

(No Model.)

R. Z. POOLER.
ROTARY ENGINE.

No. 516,022.

Patented Mar. 6, 1894.

Fig. 1.

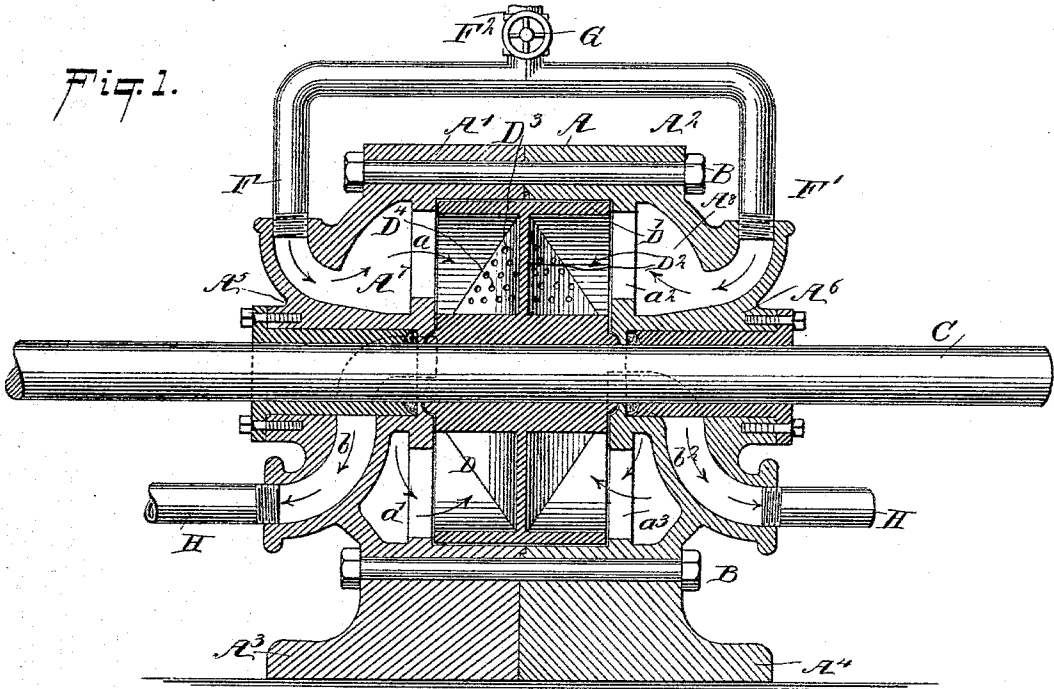


Fig. 2.

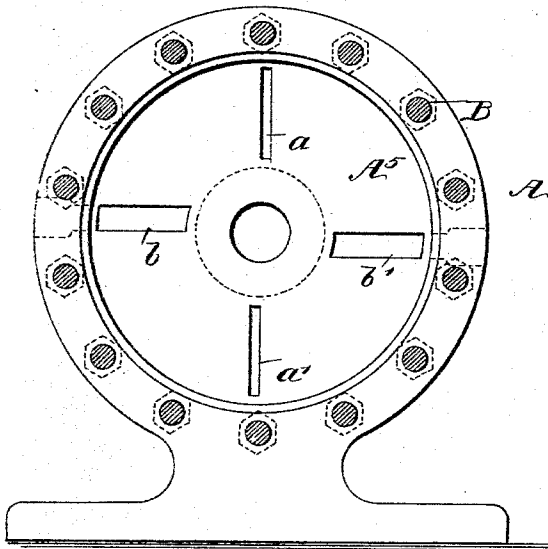
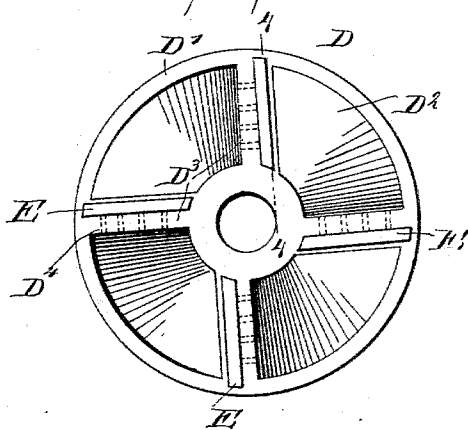


Fig. 3.



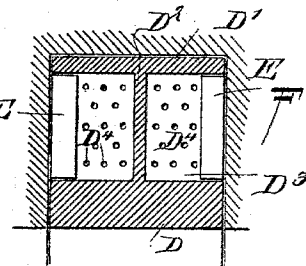
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UNITED STATES PATENT OFFICE.

ROYAL ZELOTES POOLER, OF ST. JOSEPH, MISSOURI.

ROTARY ENGINE.

SPECIFICATION forming part of Letters Patent No. 516,022, dated March 6, 1894.

Application filed September 16, 1893. Serial No. 485,659. (No model.)

To all whom it may concern:

Be it known that I, ROYAL ZELOTES POOLER, of St. Joseph, in the county of Buchanan and State of Missouri, have invented a new and Improved Rotary Engine, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved rotary engine, which is simple and durable in construction, very effective in operation and arranged to utilize the motive agent to the fullest advantage.

