No. 611,406. Patented Sept. 27, 1898.

J. R. DE REMER.

HYDRAULIC MOTOR OR WATER WHEEL.

(Application filed July 20, 1897.)

(No Model.)

Fig. 1.

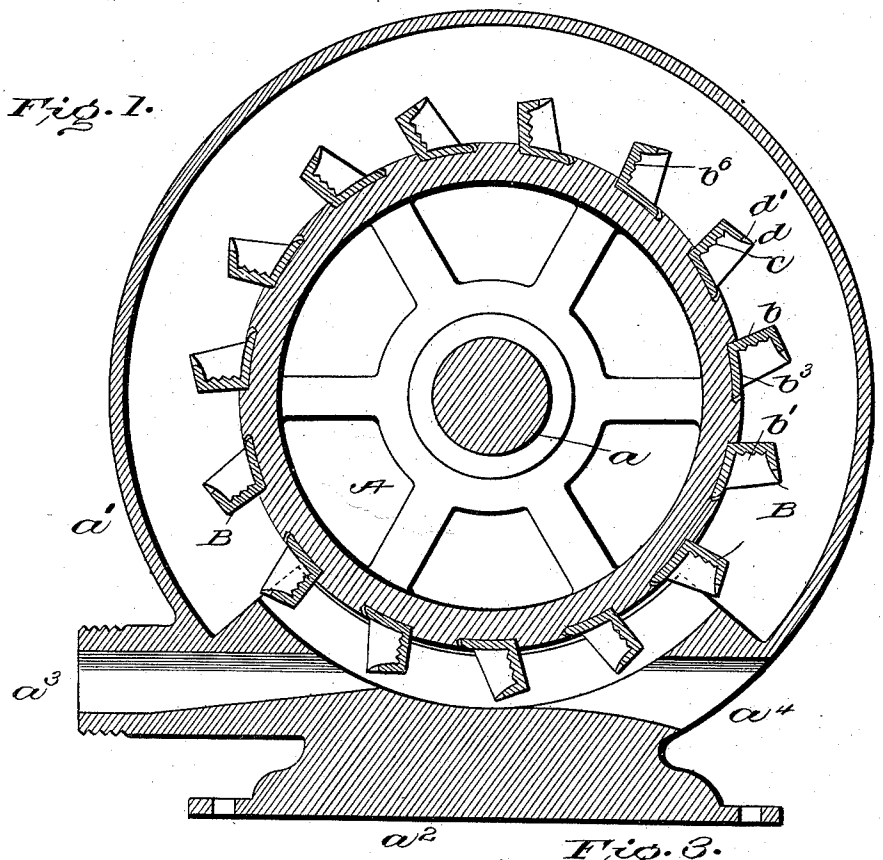


Fig. 3.

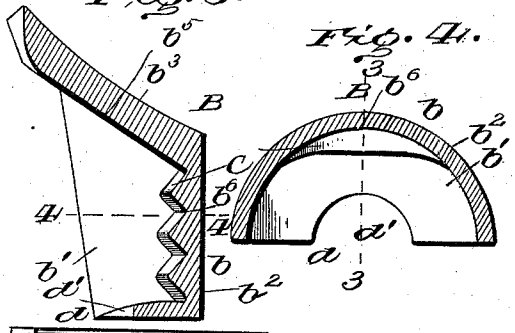
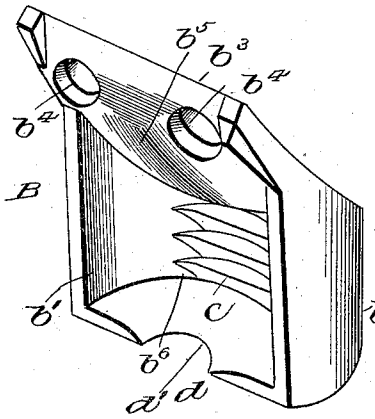
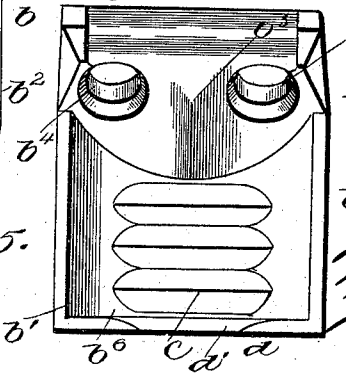


Fig. 4.

Fig. 2.





Witnesses

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Fig. 5.

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

UNITED STATES PATENT OFFICE.

JARED R. DE REMER, OF GLENWOOD SPRINGS, COLORADO, ASSIGNOR OF ONE-HALF TO LOUIE SCHWARZ, OF SAME PLACE.

