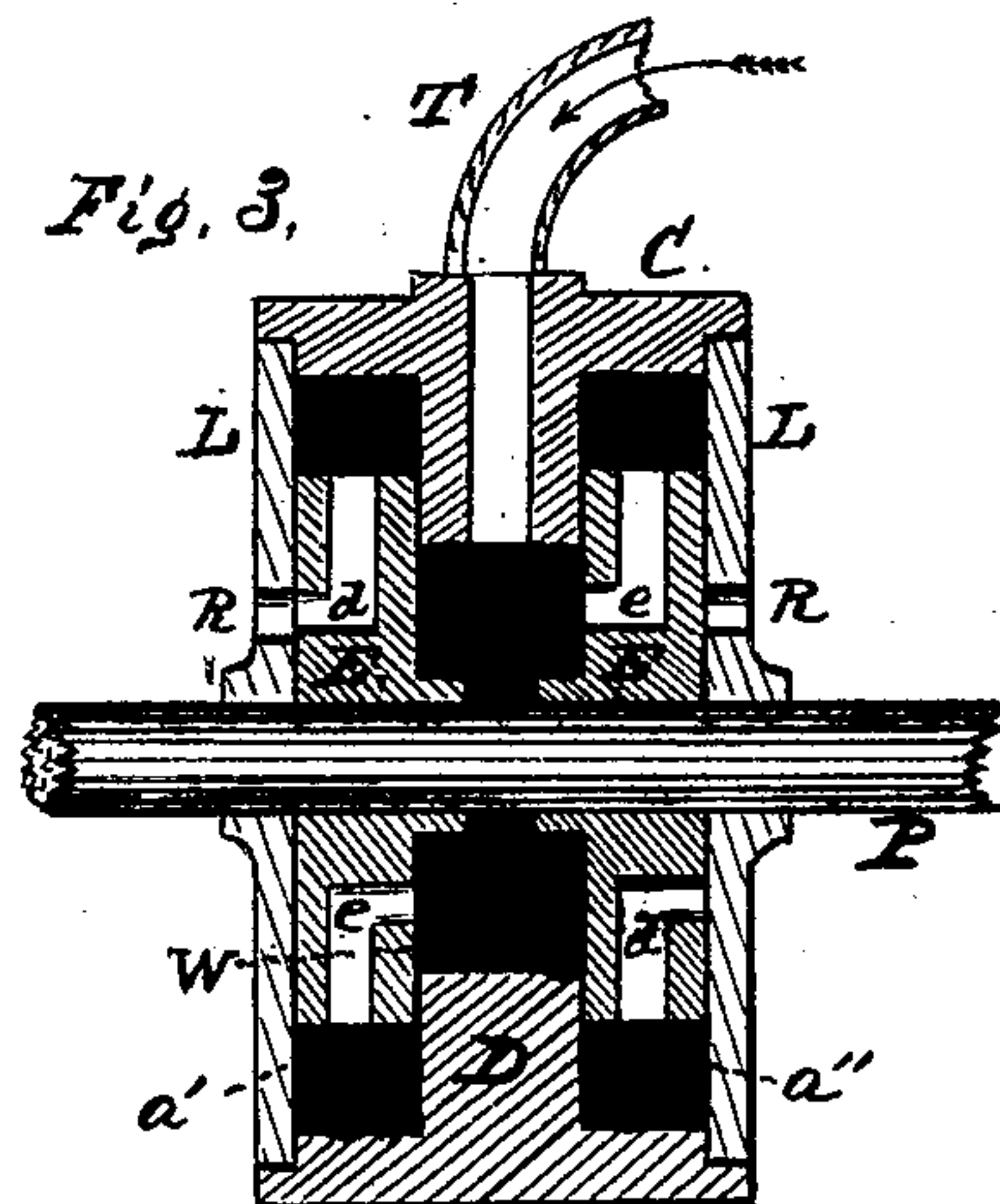
