

No. 763,789.

PATENTED JUNE 28, 1904.

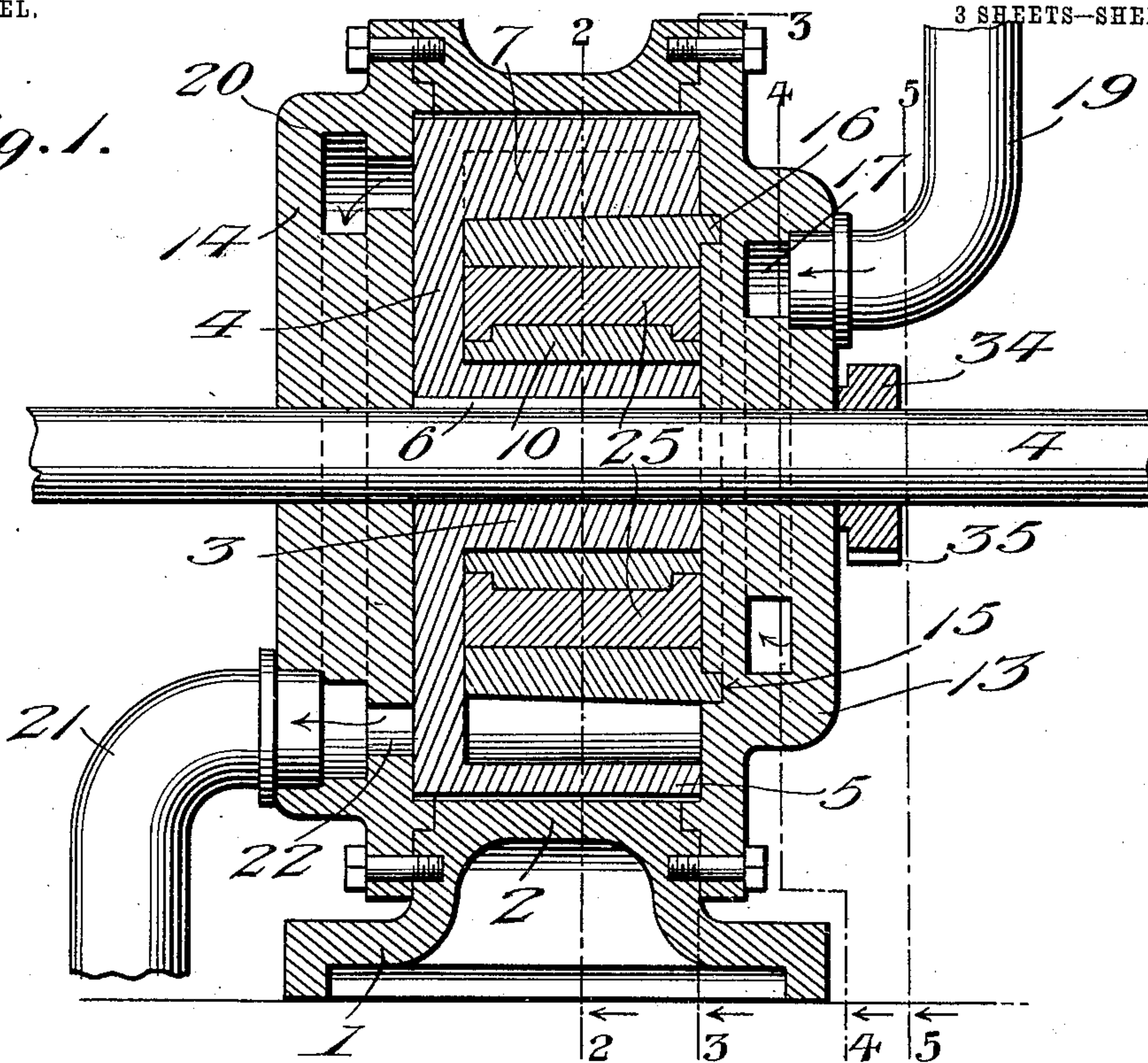
J. PATTINSON.  
ROTARY MOTOR.

APPLICATION FILED APR. 13, 1904.

