

No. 730,679.

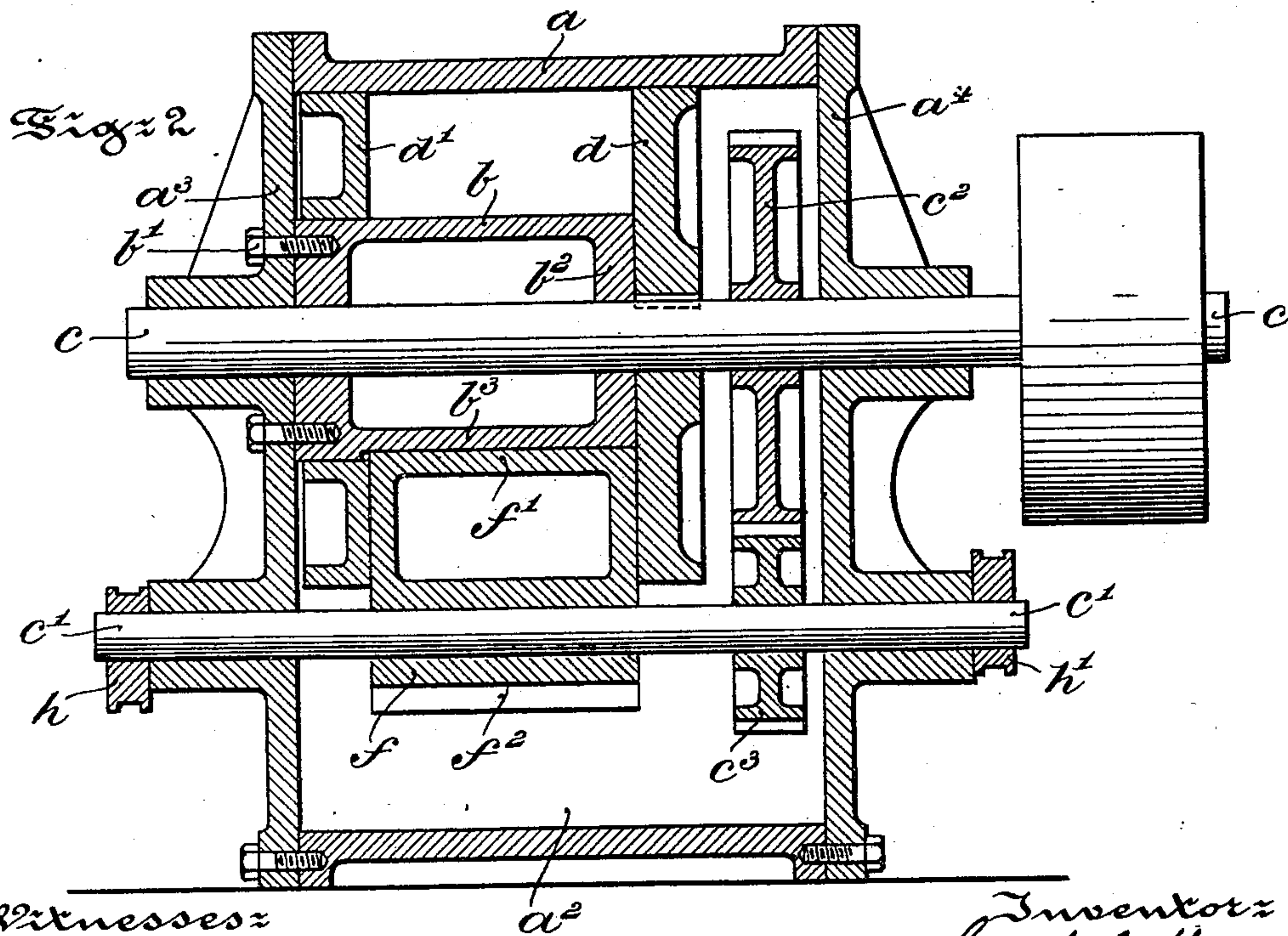
