

J. B. BENNETT.
Rotary Engines.

No. 151,532.

Patented June 2, 1874.

FIG. I.

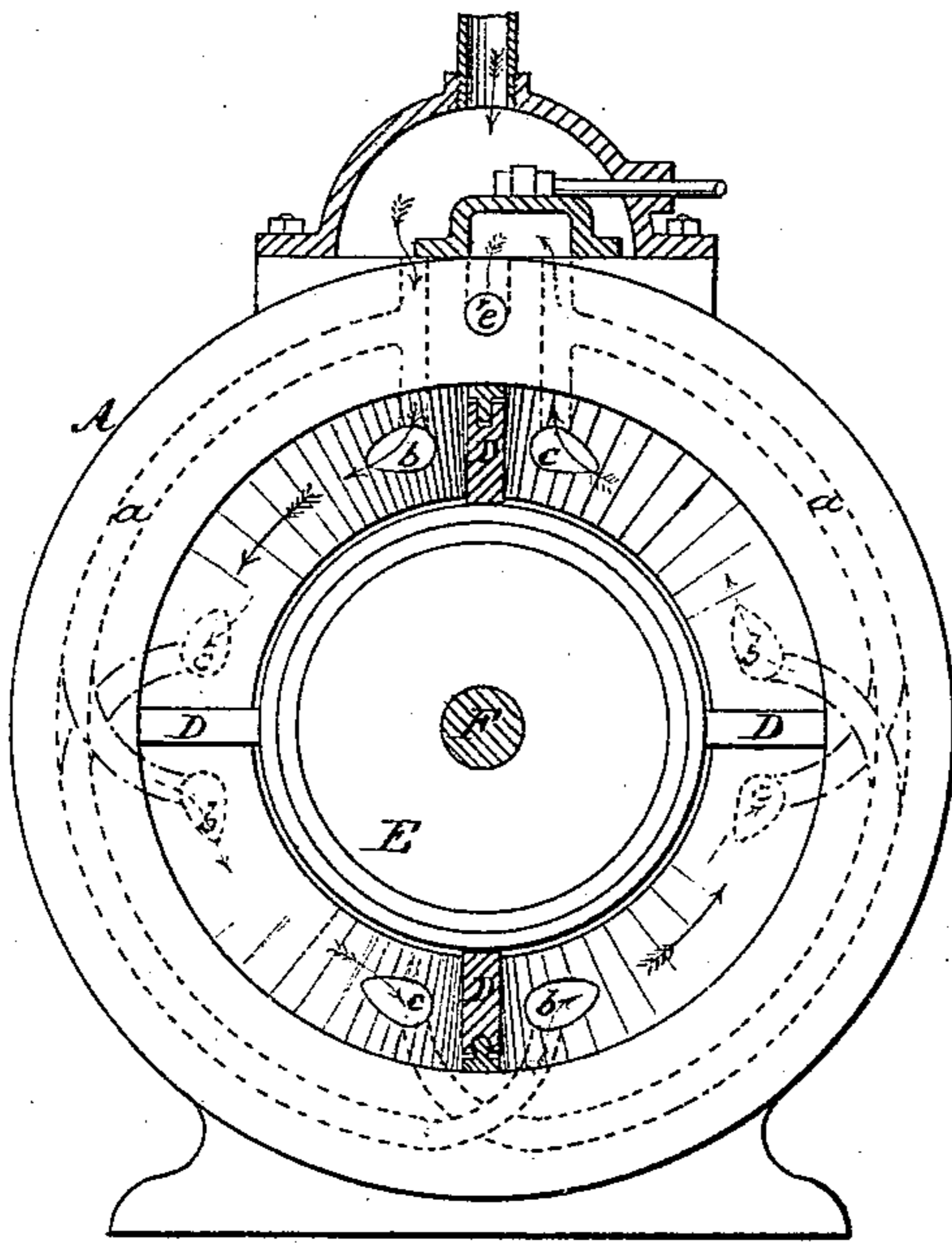


FIG. II.

