

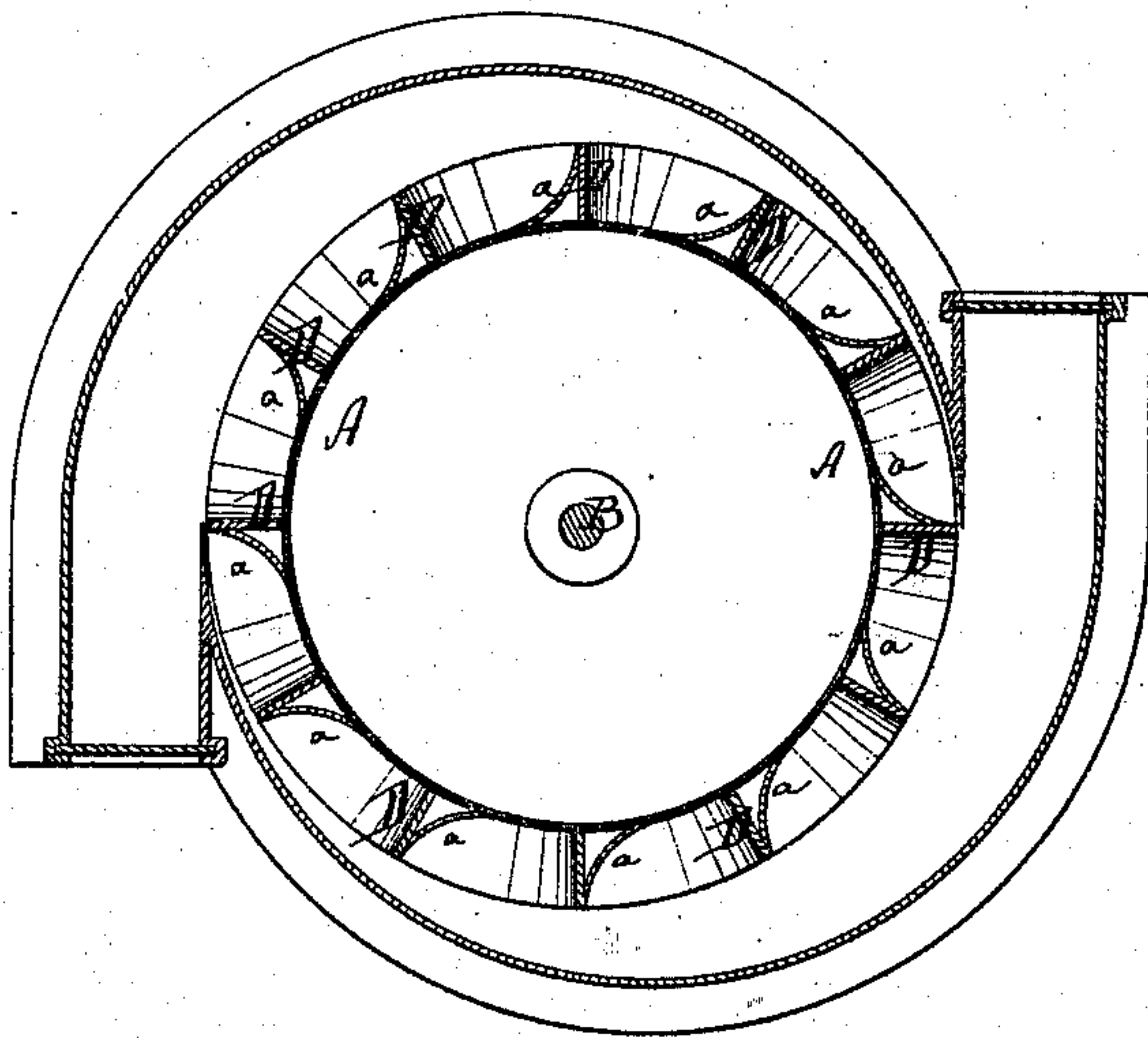
*J. H. Staples,*

*Water Wheel.*

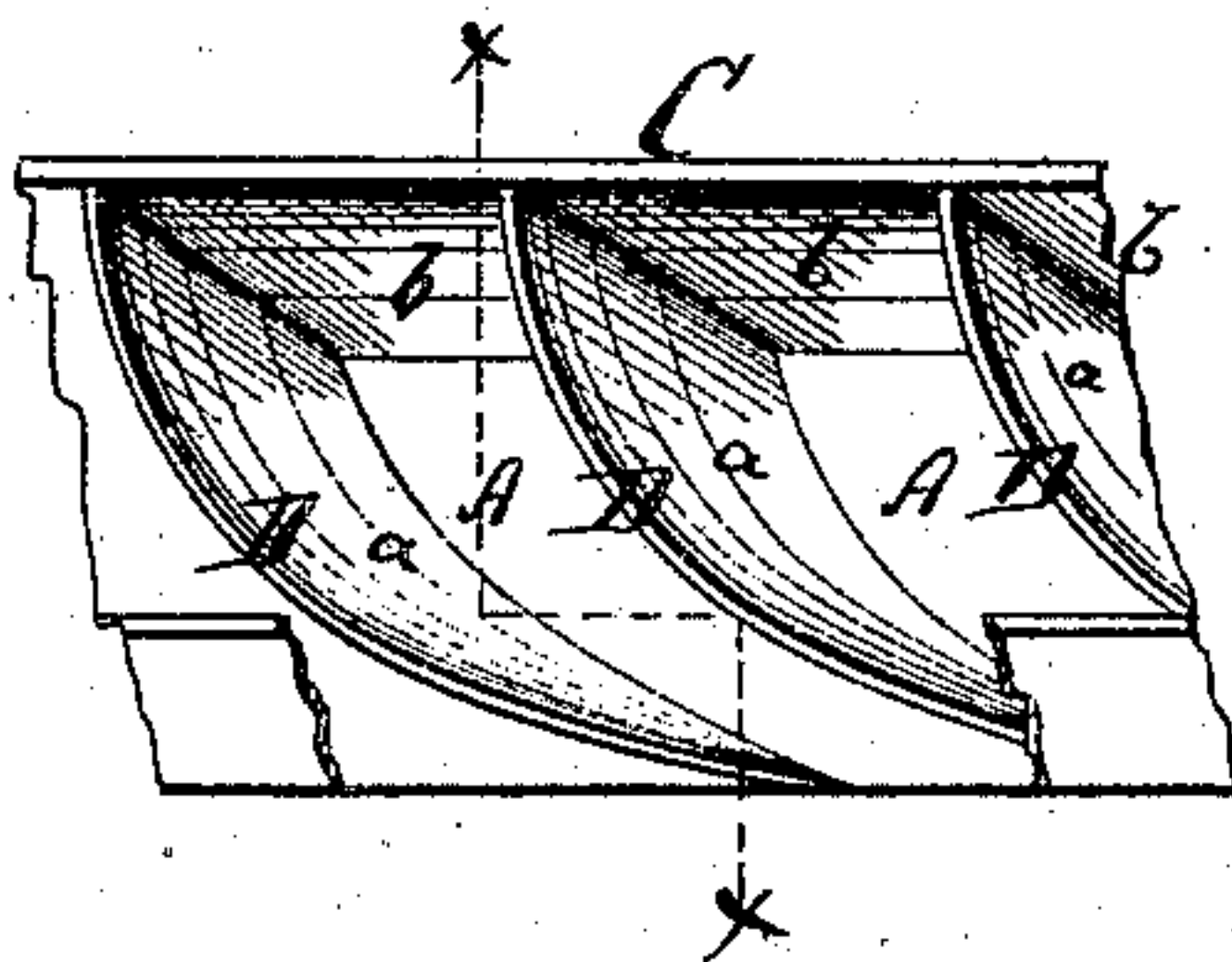
*No. 113,592.*

*Patented Apr. 11, 1871.*

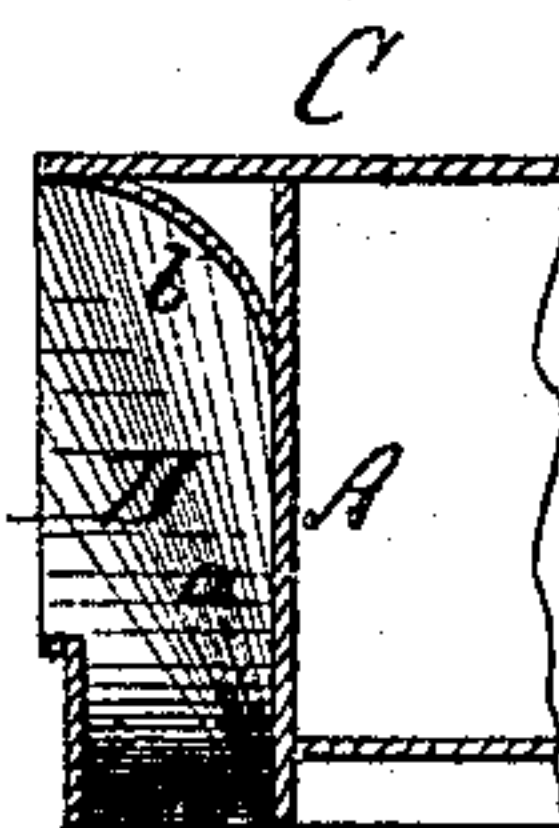
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



**Witnesses:**

*A. Benneisen*  
*L. S. Mabee*

**Inventor:**

*J. H. Staples*  
PER. *Mum*  
**Attorneys.**

# United States Patent Office.

JOHN H. STAPLES, OF WELLS, MAINE, ASSIGNOR OF ONE-HALF HIS RIGHT TO JOHN H. FERGUSON AND SAMUEL CLARK, AND ONE-HALF TO SAMUEL CLARK, OF SAME PLACE.

Letters Patent No. 113,592, dated April 11, 1871.

## IMPROVEMENT IN WATER-WHEELS.

The Schedule referred to in these Letters Patent and making part of the same.

*To all whom it may concern:*

Be it known that I, JOHN H. STAPLES, of Wells, in the county of York and State of Maine, have invented a new and useful Improvement in Water-Wheels; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1 represents a horizontal section of my improved water-wheel.

Figure 2 is a detail side view of the same.

Figure 3 is a detail vertical section of one bucket of the same, *x x*, fig. 2, being the section line.

Similar letters of reference indicate corresponding parts.

This invention relates to a new manner of constructing the buckets and top plates of water-wheels for the purpose of preventing loss of power by an unprofitable presentation of surfaces to the moving water.

