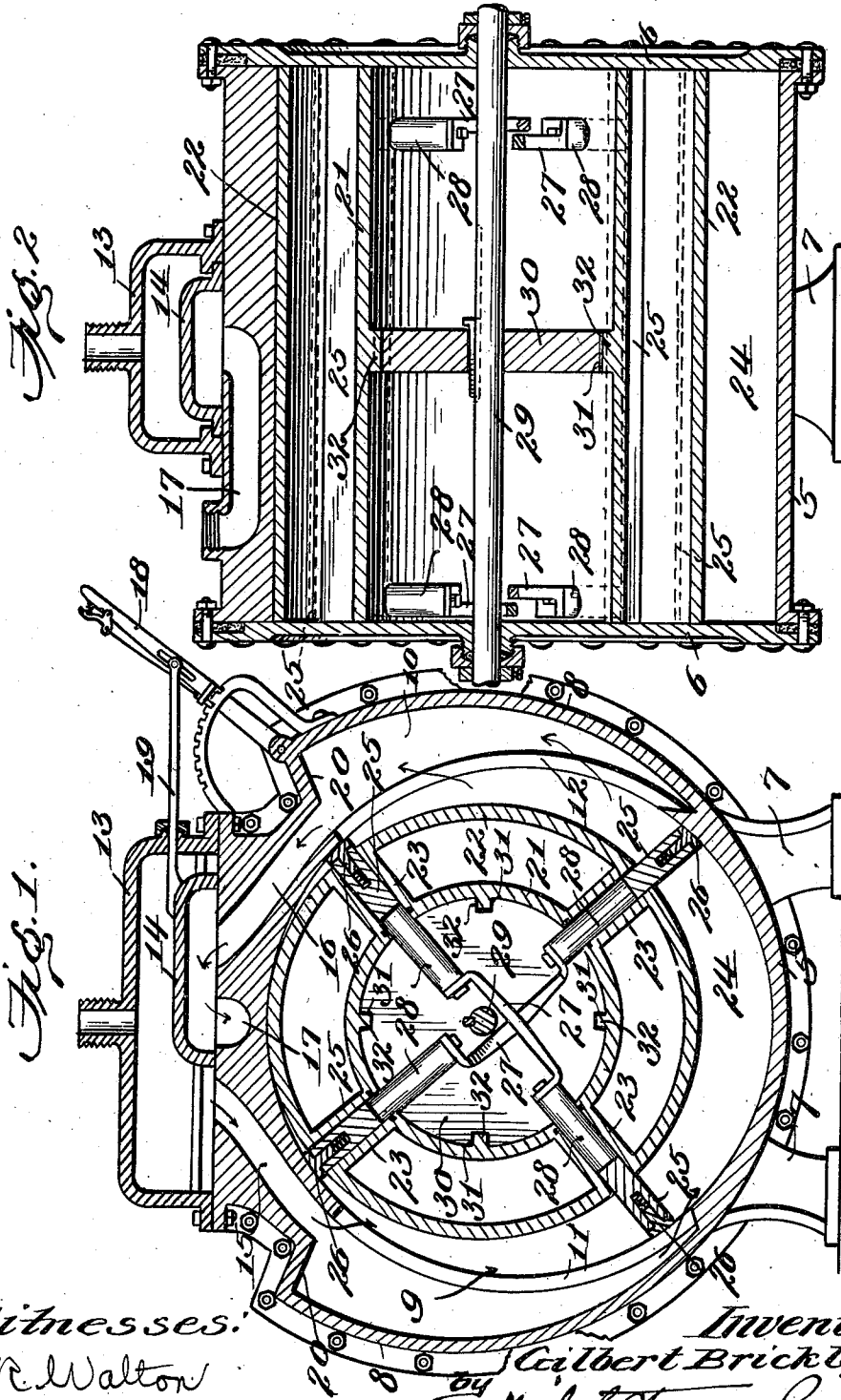


G. BRICKLEY.
 ROTARY ENGINE.

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UNITED STATES PATENT OFFICE.

GILBERT BRICKLEY, OF MISSOULA, MONTANA.

ROTARY ENGINE.

1,000,371.

Specification of Letters Patent. Patented Aug. 15, 1911.

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To all whom it may concern:

Be it known that I, GILBERT BRICKLEY, a citizen of the United States, residing at Missoula, in the county of Missoula and State of Montana, have invented certain new and useful Improvements in Rotary Engines, of which the following is a specification.

This invention relates to rotary engines of that class characterized by a rotor which is eccentrically located in the cylinder and in contact with the wall thereof at one point to form a crescent shaped steam space into which space extend blades or piston wings carried by the rotor against which the energy of the steam or other motive fluid is expanded, said blades or piston wings being automatically retracted as they approach the aforesaid point of contact, and advanced as they pass the same.