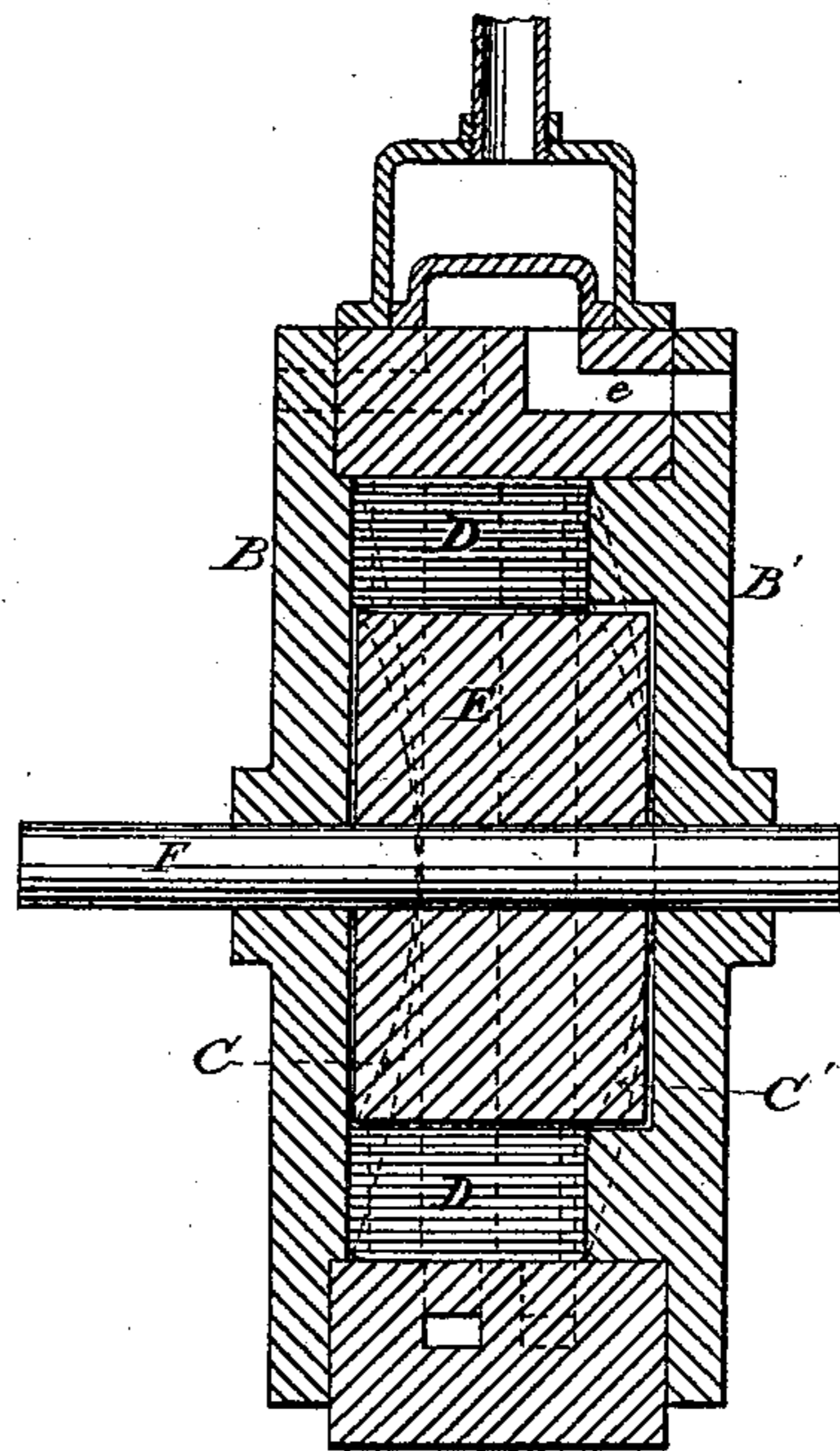


FIG. III.

