

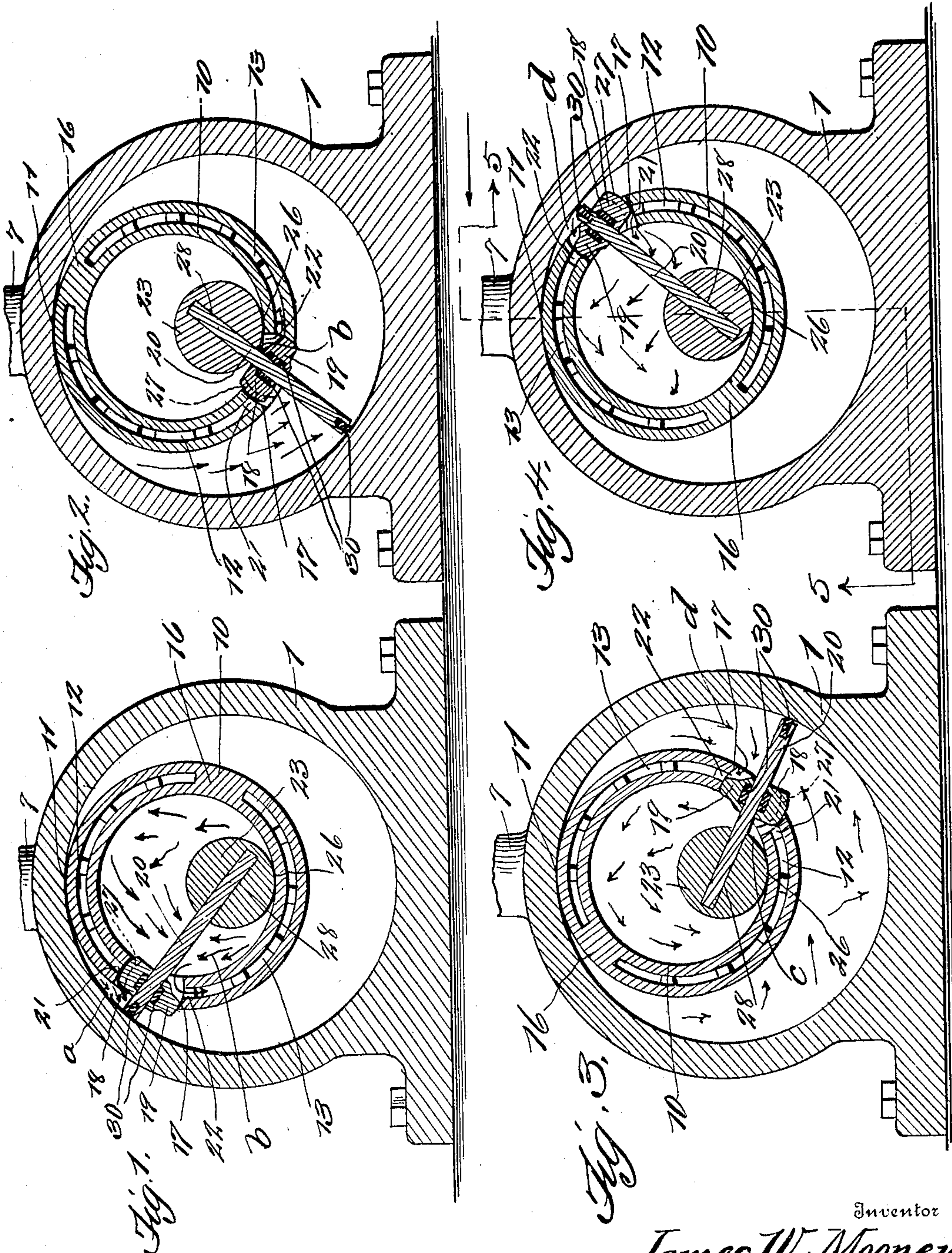
No. 888,344.

PATENTED MAY 19, 1908.