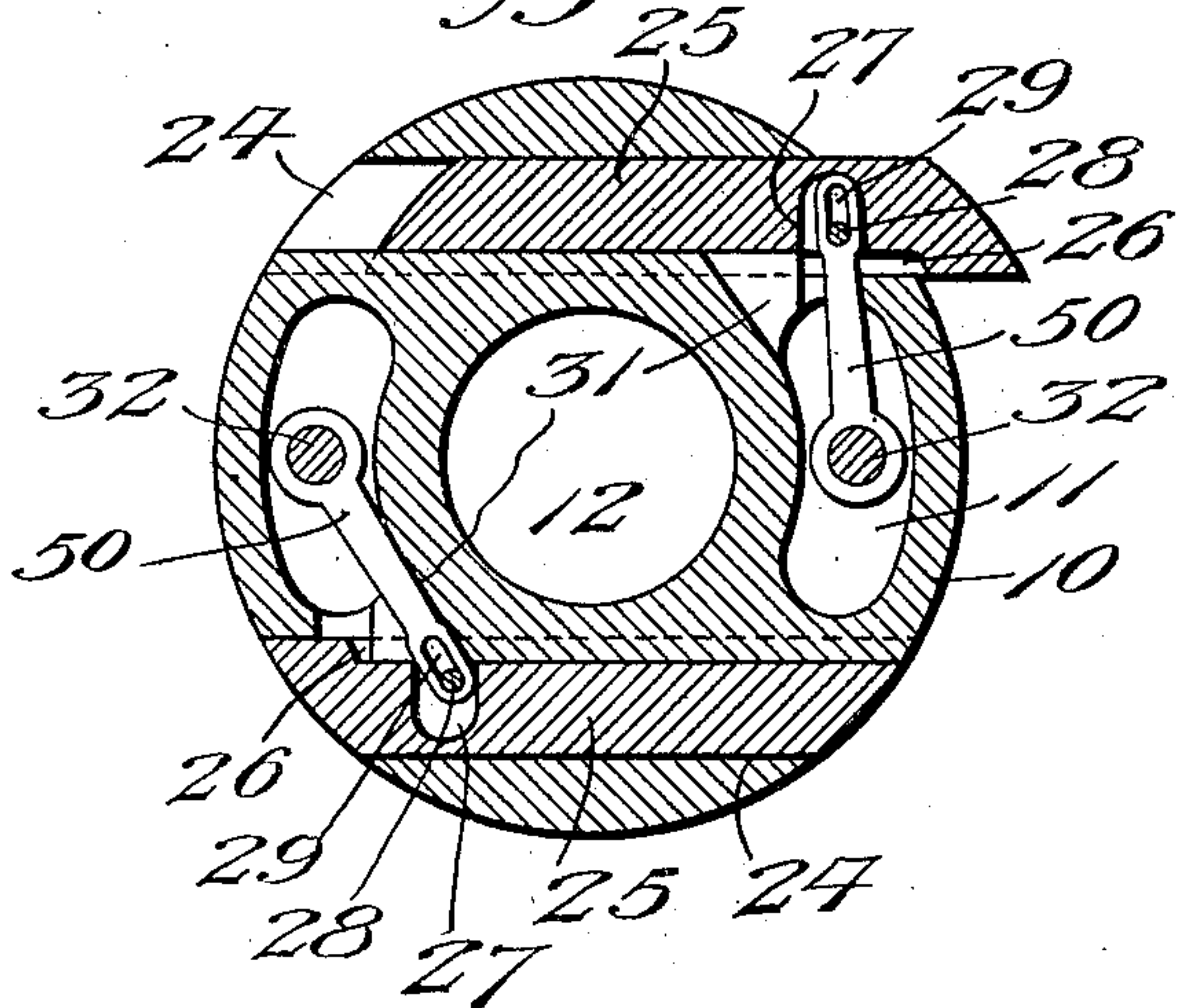
NO MODEL.

