

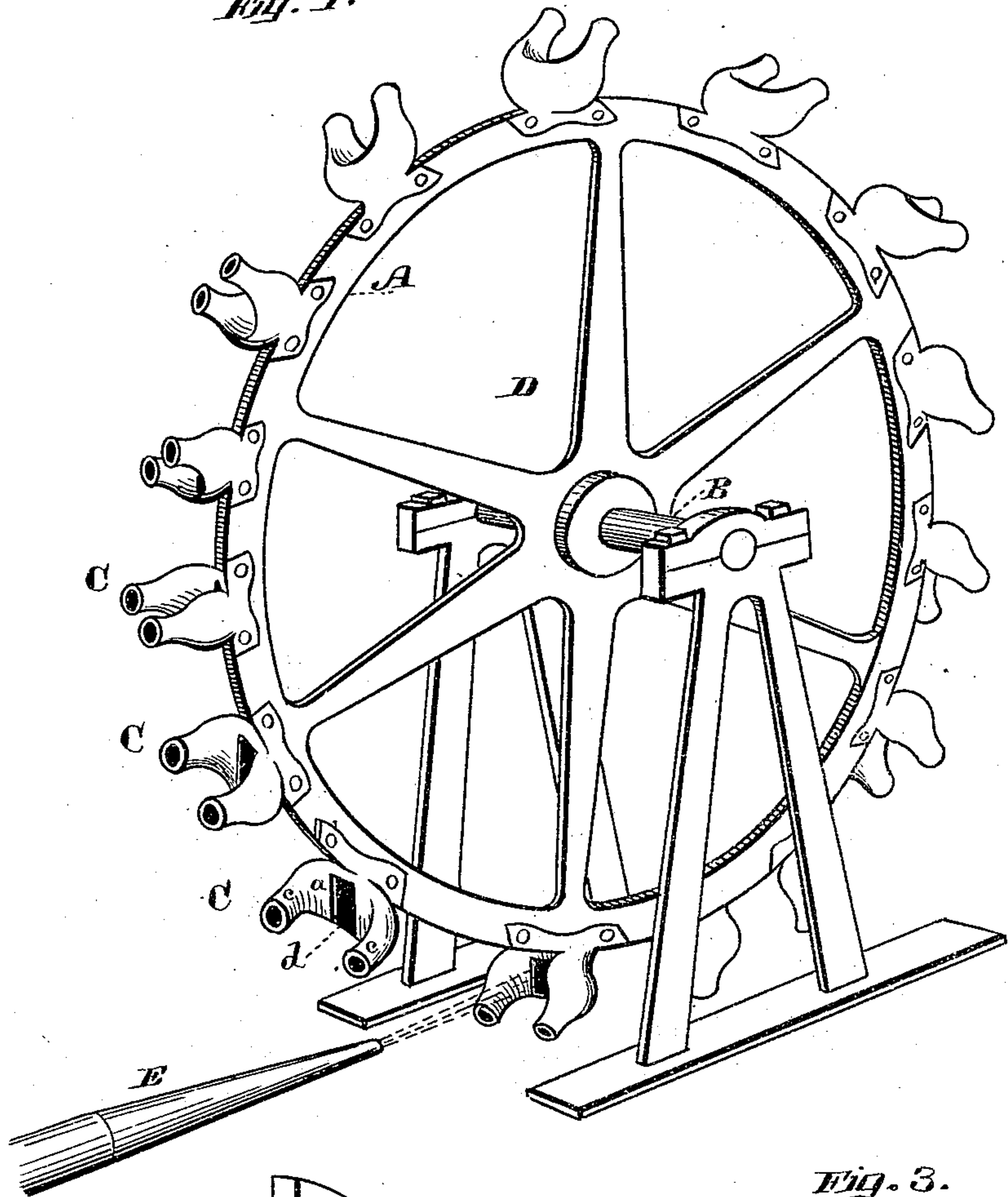
(No Model.)

