

No. 621,556.

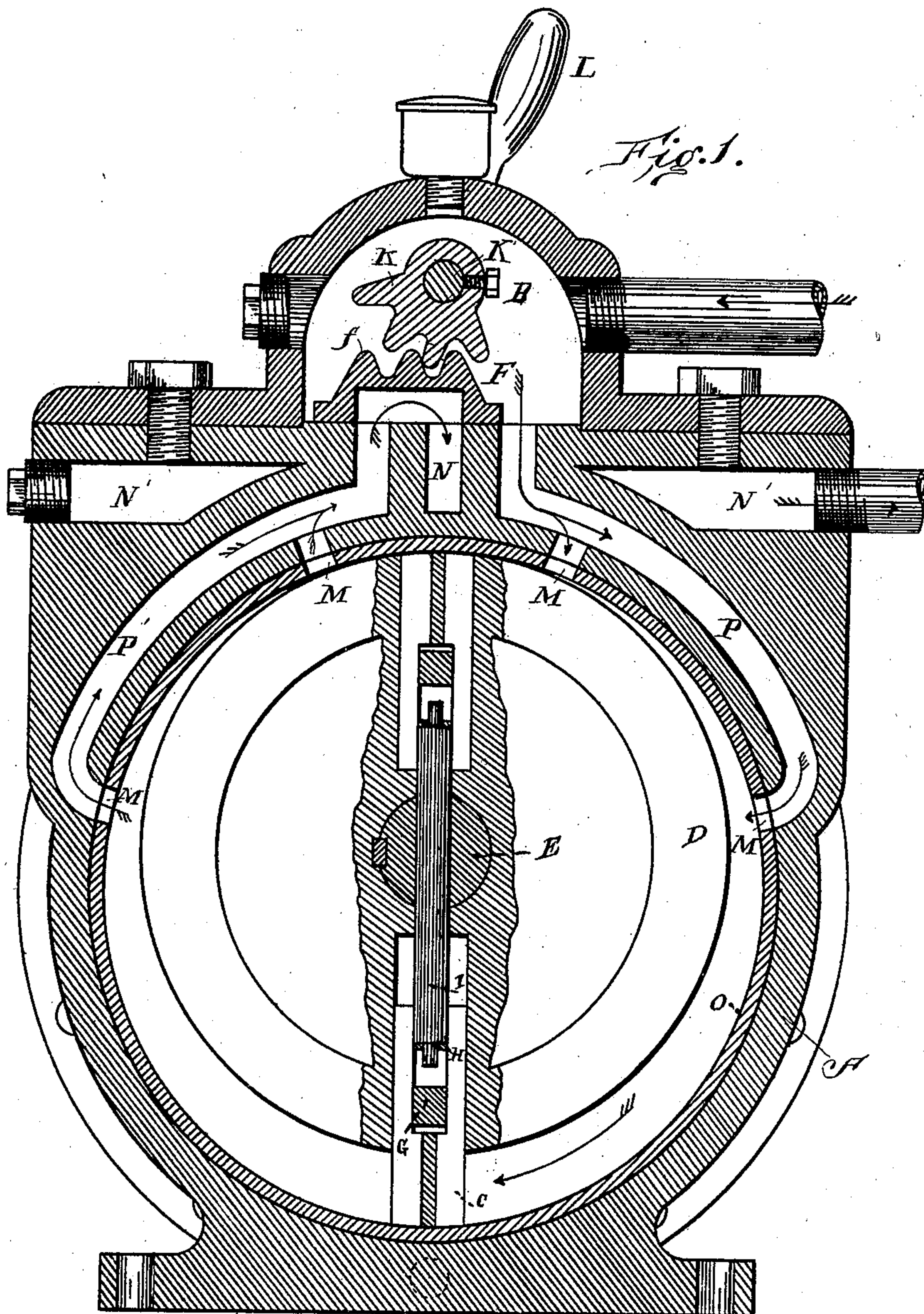
Patented Mar. 21, 1899.

