(No Model.)

W. G. DODD.

WATER WHEEL BUCKET.

No. 454,638. Patented June 23, 1891.

Fig. 1.

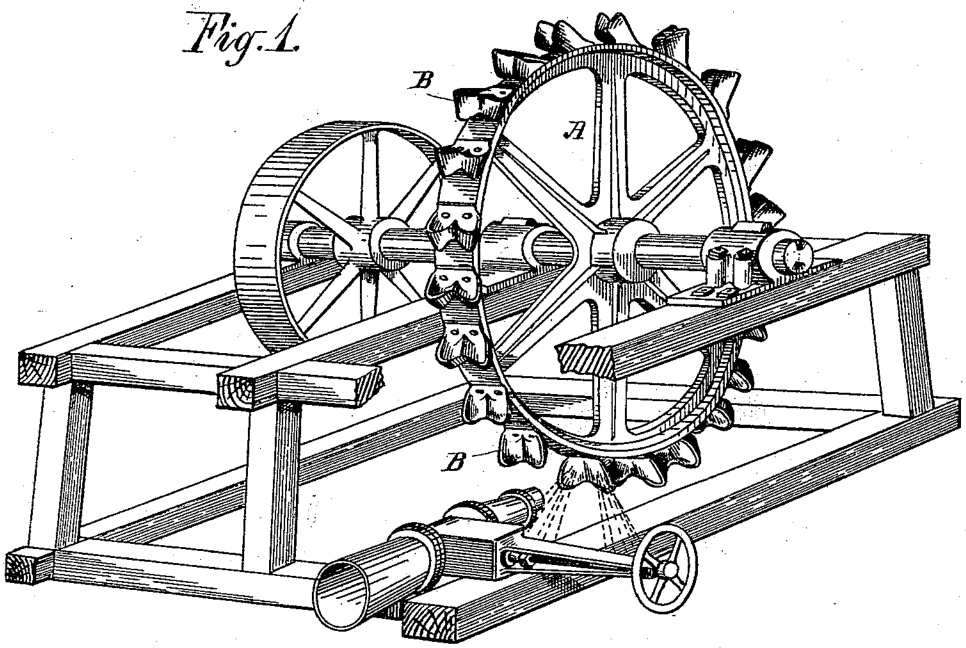


Fig. 2.

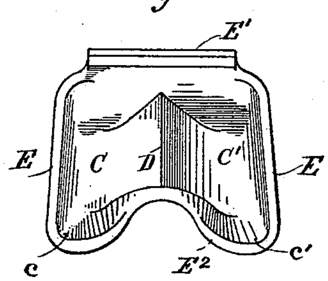
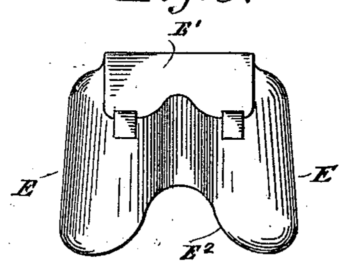


Fig. 3.



Witnesses.

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

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WATER-WHEEL BUCKET.

SPECIFICATION forming part of Letters Patent No. 454,638, dated June 23, 1891.

Application filed October 22, 1890. Serial No. 368,964. (No model.)

To all whom it may concern:

Be it known that I, WILLIS G. DODD, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Water-Wheel Buckets; and I do hereby declare the following to be a full, clear, and exact description of said invention, such as will enable others skilled in the art to which it most nearly appertains to make, use, and practice the same.

My invention has relation to certain new and useful improvements in water-wheels, and more particularly to that class known as "hurdy-gurdy" wheels, which derive their power from a stream or column of water delivered against buckets secured to the periphery thereof, as will be hereinafter more fully set forth in the drawings, described, and pointed out in the specification.

From practical experiments it has been demonstrated that by the use of the present wheels a large per cent. of the water-pressure adapted to operate the same is lost by being expended for the purpose of forcing or driving the utilized water from the buckets. The retarding of the utilized water in its efforts to escape from the buckets is due to the peculiar construction of the buckets, which precludes the outflow of the same in its natural flow.

The object of the present invention is to allow for a more complete utilization of the direct force of the water, so as to obtain a greater or higher percentage of power for the rotation of the wheel than has heretofore been accomplished.

My invention consists in constructing the buckets on line or curves corresponding to the natural flow of the water, (created by reason of the centrifugal force of the wheel and reaction of the water,) so as to allow for a perfect, free, and unobstructed flow or discharge of the water from the buckets, thereby obviating liability of retarding the rotation of the wheel by having a partial force of the stream diverted for other purposes than that of impacting against the walls of the buckets, so as to impel rotation of the wheel.

Referring to the drawings forming a part of this application, wherein similar letters of reference denote corresponding parts throughout the entire specification and several views, Figure 1 is a perspective view of the wheel provided with my improved buckets; Fig. 2, a top plan view, showing one of the buckets; and, Fig. 3, a bottom plan of the bucket.

The letter A indicates the water-wheel proper, which has secured to the periphery thereof water-receiving buckets B. If so desired, the water or receiving buckets may be formed integral with the wheel. By preference, however, I form each bucket separate and bolt or otherwise secure the same to the periphery of the wheel. Each bucket has its bottom formed into two curves C C′, which meet in the central apex D. The sides E E are formed upon an incline and slightly diverge from the inclined rear wall E′ to the front of the bucket, so as to increase the width at the front thereof. The front wall E^2 of the bucket I form in the shape of a sigmoid, which forms the discharge for each of the curved bottom sections at *c c′*, as clearly shown in the drawings, thus allowing the utilized water to be discharged in its natural curves, and at an angle from the plane of rotation in a free and unobstructed flow.

Heretofore the buckets have been constructed upon such curves as to allow of the utilized water being discharged at the sides of the wheel, which, having reactionary force, while being discharged from the buckets, tends to retard rotation thereof, and furthermore necessitates the appropriation of partial force of the stream in order to overcome and compel the discharge of the utilized water from within the buckets. My bucket, however, I construct upon such curves as to allow for the discharge of the water in its natural curves, utilizing therefor the centrifugal force, instead of the force of the impact stream. By thus constructing the buckets upon natural curves, I obviate any reaction of the water upon itself, and consequently allow the wheel to utilize the greatest possible amount of the reactionary force of the water. The buckets are so placed upon the periphery of the wheel that the discharged water of one in no manner acts to impede the rotation of the wheel by contact with the following bucket or any other portion of the wheel.

Having thus described my invention, what I claim as new, and desire to secure protection in by Letters Patent of the United States, is—

1. A bucket or float for impact water-wheels, having the curved bottoms meeting at an apex united with a sigmoidal front wall, thereby forming continuous discharge sides for the utilized water, as and for the purpose set forth.

2. A water-wheel bucket having the curved bottom meeting at a central apex and provided with the sigmoidal front wall gradually increasing the discharge sides from top to bottom and having its discharges below the line of impact, as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIS G. DODD.

Witnesses:
N. A. ACKER,
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