3 SHEETS—SHEET 1.

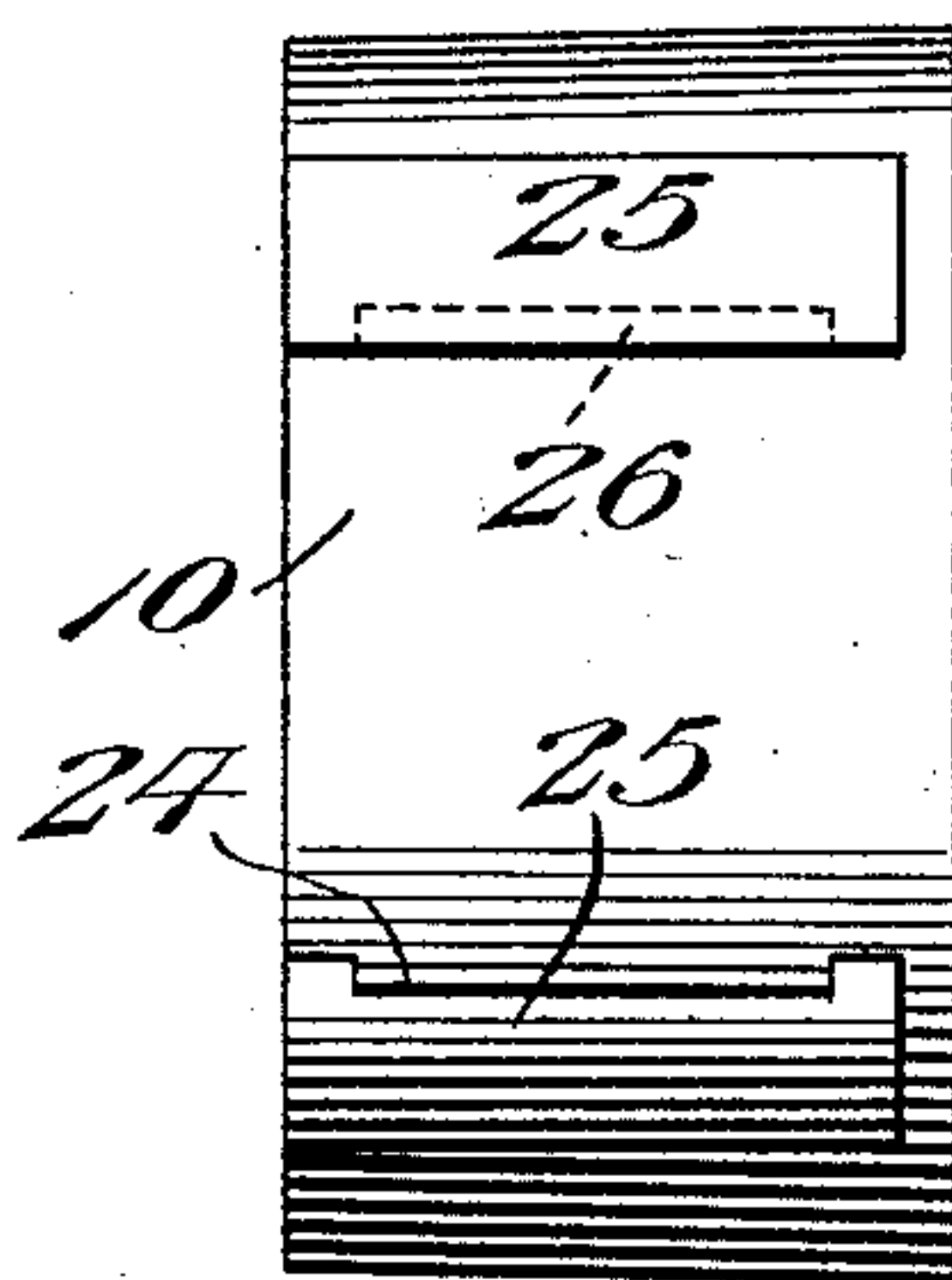
*Fig. 1.*



*Fig. 6.*



*Fig. 7.*



Witnesses

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