J. W. MOONEY.  
ROTARY ENGINE.

APPLICATION FILED JUNE 14, 1907.

3 SHEETS—SHEET 1.



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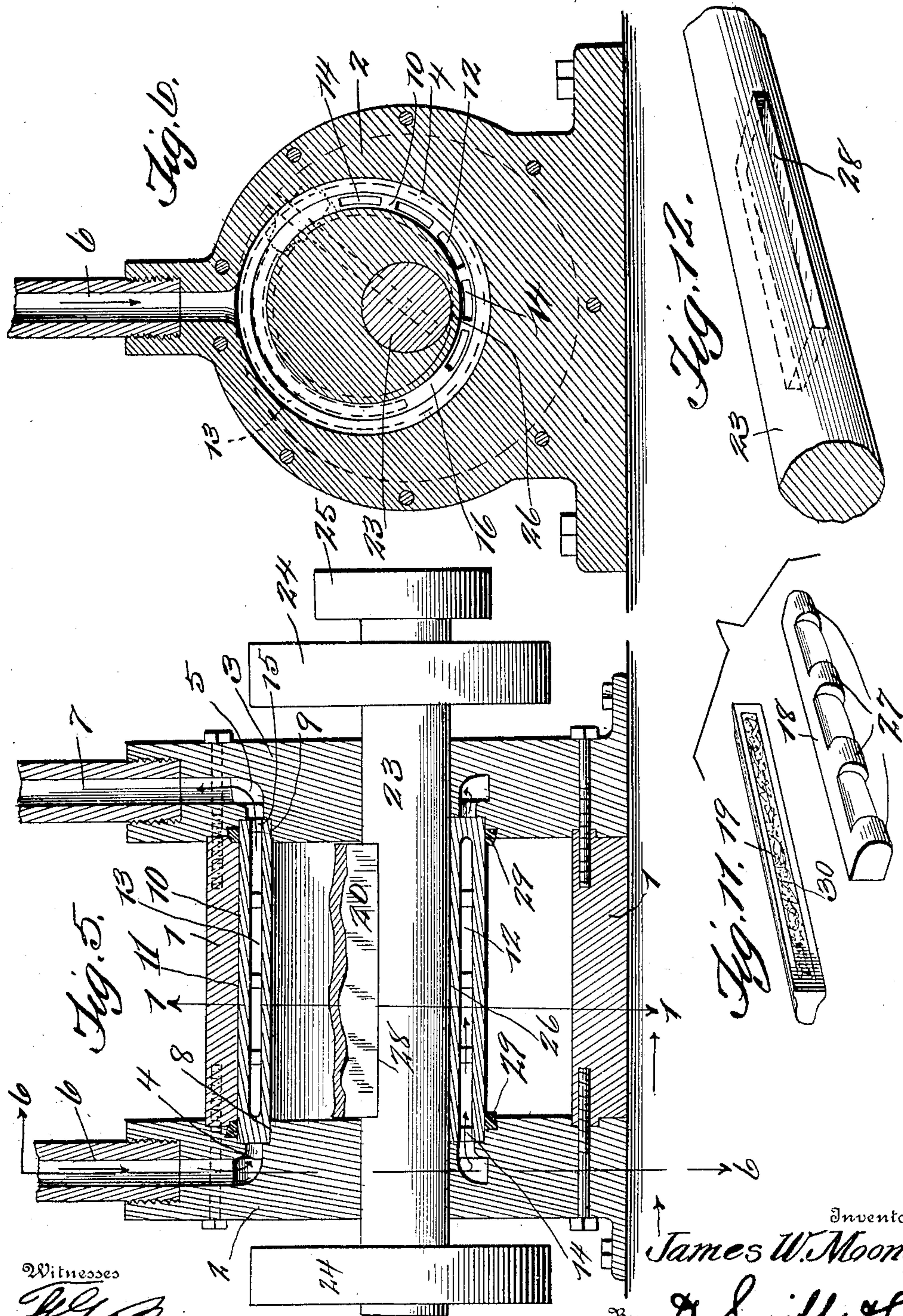
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