

(No Model.)

W. D. O'BRIEN.
ROTARY ENGINE.

No. 532,179.

Patented Jan. 8, 1895.

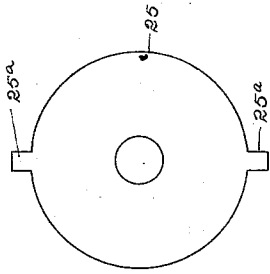


Fig. 4.

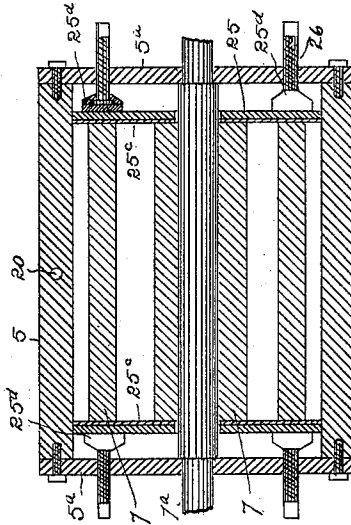


Fig. 3.

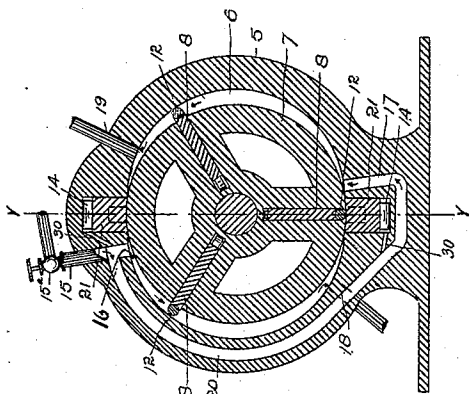


Fig. 1.

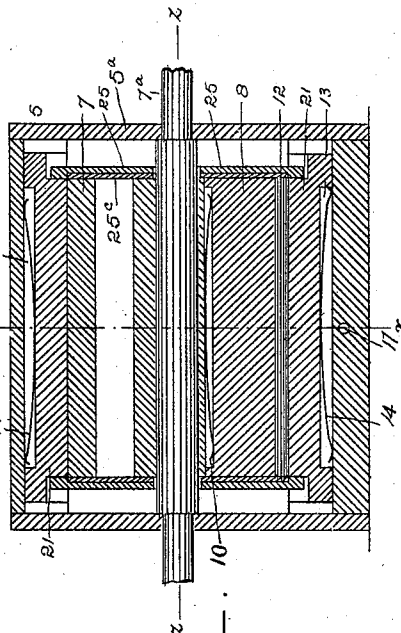


Fig. 2.

WITNESSES:
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UNITED STATES PATENT OFFICE.

WILLIAM D. O'BRIEN, OF COLORADO CITY, COLORADO, ASSIGNOR OF ONE-HALF TO BARTHOLOMEW O'BRIEN, OF SAME PLACE, AND WILLIAM LAWLESS, OF DENVER, COLORADO.

ROTARY ENGINE.

SPECIFICATION forming part of Letters Patent No. 532,179, dated January 8, 1895.

Application filed June 26, 1894. Serial No. 515,795. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM D. O'BRIEN, a citizen of the United States of America, residing at Colorado City, in the county of El Paso and State of Colorado, have invented certain new and useful Improvements in Rotary Engines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in rotary engines; and the same consists of the features, arrangements and combinations hereinafter described and claimed, all of which will be fully understood by reference to the accompanying drawings in which is illustrated an embodiment thereof.

In the drawings, Figure 1 is a vertical cross-section taken on the line $x-x$, Fig. 2. Fig. 2 is a vertical longitudinal section taken on the line $y-y$, Fig. 1. Fig. 3 is a similar section illustrating the adjusting screws engaging the packing plates. Fig. 4 is a detail view of one of the packing plates.

