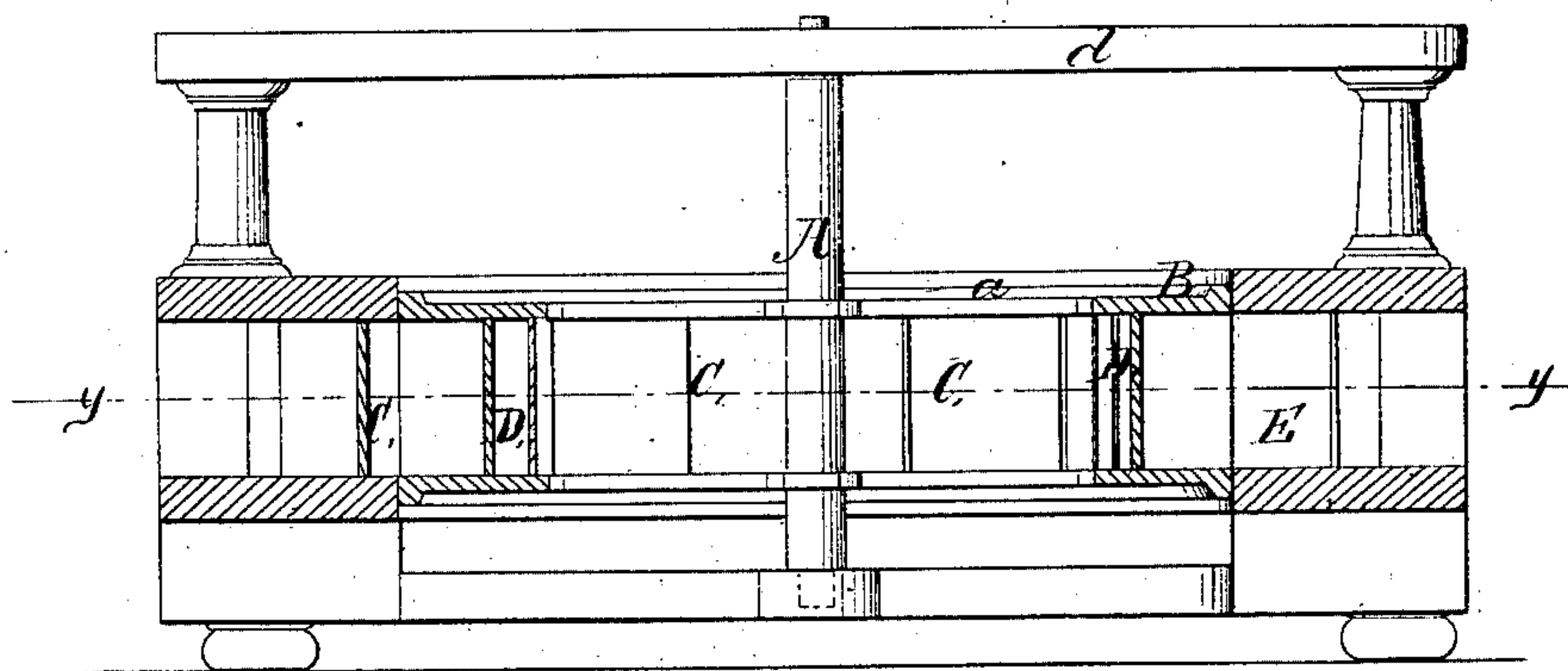


*U. M. Baker,*

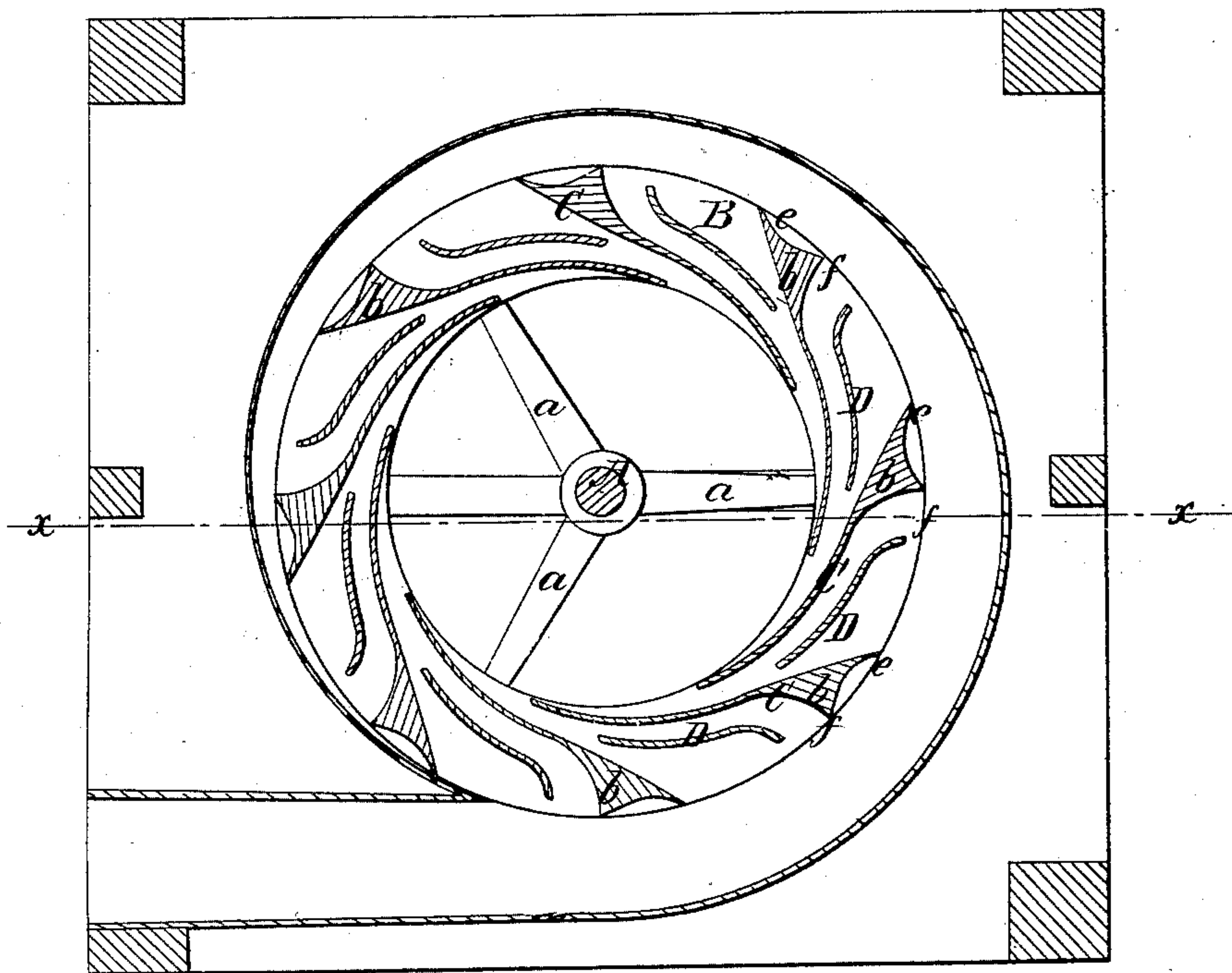
*Water Wheel.*

*N<sup>o</sup> 26,826.*

*Fig: 1. Patented Jan 17, 1860*



*Fig: 2.*



*Witnesses;  
S. B. Brooks  
Chas. Ryan*

*Inventor  
U. M. Baker*



# UNITED STATES PATENT OFFICE.

VINCENT M. BAKER, OF ELKLAND, PENNSYLVANIA.

## IMPROVED WATER-WHEEL.

Specification forming part of Letters Patent No. 26,826, dated January 17, 1860.

*To all whom it may concern:*

Be it known that I, VINCENT M. BAKER, of Elkland, in the county of Tioga and State of Pennsylvania, have invented a new and Improved Water-Wheel; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a vertical section of my invention, taken in the line  $x x$ , Fig. 2; Fig. 2, a horizontal section of same, taken in the line  $y y$ , Fig. 1.

Similar letters of reference indicate corresponding parts in the two figures.

This invention relates to an improvement in that class of water-wheels in which a scroll is employed, the wheel being encompassed by the same.

The invention consists in a peculiar combination of buckets, substantially as herein-after shown and described, whereby several advantages are obtained over all scroll-wheels that have passed under my observation—to wit, a more uniform motion and a better combined action of the direct and reacting force or power of the water.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents the shaft of the wheel, and B B are two annular plates, which are secured to the shaft A by arms  $a$ , said plates being one directly over the other at a proper distance apart with buckets C D between them, the above parts forming the wheel, which is fitted within a scroll E, the scroll extending entirely around the wheel and gradually decreasing in width from its orifice, or where the water first acts against the buckets, to its opposite end, at which point the outer ends of the buckets are just allowed to clear the outer side of the scroll, as shown clearly in Fig. 2.

There are two series of buckets C D, and both series have a tangential position or approximate thereto and are curved, as shown clearly in Fig. 2. The buckets C are larger than the buckets D, the former extending from the outer to the inner edges of the plates B B. The face sides of the buckets C have a different curvature from the back sides, the former being concave at their outer parts, while the latter are straight. This difference in the form of the buckets involves the necessity of a thick outer portion  $b$ , and these