C. D. SMITH.  
WATER WHEEL BUCKET.

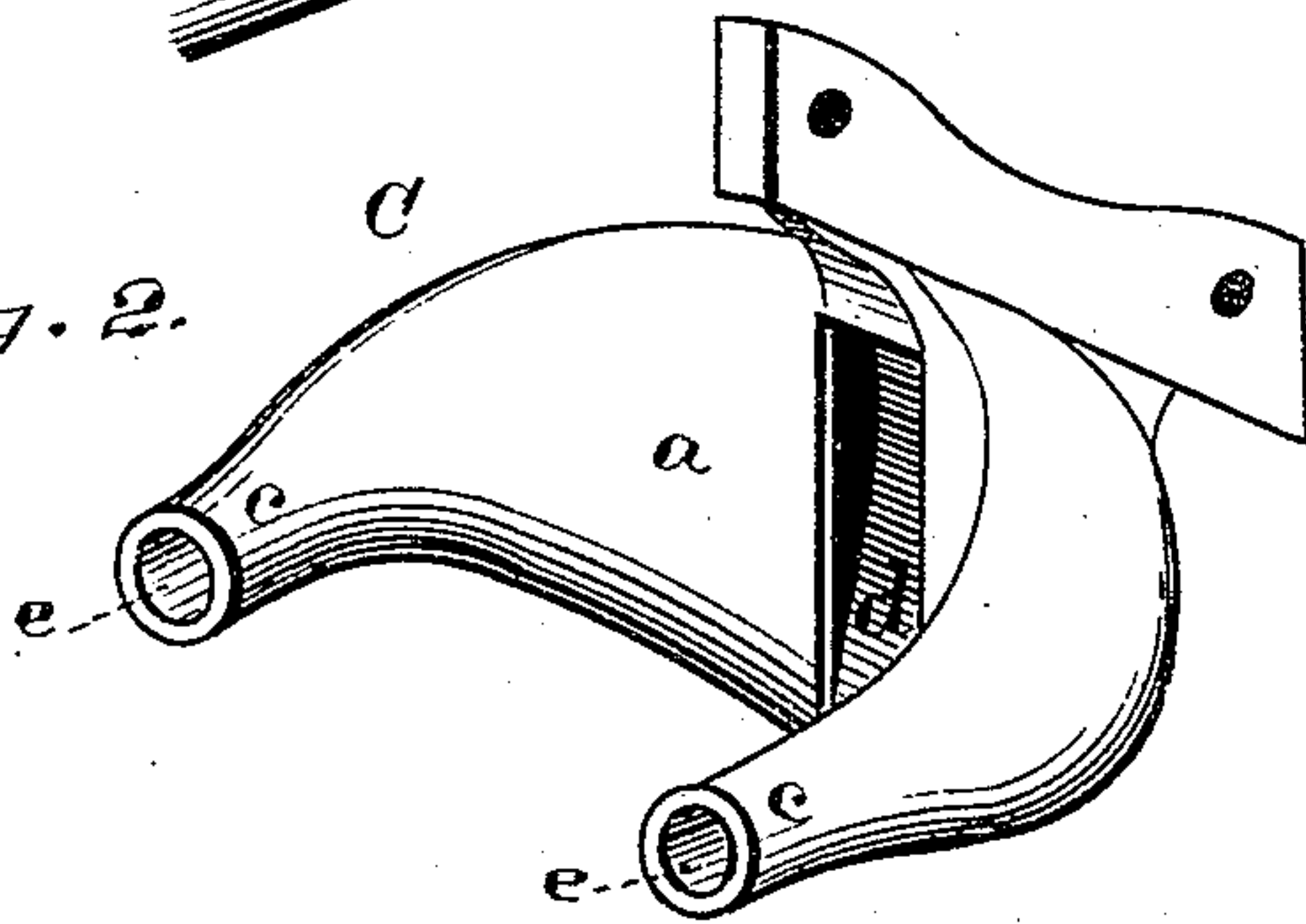
No. 272,592.

Patented Feb. 20, 1883.