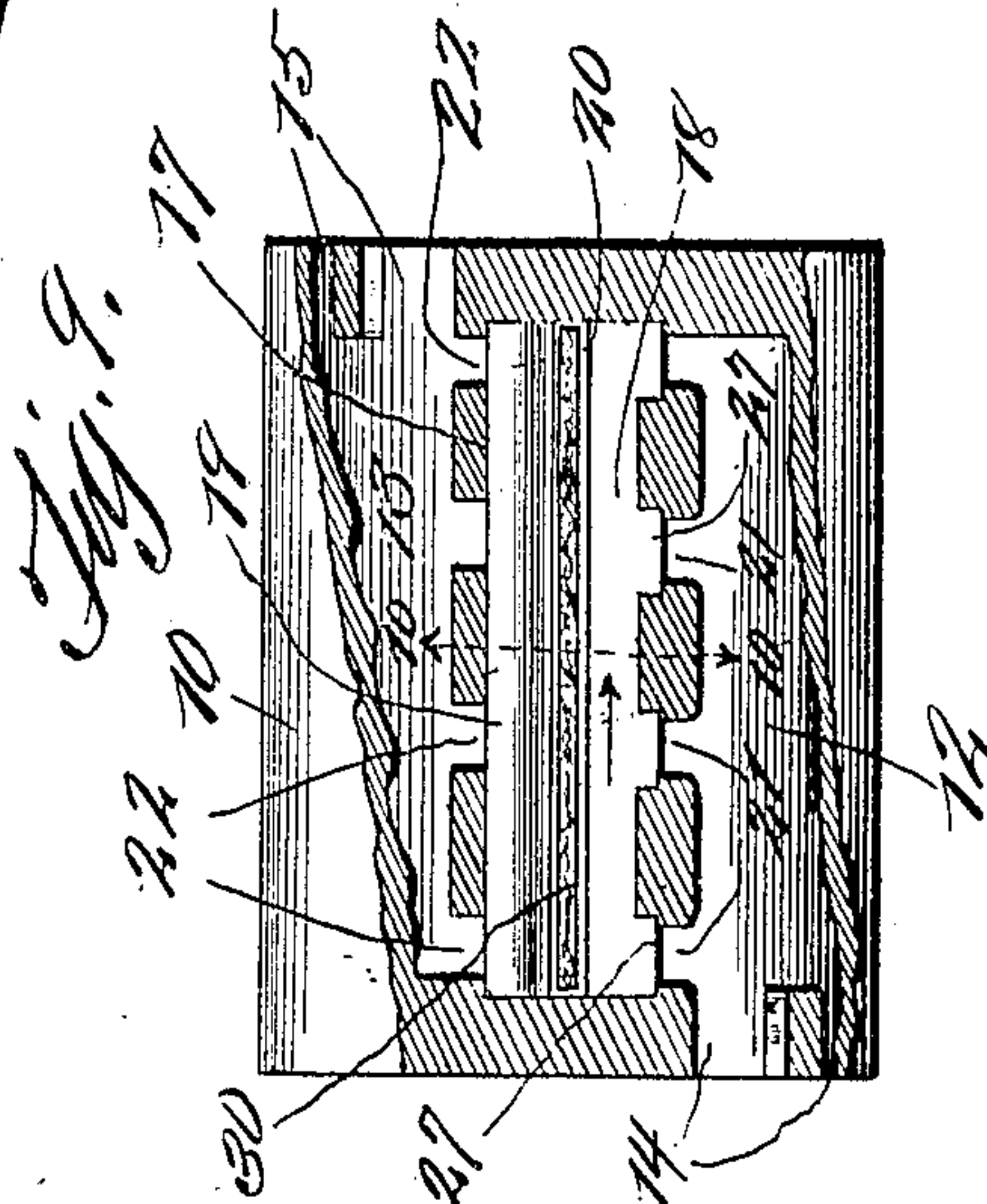
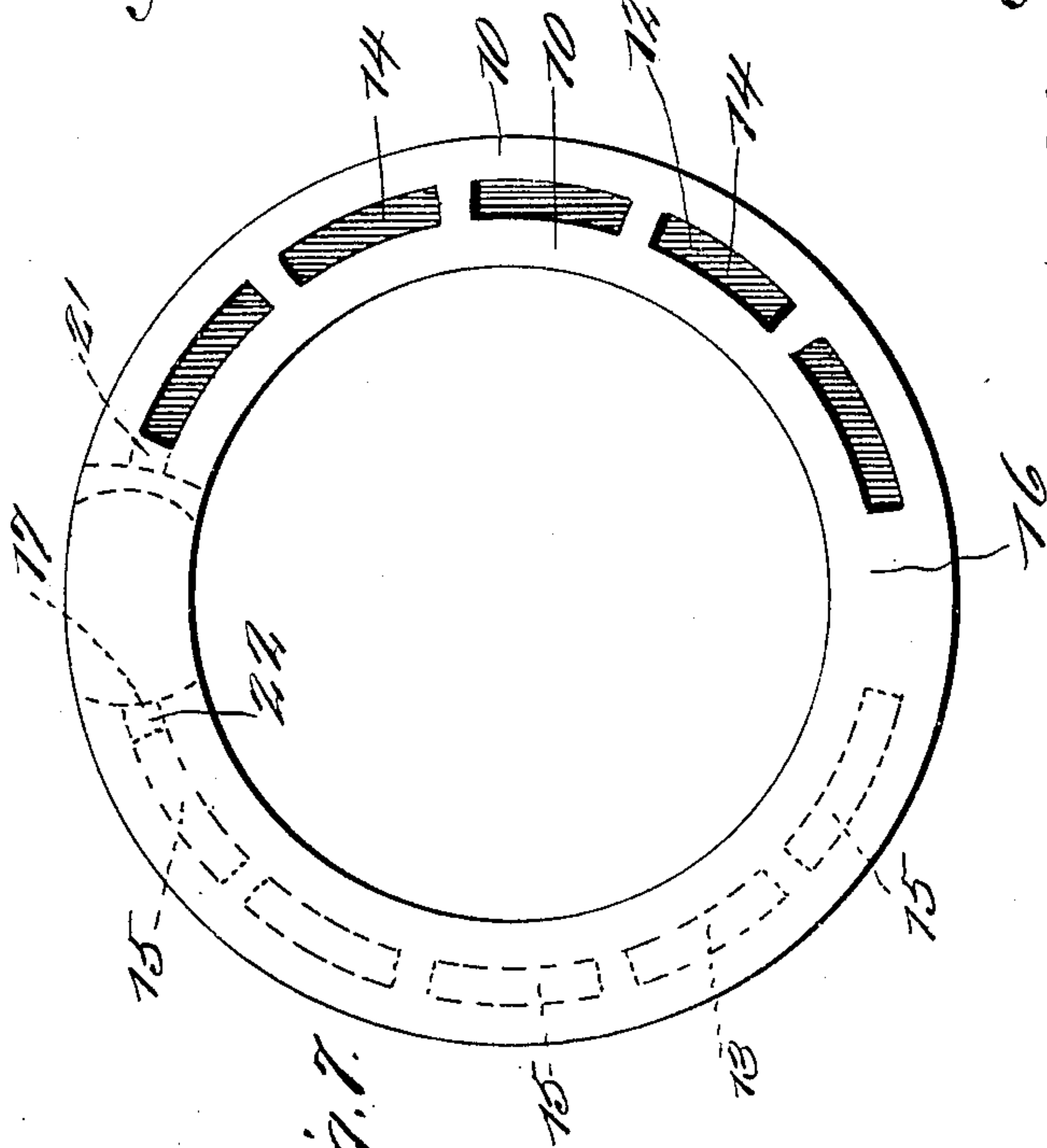