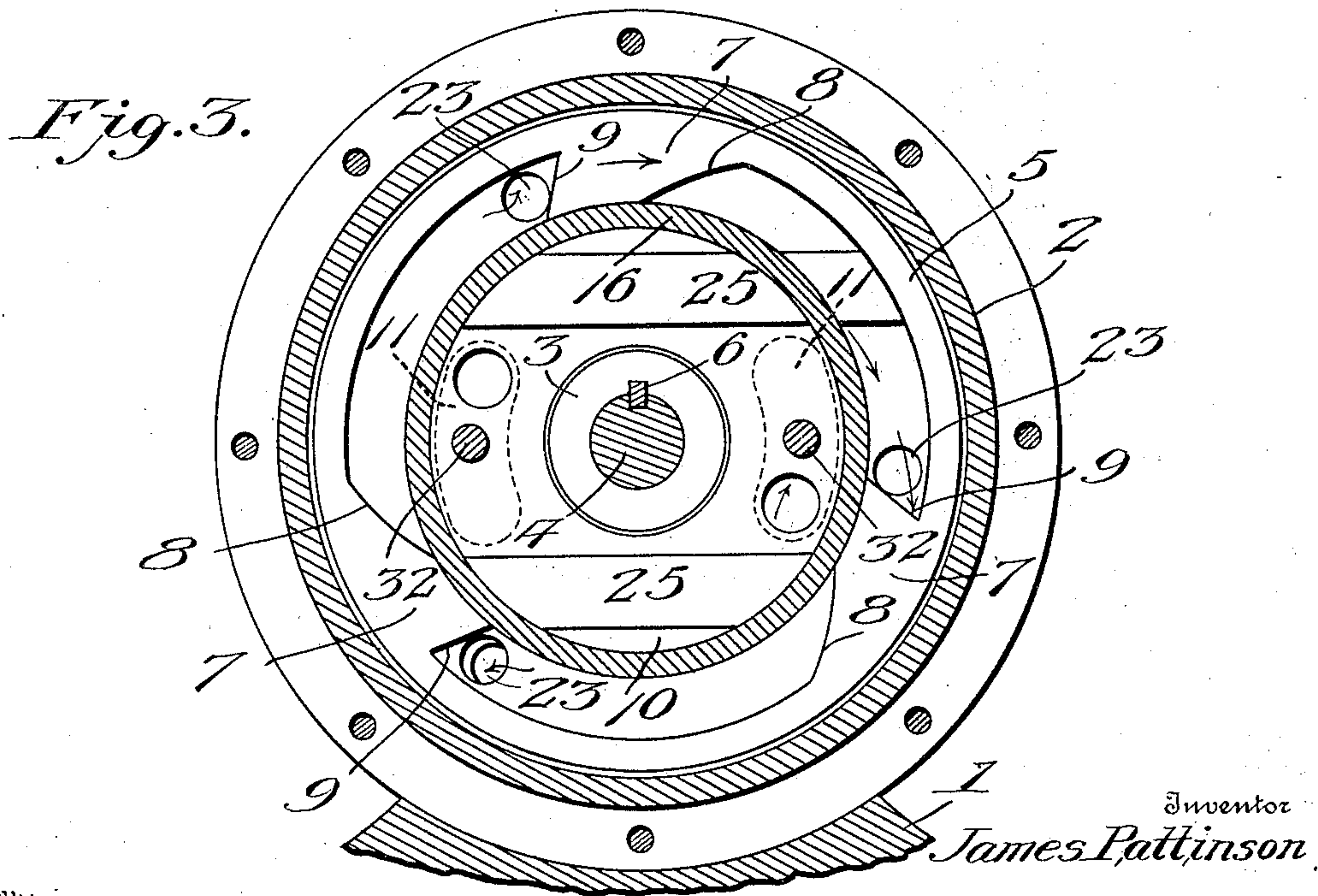
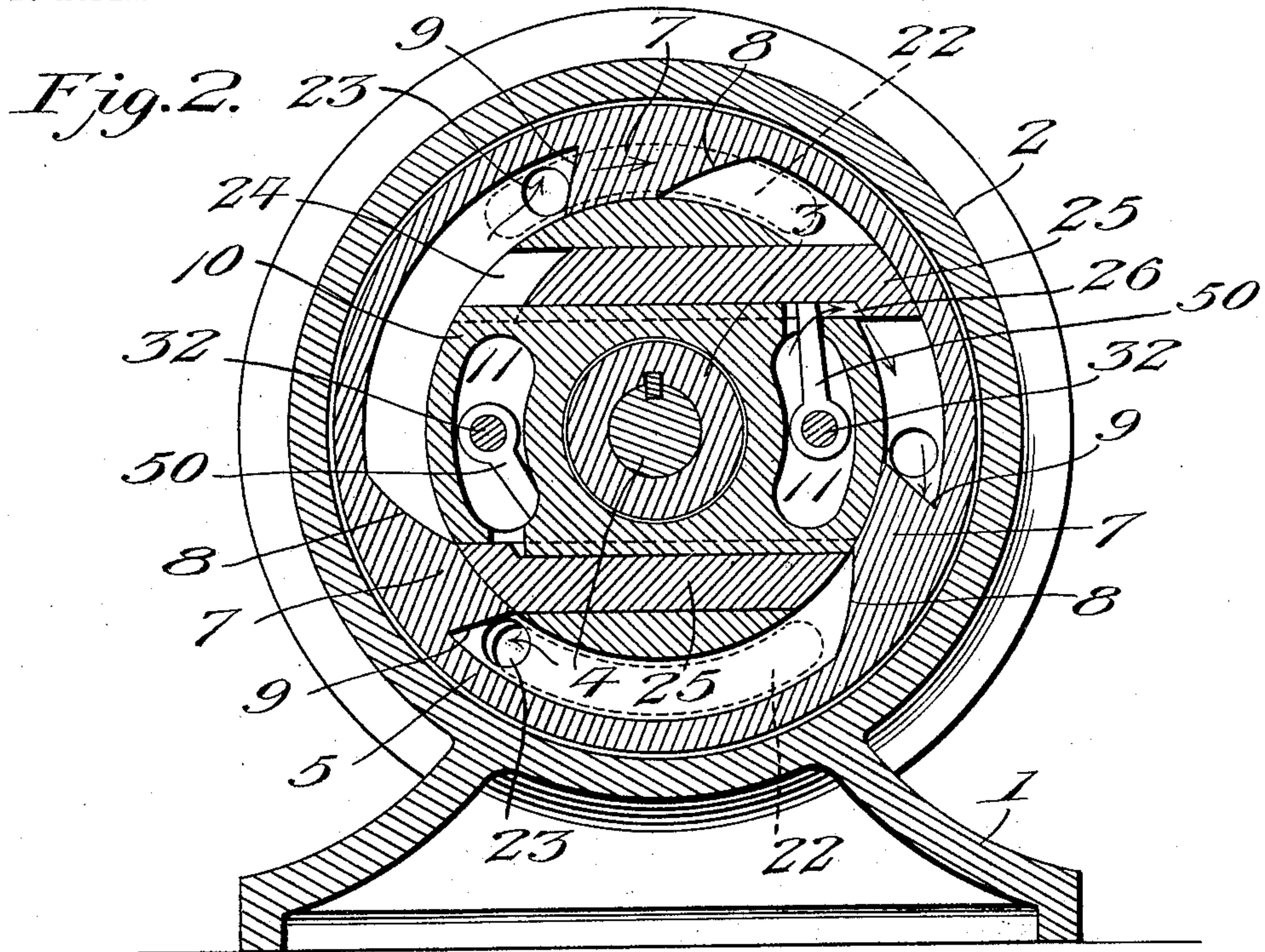
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3 SHEETS—SHEET 2.



