

No. 720,393.

PATENTED FEB. 10, 1903.

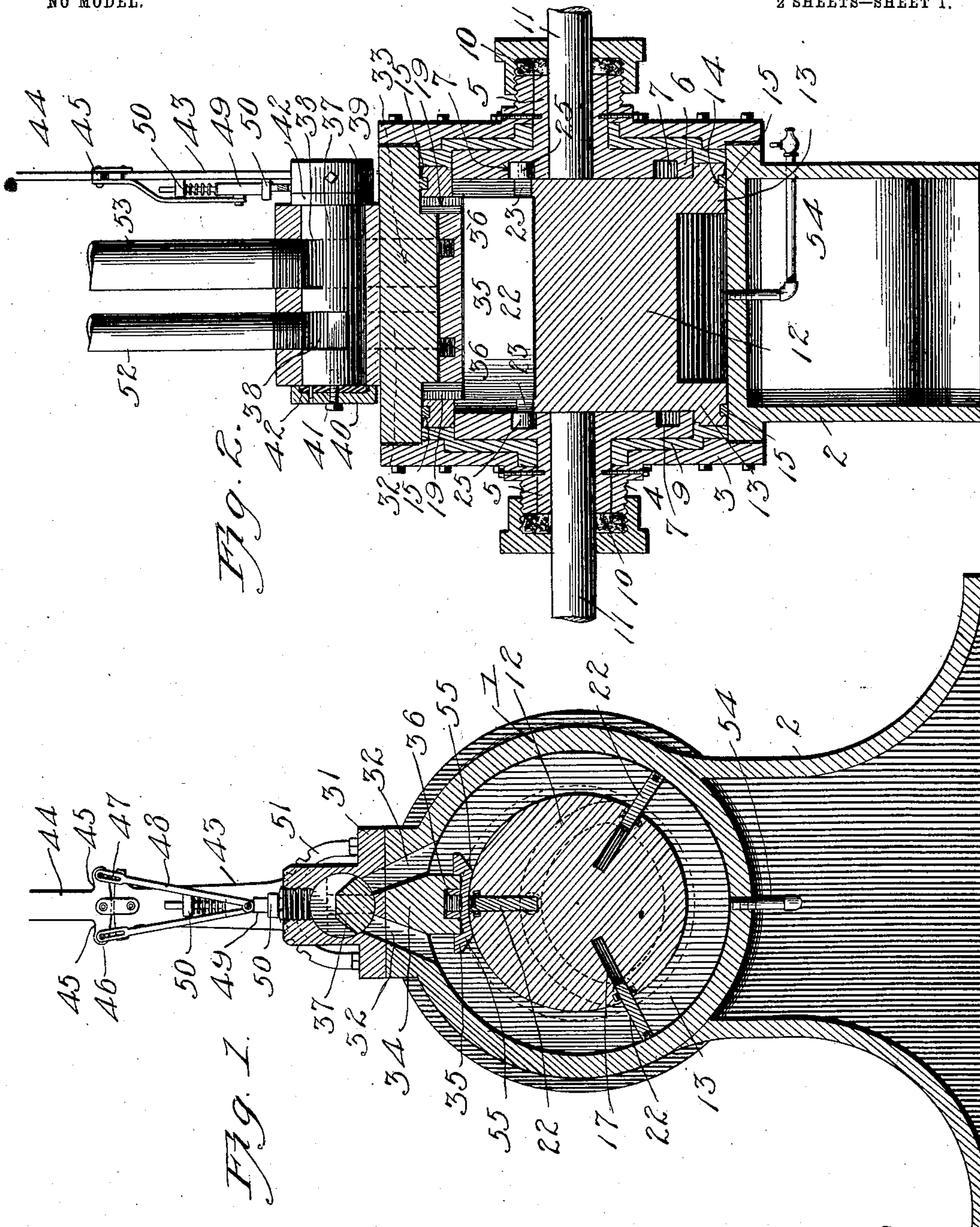
J. W. & R. M. ANDERSON.

ROTARY ENGINE.

APPLICATION FILED JUNE 27, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses

Chas. S. Hoyer.

Inventors
James W. Anderson,
Riley M. Anderson,

By

Victor J. Evans
Attorney

No. 720,393.