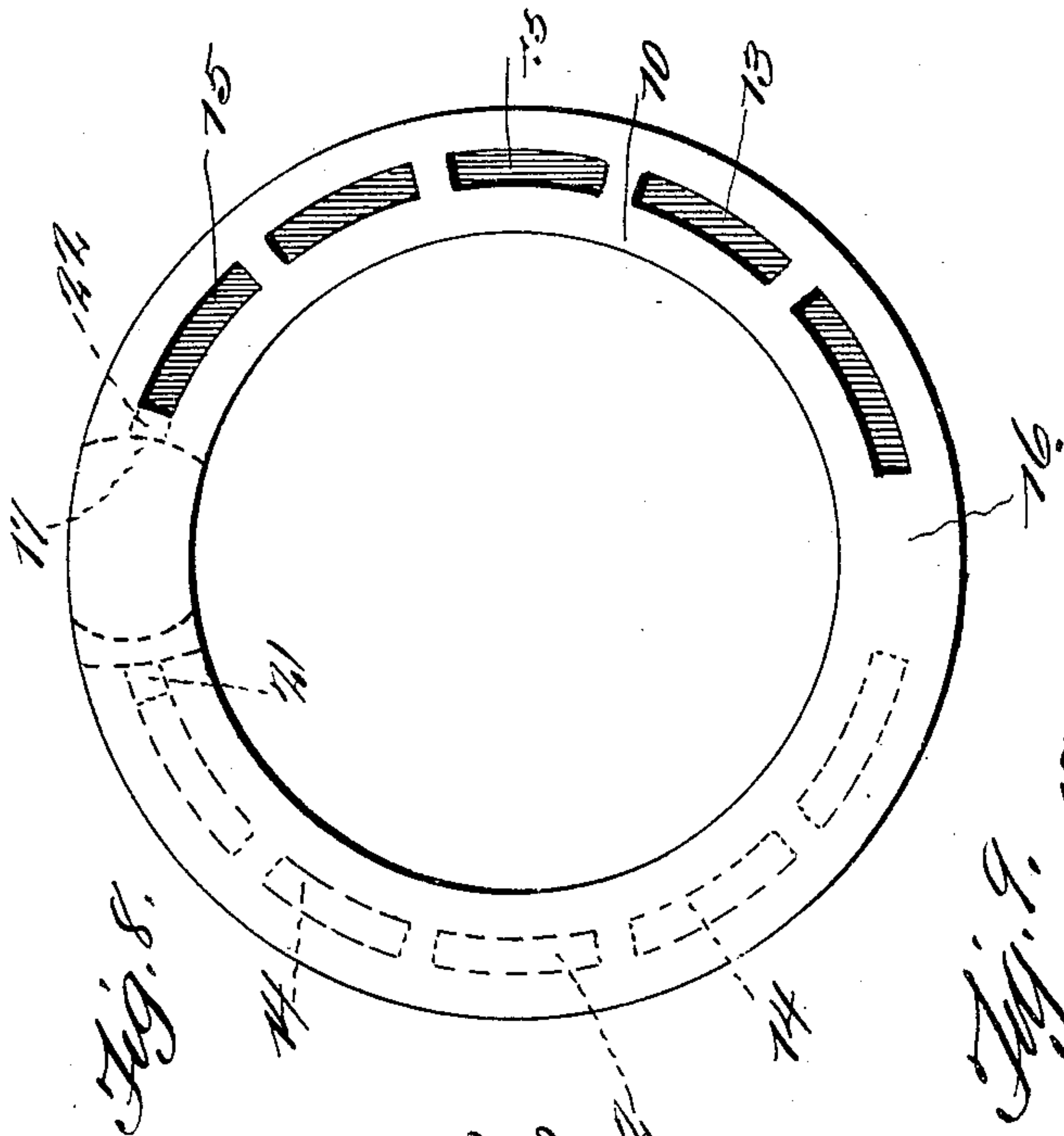
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3 SHEETS—SHEET 3.