HYDRAULIC MOTOR OR WATER-WHEEL.

SPECIFICATION forming part of Letters Patent No. 611,406, dated September 27, 1898.

Application filed July 20, 1897. Serial No. 645,215. (No model.)

To all whom it may concern:

Be it known that I, JARED R. DE REMER, of Glenwood Springs, in the county of Garfield and State of Colorado, have invented certain new and useful Improvements in Hydraulic Motors or Water-Wheels; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention contemplates certain new and useful improvements in hydraulic motors or water-wheels.

The object of the invention is to provide a new form of bucket for the motor-wheel, the same being specially designed to insure the utilization of full striking force of a jet or stream of water, and thereby greatly increase the motor-power of the wheel. This I accomplish by making each bucket of the concavo-convex type and having corrugations extending across the wall against which the jet of water strikes. One end of the bucket is tapered or of wedge-like form in cross-section, while in the other end is a central concave or groove which permits the jet of water striking the corrugated wall with a minimum loss of force.

The invention will be hereinafter fully set forth, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical longitudinal sectional view of a water-wheel provided with my improvements. Fig. 2 is an enlarged view in perspective of one of the buckets. Fig. 3 is a vertical sectional view thereof on line 3 3, Fig. 4. Fig. 4 is a horizontal sectional view on line 4 4, Fig. 3. Fig. 5 is a face view of one of the buckets.

Referring to the drawings, A designates a wheel, a the shaft therefor, and a' the inclosing casing or housing, extending upwardly from a base a^2, in one end of which is an inlet-opening a^3, while in line therewith, at the other end of said base, is the efflux-opening a^4. The casing and its adjuncts are reproductions of the form shown and described in Letters Patent No. 586,059, granted to me July 6, 1897, which form is herein shown only as illustration of a complete water-motor; but any other suitable form may be used.

B designates a series of water-buckets carried by wheel A, to the periphery of which said buckets are secured. As the point of novelty of the present invention lies in the construction of this bucket, the latter has been shown enlarged in Figs. 2 to 4. The main or body portion b of the bucket is of concavo-convex shape—that is, it is hollowed out on one side b' and curved or rounded on its other side b^2. One end b^3 of this body is tapered or inclined throughout its entire length and formed with openings b^4 to accommodate holding-screws by which it is attached to the wheel-rim. As each bucket is brought into play as it is presented in direct line with the inlet-opening, the description thereof will be based on the bucket when in that position. Hence it can be said to be attached to the wheel at its upper inner end b^3, the latter fitting snug against an inclined groove in the wheel-rim. The under side of this end tapers from its longitudinal center outward, as at b^5. In the concaved face of the wall b^6 are formed several transverse grooves or corrugations C, practically concentric with the periphery of the wheel, and all of which are well defined, so that upon the water striking against them it will be held, so to speak, against the face of the cup until the blow is fully struck and is then directed outward against the concaved sides of the bucket. In the lower outer end d of the cup is a concave or groove d', which admits of the water reaching the vertical corrugated face of the cup with a minimum loss of force—that is, as soon as the lower end of the bucket comes within an appreciable extent of the line of force of the water it will almost instantly strike against the corrugated face of the wall of the bucket, the force of the jet of water against the buckets causing the rotation of the wheel. As the water spends its force and falls from the sides of the bucket it will flow out through the efflux-opening.

The advantages of my present invention are apparent. It will be seen that the buckets are extremely simple in construction, and being in one piece may be made of cast metal. By corrugating the inner wall the

water striking thereagainst is "held," so to speak—that is, it impinges with greater force against said wall than if the latter were smooth. By making the sides of the bucket concaved the water will strike against them after its force is spent against the corrugations, and by providing the concave or groove in the lower or outer end of the bucket the jet of water will have almost immediate contact with the corrugated wall as soon as said end intercepts or comes in line with the line of flow of the jet of water.

I claim as my invention—

1. A wheel of the character herein described, having a series of buckets, each of said buckets consisting of a body attached at its inner end to said wheel, and having on the inner face of its outwardly-projecting portion a series of corrugations concentric with the periphery of the wheel, and also having concaved sides extending from the ends of said corrugations, as set forth.

2. A wheel of the character herein described, having a series of buckets, each of said buckets consisting of a body attached at its inner end to said wheel, and having on the inner face of its outwardly-projecting portion a series of corrugations concentric with the periphery of the wheel, and also having concaved sides extending from the ends of said corrugations, and an outer end piece connecting said sides provided with a central concave or groove, as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

JARED R. DE REMER.

Witnesses:
J. G. PEASE,
NINOR G. FERGUSON.