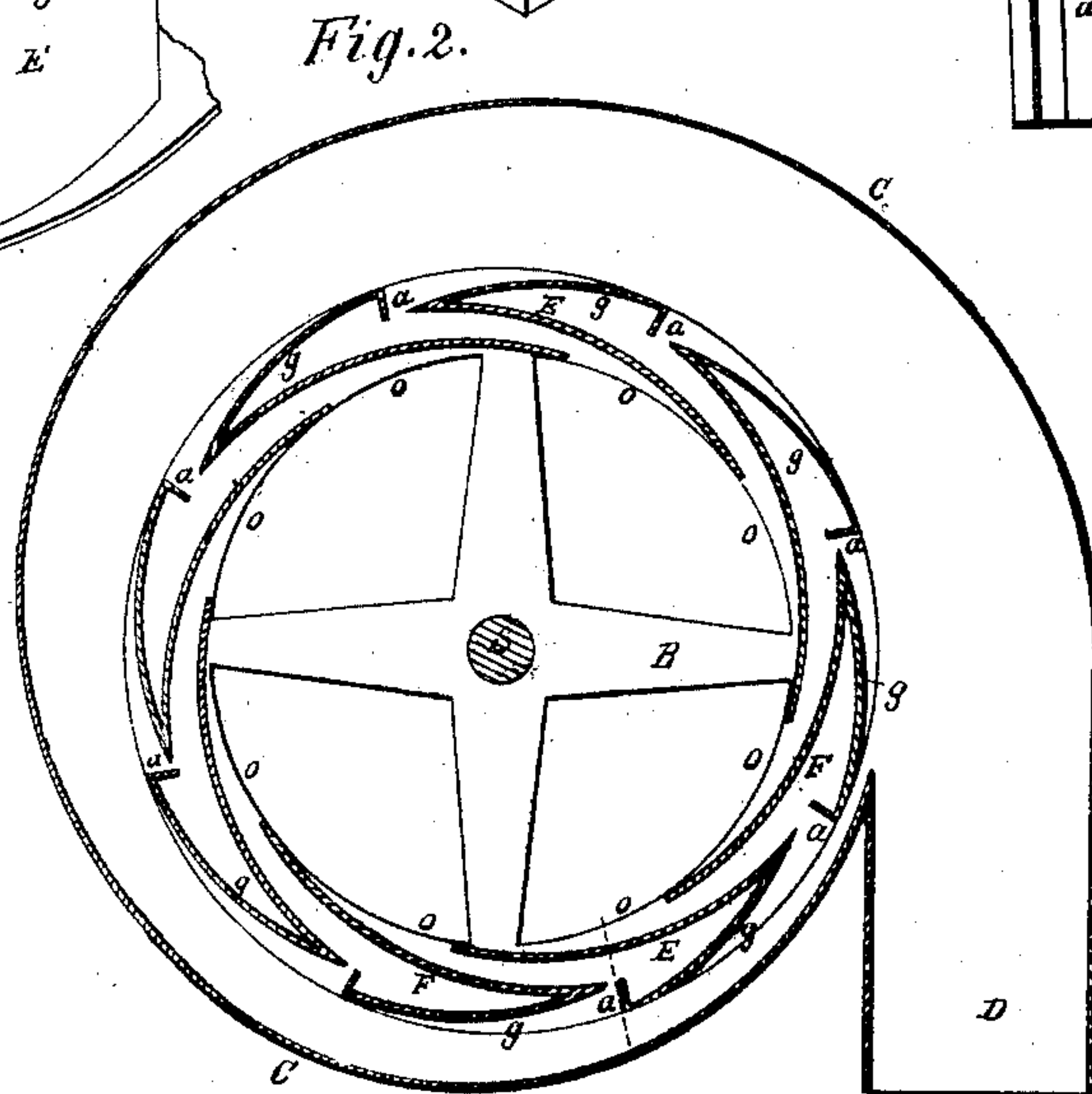