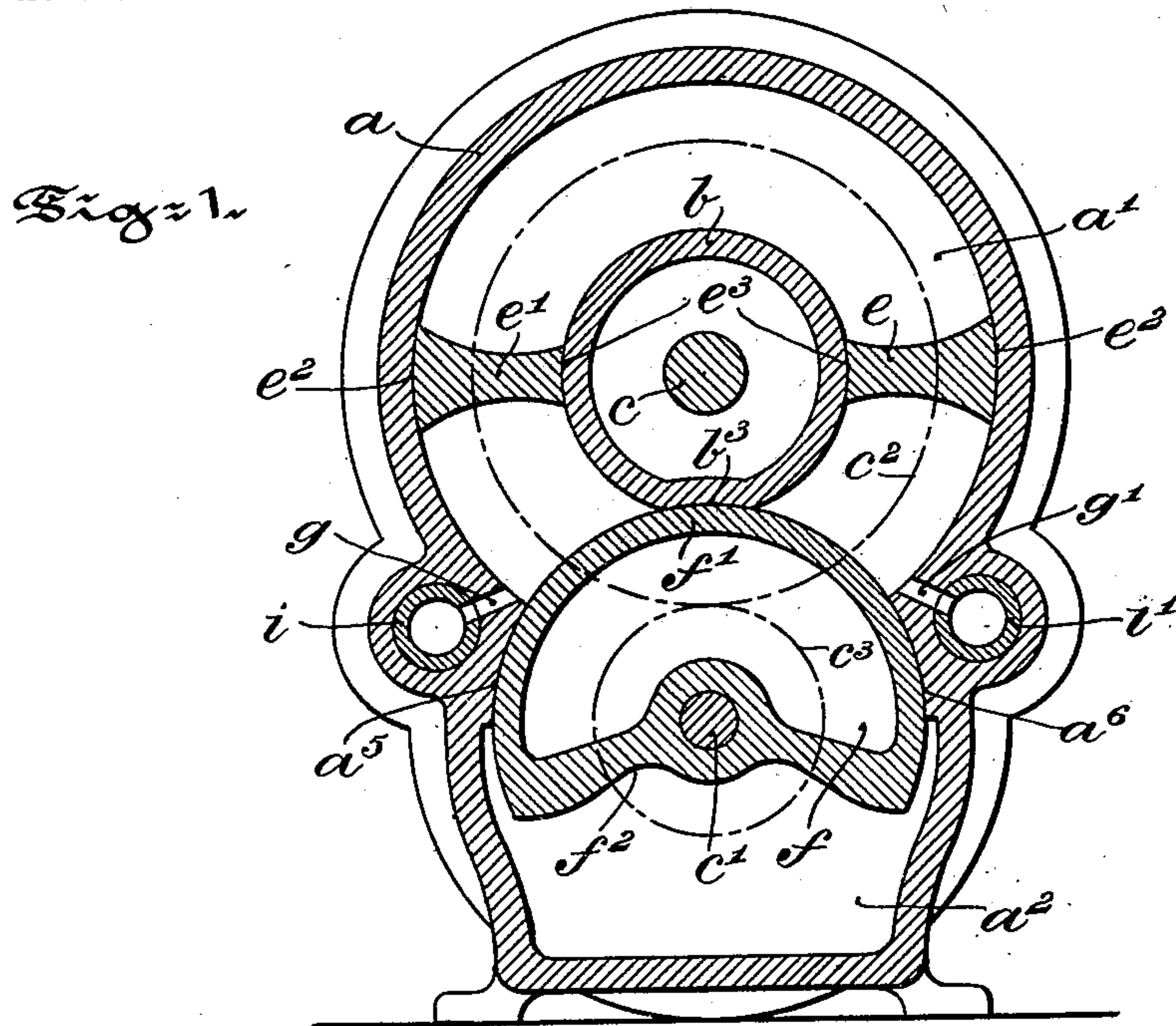
PATENTED JUNE 9, 1903.

