

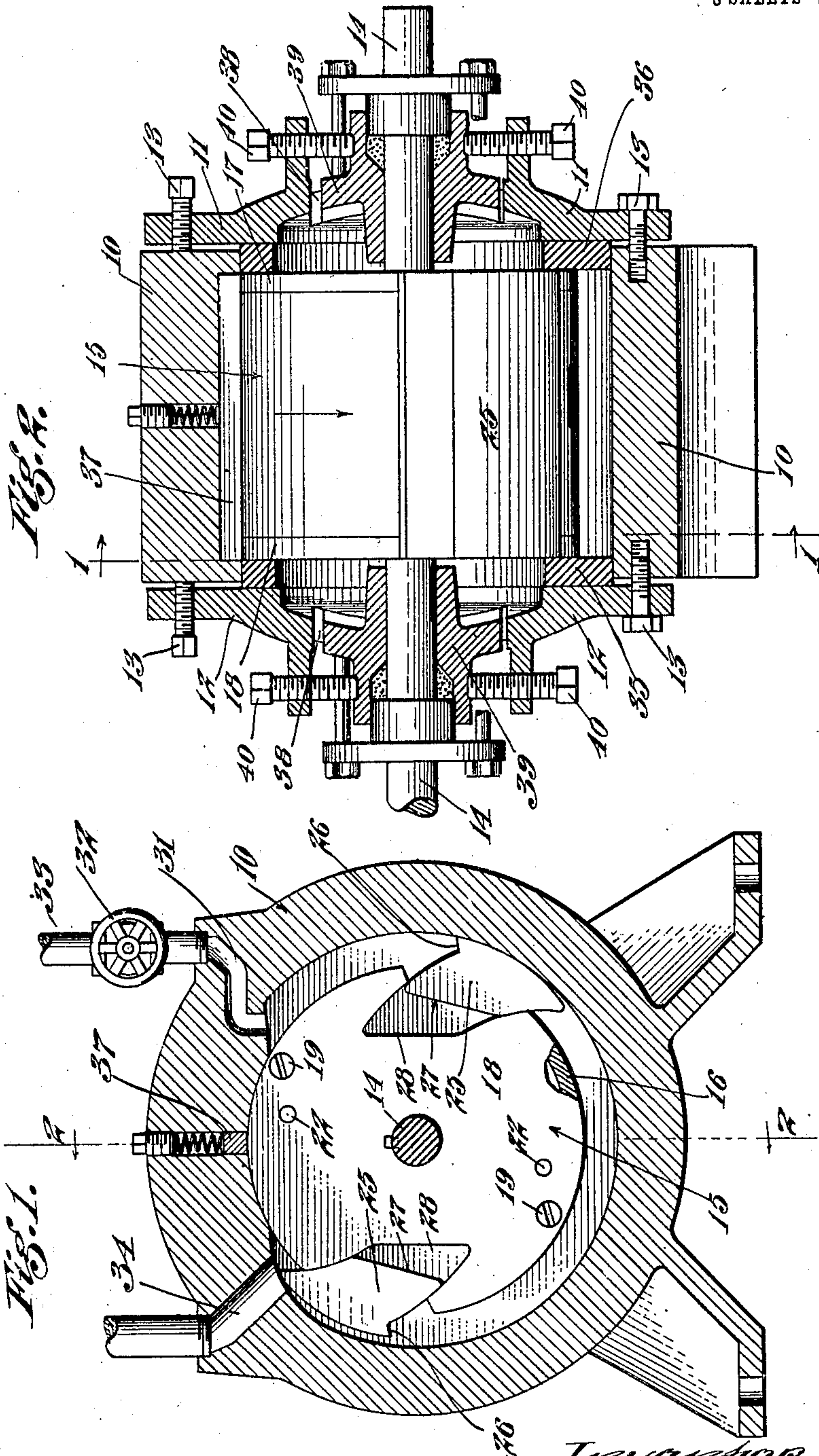
No. 871,359.

PATENTED NOV. 19, 1907.

C. W. PUCKETT.
ROTARY ENGINE.

APPLICATION FILED JAN. 28, 1907.