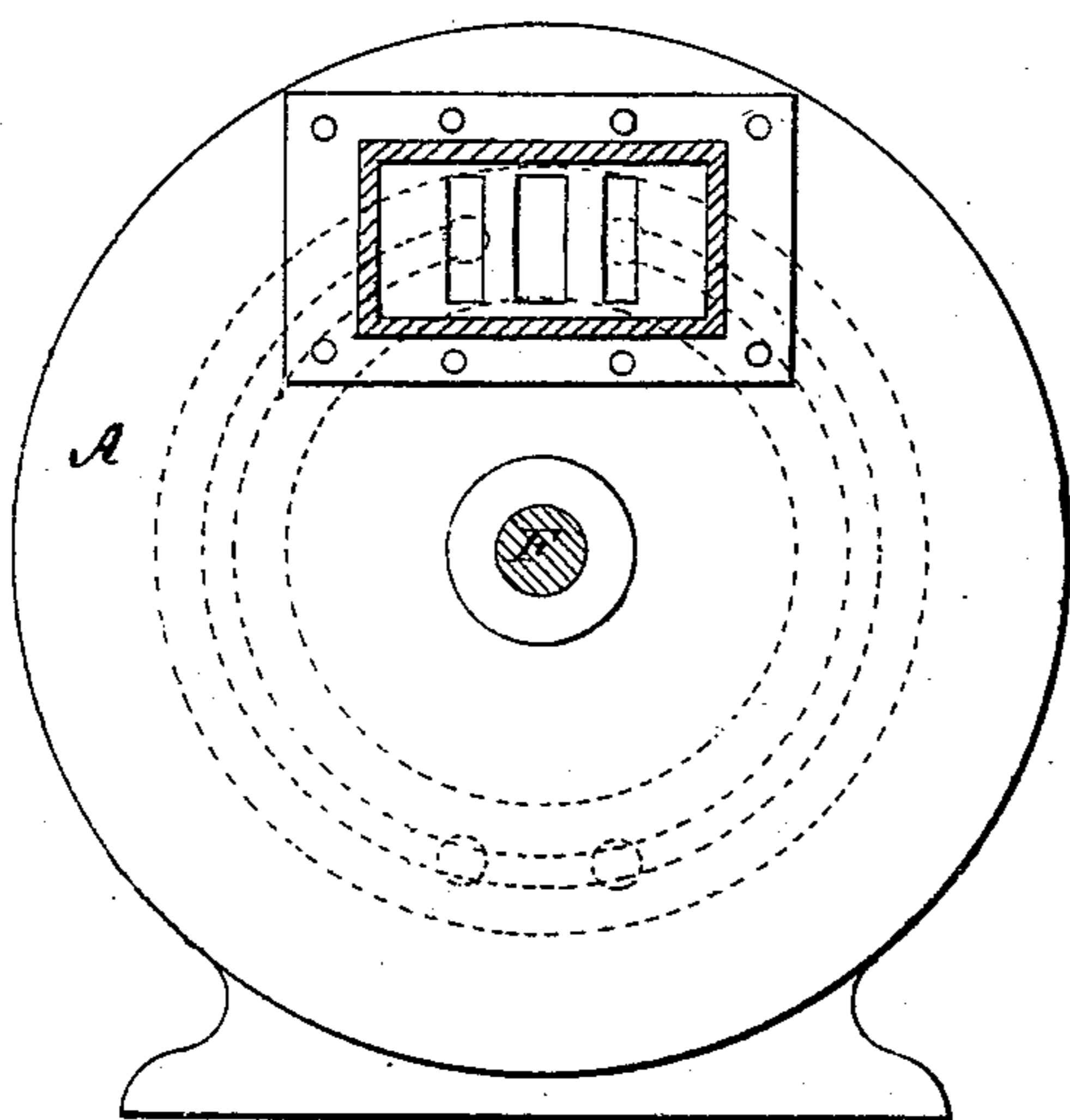