outer portions have their edges, which form the outer ends of the buckets C, of concave form. The inner ends of the buckets C are nearer together than the outer ends, and between the buckets C the buckets D are placed. The buckets D are of equal thickness throughout, are shorter than the buckets C, and the former are parallel, or nearly so, with the face sides of the latter. The buckets D do not extend to the edges of the plates B B at either end; but their ends approximate nearer to the outer edges of the plates B than their inner ends do to the inner edges of said plates B.

The shaft A is stepped at its lower end in a suitable cross-bar  $c$ , and its upper end being fitted in a proper bearing in a cross-bar  $d$ .

The operation of the wheel is as follows: The water in its passage through the scroll and wheel strikes the parts  $e$  of the buckets C and then acts against the parts  $f$ , the water striking the part  $e$  of one bucket and then passing to the part  $f$  of a succeeding bucket, and thence into the wheel, the water of course having a greater speed than the wheel. Each bucket C therefore is, in fact, a combination of two buckets. The thick outer parts  $b$  of the buckets are solid. This gives weight to the wheel near its periphery and insures a uniform or even movement of the same. The buckets D receive all the water that passes into the wheel at right angles with the direct current and prevent it from acting against the direct current, and consequently prevent the direct current from acting against the backs of the buckets C. The buckets C are of such a length, owing to their position, that the force of the water is fully expended against them, the water falling from the inner ends of the buckets by its gravity.

The wheel may be placed either on a vertical or horizontal shaft.

I do not claim, broadly, the employment or use of curved tangential buckets, nor do I claim the scroll or the buckets C separately; but

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

The combination of the two series of buckets C D and scroll E, constructed and arranged substantially as and for the purpose set forth.

VINCENT M. BAKER.

Witnesses:

S. B. BROOKS,  
CHAS. RYAN.