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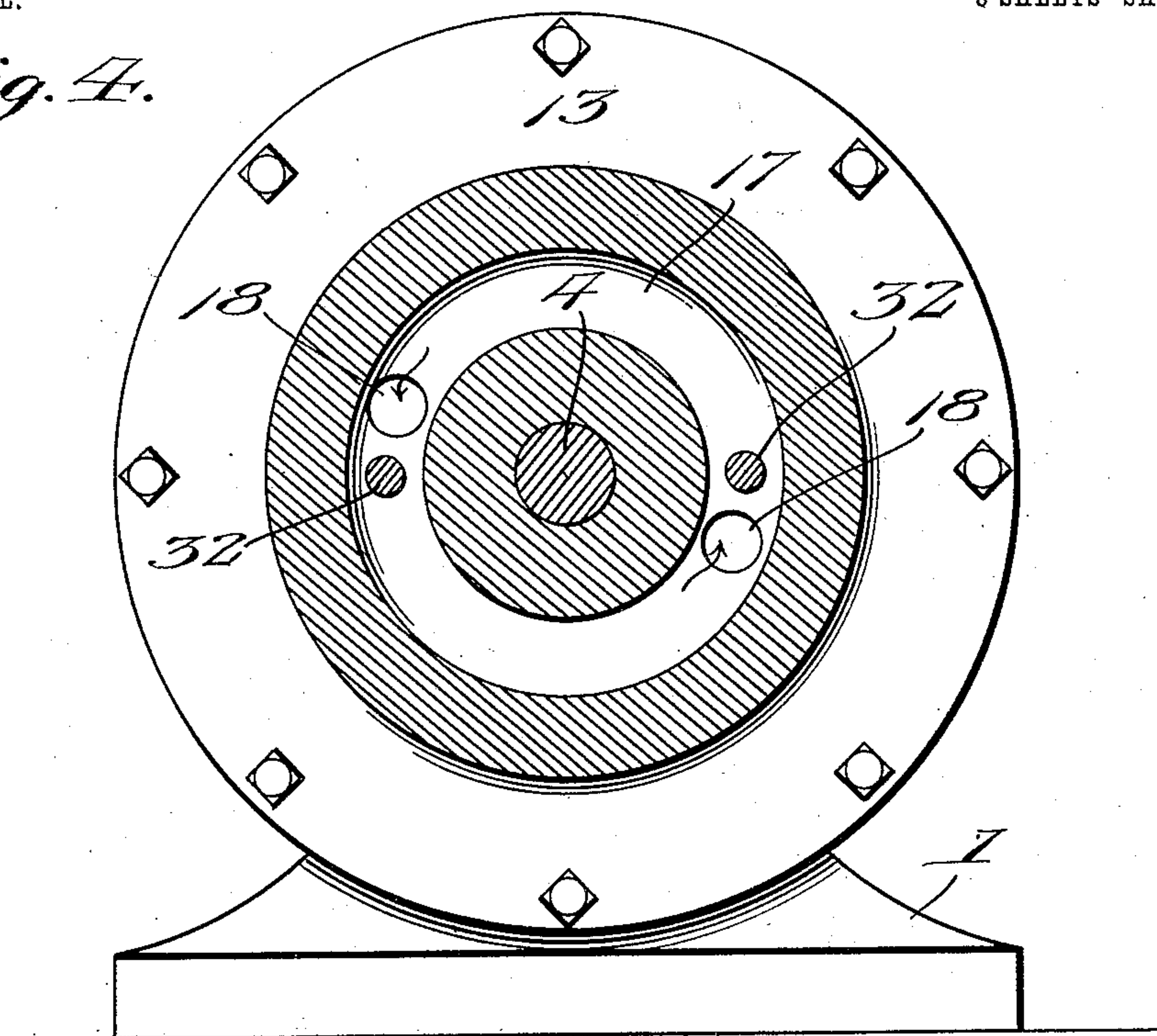