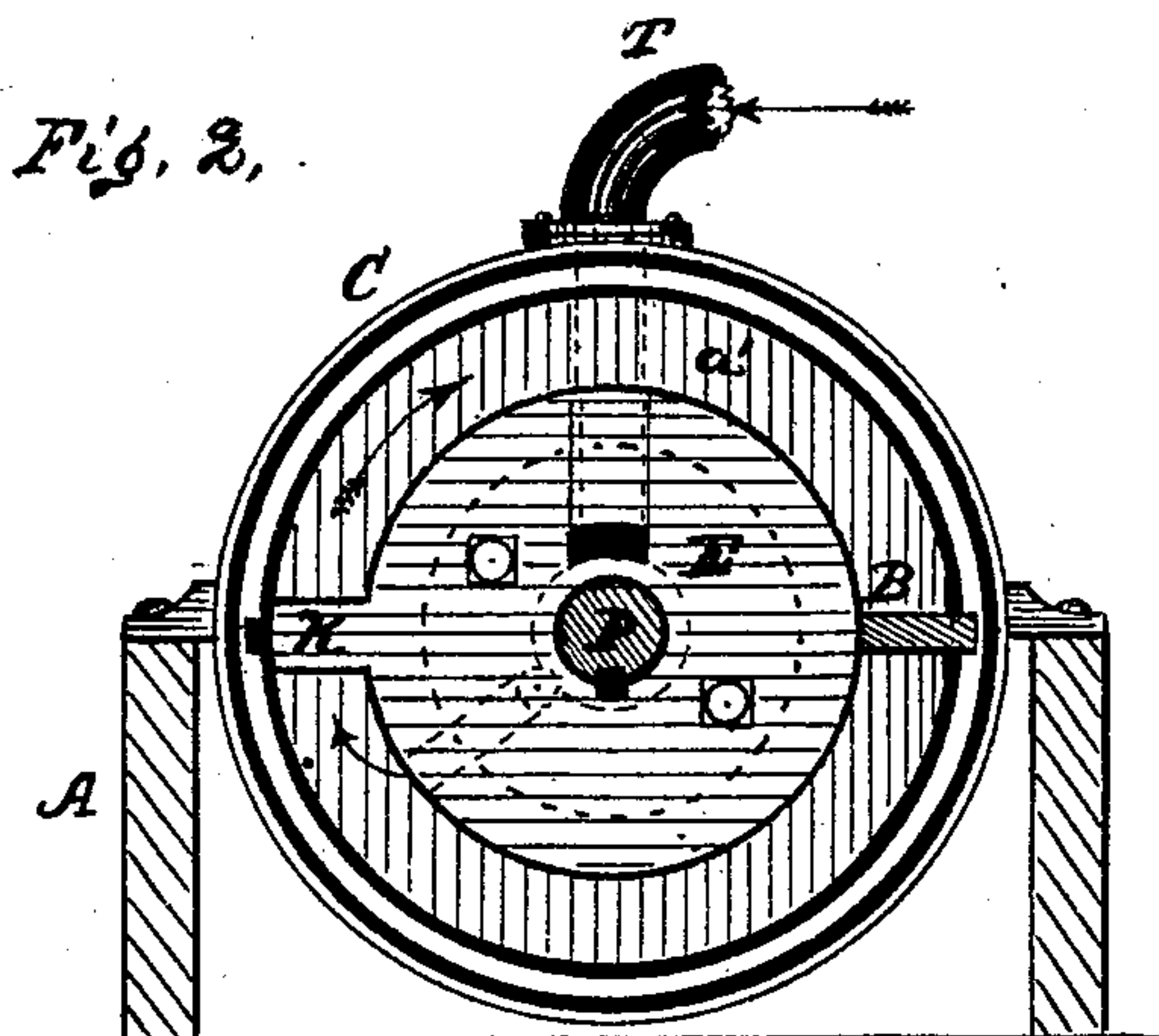
