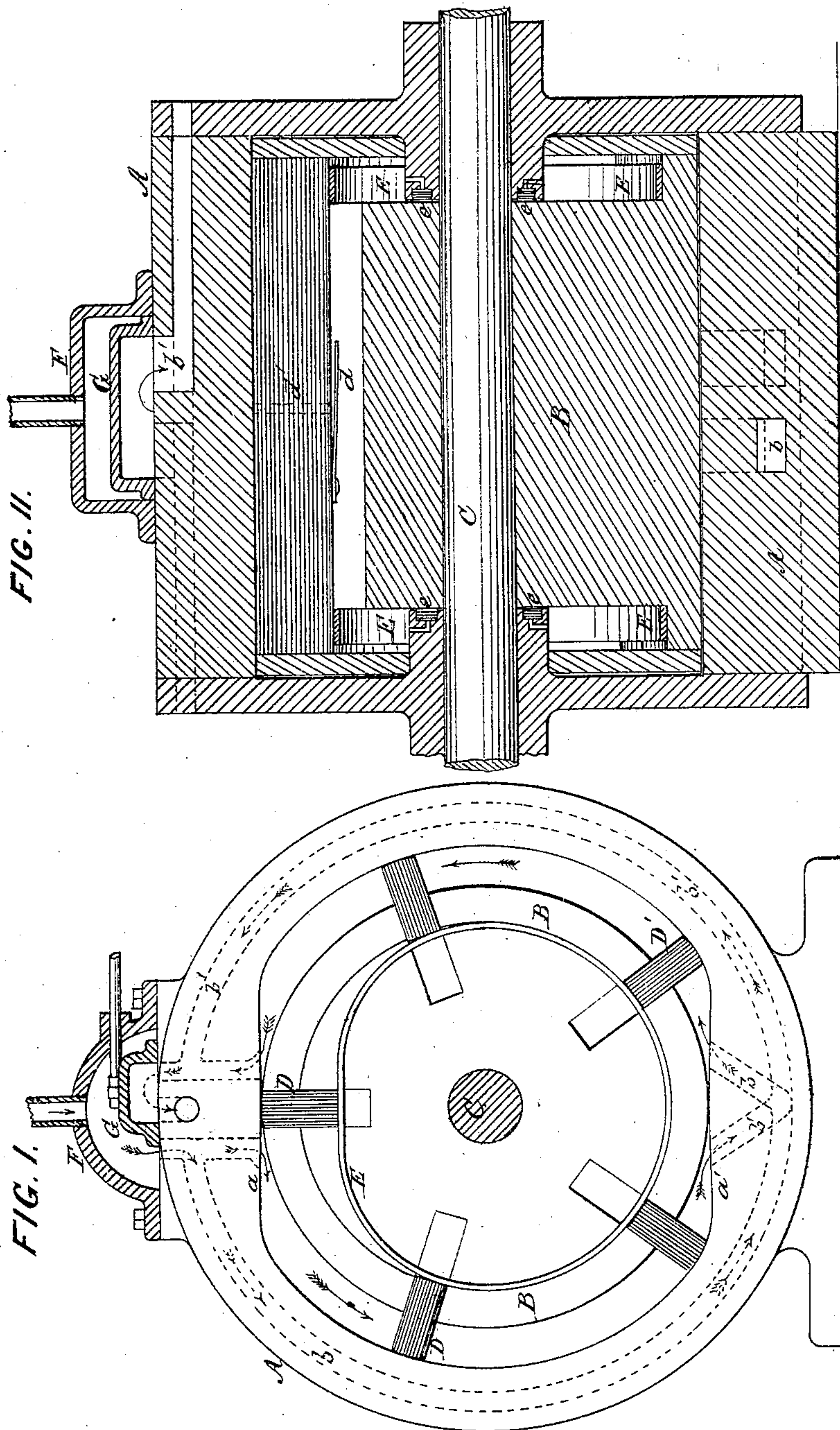


J. B. BENNETT.  
Rotary Steam-Engines.

No. 135,311.