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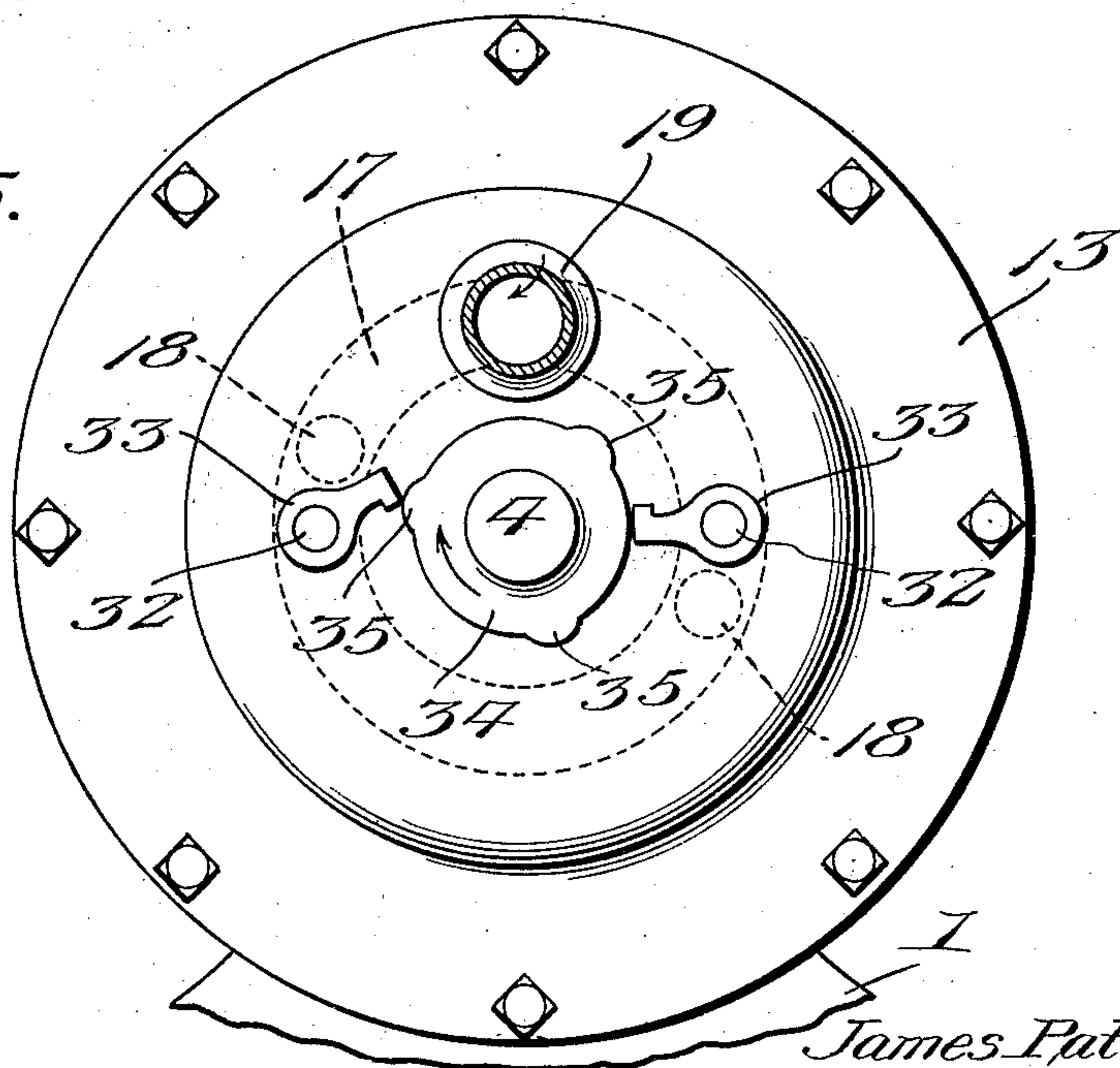
NO MODEL.