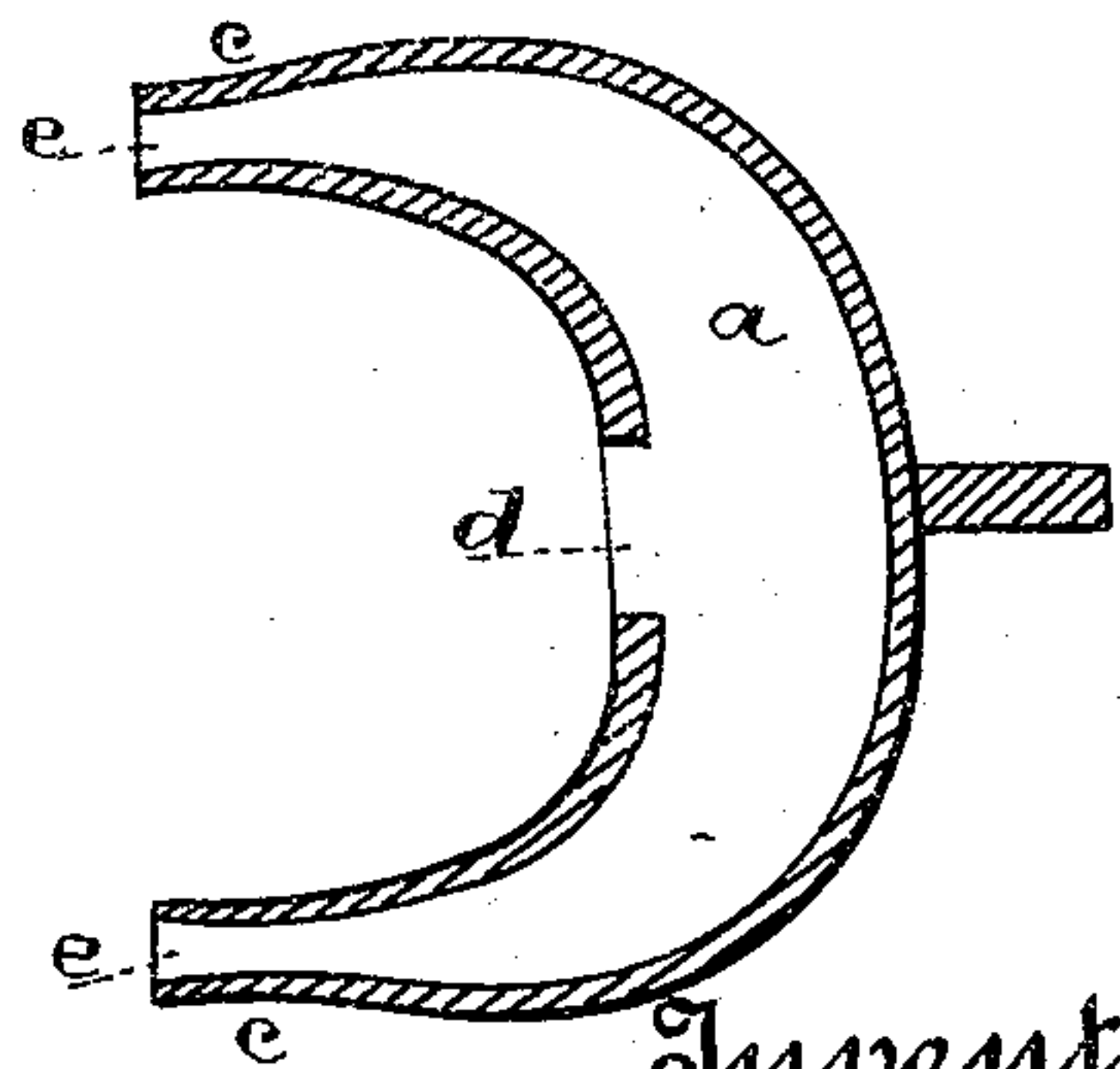
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



Witnesses,  
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# UNITED STATES PATENT OFFICE.