My invention consists in making the inner surfaces of the buckets sloping concavously toward and against the core of the wheel, and in the same manner providing a gradual descent toward the said core or center of the projecting top plate of the wheel.

The outer face of each bucket and the top surface of the wheel remain straight, as heretofore.

A in the drawing represents the core or center of the water-wheel;

B is the shaft of the same;

C is the upper plate or flange; and

D D are the buckets of the same. All these parts are of suitable size, shape, material, and construction.

The buckets are on the inner faces—that is to say, on the faces which are struck by the water—rounded against the center, forming the concave planes *a a*, shown in fig. 1. Each of these concave planes or inner faces tapers almost to a point at the lower end of each bucket, so as not to crowd the contracted, be-

cause horizontally placed, lower spaces between the buckets.

The water striking the concave planes *a* will always reach the same in an inversely radial direction, and can consequently not be thrown back against another bucket or part of the wheel, as only water space is opposite each concave plane.

The back of each bucket is not rounded in conformity to the aforesaid concave face, but sits straight against the core A, as shown in fig. 1. Were it rounded parallel with the face there would be a space under each bucket, where the water could collect and retard the progress of the wheel. The buckets are therefore concave on their inner or working faces and straight on the back.

The projecting flange or top plate C is, at its under side, also provided with a curved concave plate, *b*, which produces a gradual concave plane, extending from the edge of the plate C to the center or core of the wheel. This concave slope serves to close a space which would otherwise also be a useless retainer of water, causing consequent loss of power.

The concave planes *a b* may be produced by plates attached to the several buckets or parts of the wheel, as indicated in the drawing; or they may be cast solid or otherwise into their respective places, as may be found to be most economical or preferable.

Having thus described my invention,

I claim as new and desire to secure by Letters Patent—

The straight back *c* of the buckets, and the inwardly concaved plates *b* of the top plate C, combined as described, with concave faces *a*, for the purpose specified.

JOHN H. STAPLES.

Witnesses:

SARAH A. FERGUSON,  
ELIZA A. KIMBALL.