3 SHEETS—SHEET 3.

*Fig. 4.*



*Fig. 5.*



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# UNITED STATES PATENT OFFICE.

JAMES PATTINSON, OF BEAUMONT, TEXAS.

## ROTARY MOTOR.

SPECIFICATION forming part of Letters Patent No. 763,789, dated June 28, 1904.

Application filed April 13, 1904. Serial No. 202,985. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES PATTINSON, a citizen of the United States, residing at Beaumont, in the county of Jefferson and State of Texas, have invented new and useful Improvements in Rotary Motors, of which the following is a specification.

My invention relates to new and useful improvements in rotary engines; and its object is to provide a simple and compact device of this character which is provided with mechanism whereby motive fluid is directed automatically upon the piston-heads from points adjacent the center of the engine.

The invention consists of a casing in which is mounted a hollow revoluble piston having heads located therein at regular intervals, and this piston and its heads revolve about a cylinder having slide-valves which are adapted to project into the paths of the heads and when in such position to direct motive fluid against the piston-heads successively. The slide-valves are adapted to be alternately retracted into the cylinder by the heads as the same contact therewith. Means are employed for operating the slide-valves at proper periods, such means being controlled by the revolution of the piston.

The invention also consists of the further novel construction and combination of parts hereinafter more fully described and claimed, and illustrated in the accompanying drawings, showing the preferred form of my invention, and in which—

Figure 1 is a central vertical transverse section through the engine. Fig. 2 is a section on line 2 2, Fig. 1. Fig. 3 is a section on line 3 3, Fig. 1. Fig. 4 is a section on line 4 4, Fig. 1. Fig. 5 is a section on line 5 5, Fig. 1. Fig. 6 is a section through the cylinder and slide valves and showing the valve-operating arms in elevation, and Fig. 7 is an end elevation of the cylinder.

Referring to the figures by numerals of reference, 1 is the base of the engine, with which is formed a body 2, which is cylindrical in form and within which is revolubly mounted a piston. This piston comprises a hub 3, which is inclosed at one side by an end plate or disk 4, and at the periphery of this disk is arranged a cylindrical rim 5, which is

fitted close to but out of contact with the inner surface of the body 2. The hub 3 is secured to a shaft 4 by means of a key 6 or in any other suitable manner. Arranged upon the inner face of the rim 5 is a series of piston-heads 7, the forward faces of which are inclined, as shown at 8, while the opposite faces thereof are inclined forward, so as to produce an acute angle, as illustrated at 9. The piston-heads 7 are adapted to fit snugly upon but to slide along the periphery of a cylinder 10, having oppositely-disposed chambers 11 therein. This cylinder is provided with a passage 12, at the center in which shaft 4 and the hub 3 are adapted to rotate. The cylinder is held against rotation by heads 13 and 14, which are bolted to opposite sides of the body 1. The head 13 has a circular groove 15 in its inner face which receives a bead 16, formed upon the adjoining side of the cylinder 10, and a circular compartment 17 is formed within the head 13 and communicates with the compartments 11 through inlet-ports 18. A supply-pipe 19 opens into the compartment 17, as shown in Fig. 1. The head 14 is also provided with a circular compartment 20 therein, which communicates with an exhaust-pipe 21. Oppositely-disposed curved slots 22 are formed within the inner face of this head, the centers of these slots being about ninety degrees from the inlet-ports 18. An outlet-aperture 23 is formed within the disk 4 of the piston directly in rear of each piston-head 7, and these outlets are adapted to successively register with the exhaust-ports 22 within the piston-heads.