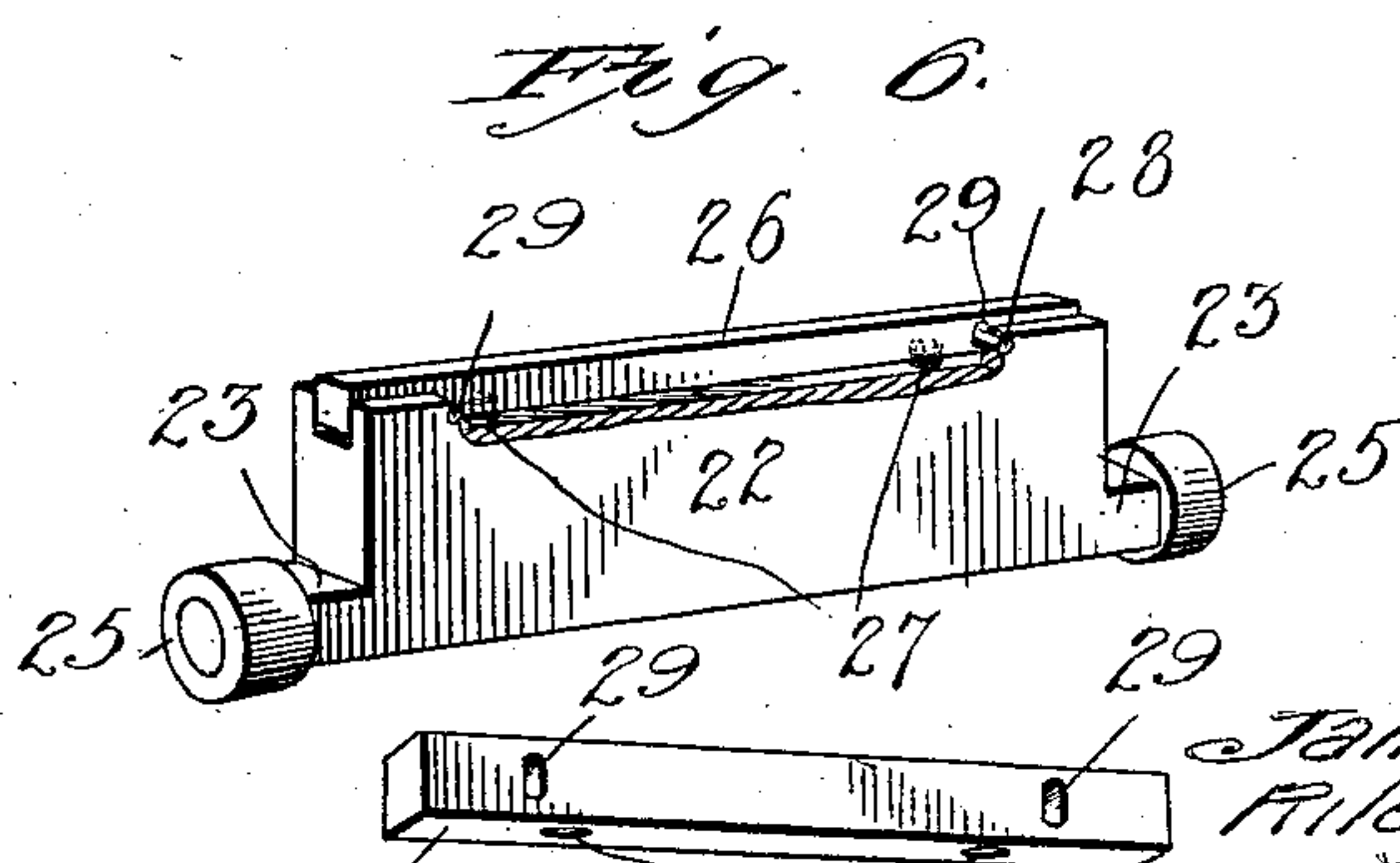