J. C. MONROE.
ROTARY ENGINE.

APPLICATION FILED MAR. 21, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses:
Jas. C. Wolmenith.
Wilhelm Vogt

Inventor:
Joseph C. Monroe,
By J. Walter Dugan
Attorney

No. 730,679.

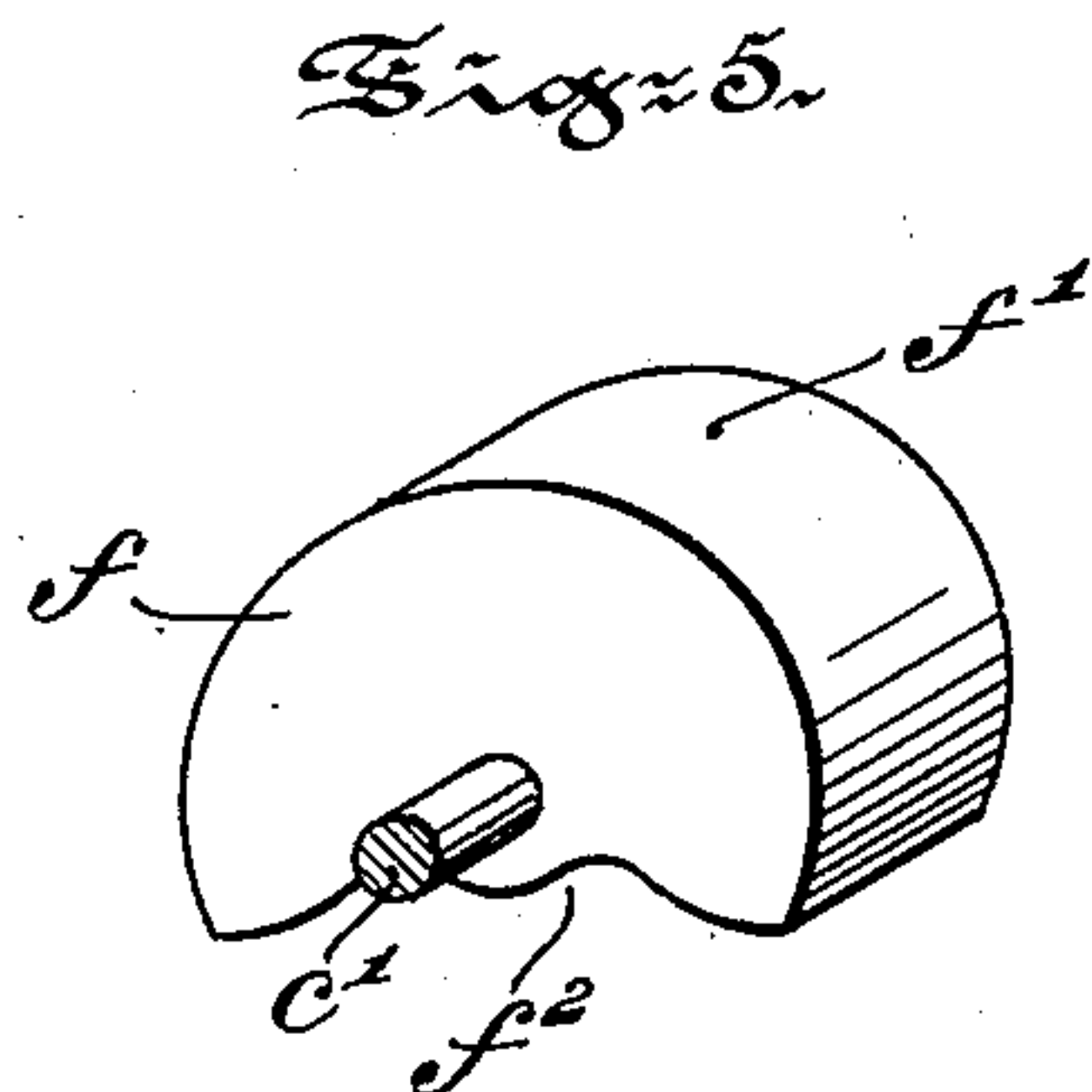