CHARLES D. SMITH, OF AMADOR CITY, CALIFORNIA.

## WATER-WHEEL BUCKET.

SPECIFICATION forming part of Letters Patent No. 272,592, dated February 20, 1883.

Application filed August 5, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, C. D. SMITH, of Amador City, county of Amador, State of California, have invented an Improved Water-Wheel Bucket; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to a new and useful bucket for water-wheels of that class which have their rims formed with or have bolted or secured thereto flanges or buckets, which receive the impact or force of a stream of water under head or pressure.

My invention consists of a hollow or chambered bucket provided with a central opening to receive the water and separate and distinct discharge-openings at the ends through which to discharge it outside of the plane of revolution of the wheel.

The object of my invention is to utilize the entire body or stream of water by so receiving and directing it as to avoid all splash, and cause it to exert its force to the best advantage. This object may be better seen by a brief explanation of the points to be observed in the construction and operation of wheels of this class.

In the formation of these buckets or flanges two main points have heretofore been considered. The first is the impact of the stream, and the second is its discharge. A good surface may be presented to the water, but the bucket may be so constructed as to hinder its discharge, which, by not being readily freed, retards the progress of the wheel. In like manner the buckets may free themselves easily, but may not receive the stream to the best advantage. To these two points a third may be added—namely, the splash. No matter how readily the buckets may free themselves, there must be more or less splash on account of the force with which the water is directed upon them, and this splash not only takes away from the resulting or continued force of the water, but is an actual hinderance to revolution. In the construction of my bucket I gain all the advantages described in receiving and discharging the water and avoiding all splash.

Referring to the accompanying drawings,

Figure 1 is a perspective view of my invention. Fig. 2 is an enlarged view of one of the buckets. Fig. 3 is a horizontal section of the same.

Let A represent the rim of a wheel, D, journaled suitably upon a central shaft, B.

C C represent the buckets, which may be either cast with the rim, or they may be, as here shown, bolted to it.

In Fig. 2 I show an enlarged view of the bucket. It is made hollow or chambered by spaced walls, and is preferably made with a wide center, *a*, and small ends *c*. These ends are curved forward and away from the rim of the wheel, and may project to each side at any angle which may be found to act the best in discharging the water to one side of the plane of revolution of the wheel. At the center of the bucket the forward wall is cut out to form an opening, *d*, to the chamber or space of the bucket, and openings *e* are made in the ends of the bucket. These buckets are placed at convenient intervals around the rim of the wheel, and each in the revolution of said wheel receives the impact of water within its central opening, *d*, from the pipe or spout E, which may be placed above or below, though here shown below. The stream is made to strike squarely within the aperture or opening *d*, and the bucket receives the impact upon the back wall. When the water breaks upon this wall it cannot splash back because of the incoming stream; but the whole of it, being thus confined in the chambered bucket, is directed to each side, and is discharged through the open ends *c* to one side of the wheel. The opening *d* is large enough to receive the stream, the curvature of the bucket renders it easy to free itself, and no splash occurs, as the water is confined until its discharge. Thus I am enabled to utilize the entire stream, losing no part of it, and not hindering or obstructing the progress of the wheel. These advantages are all more or less gained by chambering or confining the water, but especially is the splash thus avoided. It is immaterial, therefore, as far as the principle of my invention is concerned, in what particular manner I chamber my bucket, the main object being to receive, temporarily confine, and discharge the water.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The wheel D, having a rim, A, in combination with the hollow or chambered buckets C C, having a center, *a*, with an entrance aperture or opening, *d*, to the chamber within, and outwardly-projecting points *c*, with open ends *e*, substantially as and for the purpose herein described.

2. The wheel D, having a rim, A, in combination with the hollow or chambered buckets C C, having a wide center, *a*, in the face of which an aperture, *d*, is made, and outwardly-projecting curved small ends *c*, having end openings or discharges, *e*, substantially as and for the purpose herein described.

In witness whereof I hereunto set my hand.  
CHARLES D. SMITH.

Witnesses:

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A. I. ROBBINS.