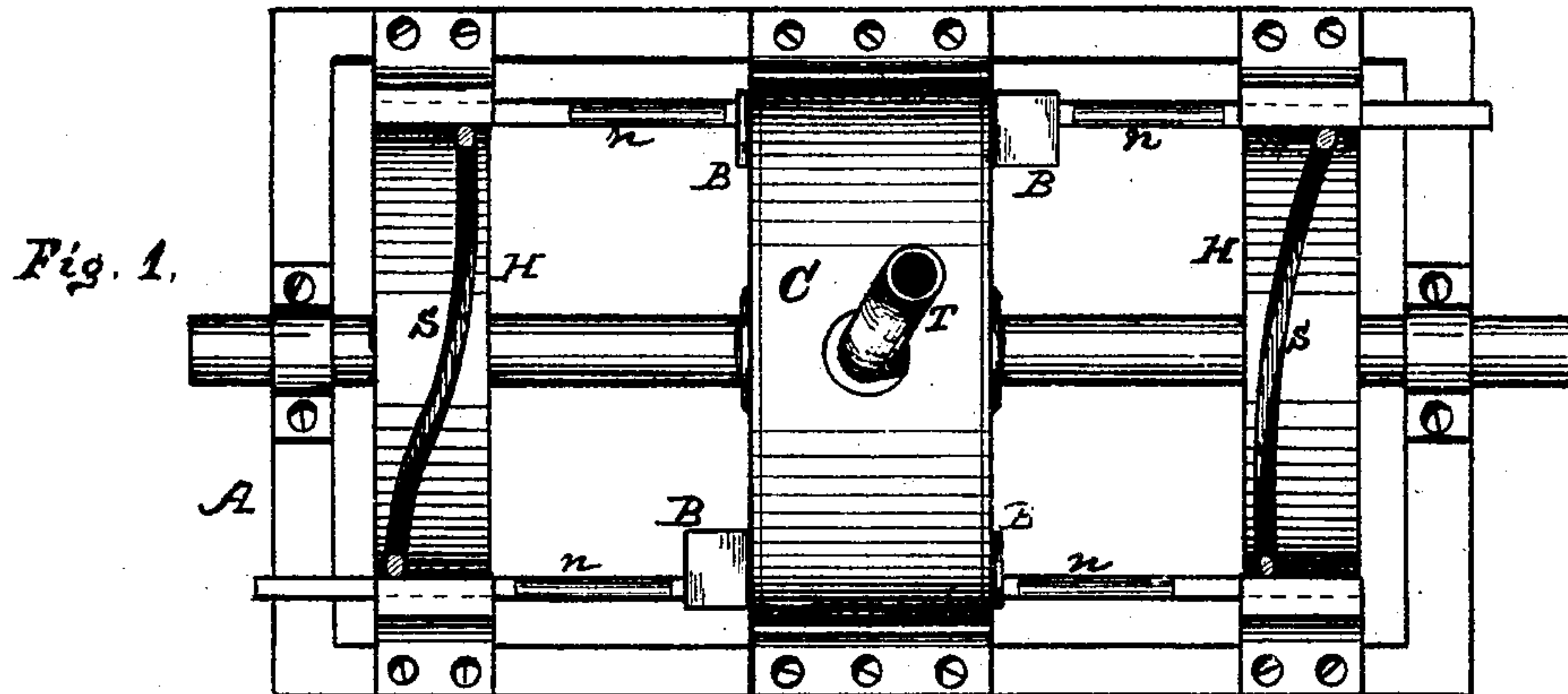