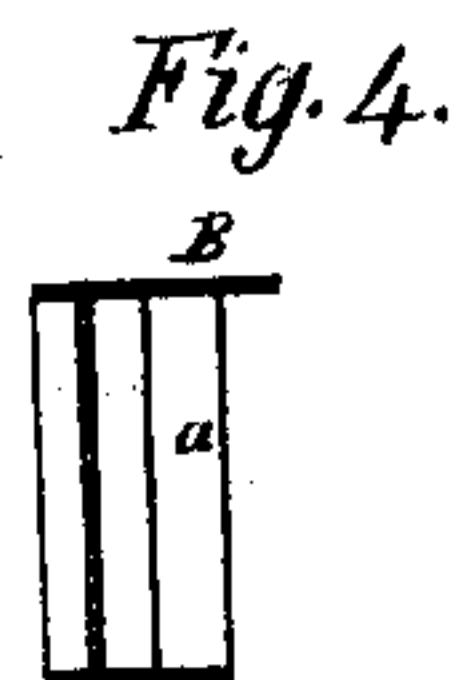
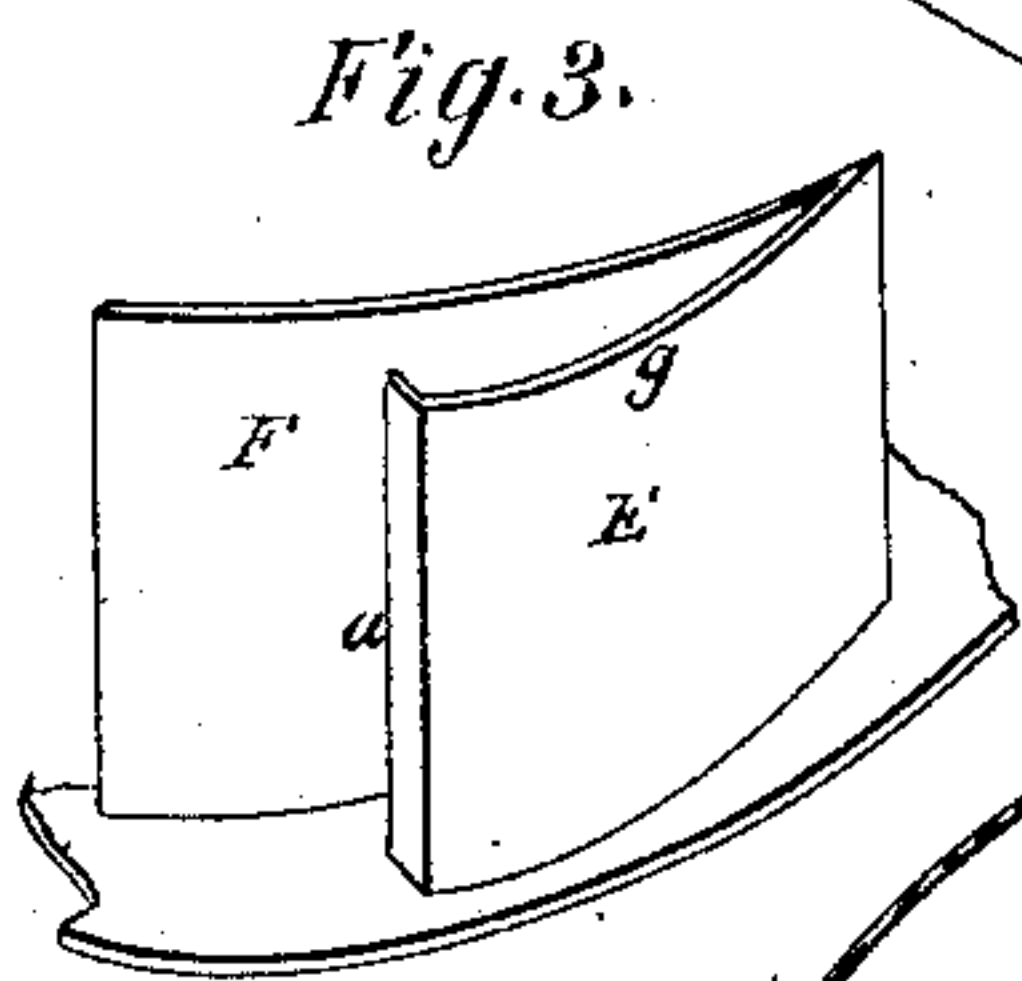