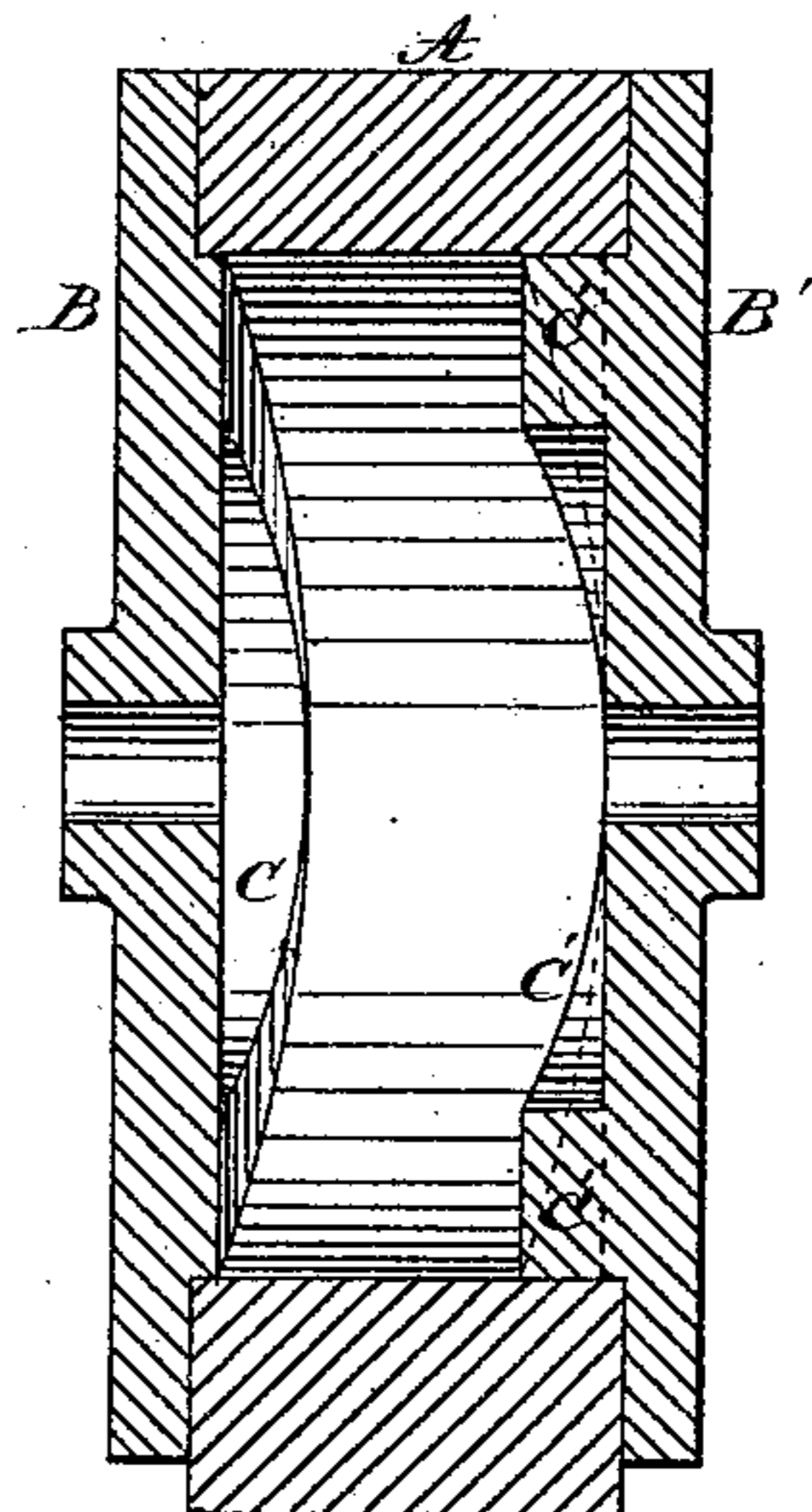