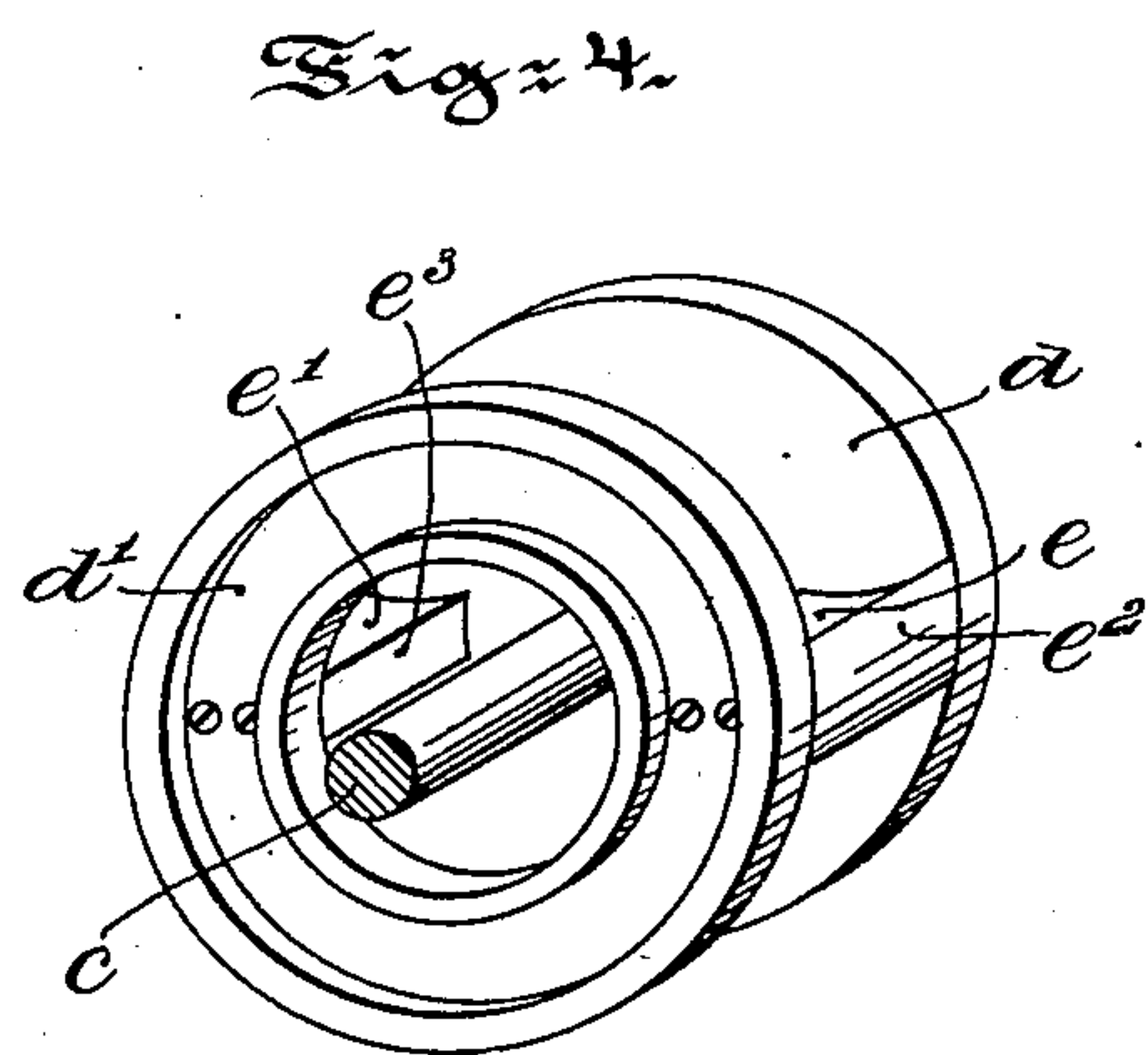
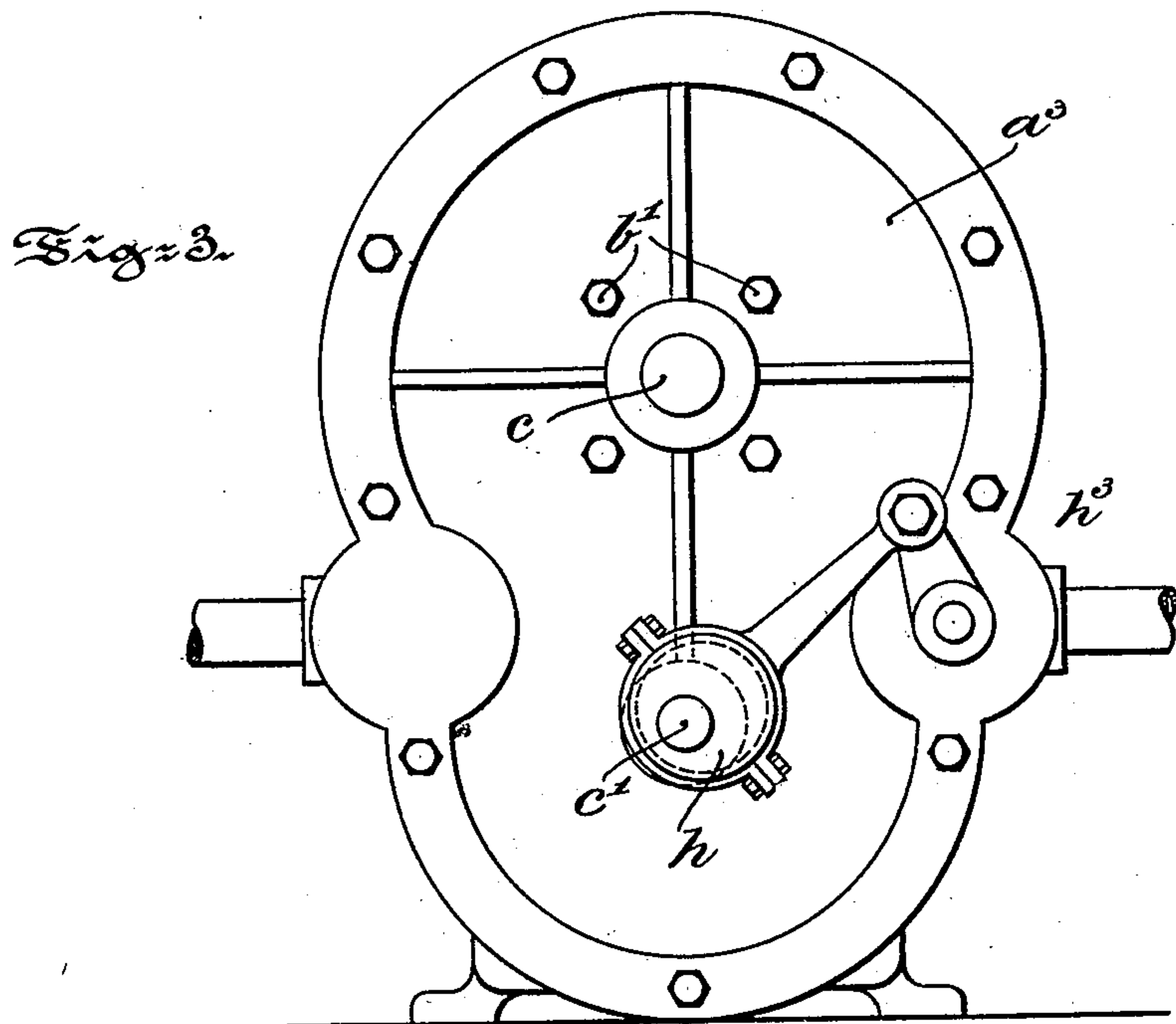
PATENTED JUNE 9, 1903.