J. MCGOWAN.
Rotary Engines.

No. 134,082.

Patented Dec. 17, 1872.



Witnesses
John H. Sarge
Joseph Foreythe

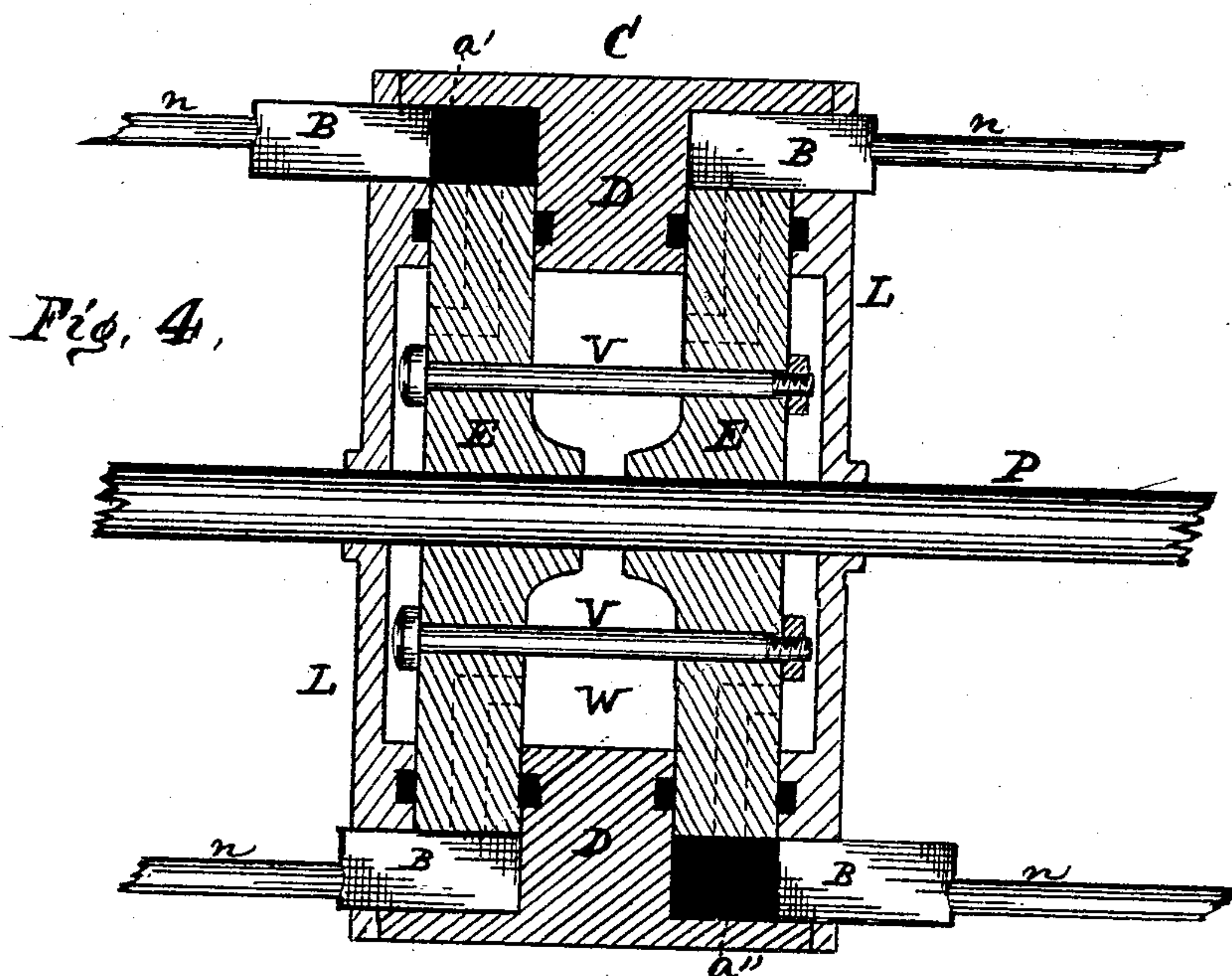
Inventor
John McGowan
By Attorney Josiah W. Ellis

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UNITED STATES PATENT OFFICE.

