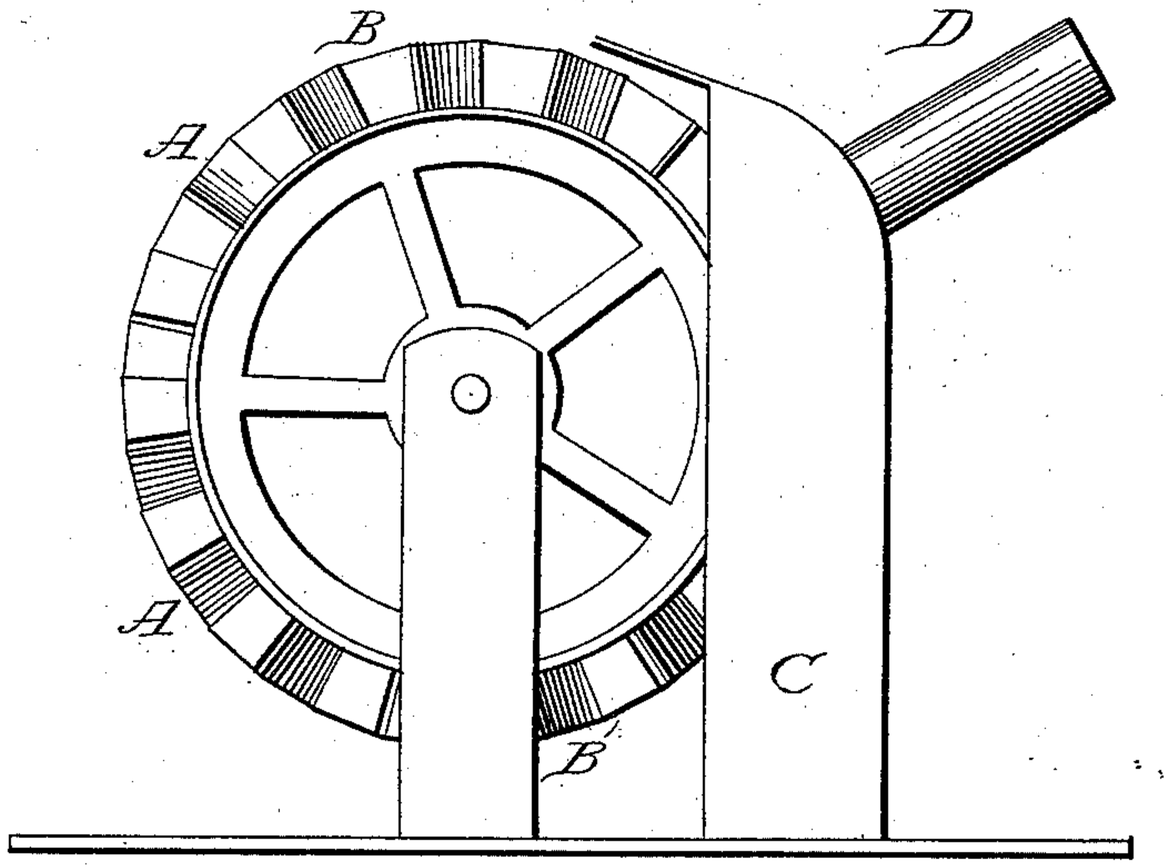
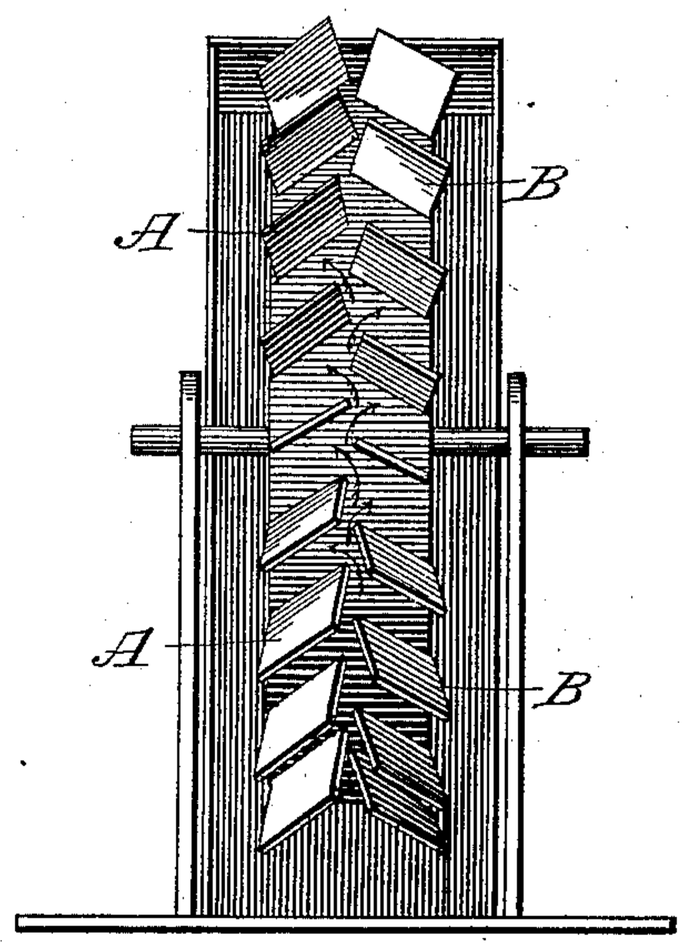