J. C. MONROE.
ROTARY ENGINE.

APPLICATION FILED MAR. 21, 1903.

NO MODEL.

2 SHEETS—SHEET 2.



Witnesses:
Jas. C. Wolensmith,
Wilhelm Vogt

Inventor:
Joseph C. Monroe,
By J. Walter Dringham
Attorney.

UNITED STATES PATENT OFFICE.

JOSEPH C. MONROE, OF COLWYN, PENNSYLVANIA.

ROTARY ENGINE.

SPECIFICATION forming part of Letters Patent No. 730,679, dated June 9, 1903.

Application filed March 21, 1903. Serial No. 148,831. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH C. MONROE, a citizen of the United States, residing at Colwyn, in the county of Delaware and State of Pennsylvania, have invented certain new and useful Improvements in Rotary Engines, of which the following is a specification.

My invention has relation to a rotary engine; and in such connection it relates to the construction and arrangement of parts constituting such an engine.

The nature and scope of my present invention will be more fully understood from the following description, taken in connection with the accompanying drawings, forming part hereof, in which—

Figure 1 is a vertical sectional view of a rotary engine embodying main features of my invention. Fig. 2 is a longitudinal central section thereof, illustrating the stationary cylinder secured to one of the heads of the housing of the engine and surrounding the driving-shaft thereof, two disks engaging the face and end of the stationary cylinder, a rotary abutment arranged on the driven shaft of the engine and engaging the stationary cylinder and disk, and gear-wheels adapted to transmit the rotary movement of the driving-shaft to the driven shaft. Fig. 3 is an end elevation illustrating the means for controlling the steam inlet or exhaust port. Fig. 4 is a perspective view of the disks and pistons connected therewith, and Fig. 5 is a perspective view of the rotary abutment.

Referring to the drawings, *a* is a housing having chambers *a'* and *a''* of differing outline, which housing is closed at either end by heads *a³* and *a⁴*. In the upper chamber *a'* is arranged a cylinder *b*, which by means of bolts *b'* is rigidly secured to the head *a³* of the housing *a*, as shown in Fig. 2. The heads *a³* and *a⁴* serve to support two shafts *c* and *c'*, the upper shaft *c* of which passes through the stationary cylinder *b* and assists in supporting the same at its free end *b²*. A disk *d*, rigidly secured to the shaft *c*, abuts against the free end *b²* of the stationary cylinder *b* and engages the walls of the upper chamber *a'*. To this disk *d* are secured in any suitable manner pistons *e* and *e'*, engaging the stationary cylinder *b* and contacting with the walls of the upper chamber *a'* and also serving as

means to connect a disk *d'*, surrounding the stationary drum *b*, with the disk *d*. Below the stationary cylinder *b* and within the chamber *a''* of the housing *a* is arranged on the shaft *c'* an abutment *f*, adapted to engage the disks *d* and *d'* and a depression *b³* in the stationary cylinder *b*, as well as projections *a⁵* and *a⁶* of the housing *a*, as shown in Figs. 1 and 2. The stationary drum *b*, in conjunction with the disks *d* and *d'* and housing *a*, forms an annular cylinder, which is alternately opened and closed by the rotary abutment *f* and into which the motive fluid is conducted either through a port *g* or *g'*, arranged in the housing *a*, as shown in Figs. 1 and 3. The depression *b³* in the stationary cylinder *b* and the portions *a⁵* and *a⁶* of the housing *a* form when engaged by the semicircular portion *f'* of the abutment *f* a sufficient surface contact to prevent the escape of steam or other motive fluid and at the same time are so arranged as to lessen friction between the stationary parts and the abutments. The contacting faces *e²* and *e³* of the pistons *e* and *e'* are also of a width sufficient to form, in conjunction with the stationary cylinder *b* and housing *a*, a surface contact, which renders the abutting portions steam-tight. As soon as steam or other motive fluid is permitted to enter the annular cylinder through the port *g'* the pistons *e* and *e'* will be rotated around the stationary cylinder *b*. The rotary movement of the pistons *e* and *e'*, by means of the disk *d* is transmitted to the shaft *c*, which by the intervention of the gear-wheels *c²* and *c³* rotate the shaft *c'* and the abutment *f*, secured thereto, in a direction opposite to that of the pistons *e* and *e'*. The shaft *c'* and abutment *f* are, however, driven with a speed sufficient to permit the pistons *e* and *e'* to pass the rotary abutment by engaging the depressed portion *f²* thereof. In the position of the pistons *e* and *e'* (shown in Fig. 1) the exhaust-steam or other motive fluid remaining in the space between the piston *e'* and abutment *f* is permitted to escape through the port *g* until the abutment, with its depressed portion *f²*, opens the end of the annular cylinder and permits the rest of the exhaust-steam to escape into the chambers *a'* and *a''* of the housing *a*. In this chamber *a''* will also be drained all water of condensation, as the same in a certain po-