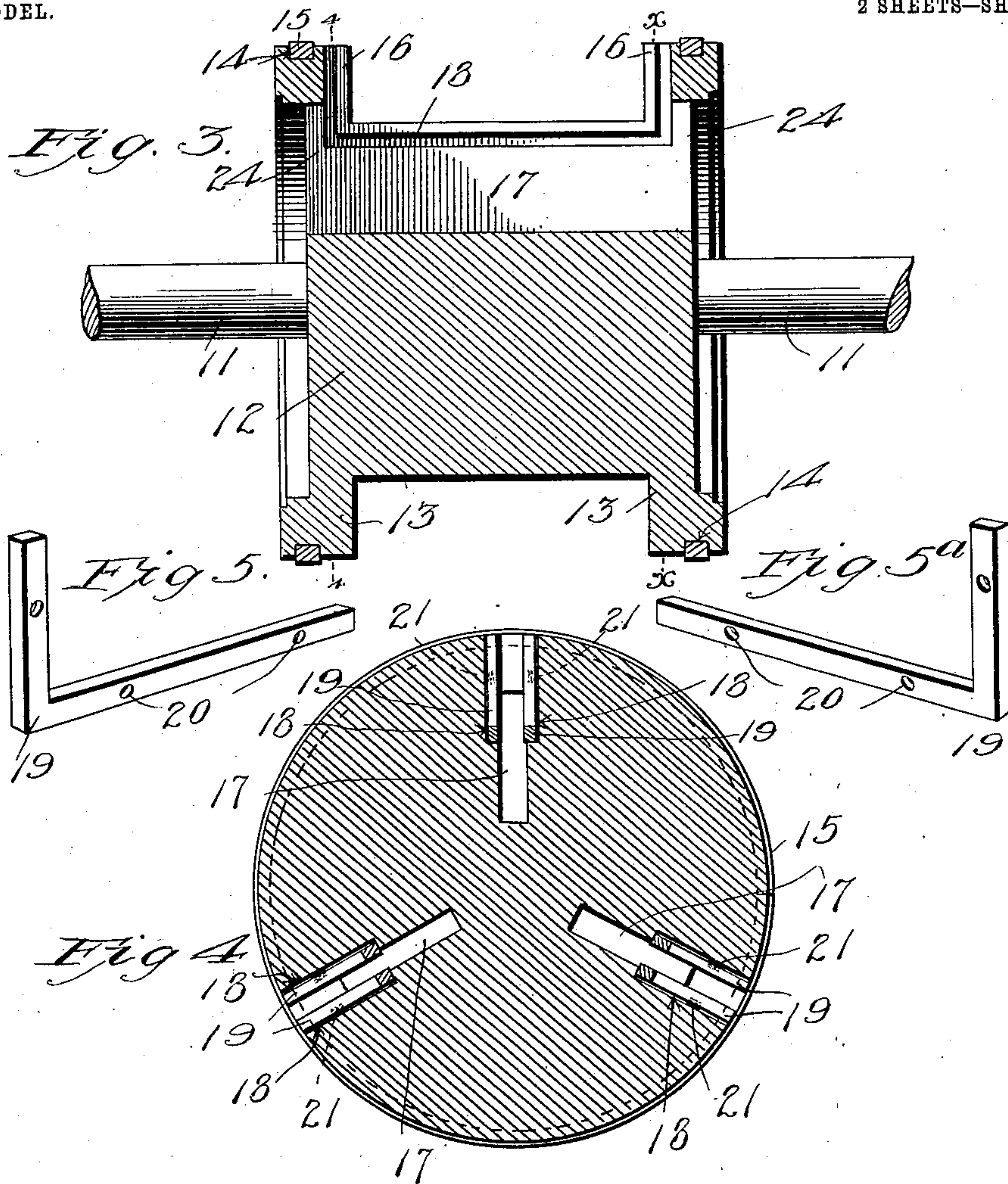
PATENTED FEB. 10, 1903.