Similar reference characters indicating corresponding parts or elements of the mechanism in the several views, let the numeral 5 designate the outer casing inclosing the chamber 6—elliptical in cross-section. In this chamber is located the cylinder 7 carrying the piston plates 8 located in radial longitudinal slots formed in the body of the cylinder from end to end. The cylinder is mounted on a shaft 7^a to which it is made fast. This shaft is journaled in the heads 5^a of the casing. The inner edges of the pistons 8 are engaged by springs 10 located in the bottoms of the slots, whereby the pistons are normally forced outward to engage the inner surface of the casing, or the wall of the chamber 6. In the outer edges of the piston plates are located rollers 12, the pistons being recessed to receive them. The rollers engage the wall of the chamber as the cylinder rotates, and reduce the friction to a minimum.

On diametrically opposite sides of the narrowest portion of the chamber 6, the casing is provided with longitudinal recesses 13 in which are located packing bars 21 which are forced outward to engagement with the cylinder by springs 14 located in the recesses behind the packing bars.

The steam, gas, air, or other propelling agent is carried to the engine through a pipe or conduit 15 in which is located a controlling valve 15^a. This agent enters the chamber 6 through two ports 16 and 17. The ports 16 and 17 are connected by a channel 20 formed in the casing. The casing is also provided with two exhaust ports 18 and 19.

Between the head plates 5^a and the cylinder ends are located the movable packing plates 25 which are provided with projections 25^a which enter recesses formed in the packing bars 21 and maintain the packing bars in suitable operative relation with the other parts. The plates 25 are faced with some suitable yielding material 25^b, and are controlled by adjusting screws 26 whose inner extremities are swiveled in projections 25^d formed integral with, or made fast to the plates 25. These screws pass through threaded apertures formed in the head plates from which they protrude, their outer extremities being adapted to receive a wrench for adjusting purposes.

The packing bars 21 may be actuated or held against the cylinder by the force of the propelling agent which may pass to the back of the bars through ports 30 leading from the channel 20.

In describing the operation of the engine, I will, for convenience, assume that the propelling agent is steam, which, however, must be considered typical of any other suitable agent that it may be practicable or desirable to employ. Assuming that the cylinder is in the position shown in Fig. 1, if the valve 15^a is opened, the steam will enter the cylinder through the port 16 directly opposite the mouth of the inlet pipe. The steam will also pass *via* the channel 20 to the port 17, and thence into the chamber 6. As the steam enters the chamber through these ports, it

acts on two of the piston plates and propels the cylinder until these pistons have passed the exhaust ports which are located in close proximity to the packing bars. After the pistons pass the exhaust ports, the steam behind them escapes through these ports, and therefore offers no resistance to the next piston.

As shown in the drawings, the arrangement of the mechanism is such that two pistons are always acted upon by the propelling agent, one only being in engagement with a packing bar 21 at any one time.

Having thus described my invention, what I claim is—

1. In a rotary engine, the combination of the casing having the inlet and exhaust ports, the rotatable cylinder, the spring-actuated piston plates located in the cylinder, the packing bars located in recesses formed in the casing, the casing being provided with ports leading from the inlet channel to the rear of said packing bars, packing plates located between the heads of the casing and the ends of the cylinder, said plates having projections formed on their edges which projections enter the recesses of the packing bars and engage the ends

of the latter, adjusting screws located in the casing heads and engaging projections formed on the faces of the packing plates, the inner ends of the screws being swiveled in said projections, substantially as described.

2. In a rotary engine, the combination of the casing having the inlet and exhaust ports, the rotatable cylinder, spring-actuated piston plates located in the cylinder, packing bars suitably actuated and located in recesses formed in opposite sides of the narrowest portion of the chamber, the packing plates located between the heads of the casing and the ends of the cylinder, said plates having projections which enter the recesses of the packing bars and engage the ends of the latter, and means operated from the outside of the casing for adjusting the packing plates, substantially as described.

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

WILLIAM D. O'BRIEN.

Witnesses:

JOHN MCCOACH,
PATRICK H. HEALY.