3 SHEETS—SHEET 1.



Witnesses
J. M. K. Bucklew
Ed. Strauss

Inventor
C. W. PUCKETT.
By Hazen & Harpman:
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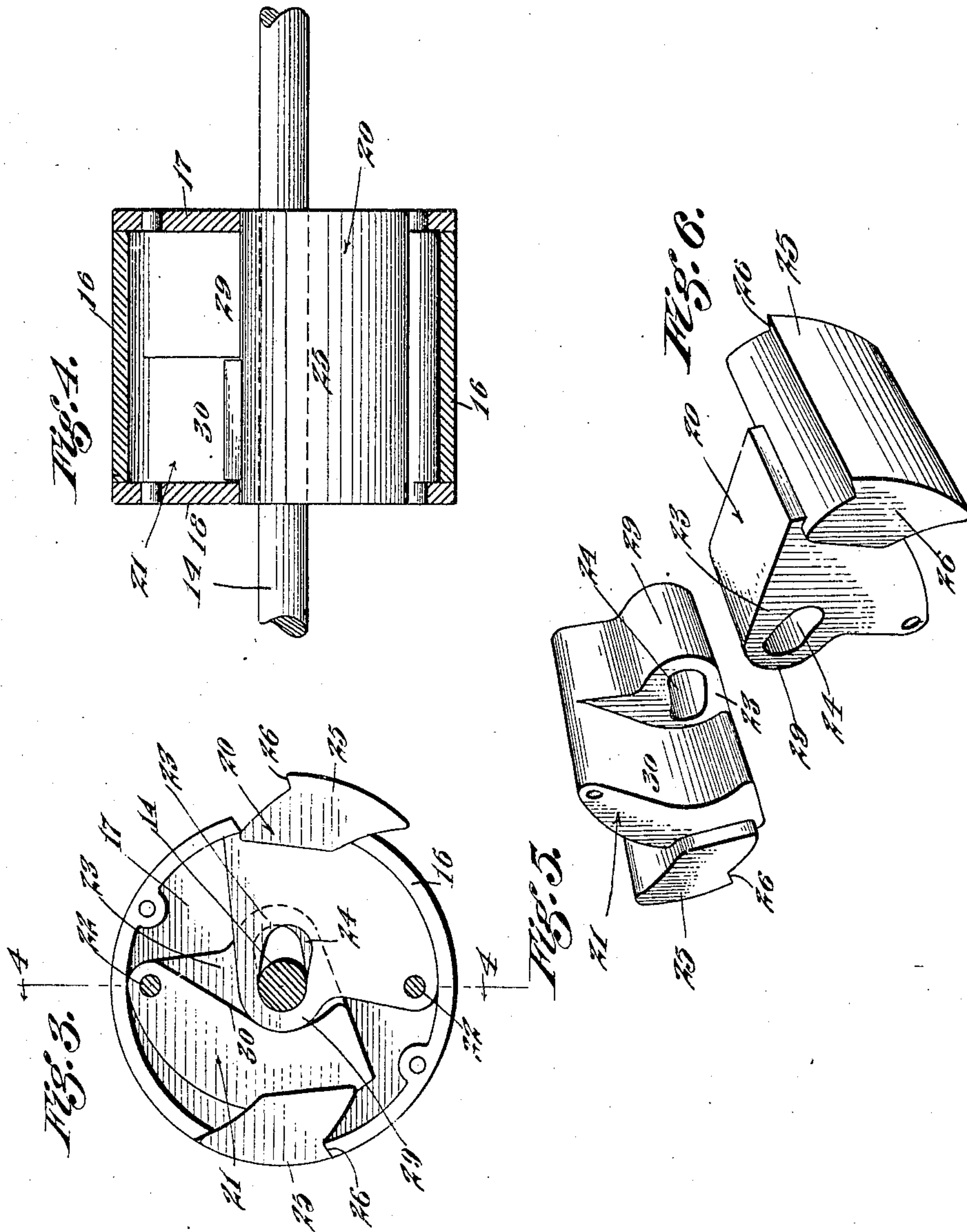
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3 SHEETS—SHEET 2.