O. T. EARLE.
ROTARY ENGINE.

(Application filed June 20, 1898.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses

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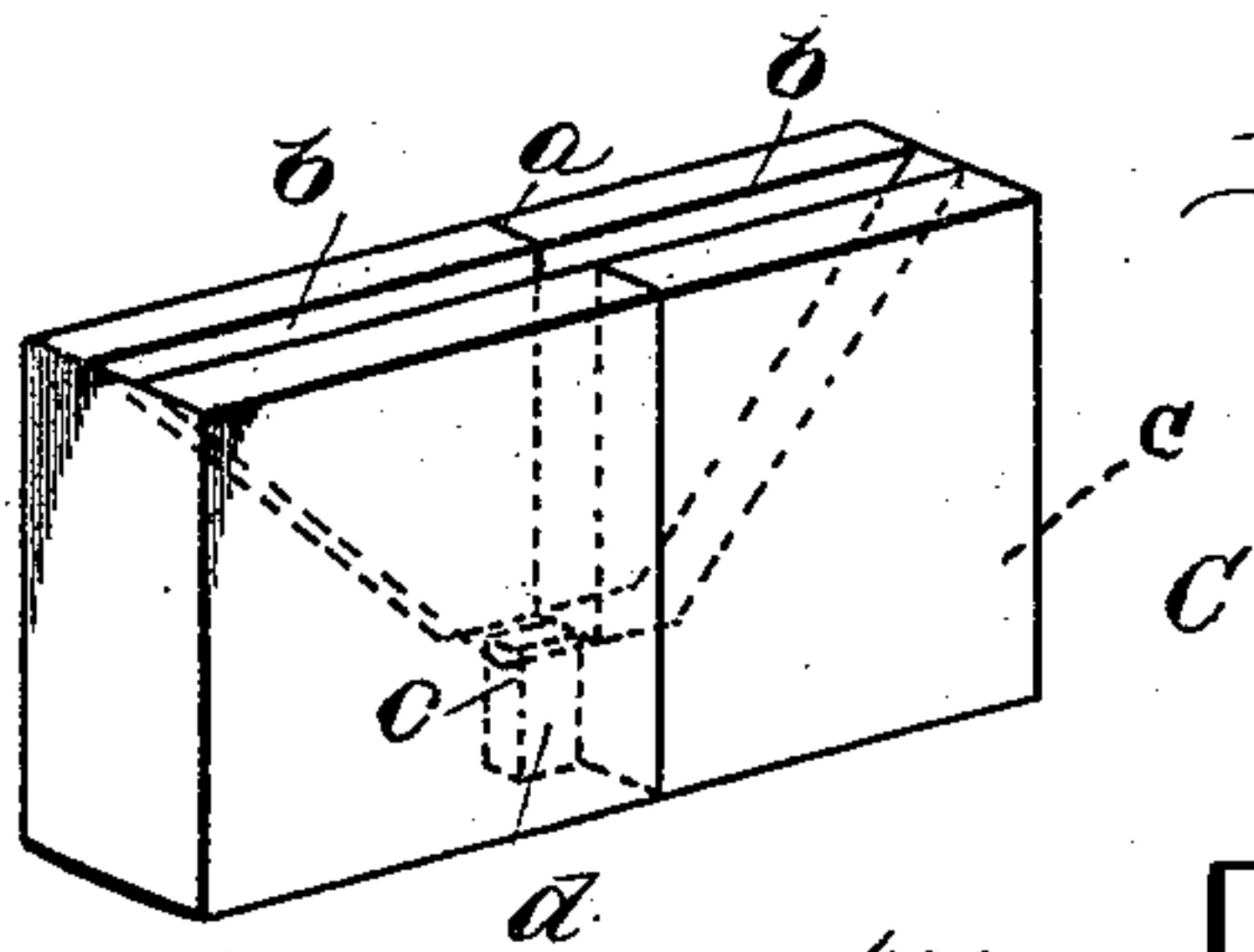