FIG. IV.



WITNESSES.

John D. Blom
James English

INVENTOR.

J. B. Bennett

UNITED STATES PATENT OFFICE.

JOSEPH B. BENNETT, OF BROOKLYN, NEW YORK, ASSIGNOR OF ONE-HALF
HIS RIGHT TO WILLIAM FOSTER, OF SAME PLACE.

IMPROVEMENT IN ROTARY ENGINES.

Specification forming part of Letters Patent No. **151,532**, dated June 2, 1874; application filed
February 11, 1874.

To all whom it may concern:

Be it known that I, JOSEPH B. BENNETT, of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Rotary Engines; and I do hereby declare that the following is a full, clear, and exact description thereof, that will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings and to the letters of reference marked thereon, which form a part of this specification.

The nature of my invention consists in arranging the abutments or cams which operate the sliding pistons laterally instead of circumferentially, and without the aid of rods, levers, and cams on the shaft. The abutments are four in number, and four pistons are employed. Two of these abutments are on one head, and two on the other, which are set one-quarter of a circle in advance of the former. The steam is admitted and exhausted by eight ports, whereby a perfectly-balanced engine is obtained.

In the drawing, Figure 1 is a front elevation of my engine, with one of the heads removed and partly in section. Fig. 2 is a vertical cross-section of the same. Fig. 3 is a front elevation of a modification, showing the steam-chests secured on the head. Fig. 4 is a vertical section with the revolving drum and shaft removed.

In the drawing, A represents the outer casing or shell, having the heads or covers B B', which are provided on their inner face with cams, forming the abutments C C', by which the piston-slides D D are reciprocated laterally across the cylinder, without the aid of rods, levers, and outside cams or driving mechanism. The piston-slides are provided with packing on their sides and ends, in the usual manner, and slide laterally in recesses cut into the periphery of the revolving drum or cylinder E, which is secured to the shaft F, journaled in the heads of the engine in the usual manner.

The ports *a a'* are arranged in the outer periphery of the casing A, and there are four on each end, two steam-ports, *b b*, and two exhaust-ports, *c c*, on each side of the engine, which connect by branches with the main ports.

The object of this arrangement is to make

a more perfectly-balanced engine, by admitting and exhausting the steam at four points at once. The branches of the steam and exhaust ports are shown in short and long broken lines, when they are arranged in the removed head.

The valve is of the usual construction, and may be operated in the usual manner, and it may be arranged on the top, as shown in Figs. 1 and 2, or on the sides, as shown in Fig. 3; but in this instance I employ one on each side.

Instead of the solid shaft, it may be made hollow, with ports through it.

To prevent leakage, packing may be arranged in the face of the revolving drum, or in the heads, wherever desired.

The operation is as follows: Steam is admitted into the steam-chest, and, as the valve moves, passes into the ports *a*, and through the branch ports into the cylinder, and, pressing against the piston-blades, forces the drum or revolving cylinder E around, the exhaust-steam passing out of the exhaust-branches, and through ports *a'* and *e* into the air or any suitable place. The piston-blades are moved backward and forward by the cams or abutments C C' laterally across the cylinder, and thereby work nearly noiselessly.

By admitting the steam at four points at once, the engine becomes perfectly balanced, and greater power can be developed than with any rotary engine now in use, and by having no rods or levers passing through the casing, stuffing-boxes and also friction are avoided.

The engine is reversible, as will be readily understood, by merely shifting the valve and admitting and exhausting the steam in the opposite direction.

Having thus described my invention, what I claim is—

The combination of the heads B B, provided with abutments C C', the four sets of steam and exhaust ports with branches, and the drum E, having piston-slides D, substantially as and for the purpose described.

In testimony that I claim the foregoing I have hereunto set my hand this 10th day of February, 1874.

JOSEPH B. BENNETT.

Witnesses:

JOHN D. BLOOR,
JAMES ENGLISH.