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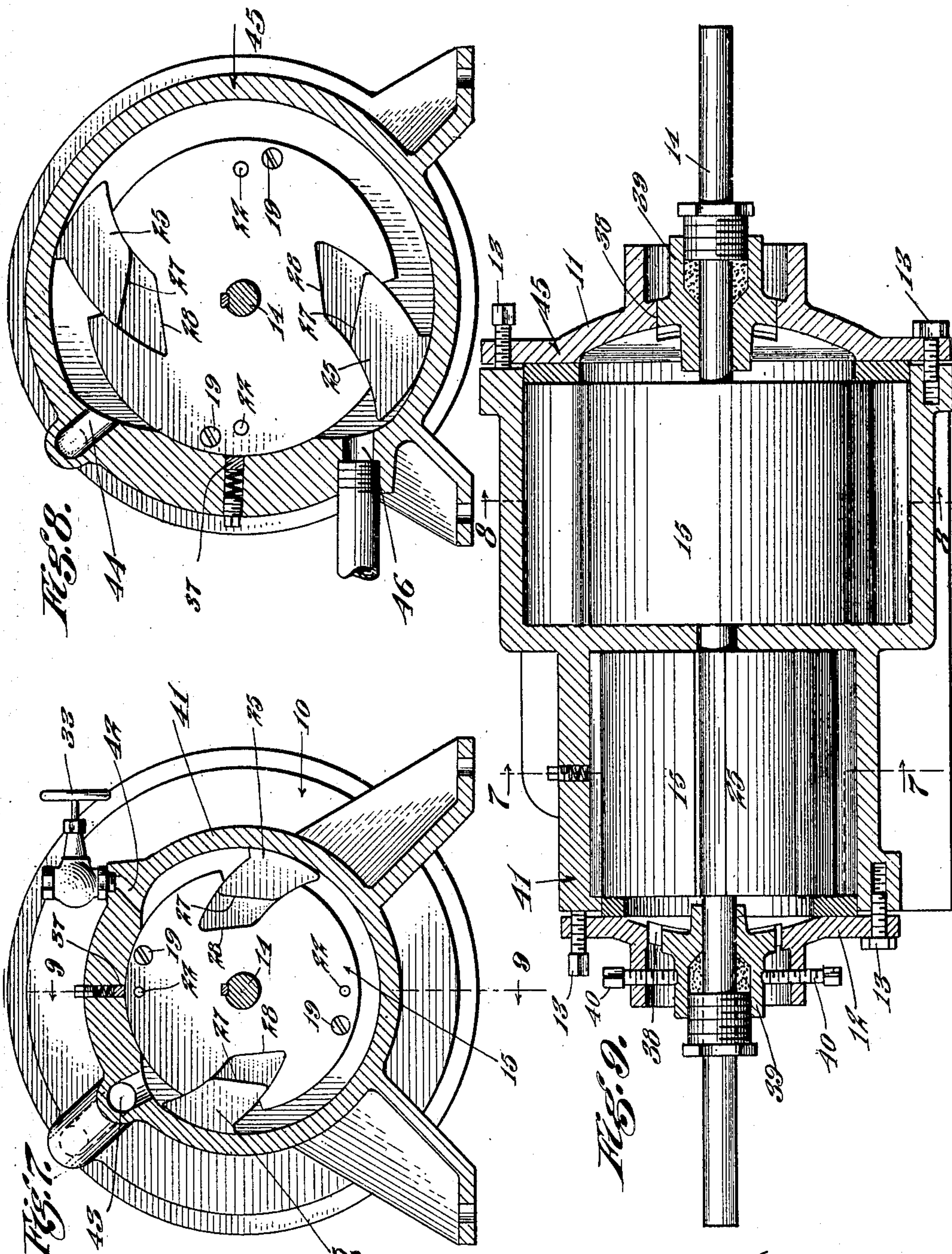
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3 SHEETS—SHEET 3.



WITNESSES
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UNITED STATES PATENT OFFICE.

CLAIBORNE W. PUCKETT, OF KERN, CALIFORNIA.

ROTARY ENGINE.

No. 871,359.

Specification of Letters Patent.

Patented Nov. 19, 1907.

Application filed January 28, 1907. Serial No. 354,415.

To all whom it may concern:

Be it known that I, CLAIBORNE W. PUCKETT, a citizen of the United States, residing at Kern, in the county of Kern and State of California, have invented new and useful Improvements in Rotary Engines, of which the following is a specification.

My invention relates to rotary engines having eccentrically mounted piston carrying wings or piston heads which run on a concentric guide and are thereby caused to move in and out relative to the piston as the piston turns. The steam is passed through the cylinder or casing in a continuous stream, thereby to act by impact on the square shoulders of the wings or piston heads and impart a continuous rotary movement to the piston and its shaft.

Another object of this invention relates to the novel means of attaching the wings or piston heads to the piston, whereby when one is forced in, the other is forced out.

Another object is to provide means whereby the wear on the piston is taken up in an economical and efficient manner.

A further object of my invention is to provide a rotary engine of a simple, durable and efficient construction that may be cheaply manufactured and that may be run continuously without getting out of order and with little friction or wear, and by means of which the expansive power of the steam can be more fully and economically utilized than in rotary engines heretofore used.

I accomplish these objects by means of the device described herein and illustrated in the accompanying drawings, in which:—

Figure 1 is a central vertical section of my improved engine taken on line 1—1 of Fig. 2. Fig. 2 is a longitudinal section taken on line 2—2 of Fig. 1. Fig. 3 is a side elevation of the rotary piston with one of the side plates removed showing the method of mounting the swing pistons. Fig. 4 is a longitudinal section taken on line 4—4 of Fig. 1, both side plates being in place. Figs. 5 and 6 are perspective details of the swing pistons. Fig. 7 is a transverse section taken on line 7—7 of Fig. 9 through the high pressure cylinder. Fig. 8 is a transverse section taken on line 8—8 of Fig. 9 through the low pressure cylinder. Fig. 9 is a longitudinal section taken on line 9—9 of Fig. 7, showing my improved rotary engine adapted to the compound type of engine.