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# UNITED STATES PATENT OFFICE.

JAMES WILLIAM MOONEY, OF LAWTON, OKLAHOMA.

## ROTARY ENGINE.

No. 888,344.

Specification of Letters Patent.

Patented May 19, 1908.

Application filed June 14, 1907. Serial No. 379,100.

*To all whom it may concern:*

Be it known that I, JAMES WILLIAM MOONEY, a citizen of the United States, residing at Lawton, in the county of Comanche, Oklahoma, have invented a new and useful Improvement in Rotary Engines and Pumps, of which the following is a specification.

This invention pertains to a new and useful rotary engine, in which two cylinders are utilized, a stationary cylinder and an inner revolving cylinder, which is so placed and operated as to continually contact with the inner circumference of the stationary cylinder, so as to provide an abutment for the steam and to prevent the steam from finding its way in front of the piston, as will be clearly manifest; the contacting between the inner revolving cylinder and the stationary cylinder also forms in a way packing between the two.

The invention in its broadest latitude has for its object to provide an engine of this type in which the inner revolving cylinder or cylinder head is eccentrically mounted to the center of the stationary cylinder, and in which the said revolving cylinder is rotatable in annular recesses of the opposite stationary heads of the stationary cylinder, as clearly shown in Fig. 5.

The invention aims as a further object to provide the inner revolving cylinder with a piston adapted to operate automatically the valves, which alternately open and close the exit openings of the steam chest and the exhaust chest, which steam and exhaust chests are formed in the wall of the revolving inner cylinder, as clearly shown in the drawings.

The invention directs as a further object to provide a piston which is disposed and travels tangent to the center of the revolving cylinder, that is, during its first and second half of its travel, but when the said piston is in a vertical position whether it is in contact with the upper inner circumference or the lower inner circumference of the outer stationary cylinder, the said piston is parallel with the centers of the stationary cylinder and the revolving cylinder; by the disposition of the piston the valves are operated for opening and closing the steam and exhaust chests, that is, when the inner cylinder is revolving, and when the piston is in a vertical position both valves are closed, as will be clearly understood.

This invention comprises further objects

and combinations of elements which will be hereinafter more fully described, shown in the accompanying drawings, and the novel features thereof will be pointed out by the appended claims.

The features, elements and arrangement thereof, which constitutes the above entitled invention, may be changed and varied, that is to say, in an actual reduction to practice, with the understanding that the changes and variations, accruing from said reduction to practice, are limited to the scope of the appended claims.

To obtain a full and correct understanding of the details of construction, combinations of features, elements and advantages, reference is to be had to the hereinafter set forth description and the accompanying drawings in connection therewith, wherein

Figure 1 is a vertical sectional view on line 1—1 of Fig. 5 showing the inner revolving cylinder starting its third revolution and showing the valves open so as to admit and exhaust steam into and from the spaces marked *a* and *b*, as shown by the arrows therein. Fig. 2 is a view similar to Fig. 1, showing the inner revolving cylinder and its piston further advanced, on its third revolution, the valves about to be closed, and the exhaust of the steam from space *b* nearing completion. Fig. 3 is a sectional view similar to Figs. 1 and 2, illustrating the revolving cylinder and its piston further advanced to that shown in Fig. 2, the valves being again opened so as to admit and exhaust steam into and from the spaces marked *c* and *d*, as indicated by arrows. In this figure the steam is being exhausted from the space *d*, which was utilized for driving the piston forward on its second revolution. Fig. 4 is a view similar to Figs. 1, 2 and 3, illustrating the revolving cylinder and its piston nearing the completion of its third revolution, the valves about to be closed, and the exhaust of steam from the space *d* also nearing completion. Fig. 5 is a sectional view on line 5—5 of Fig. 4, illustrating the inlet and exhaust ports of the stationary heads of the stationary cylinder. Fig. 6 is a sectional view on line 6—6 of Fig. 5, clearly illustrating the steam inlet and the steam chamber, which is continuously in registration with the ports of the revolving cylinder. Fig. 7 is an end view of the revolving cylinder removed from