J. W. & R. M. ANDERSON.
ROTARY ENGINE.

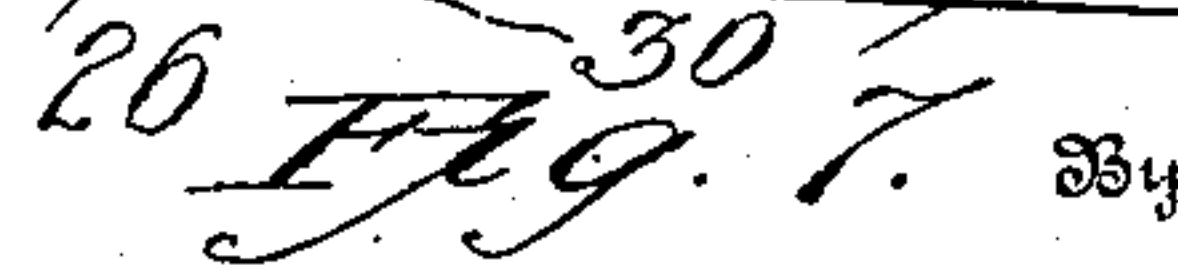
APPLICATION FILED JUNE 27, 1902.

NO MODEL.

2 SHEETS—SHEET 2.



Witnesses
Chas. S. Hoyer.



Inventors.
James W. Anderson,
Riley M. Anderson,
Victor J. Evans
Attorney

UNITED STATES PATENT OFFICE.

JAMES W. ANDERSON AND RILEY M. ANDERSON, OF LACLEDE, MISSOURI,
ASSIGNORS TO JOHN HOOD DICK, JOHN POLSON, W. R. POLSON, AND A. J.
BROWN, OF LACLEDE, MISSOURI, AND SAID JAMES W. ANDERSON.

ROTARY ENGINE.

SPECIFICATION forming part of Letters Patent No. 720,393, dated February 10, 1903.

Application filed June 27, 1902. Serial No. 113,514. (No model.)

To all whom it may concern:

Be it known that we, JAMES W. ANDERSON and RILEY M. ANDERSON, citizens of the United States, residing at Laclede, in the
5 county of Linn and State of Missouri, have invented new and useful Improvements in Rotary Engines, of which the following is a specification.

Our invention relates to new and useful
10 improvements in rotary engines; and its object is to provide a device of simple and durable construction having means whereby the revolution of the piston may be readily and quickly reversed.

15 A further object is to employ a spring-pressed divide adapted to bear upon the piston and direct the motive fluid in one direction.

Another object is to employ wings or heads
20 slidably mounted in the piston and adapted to be projected or retracted positively therefrom or thereto during the operation of the piston.

Another object is to employ spring-pressed
25 metallic packing for the piston and its heads.

With the above and other objects in view the invention consists in the novel construction and combination of parts hereinafter more fully described and claimed.

30 In the drawings, Figure 1 is a vertical longitudinal section through the engine. Fig. 2 is a transverse section therethrough. Fig. 3 is an enlarged section through the piston with the heads removed. Fig. 4 is a section
35 on line *x x*, Fig. 3. Figs. 5 and 5^a are detail views of the piston-head packing detached. Fig. 6 is a detail view of a piston-head broken away to show its packing, and Fig. 7 is a similar view of said packing detached.

40 Referring to the drawings in detail, 1 is a cylindrical casing mounted on a suitable support or casting 2 and having a head 3 bolted or otherwise secured at each end. A threaded boss 4 is arranged at the center of each
45 head and receives a smaller boss 5, extending from the center of a recessed plate 6, having an eccentric-groove 7 in its inner face. The inner and outer bosses are secured together by means of set-screws 8 or in other suitable
50 manner, and a ring 9 is interposed between

each head 3 and its plate 6. A gland 10 is arranged at the end of each boss 4 and a shaft 11 extends therethrough. A cylindrical piston 12 is mounted in the casing and is secured to this shaft. A flange 13 is arranged around
55 each end of the piston and bears upon the casing, the outer face of each flange being provided with a groove 14 for the reception of curved strips 15 of spring-metal packing, which prevent motive fluid from escaping
60 laterally past the flanges.

The inner faces of flanges 13 are grooved at desired intervals, as shown at 16, and these grooves are in alinement with grooves or recesses 17, formed longitudinally within the
65 piston. The walls of these grooves are recessed at the outer edges, as shown at 18, for the reception of L-shaped strips 19 of metallic packing. Each strip is provided in its inner face with recesses 20, which receive the ends
70 of springs 21, which serve to force the strips against the sides of piston-heads 22. These heads are slidably mounted in grooves 16 and 17 and are provided at the ends of their inner edges with arms 23, extending through slots
75 24, formed in the ends of the piston and in alinement with grooves 16 and 17. Rollers 25 are mounted on these arms and project into the eccentric-grooves 7.