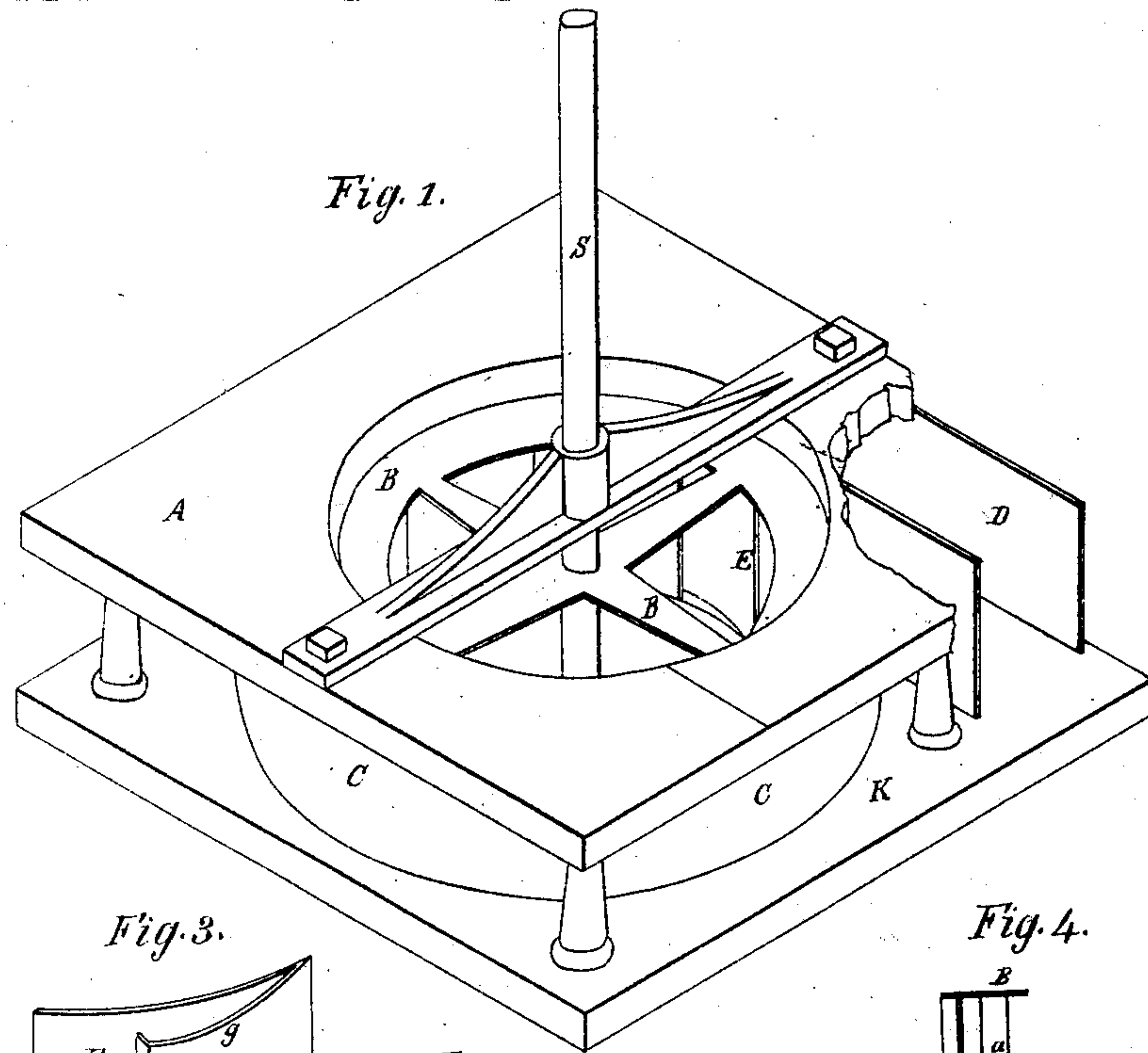