Fig. 2.



Witnesses:
Thomas W. Mayo
Bookseller & Stationer
1018 Market St
San Francisco
L. N. Nam

Inventor:
David Bice James

UNITED STATES PATENT OFFICE.

DAVID BICE JAMES, OF SAN FRANCISCO, CALIFORNIA.

WATER AND AIR WHEEL.

SPECIFICATION forming part of Letters Patent No. 257,166, dated May 2, 1882.

Application filed July 30, 1881. (No model.)

To all whom it may concern:

Be it known that I, DAVID BICE JAMES, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented an Improved Double-Bucket Water-Wheel, of which the following is a specification.

My invention relates to improvements in water-wheels and wind-motors in which two rows of buckets are fixed to the outer face of the periphery of a wheel and stand vertically on a line with the center of the wheel, and each bucket slanting at right angles toward each other alternately and at equal distances apart from each side of the face of the wheel to its center, leaving a water-way from each bucket to the next, and when applied with force the water reacts from one bucket to the other until it is passed off at a tangent from a straight line across that portion of the wheel or segment containing the number of buckets that the power has been applied upon before it is spent.

The objects of my invention and improvement are, first, to obtain the greatest percentage of the power of water or air under a pressure or head applied directly against the buckets of the wheel, which I obtain by creating a positive reactionary force from one bucket to another in the way that the buckets are arranged to the face of the wheel, and also more positively obtained by inclosing or casing a segment of the wheel and its buckets, so that the water has a force on several of the inclosed buckets at the same time (without any cut-off, as in the arrangement of the buckets of other water-wheels) until it is discharged. As there is a free and clear passage around the periphery of the face of the wheel between the buckets, the actual power of the water is multiplied, as it reacts on all that portion of the buckets inclosed in the casing that incloses the segment of the wheel acted upon.

The accompanying drawings illustrate how this improved reactionary wheel is constructed and the arrangement of the buckets on the face of the wheel, in which—

Figure 1 is a side elevation of wheel, housing or casing, and water-pipe. Fig. 2 is a front elevation section, showing the arrangement of the buckets upon the face of the wheel.

Similar letters refer to similar parts in both views.

A and B are buckets that are set at opposite angles to each other vertically from the center on the face of the wheel, slanting at right angles inwardly and outwardly toward each other, each reaching diagonally half-way across the face of the wheel, and each bucket alternately the same distance apart around the face of the periphery of the wheel.

C is a housing that fits as close to the buckets as clearance of the same will admit of. The buckets on a segment of the wheel receive the full force of the water or air when inclosed in the casing until the buckets leave it, and the water or air is discharged. D is the water-pipe that carries water to the wheel.

I am aware that prior to my invention water-wheels have been made with inclosed and cut-off buckets, that the force of water acts upon the buckets of a wheel in a different way from what it does on the wheel of my inventing that I have described; and

What I desire to claim and secure by Letters Patent is—

1. A water or air wheel having a double row of buckets arranged obliquely on the periphery thereof at right angles to each other, whereby a reactionary force is caused by the passage of water or air from one bucket to another, substantially as specified.

2. The combination, with an air or water wheel having buckets A B set obliquely on the periphery thereof at right angles to each other, of the housing C and pipe D, substantially as shown and described.

DAVID BICE JAMES.

Witnesses:
A. H. HAGEDOR,
L. MEININGER.