The outer or working edges of the heads 22
80 are grooved longitudinally, and within each is fitted a metal packing-bar 26, which is normally pressed outward from the edge by means of springs 27, interposed in rear of the bar. Transversely-extending pins 28 engage
85 slots 29 in bar 26 and limit its movement, and as the ends of the springs engage recesses 30 in the bar said springs are prevented from becoming displaced.

A valve-casing 31 is secured upon casing 1,
90 and an inlet-passage 32 and an outlet-passage 33 connect the interiors of the two casings 1 and 31. Each passage is divided in two parts by a divide 34, the lower edge of which is forked and extends into parallel grooves
95 formed in a head 35. This head bears upon the piston and is held in contact therewith at all times by springs 36, interposed between said head and the divide.

A revoluble cylindrical valve 37 is mounted 100

horizontally in the casing 31 and is provided with passages 38 therein, which communicate with one side of each of the passages 32 and 33, respectively. A head 39 is arranged at one end of the valve 37 to prevent longitudinal movement thereof in the casing in one direction, while a flanged plate 40 bears upon the opposite end of the casing and is secured to the valve and prevents movement thereof in the other direction. A screw 41 is employed for fastening this plate to the valve, and by tightening the same the head 39 and the plate 40 may be forced toward each other and against the casing to take up wear. Washers or packing 42 are arranged between the head and the plate 41 to form tight joints. An arm 43 extends from the head 39, and a lever 44 is mounted on the end thereof and provided with oppositely-extending ears 45. Each ear has a lug 46, and the lugs extend into slots 47, formed in the upper ends of rods 48. Both rods are pivoted at their lower ends to a spring-pressed plunger 49, mounted in brackets 50, extending from arm 43 and adapted to normally engage a toothed segment 51, secured upon casing 31.

Inlet and exhaust pipes 52 and 53 respectively extend into casing 31, as shown, and communicate at all times with passages 38 in valve 37. A drain 54 may be located in the bottom of casing 1.

It will be seen that by drawing on lever 44 the plunger 49 will be raised by means of one of the rods 48, and the arm 43 will then be moved a desired distance, carrying valve 37 therewith. When the lever is released, the plunger will fly back into engagement with the segment and lock the arm and its valve. The motive fluid will be directed by the valve into one side of passage 32 and will force the heads 22 around within the casing, causing the piston to turn therewith. The spring-pressed metal packing at the sides and end of each head prevents the escape of the fluid past the head, and as the rollers 25 engage the eccentric-grooves 7 the heads will be maintained in proper relation to the casing. As the piston revolves, the heads will be retracted by the eccentric into grooves 17 as they approach the divide 34, and upon reaching that point their outer edges become flush with

the face of the piston. The exhaust-steam passes out through the passage 33. Should the edge packing 26 of the heads project slightly beyond the face of the piston upon reaching the divide, it will be promptly forced inward by the ends of the divide-head 35, which are beveled, as shown as 55. By shifting the lever in the opposite direction the engine may be promptly reversed.

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

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

1. The combination with a casing; of a rotary piston therein having a groove, a flange at each end of the piston having grooves therein in alinement with the groove in the piston, a piston-head slidably mounted within said grooves, L-shaped packing-strips fitted within recesses in the walls of the grooves and springs for clamping said strips upon opposite sides of the piston-head.

2. The combination with a casing; of a rotary piston therein having a groove, flanges at the end of the piston having grooves, L-shaped packing-strips mounted in recesses in the grooves, a piston-head mounted within the grooves, springs for holding the strips in contact with opposite sides of the head, and a spring-pressed packing-strip in the outer edge of the head.

In testimony whereof we affix our signatures in presence of two witnesses.

JAMES W. ANDERSON.
RILEY M. ANDERSON.

Witnesses to signature of James W. Anderson:

M. JONES,
J. R. HAWES.

Witnesses to signature of Riley M. Anderson:

GEO. V. CLIMIE,
FRANK CLANCY.