The invention consists of certain parts and details, and combinations of the same, as will be hereinafter described and then pointed out in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a transverse section of the improvement. Fig. 2 is a sectional side elevation of the cylinder. Fig. 3 is a side elevation of the piston; and Fig. 4 is a transverse section of the same on the line 4—4 of Fig. 3, with the cylinder in section.

The improved rotary engine is provided with a cylinder A made in two parts A' and A² fastened together by suitable bolts B. The cylinder parts A' and A² are formed at their lower ends with bases A³ and A⁴ respectively, adapted to be set on a suitable foundation. The cylinder parts A' and A² are also provided with integral heads A⁵ and A⁶ respectively, in which is journaled the main driving shaft C connected by suitable mechanism with the machinery to be driven.

On the shaft C within the cylinder A is secured a piston D made in the shape of a wheel and provided with a rim D', and an annular transverse partition D² extending from the hub to the rim at or near the middle thereof, as plainly illustrated in Figs. 1 and 4. The piston D is also provided with wings D³ so as to form steam compartments on opposite sides of the partition D². In each wing D³ are fitted to slide longitudinally, packing bars E pressed outward in contact with the inner faces of the heads A⁵ and A⁶ by the force of live steam passing into the bearings for the said bars in the respective wings D³. In order to permit the live motive agent to act on the packing bars, the said wings D³ are per-

forated as at D⁴ as is plainly illustrated in Figs. 1 and 4, to allow the steam to pass into the bearings for the bars to push the latter outward. In the head A⁵ are arranged the steam inlet ports *a* and *a'*, located diametrically opposite each other, as plainly illustrated in Fig. 2, and in the said head are also arranged the exhaust ports *b* and *b'* located diametrically opposite each other and standing at right angles to the ports *a* and *a'*. Similar inlet ports *a*² and *a*³ are arranged in the other head A⁶ and like exhaust ports *b*² are located in the said head A⁶. The ports *a* and *a'* open into a channel A⁷ formed in the head A⁵ and the ports *a*² and *a*³ are likewise connected with each other by a channel A⁸ arranged in the head A⁶. The channels A⁷ and A⁸ are provided with pipes F and F' respectively, connected with a steam supply pipe F² provided with a suitable throttle valve G and leading from a boiler or other suitable source of steam supply. The exhaust ports *b*, *b'*, and *b*² discharge into exhaust pipes H leading to the outside.

The operation is as follows: When the throttle valve G is opened, live steam passes through the pipe F² into the branch pipes F and F' and from the latter into the channels A⁷ and A⁸ and through the ports *a* *a*² and *a'*, *a*³ into the registering steam compartments formed in the piston D, as above described. The motive agent acting on the wings D³ in the said piston causes the latter to rotate so that the main driving shaft C is turned and power is transmitted throughout the machinery.

It will be seen that when a compartment is supplied with live steam, the rear wing will cut off the steam finally by passing over the ports *a*, *a'*, *a*² or *a*³, so that this compartment now connects with the next following exhaust port *b* to permit the steam to exhaust through the respective ports *b*, *b'*, or *b*². On the next quarter revolution this compartment again takes steam in the next inlet port and so on, so that each compartment receives live steam twice on each revolution of the piston.

It will be seen that by this construction no valves, gates or abutments whatever are used, and the force of the motive agent is utilized to the fullest advantage and without danger of any of the parts getting out of order.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. A rotary engine comprising a cylinder 5 provided on opposite sides with inlet and exhaust ports, and a piston made in the shape of a wheel and provided with a transverse partition extending from the hub to the rim at or near the middle thereof perforated wings 10 forming steam compartments on opposite sides of the partition and packing bars in said wings substantially as described.
2. A rotary engine, comprising a cylinder 15 made in two parts having integral heads, each provided with diametrically-arranged steam inlet ports and steam exhaust ports, and a channel for connecting the steam inlet ports with each other, and a piston made in the 20 shape of a wheel and mounted to turn in the said cylinder, the said piston being provided with a rim, an annular partition and wings forming steam compartments adapted to alternately register with the said inlet and exhaust ports, substantially as shown and de- 25 scribed.
3. A rotary engine, comprising a cylinder made in two parts having integral heads, each provided with diametrically-arranged steam inlet ports and steam exhaust ports, and a 30 channel for connecting the steam inlet ports with each other, a piston made in the shape

of a wheel and mounted to turn in the said cylinder, the said piston being provided with a rim, an annular partition and wings forming steam compartments adapted to alternately register with the said inlet and exhaust ports, and packing bars fitted to slide in bearings in the said piston, substantially as shown and described. 35

4. A rotary engine, comprising a cylinder 40 made in two parts having integral heads, each provided with diametrically-arranged steam inlet ports and steam exhaust ports, and a channel for connecting the steam inlet ports with each other, a piston made in the shape 45 of a wheel and mounted to turn in the said cylinder, the said piston being provided with a rim, an annular partition and wings forming steam compartments adapted to alternately register with the said inlet and exhaust 50 ports, packing bars fitted to slide in bearings in the said piston, the said wings being provided with perforations to connect the steam compartments with the bearings for the said bars, to force the latter outward in contact with 55 the heads by the pressure of the steam, substantially as shown and described.

ROYAL ZELOTES POOLER.

Witnesses:

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