Parallel passages 24 are formed within the cylinder 10 adjacent opposite sides thereof, and in each of these passages is mounted a slide-valve 25, having an outlet-port 26 in its inner face, which is adapted when the valve is projected from the periphery of the cylinder to permit the escape of motive fluid from the adjoining compartment 11 to the space in front of the projected valve. Each valve has a recess 27, in which is arranged a pin 28, which extends through a slot 29, formed in one end of an arm 30. This arm is adapted to swing backward and forward within the outlet 31 of the adjoining compartment 11 and is secured to and rotates with a shaft 32,



which is revolubly mounted within the compartment and extends through the head 13. The two shafts 32 are arranged at opposite sides of the shaft 4 and each has a trip-arm 5 33 at its outer end which normally bears on the periphery of a cam 34. This cam is secured to shaft 4 and has preferably three projections 35 thereon which are spaced apart at regular intervals and are adapted to successively contact with and swing the trip-arms 33. 10

When motive fluid is directed into the engine from the inlet 19, it will pass through compartment 17 and ports 18 into the compartments 11 in the cylinder 10. If one of the valves 25 is projected from the periphery of the cylinder, the motive fluid will pass outward through the outlet 21 and the port 26 of the projected valve and will be directed against the piston-head 7 in position in front of said valve. Said head and the rim 5, disk 4, and hub 3 will therefore be rotated and the shaft 4 will be moved therewith. The motive fluid will continue to force the piston-head 7 around the cylinder until the next succeeding piston-head contacts with the projected valve 25, when the inclined face thereof will press the valve inward and shut off the supply of motive fluid at that point. At about this period the other slide-valve 25 will be projected automatically by one of the projections 35 contacting with its trip-arm 33, and steam will thus be discharged through the port 26 of this second valve and against the piston-head in advance thereof. This operation will be continued as long as a motive agent is admitted to the engine. During the rotation of the piston the outlet-ports 23 register with the slots 22 at proper intervals, so as to permit the motive agent to exhaust 40 through the pipe 21.

In the foregoing description I have shown the preferred form of my invention; but I do not limit myself thereto as I am aware that modifications may be made therein without departing from the spirit or sacrificing any of the advantages thereof, and I therefore reserve the right to make such changes as fairly fall within the scope of my invention.

Having thus fully described the invention, 50 what is claimed as new is—

1. In a rotary engine, the combination with a body having heads secured to opposite ends thereof, oppositely-disposed inlets in one of the heads, and oppositely-disposed outlets in the other head; of a stationary cylinder within the body having compartments therein, slide-valves within the cylinder adapted to project from the periphery thereof, a revoluble piston inclosing the cylinder and having 55 outlet-ports, and means operated by the piston for automatically projecting the slide-valves alternately.

2. In a rotary engine, the combination with a body having heads secured to opposite sides 65 thereof, oppositely-disposed inlets in one of

the heads, and oppositely-disposed outlets in the other head; of a revoluble shaft journaled within the heads, a piston secured to and revoluble with the shaft and within the body, a stationary cylinder inclosed by the piston and inclosing the shaft, heads within the piston and bearing on the cylinder, parallel oppositely-extending slide-valves within the cylinder and adapted to be retracted by the heads, outlet-ports within the valves communicating 70 with the interior of the cylinder and with the inlets, and means operated by the shaft and piston for alternately projecting the slide-valves from the cylinder.

3. In a rotary engine, the combination with 80 a body having inlets and outlets, and a stationary cylinder within the body having compartments communicating with the inlets, and parallel passages extending through the cylinder and communicating with the respective 85 compartments; of slide-valves mounted within the passages and having outlet-ports, a revoluble piston within the body and inclosing the cylinder, heads therein adapted to contact with and depress the slide-valves, revoluble shafts projecting into the compartments, arms thereon engaging the slide-valves, trips upon the shaft, and a cam revoluble with the piston and for operating the trips.

4. In a rotary engine, the combination with 95 a body having inlets and outlets, and a stationary cylinder within the body having compartments therein communicating with the inlets and parallel passages communicating with the respective compartments; of slide- 100 valves mounted within the passages and having outlet-ports, shafts extending through the compartments, arms thereon engaging the slide-valves, trip-arms upon the shafts, a shaft revoluble within the cylinder, a cam thereon 105 for operating upon the trip-arms, a piston revoluble with said shaft and inclosing the cylinder, heads within the piston and contacting with the cylinder, said heads having inclined faces, an outlet-port in the piston 110 adapted to register with the outlets in the body.

5. In a rotary engine, the combination with a body having a stationary cylinder therein, and means for directing a motive agent to the 115 interior of the cylinder; of oppositely-extending parallel slide-valves within the cylinder and adapted when projected to permit the discharge of motive fluid from the cylinder, a piston inclosing the cylinder and revolubly 120 mounted within the casing, heads within the piston and bearing on the cylinder, and means operated by the piston for alternately projecting the slide-valves.

In testimony whereof I affix my signature in 125 presence of two witnesses.

JAMES PATTINSON.

Witnesses:

B. T. PIPKIN,  
T. L. COPLIN.