(No Model.)

L. BIGGIO.

WATER WHEEL BUCKET.

No. 356,977. Patented Feb. 1, 1887.

Fig. 1.

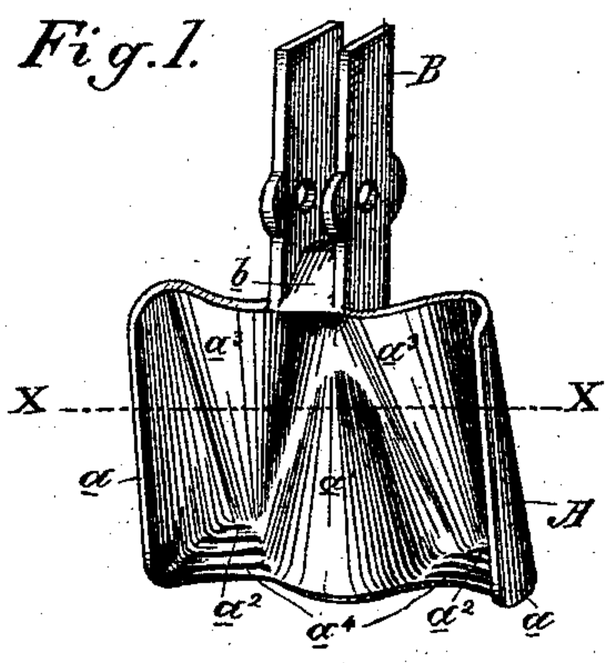


Fig. 3.

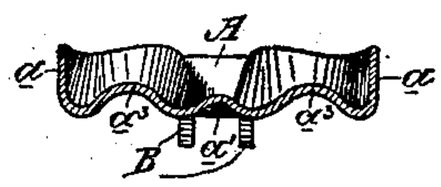
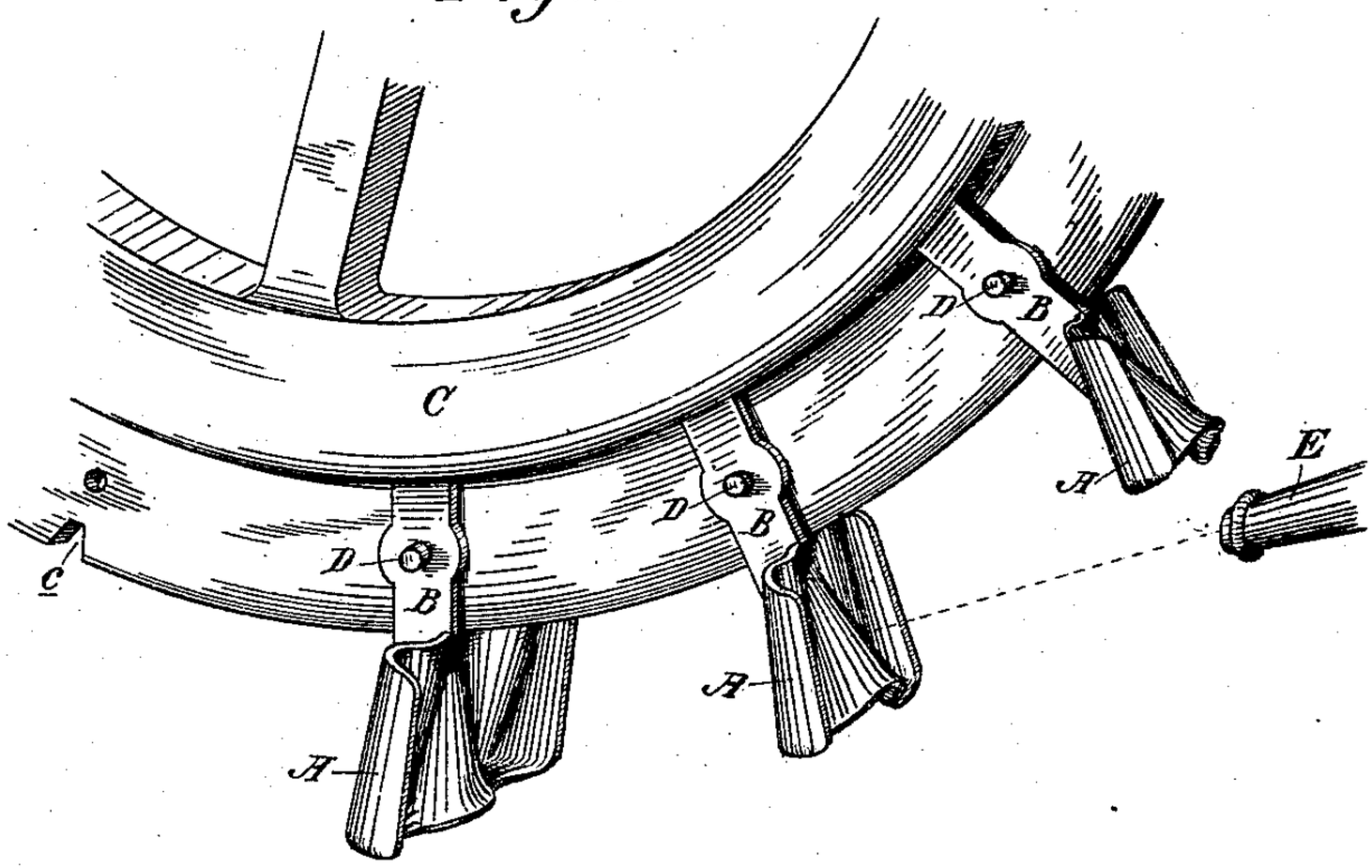


Fig. 2.