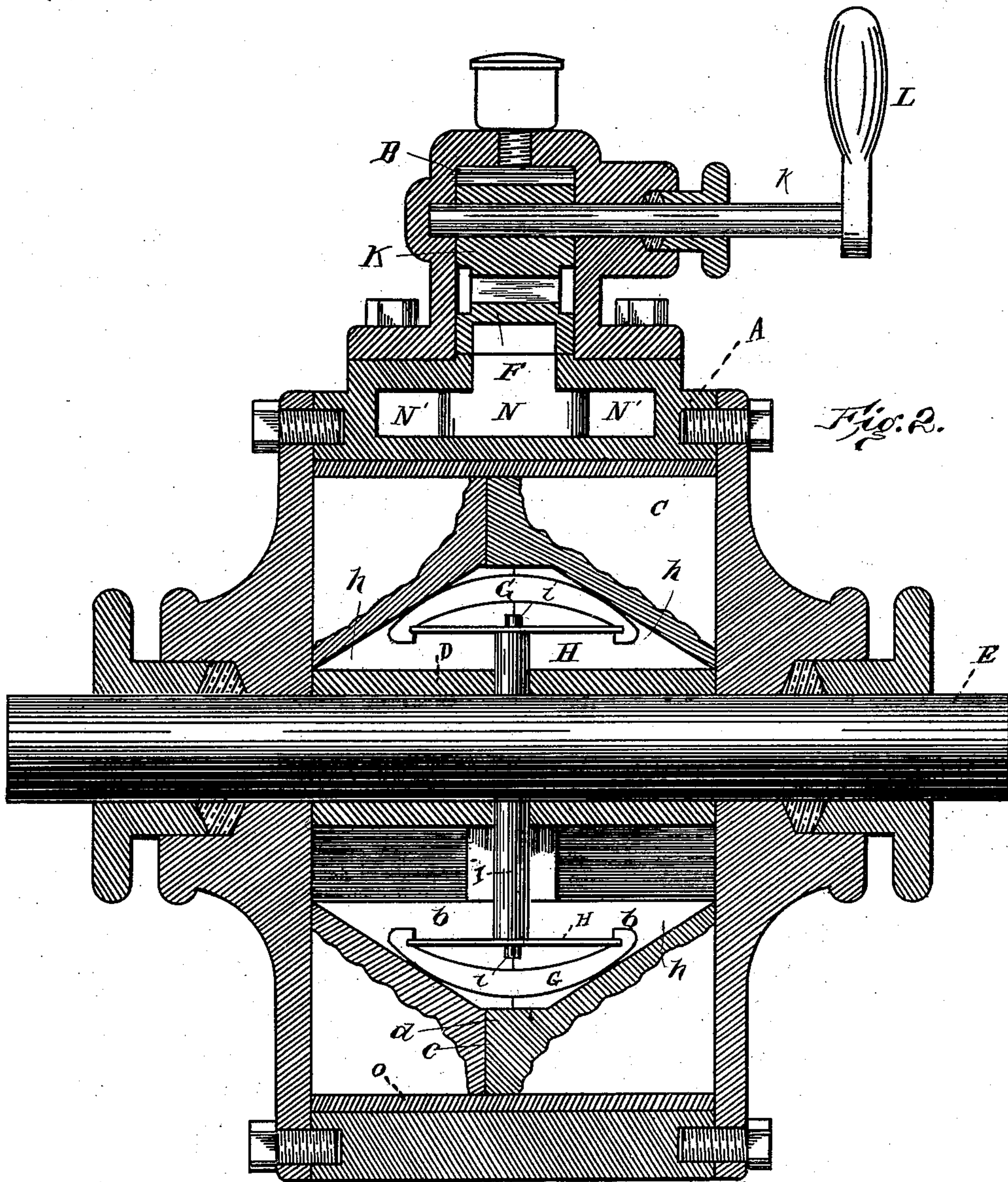
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UNITED STATES PATENT OFFICE.

OSCAR T. EARLE, OF BALTIMORE, MARYLAND.