the stationary cylinder, illustrating the inlet ports thereof, which extend approximately one-half the circumference of the cylinder. Fig. 8 is an end view opposite to that shown in Fig. 7 of the revolving cylinder, showing the exhaust ports which also extend one-half the circumference thereof. Fig. 9 is a plan view of the revolving cylinder partly in section, so as to clearly illustrate the steam and exhaust chests and a plan view of the valves. Fig. 10 is a sectional view on line 10—10 of Fig. 9, so as to clearly illustrate the different curves of one of the valves. Fig. 11 is a detail perspective view of the valves or valve bars. Fig. 12 is a detail perspective view of a portion of the shaft of the engine, clearly illustrating the seat for the reception of the piston.

Like numerals of reference are utilized to indicate corresponding features and elements throughout the several views of the drawings.

In regard to the drawings wherein similar reference characters indicate corresponding parts in the several illustrations, by figures, 1 designates the stationary cylinder of the engine, the ends of which are closed by the stationary heads 2 and 3 which are hollowed out, as shown, to form steam and exhaust chambers 4 and 5, with which the inlet and exhaust pipes or ducts 6 and 7 communicate, as clearly shown in Figs. 5 and 6. Adjacent to the outlet and inlet of the chambers 4 and 5 the stationary heads are provided with annular recesses 8 and 9, which receive the opposite ends of the revolving cylinder 10 which is disposed eccentric to the center of the stationary cylinder, in such wise as to form a contact at 11 with the inner circumference of the cylinder 1, for the purpose hereinbefore set forth. This cylinder is provided with a steam and exhaust chest 12 and 13, which are formed in the wall of the said cylinder, and which have ports 14 and 15 designed to continually register with the steam and exhaust chambers 4 and 5, as will be clearly seen in Figs. 5 and 6. These chests 12 and 13 are formed by a divisional partition 16, as seen clearly in Figs. 1, 2, 3, 4, 7 and 8.

The circumference of the cylinder is slotted, as at 17, sufficiently to receive the valve bars and piston 18, 19 and 20, as clearly shown in the drawings. The valve bars are provided for the purpose of opening and closing the ports 21 and 22 of the chests 12 and 13, that is, as the angle of the piston 20 is changed during its half revolutions. When the piston is in the position as shown in Fig. 1, steam is being admitted from the chest 12 into the space *a* and in rear of the piston, and exhaustion of steam from the space *b* through the port 22 into the chest 13 is taking place at the same time which causes the shaft 23 and its fly wheels 24 to rotate,

from which power may be transmitted through the medium of the pulley 25, as clearly shown in Fig. 5. In Fig. 3 the inflow and outlet of the steam is changed upon the opposite sides of the revolving cylinder, that is, the exhaustion of steam in front of the piston and upon the outside of the cylinder is taking place through ports 22 and 21 into and from the spaces *c* and *d*, as indicated by arrows shown in said Fig. 3, as will be clearly evident. The inner circumference of the revolving cylinder contacts with the lower circumference of the shaft 23, as at 26, so as to form an abutment or backing for the steam, so that the inflow and expansion of the steam forces the piston and cylinder to revolve, as will be observed upon an examination of Fig. 3, as well as other figures of the accompanying drawings.

The valve bar 18 is provided with teeth or projections 27 which alternately open and close the ports 21 as the cylinder and piston rotate. The piston 20 rotates with the shaft 23, in which an elongated recess 28 is formed, for the reception of the said piston. Suitable packing 29 is provided between the revolving cylinder and the stationary heads of the stationary cylinder, so as to provide steam-tight joints. The outer free edge of the piston and the valve bars are provided with packing 30, the purpose of which is to provide steam-tight connections.