JOHN MCGOWAN, OF MIFFLIN TOWNSHIP, ALLEGHENY COUNTY, PA.

IMPROVEMENT IN ROTARY ENGINES.

Specification forming part of Letters Patent No. 134,082, dated December 17, 1872.

To all whom it may concern:

Be it known that I, JOHN MCGOWAN, of Mifflin township, in the county of Allegheny and State of Pennsylvania, have made certain Improvements in that class of mechanical contrivances known as Rotary Engines, which are designed as an improvement upon that for which Letters Patent were granted to me on the 1st day of August, 1871, wherein alternately-reciprocating slides or abutments are used in connection with a rotary disk provided with a radial piston and induction and education ports, in combination with other parts necessary to form an operative mechanism.

In that engine but one revolving disk is employed, and otherwise so constructed as that the live steam on entering the cylinder so acted against the side of said revolving disk as to crowd or force it over against one head of the cylinder in such a manner as to create a troublesome amount of friction. The object of my present invention is to overcome this difficulty; and to this end I use two rotary disks so coupled together within the one cylinder as to take the steam between them and act with equal pressure in opposite directions on both, whereby a complete balance or equipoise is maintained in such proportion as to greatly relieve the engine of much friction that would otherwise ensue.

My invention will be readily understood by the following description taken in connection with the accompanying drawing, wherein—

Figure 1 represents a perspective top view of my improved rotary engine; Fig. 2, a transverse vertical section of the frame used in supporting the engine, showing one end of the cylinder with its head removed to exhibit one of the rotary disks; Fig. 3, a longitudinal vertical section of the cylinder and rotary disks; and Fig. 4, a similar view on a horizontal plane, enlarged, the better to show the several parts.

The frame A of the engine, together with the construction and action of the sliding abutments B, and the means used for giving them the proper reciprocating movement, is substantially the same as shown and described in the patent No. 117,656 heretofore granted to me; but in this case the cylinder C is of double depth or capacity, and consists of two compartments, *a' a''*, separated by an annular central flange, D, in each of which is placed a rotating disk, E, of a diameter somewhat less than that of the cylinder, so as to leave

around the periphery of said disks an annular space fitted with slides B, one of which is always in place to form a partition or abutment within; but each abutment is withdrawn in turn by means of a pin on its rod, *n*, extending into the cam-shaped groove S cut in the circumference of the wheel H on that side of the cylinder, by which arrangement the slides are alternately drawn in and out to enable either piston *k* to pass in their revolutions.

The steam, on entering the induction-pipe T, will flow down into the open recess W between the disks E E, and continue onward into such radial openings *e e* as may be in communication therewith, and through them into the annular piston-chambers *a' a''* back of each piston and closed sliders B, and by its pressure or expansive force give motion to the pistons, disks, shaft, and other operative parts of the engine, the exhaustion being effected in front of each piston in turn, through passages *d d* on the opposite sides of the disks E E precisely the same as those through which the live steam entered, and from thence out through openings R R, one in each head I of the cylinder.

As the live steam enters between the disks E E the tendency of such steam is to force them apart and crowd them over each against its particular head of the cylinder. To prevent this, and thereby avoid such friction as would otherwise ensue, I have not only keyed and secured both disks firmly to the same shaft P, but my means of strong screw-bolts V V have so united them as to hold each centrally within its respective chamber, and by which screw-bolts they may be tempered to the bearing parts of the cylinder as often as the wear of such parts makes it necessary, and by which construction, combination, and arrangement a perfect balance and equipoise of the disks is maintained.

Claim.

The engine herein described, consisting of a cylinder, C, having therein a central dividing-flange, D, in combination with a rotary disk, E, on each side thereof, and coupled together by means of the shaft P and screw-bolts V V, all arranged as and for the purpose set forth.

JOHN MCGOWAN.

Witnesses:

JOHN R. GORGE,
JOSEPH FORSYTHE.