ROTARY ENGINE.

SPECIFICATION forming part of Letters Patent No. 621,556, dated March 21, 1899.

Application filed June 20, 1898. Serial No. 683,992. (No model.)

To all whom it may concern:

Be it known that I, OSCAR T. EARLE, of Baltimore, in the State of Maryland, 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 of the invention, which 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 part of this specification.

The object of my invention is to provide a simple and efficient rotary engine, and particularly to prevent leakage of steam past the piston without undue friction. This is accomplished by a sectional piston, which is set out by a spring, and provision is also made to have each of the two pistons receive the same pressure.

In the accompanying drawings, Figure 1 is a transverse section of my engine; Fig. 2, a longitudinal vertical section, and Fig. 3 a perspective view of the sectional piston.

Referring to the drawings, A is the cylinder. o is a cylinder-lining.

D is the drum secured on the shaft E, which revolves eccentrically within the cylinder, causing the said drum to come in contact at a given point of the cylinder, forming a lune-shaped cylinder for the piston C to travel through.

B is the steam-chest, having passages P P, leading to each side of cylinder from each passage-ports M M, enters the cylinder.

N is the exhaust-port.

F is the reversing-valve in the steam-chest B, which is provided with teeth or rack *f*, which meshes with segmental gear K, secured on the rod K'. On the outer end of rod is a lever L for operating the valve. As shown in Fig. 1, the valve is admitting steam through the right-hand passage P and exhausting through the passage P' on the left through the recess in the valve into the common exhaust-port N. The exhaust-port N leads into an exhaust-chamber N' and is then carried off by a suitable pipe from either side of the engine.

The pistons C are divided at a line through the center, and each section is slotted diagonally toward the center, as at *b b*. There is

also a slot *c* in one of the sections, where the division of the piston is made, into which a projection *d* of the opposite section enters. This prevents the sections from getting out of line when pressed apart to bear on the cylinder.

G is a curved bearing-piece which also supports the spring H. Each piston is provided with this piece and spring, and as they are all diametrically opposite I set the spring out by a rod I, which passes through the shaft, the drum into the piston-recesses of the same, and each end against a spring. A hole is made through the spring, through which the reduced ends *i i* pass to prevent any displacement of the rod or spring.

It will be understood from the foregoing description and the drawings that through the rod I the pressure of each spring on the piston-sections will be equal, since the tension of the stronger spring will be conveyed to the light spring and thereby equalizing both. It will also be seen that the pressure of the springs upon the bearing-piece, whose curved face rests on the incline *h h* at the bottom of the slots in the piston-sections, will exert an outward and lateral force, causing the sections to keep in contact with the cylinders and its heads, and thus insuring a tight joint with very little friction.

Having thus described my invention, what I claim is—

1. In a rotary engine the combination of the cylinder, with the drum, sectional independent pistons placed diametrically opposite in the drum, and means for equally setting out each section of the opposite pistons.

2. In a rotary engine the combination of a cylinder with drum, sectional independent pistons placed diametrically opposite in said drum, and means for automatically and equally setting out each section of the opposite pistons.

3. In a rotary engine the combination of a cylinder with the drum, sectional pistons placed in the drum, bearing-pieces supporting springs, each resting upon the two sections of each piston, and means for giving tension to the springs.

4. In a rotary engine the combination of the cylinder with the drum, a sectional piston having a diagonal slot from the inner side

toward the center, a slot on one section and a projection on the other to prevent the sections from getting out of line and means for setting out the sections.

- 5 5. In a rotary engine the combination of a cylinder with the drum, sectional pistons placed in the drum, bearing-pieces supporting springs, each resting in slots against two sections of each piston and a loose rod passing through the shaft and drum each end
10 bearing against the springs.

6. In a rotary engine the combination of the sectional piston with a bearing-piece for setting out the sections, and a spring supported and carried by the bearing-piece. 15

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

OSCAR T. EARLE.

Witnesses:

O. E. DUFFY,
HERBERT C. EMERY.