In the operation of the device, steam is admitted through the inlet 6, into the steam chamber 4, from which it is forced into the steam chest 12 of the revolving cylinder through the ports 14 which are continually in registration with the said steam chamber 4; the steam then enters the space *a* through the ports 21, as indicated by arrows shown in Fig. 1, which figure shows the piston and cylinder starting on its third revolution. The steam which is indicated by arrows in the space *b*, shown in Fig. 1, exhausts through the ports 22, into the steam exhaust chest 13, and through said exhaust chest, into the exhaust chamber of the stationary head 3, thence the steam leaves through the exhaust pipe 7, as indicated in Fig. 5 of the drawings. When the piston is in a position as shown in Fig. 3, the action of the steam thereon is reversed, as well as the exhaust, as indicated by arrows in the spaces *c* and *d*. After the steam exhausts from the space *d*, Fig. 3, into the exhaust chest 13, it finds its way to the exhaust pipe 7 through the exhaust chamber 5, as will be clearly evident.

From the foregoing, the essential features, elements and the operation of the device, together with the simplicity thereof, will be clearly apparent.

Having thus fully described the invention, what is claimed as new and useful, by the protection of Letters Patent, is:—

1. In a rotary engine, a stationary cylin-



der having heads, an inner cylinder mounted  
revolubly and eccentrically within said sta-  
tionary cylinder, said heads having steam  
and exhaust chambers, said inner cylinder  
5 having steam and exhaust chests provided  
with ports to register with the steam and  
exhaust chambers, valves for opening and  
closing the steam and exhaust chests, a shaft  
for the engine having a piston designed to  
10 automatically operate said valves during its  
travel.

2. In a rotary engine, a stationary cylin-  
der having heads, an inner cylinder having in  
its wall steam and exhaust chests mounted  
15 revolubly and eccentrically within said sta-  
tionary cylinder, said heads having steam  
and exhaust chambers and provided with  
annular recesses to receive the ends of said  
revolving cylinder, said inner cylinder hav-  
ing ports to continually register with the  
20 steam and exhaust chambers, a shaft having  
an elongated recess and provided with a  
piston to be received by said recess, said  
inner cylinder having a slot with which the  
25 steam and exhaust chests communicate,  
valve bars operable in said slot and control-  
lable by the piston for opening and closing  
the steam and exhaust chests.

3. In a rotary engine, a stationary cylin-  
30 der having heads provided with steam and  
exhaust chambers, an inner cylinder having  
in its circumference a slot and in its wall  
steam and exhaust chests, and provided with  
ports to register with the steam and exhaust  
35 chambers, mounted revolubly and eccen-  
trically within said stationary cylinder, a  
shaft for the engine having an elongated  
recess and provided with a piston to be  
received by said recess, said slot having  
40 ports, valve bars mounted in said slot for

opening and closing said ports, said bars  
being controllable by the piston.

4. In a rotary engine, a stationary cylin-  
der having heads provided with steam and  
exhaust chambers, an inner cylinder having 45  
in its circumference a slot and in its wall  
steam and exhaust chests and provided with  
ports to register with the steam and exhaust  
chambers mounted revolubly and eccentric-  
ally within said stationary cylinder, said 50  
heads having recesses to receive the opposite  
ends of the inner cylinder, a shaft having a  
piston, said slot having ports, valve bars  
controllable by the piston mounted in said  
slot for opening and closing said ports. 55

5. In a rotary engine, a stationary cylin-  
der having heads provided with steam and  
exhaust chambers, an inner cylinder having  
in its circumference a slot and in its wall  
steam and exhaust chests and provided with 60  
ports to register with the steam and exhaust  
chambers mounted revolubly and eccentric-  
ally within said stationary cylinder, said  
heads having annular recesses to receive the  
opposite ends of the inner cylinder, a shaft 65  
for the engine having an elongated recess and  
provided with a piston to be received by  
said recess, said slot having ports, valve bars  
controllable by the piston mounted in said  
slot for opening and closing said ports, one 70  
of said bars having teeth or projections to  
cover the ports through which steam leaves  
the steam chest.

In testimony whereof I have signed my  
name in the presence of the two subscribing 75  
witnesses.

JAMES WILLIAM MOONEY.

Witnesses:

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C. W. McDONALD.