Referring to the drawings, 10 designates

the cylinder, case or shell, having two heads or end plates 11 and 12 rigidly secured thereto by means of bolts 13.

14 is the shaft extending through the heads 11 and 12 of the cylinder, and 15 is the rotary piston wheel or drum rigidly secured to said shaft and rotating with it. This piston wheel preferably consists of a cylindrical casing 16 closed at either end by plates 17 and 18 rigidly secured to the casing by bolts 19. Mounted in this piston 16 are two swing pistons 20 and 21, which are pivotally secured to the faces of the plates 17 and 18 by means of pivots 22. Piston arms 23 are provided with circular slots 24, through which passes shaft 14. The outer ends of these swing pistons are provided with shoes 25, whose outer faces are segmental in form and which have square shoulders or abutment faces 26, against which the incoming steam impacts. The inner faces 27 of shoes 25 contact when in their closed position with seats 28 formed in the plates 17 and 18. The swing pistons 20 and 21 are constructed so that when one of the shoes 25 projects beyond the piston casing 16 the other is flush with the casing. This is rendered possible for the reason that each of the piston arms are provided with cams 29 which are adapted to contact when the pistons are forced inwardly with curved abutment faces 30 at each side of the cams.

The cylinder 10 is provided with a steam inlet port 31 which is controlled by valve 32 connected to the steam inlet pipe 33; the cylinder is also provided with an exhaust port 34.

Interposed between end plate 12 and plate 17 secured on drum 15 is a packing ring 35, a packing ring 36 being interposed between plate 11 and plate 18. These rings are for the purpose of preventing the escape of steam and are adjustable by means of the bolts 13. The casing 10 is provided with a spring pressed packing bar 37 which is adapted to press against the periphery of the drum 15. This packing bar is interposed between the inlet and the exhaust so as to direct the steam in the proper direction against the abutment 26.

The heads 11 and 12 are provided with annular openings 38 through which the shaft bearings 39 are interposed, being held in position by set screws or bolts 40 provided for the purpose of taking up any wear that may occur at the point where packing bar 37 bears on the drum.

In Figs. 7, 8, and 9, is illustrated a compound type of engine in which the high pressure cylinder 41 is provided with an inlet port 42 and an exhaust port 43 which leads to a port 44 in the low compression cylinder 45 which has an exhaust 46 to the atmosphere. Low pressure cylinder 45 is provided with a piston and swing pistons in a manner similar to the high pressure arrangement, being larger to admit of the passage of a larger volume of steam. As shown in Figs. 7 and 8, the ports of the two cylinders are situated relatively at an angle of 90° from each other, as this arrangement facilitates the passage of the exhaust from the high pressure directly into the inlet to the low pressure cylinder. On account of this arrangement the adjusting screws and the packing bars in the two cylinders are placed approximately at the same angle from each other.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. In a rotary fluid engine, a cylinder; a piston in said cylinder; swing pistons mounted on said piston adapted to open outwardly in the direction of rotation of the piston; cams on said swing piston engaging with each other to force one or the other of the swing pistons always into its operative position; means to feed fluid under pressure into the cylinder behind the swing pistons; and means to exhaust said fluid.

2. In a rotary fluid engine, a cylinder; a piston rotatively mounted in said cylinder;

swing pistons mounted on said piston; cams on said swing pistons engaging with each other to force one or the other of the swing pistons always in its operative position; shoulders on said swing pistons adapted to present a square face to the fluid; means to feed the fluid under pressure into the cylinder behind the swing pistons; and means to exhaust the fluid.

3. In a rotary fluid engine, a cylinder; a piston rotatively mounted in said cylinder; swing pistons mounted on said piston adapted to open outwardly in the direction of piston rotation; cams on said swing pistons adapted to engage each other to force one or the other of the swing pistons into its operative position; shoulders on said swing pistons adapted to present a square face to the fluid; means to feed the pressure fluid into the cylinder behind the swing pistons; and means to exhaust the fluid.

4. In a rotary fluid engine, a hollow rotary piston provided with a plurality of swing pistons therein, said swing pistons being provided with cam faces which abut against each other and are adapted to force one or the other of the swing pistons outwardly from said rotating piston.

In witness that I claim the foregoing I have hereunto subscribed my name this 18th day of January, 1907.

CLAIBORNE W. PUCKETT.

Witnesses:

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TRIMBLE BARKELEW.