W. H. Harbaugh

Water Wheel,

No. 21,753.

Patented Oct. 12, 1858.



# UNITED STATES PATENT OFFICE.

W. H. HARBAUGH, OF PIQUA, OHIO.

## IMPROVED WATER-WHEEL.

Specification forming part of Letters Patent No. **21,753**, dated October 12, 1858.

*To all whom it may concern:*

Be it known that I, W. H. HARBAUGH, of Piqua, in the county of Miami and State of Ohio, 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, reference being had to the accompanying drawings and the letters of reference marked thereon and made to form a part of this specification.

Similar letters refer to like parts of the improvement.

The nature of my invention consists in the peculiar construction of buckets for water-wheels, in the operation of which the percussive and reactive force of the water will be combined and made to act near the outer periphery of the wheel, and thereby secure greater leverage and more power from a given quantity of water than is obtained by water-wheels in ordinary use, and also in the employment of a projecting annular float or rim in combination with said peculiar form of bucket, so that the wheel will be partially supported by the force of water acting beneath the rim, and the friction upon the shaft upon which the weight of the wheel rests will be greatly diminished.

To enable others to make and use my invention, I will proceed to describe the manner of its construction and operation, reference being had direct to the accompanying drawings, in which—

Figure 1 is an isometrical view of the improved water-wheel in position to receive water from the flume. Fig. 2 is a sectional plan of the improvement, the cap of the scroll-frame and the projecting annular float being removed to show the peculiar construction of the bucket. Fig. 3 is a vertical elevation of the bucket. Fig. 4 is a vertical section taken through the wheel at a point indicated by the red lines in Figs. 1 and 2.

C in Fig. 1 represents an ordinary scroll-frame made with the cap A, the bottom K,

and supply-flume D, and is similar to devices in common use for like purposes.

S represents the shaft to which the wheel is attached. It passes through the float B in the center of the wheel and rests in a step made in the foundation of the frame C.

E in Fig. 3 represents the improved bucket with the convex diaphragm F upon the inside and the outer guide-curve *g* and the deflecting-plate *a*, so that in its operation the percussive and reactive force of the water will be combined and made to act near the outer periphery of the wheel. The relative position of the buckets E is fully shown in Fig. 2.

B in Fig. 4 represents the relative projection of the annular float B, Fig. 1.

Water is admitted to the wheel through the supply-flume D and acts percussively upon the deflecting-plate *a*, at the same time forcing upward against the float B, Fig. 1. Thence it passes inward and reacts upon the convex diaphragm F and the guide-curves *g*, when, after spending its force, it is discharged inwardly through the openings *o*. The wheel will be constructed of cast-iron, and a four-foot wheel the deflecting-plate *a* will present to the water a surface of one inch. The number of buckets in the wheel will be equal to the number of inches in the width of the supply-flume, and the discharge-chambers will be made of capacity equal to the supply of water intended to be used upon the wheel.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The peculiar arrangement of the bucket E, in combination with the projecting annular float B, for the purposes within specified.

2. The peculiar form of the bucket E with reference to the percussion-plate *a*, all arranged and operating in the manner and for the purposes herein set forth.

W. H. HARBAUGH.

Witnesses:

H. E. CLEFTON,  
DAVID MILLARD.