sition of the rotary abutment communicates with the annular cylinder. From this chamber a^2 the water of condensation and the exhaust-steam are removed by means not shown.

5 The rotary movement of the driven shaft c' is also utilized to control the opening and closing of the inlet and outlet ports g and g' of the engine. For this purpose the shaft c' at both ends is provided with eccentrics h and h' , the arm h^2 of which engages a crank-arm h^3 , secured to a valve i or i' of any suitable construction, which by being actuated by the eccentrics h or h' permits the entrance or escape of steam or other motive fluid into
15 and from the cylinder of the engine for a certain period of time.

Instead of permitting steam or other motive fluid to enter the engine through the port g' and escape through the port g the same
20 may also be conducted into the same through the port g , in which instance the pistons e and e' and abutment f will be rotated in a reverse direction.

The construction and arrangement of the
25 parts as hereinbefore described furnish an engine which is exceedingly simple and has great efficiency in that at all times a sufficient surface contact is insured to render the engine steam or fluid tight and to lessen the
30 friction between the moving parts, so as to permit of the rotation of the same in opposite directions.

Having thus described the nature and objects of my invention, what I claim as new,
35 and desire to secure by Letters Patent, is—

1. In a rotary engine, a housing, a stationary cylinder secured to one portion of said housing and having a depression, a shaft adapted to pass through said cylinder, disks
40 adapted to engage said stationary cylinder, a rotary abutment adapted to engage the depression of said cylinder and said abutment and pistons arranged between said disks and adapted to transmit their movement to both
45 of said disks, a shaft adapted to support said abutment, and means adapted to connect both shafts.

2. In a rotary engine, a housing, a stationary cylinder secured to one portion of said housing, a shaft adapted to pass through
50 said cylinder, disks adapted to engage said stationary cylinder, one of each of which being adapted to be supported by said cylinder and by said shaft, a rotary abutment adapted to engage said stationary cylinder and said
55 disks, a shaft adapted to support said abutment, and gear-wheels adapted to connect both shafts.

3. In a rotary engine, a housing, a stationary cylinder secured to said housing, a rotary
60 abutment adapted to engage said cylinder and portions of said housing, disks adapted to frictionally engage said cylinder and abutment, whereof one is adapted to be supported by said stationary cylinder and to rotate
65 thereon, and whereof the other disk is adapted to be supported by the shaft passing through said cylinder, pistons secured to said disks and said pistons adapted to transmit a rotary movement to said stationary-cylinder
70 shaft by one of said disks.

4. In a rotary engine, a housing, a hollow stationary cylinder secured to said housing, a rotary abutment adapted to engage said
75 cylinder and portions of said housing, disks adapted to frictionally engage said cylinder and abutment, whereof one of said disks is adapted to be supported by said stationary cylinder and to rotate thereon, and whereof
80 the other disk is adapted to be supported by the shaft passing through said cylinder and to abut against the same, pistons secured to said disks and adapted to transmit a rotary movement to said stationary-cylinder shaft
85 by one of said disks, and means adapted to connect said shafts with each other.

In testimony whereof I have hereunto set my signature in the presence of two subscribing witnesses.

JOSEPH C. MONROE.

Witnesses:

J. WALTER DOUGLASS,
THOMAS M. SMITH.