It is the object of the present invention to provide a simple, efficient, and light running engine of the kind stated, and also to provide an improved rotor structure, as well as other novel and improved structural details to be hereinafter described and claimed.

In order that the invention may be better understood, reference is had to the accompanying drawing forming a part of this specification, in which drawing—

Figure 1 is a transverse section of the engine. Fig. 2 is a longitudinal section.

Referring specifically to the drawing, the cylinder of the engine comprises a circular wall 5, and heads 6 secured thereto in any suitable manner. The cylinder is provided with supporting feet 7. The wall 5 is partly inclosed on opposite sides by a shell 8 which may be formed integral with said wall. This shell is spaced from the cylinder wall, and forms steam passages 9 and 10, respectively, on opposite sides of the cylinder, said passages being in communication through ports 11 and 12 in the wall 5 thereof. On top of the cylinder is mounted a steam chest 13 in which operates a valve 14 which controls steam ports 15 and 16, one of which ports leads to the steam passage 9 and the other to the steam passage 10. The cylinder also has an exhaust port 17 which is also controlled by the valve 14. The valve may be an ordinary D-valve, and it is operated by a hand lever 18 connected to the stem 19 thereof.

It will be noted that the passages 9 and 10 gradually decrease in area from the point at which they are entered by the ports 15 and 16, the shell 8 merging with the wall 5 of the cylinder, from which point the shell extends outwardly from said wall eccentrically. At the widest portion of the passages, which is the point at which the ports 15 and 16 open thereinto, the shell 8 terminates in a shoulder 20 extending transversely of the passages up to the ports. The ports 11 and 12 extend throughout the entire length of the passages 9 and 10, said ports commencing at the point where the ports 15 and 16 open into the passages, and terminating at the point where the shell 8 merges with the wall 5 of the cylinder.

Within the cylinder is eccentrically mounted a rotor comprising a cylindrical drum composed of inner and outer shells 21 and 22, respectively, which are arranged concentrically and connected by radial webs 23. The rotor is in contact with the wall 5 at one point, and as said rotor is eccentrically located within the cylinder, a crescent-shaped steam space 24 is had in the cylinder. The ports 11 and 12 are located on opposite sides of the point of contact of the rotor with the cylinder wall.

The rotor carries radially slidable piston blades or wings 25 which are in contact with the cylinder wall, and slide back and forth in order to pass the point of contact of the rotor with the cylinder wall. The blades are retracted as they approach the point of contact, and they advance into the steam space as they pass said point of contact. The ends of the blades which are in contact with the cylinder wall are provided with a suitable spring-pressed packing 26. The blades are arranged in pairs, the members of said pairs being located diametrically opposite each other, and connected by a bar 27. The webs 23 have openings in which the blades 25 are slidably mounted, and from the inner ends of the blades extend stems 28 which pass into the inner shell 21 of the rotor, the cross bars 27 being also located in said shell, and connected to said stems.

The shaft 29 of the engine extends through the center of the shell 21 and is made fast thereto so that the motion of the rotor will be transmitted to the shaft. The connection between the rotor and the shaft is made by a disk 30 located in the shell 21 and

keyed or otherwise made fast to the shaft. In the periphery of this disk are notches 31 in which seat lugs 32 formed on the inner periphery of the shell 21.

5 The operation of the engine is as follows: Fig. 1 shows the valve 14 adjusted so that port 15 is in communication with the steam chest, and the port 16 is in communication with the exhaust port 17. Steam therefore
10 flows through the port 15 into the passage 9 in which it expands, and from which it passes through the port 11 into the steam space 24. The shoulder 20 acts as an abutment to sustain the thrust of the expanding
15 steam against the piston blades. The exhaust is through the port 12 into the passage 10, and from the port 16 into the exhaust port 17. To reverse the engine, the valve 14 is shifted to the left, whereupon
20 the steam enters the cylinder through the port 16, and the exhaust is through the port 15. The arrangement of the ports 11 and 12 is such that the piston blades receive live steam during one-half a revolution of
25 the rotor.

The skeleton construction of the rotor greatly reduces the weight thereof, and the engine therefore runs light and easy.

I claim:

A rotary engine comprising a cylinder 30 having inlet and exhaust ports, a rotor eccentrically mounted in the cylinder, said rotor comprising inner and outer shells and a connection therebetween, the outer shell being in contact with the cylinder wall at 35 one point, radially slidable wings carried by the rotor and in contact with the cylinder wall, a shaft extending through the rotor, a disk fastened to the shaft and having a notched periphery, said disk being lo- 40 cated within the inner shell of the rotor, and lugs on said inner shell extending into the notches.

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

GILBERT BRICKLEY.

Witnesses:

RAYMOND J. CYR,
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."