Patented Jan. 28, 1873.



WITNESSES:

*Jos. T. R. Plank*  
*John C. Ferguson*

INVENTOR:

*J. B. Bennett*



# UNITED STATES PATENT OFFICE.

JOSEPH B. BENNETT, OF BROOKLYN, NEW YORK.

## IMPROVEMENT IN ROTARY STEAM-ENGINES.

Specification forming part of Letters Patent No. 135,311, dated January 28, 1873.

*To all whom it may concern:*

Be it known that I, JOSEPH B. BENNETT, of the city of Brooklyn, county of Kings and State of New York, have invented certain Improvements in Rotary Engines or Pumps, of which the following is a specification:

The nature of my invention consists in the improved manner of keeping the pistons in position in rotary engines, the inner cylinders of which are concentric to the outer ones. The object of my invention is to keep the pistons forced out against the inner periphery of the casing, which is accomplished by circular springs placed in the ends of the revolving cylinder, all of which will be more fully described in the following specification, reference being had to the accompanying drawing forming a part thereof.

In the drawing, Figure 1 is an end elevation of my engine with the cover removed. Fig. 2 is a vertical longitudinal section of the same.

In the drawing, A represents the outer casing or shell, which is of an elliptical shape on the interior, and by which the abutments *a a'* are formed. In this casing the inner cylinder B, which is secured to the shaft C, freely revolves. This cylinder B is recessed out at its ends, and is slotted to receive the pistons D, of which there may be more or less, five being represented in the drawing. These pistons are held in position and forced out against the inner periphery of the casing by springs E placed in the recesses at each end of the revolving cylinder. A steam-chest, F, in which is the valve G, is secured on the top of the casing. The ports *b b'* are arranged in the outer periphery of the casing A, and steam is admitted and exhausted simultaneously at the top and bottom, but on opposite sides of the abutments, by which the cylinder is nearly balanced. At the rear side of each piston is arranged a spring, *d*, closing the hole *d'* in the piston, through which steam is admitted to assist the springs E in forcing the pistons out, and thus forming a trap for the steam.

To prevent leakage of steam around the shaft, I arrange suitable packing *e e* in the face of the inner hub of the covers, as seen in Fig. 2, which packing may be set out by steam or springs.

The operation is as follows: Steam is admitted in the steam-chest, and, passing

through the ports *b*, as shown by the arrows, presses against the pistons D D' on opposite sides of the abutments *a a'* and forces the inner cylinder B around. The steam is exhausted through the ports *b'* and out of the side of the casing, as shown by the arrows. By this arrangement the revolving cylinder is as nearly balanced as possible, for as the upper piston cuts off the steam it passes from the center of the abutment to a point just beyond the port, and then receives the pressure, while the steam already admitted on D' is locked in between the two pistons and serves to balance a similar pressure on the opposite side of the engine. The pistons under effective pressure do not move with relation to the inner cylinder, all their motion in and out taking place while passing from port to port, or from one end of the abutment to the other, during which time they are either free from pressure or balanced in steam.

The great advantages of my engine are that it is very simple in construction, not liable to get out of order, and it is very economical. It may be used as an engine, pump, blower, or meter. It is very easily reversible.

Having thus described my invention, I claim—

1. The combination of the casing A having ports *b b'* with the inner revolving cylinder B provided with pistons D and circular springs E, constructed and arranged substantially as set forth.

2. The pistons D provided with springs *d* and holes *d'*, in combination with cylinder B, arranged as and for the purpose set forth.

3. The combination of the cover having hub provided with packing *e* with the cylinder B and casing A, constructed and arranged as and for the purpose described.

4. The combination of the casing A, steam-chest F, and valve G with the revolving cylinder B, pistons D D', and springs E, all constructed and arranged as shown, and for the purpose set forth.

5. The circular springs E arranged to operate the pistons D, in the manner and for the purpose set forth.

This specification signed by me.

JOSEPH B. BENNETT.

Witnesses:

JOS. T. K. PLANT,

JOHN E. FERGUSON.