Witnesses,
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UNITED STATES PATENT OFFICE.

LOUIE BIGGIO, OF SUTTER CREEK, CALIFORNIA.

WATER-WHEEL BUCKET.

SPECIFICATION forming part of Letters Patent No. 356,977, dated February 1, 1887.

Application filed November 17, 1886. Serial No. 219,200. (No model.)

To all whom it may concern:

Be it known that I, LOUIE BIGGIO, of Sutter Creek, Amador county, State of California, have invented an Improvement in Water-Wheel Buckets; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to that class of water-wheels which are operated by means of the impact of a stream of water issuing from a nozzle under head or pressure against suitably-formed buckets secured to the rim or periphery of the wheel, said wheels being usually known by the name of "hurdy-gurdy."

My invention consists in the devices which I shall hereinafter fully describe and claim.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a perspective view of my bucket. Fig. 2 is a perspective view showing the bucket applied to the wheel and the arrangement of the nozzle. Fig. 3 is a cross-section on line X X, Fig. 1.

The bucket A, which is approximately rectangular in shape, has its sides turned to form the flanges *a*, making the cavity or face of the bucket. In this face a central ridge, *a'*, is formed, wider at the bottom than at the top, and extending upwardly to about two-thirds of the height of the bucket, thus dividing the face or cavity of said bucket into two depressions, a^2, into which extend the points or lower ends of the lateral ridges a^3, which commence at the top edge of the bucket, as shown, and extend downwardly on each side of the central ridge and parallel, these lateral ridges being wider above than below, and terminating short of the lower end of the bucket. The depressions formed by these three ridges have the shape approximately of the letter **W**. The ridges are all tapering, with gently-curved apices.

In the depressions a^2, at their lower portion, may be formed concentric corrugations a^4, though these are not essential, and may be omitted, if found desirable. The upper edge of the bucket is formed with two spaced parallel flanges or arms, B, between the bases of which is a triangular-shaped portion or lug, *b*. In fitting the bucket to the rim of the wheel C, as shown in Fig. 2, the flanges B embrace the rim, passing on each side thereof, and the triangularly-shaped lug *b* fits into a correspondingly-shaped notch, *c*, formed in the rim of the wheel. A single bolt, D, is passed through the two flanges and the intervening rim of the wheel, and serves to secure the bucket firmly to its place.

E is the nozzle, from which the stream under head or pressure is directed upon the face of each bucket successively as it comes into line.

The stream strikes the central ridge, *a'*, near its upper end. It will be observed that in giving this central ridge a gently-curved apex I not only obtain a good impact-surface, but bring this surface as close to the nozzle as possible, so that the full force of the stream is obtained. It has not as long a distance to pass before striking as it does in order to reach the bottom of the ordinary scoop-shaped bucket. The water, striking the slightly-curved apex of the central ridge, divides itself and passes to each side, where, meeting the lateral ridges a^3, it drops down, after expending its reactive force against said ridges, and is discharged from the depressions a^2. The concentric corrugations a^4 in these depressions further assist in utilizing the reaction of the water and providing for its discharge.

It will thus be seen that with my bucket I gain the best impact of the stream and the freest discharge, after utilizing to the greatest extent the reactive force of the water. These results are those sought to be attained by all hurdy-gurdy wheels.

I am aware of a bucket used in this class of wheels the cavity of which is divided completely into two distinct chambers by means of a central division, the stream striking the apex of this division, which is a sharp one.

I do not claim the division of the bucket into two chambers, as such is not the object of my central ridge, nor is it its effect. My ridge is but a partial division, and, moreover, is not sharp at its apex, but is gently rounded, thus providing for the proper impact-surface at the same time that said surface is brought closer to the nozzle.

In the buckets to which I have referred there are no lateral ridges providing for the free discharge of the water.

Having thus described my invention, what I

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

1. A water-wheel bucket the cavity or face of which is provided with a central perpendicular ridge extending from the base upwardly part way of the height of the bucket, said ridge being wider at the bottom than at its top, and having its apex tapering and gently curved for receiving the impact of the stream, and lateral tapering ridges extending from the top downwardly part way of the bucket and on each side of the central ridge, substantially as herein described.

2. The water-wheel bucket A, having the side flanges, *a*, the central ridge, *a'*, wider at its base than at its top, and extending but part way of the height of the bucket, said ridge having a gently-curving and tapering apex, and the lateral ridges a^3, extending downwardly from the top of the bucket on each side of the central ridge, wider at the top than at the bottom, and having gently-curving tapering apices, substantially as herein described.

3. A water-wheel bucket the cavity or face of which is provided with the central ridge, *a'*, the lateral ridges a^3, and the concentric corrugations in the depressions formed on each side of the base of the central ridge, substantially as herein described.

In witness whereof I have hereunto set my hand.

LOUIE BIGGIO.

Witnesses:
S. H. NOURSE,
H. C. LEE.