(No Model.) 2 Sheets—Sheet 1.

J. MOFFET.

ROTARY ENGINE.

No. 300,998. Patented June 24, 1884.

Fig. 1.

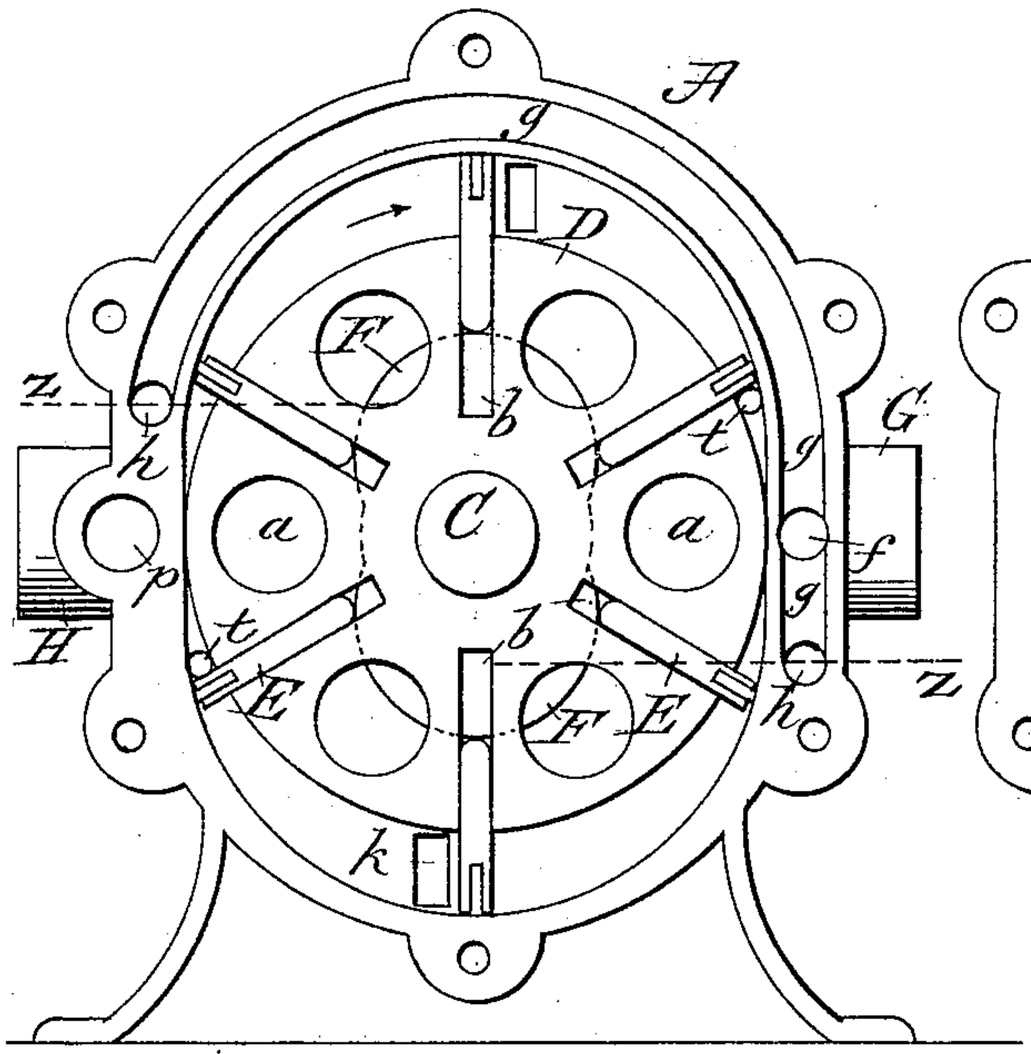


Fig. 2.

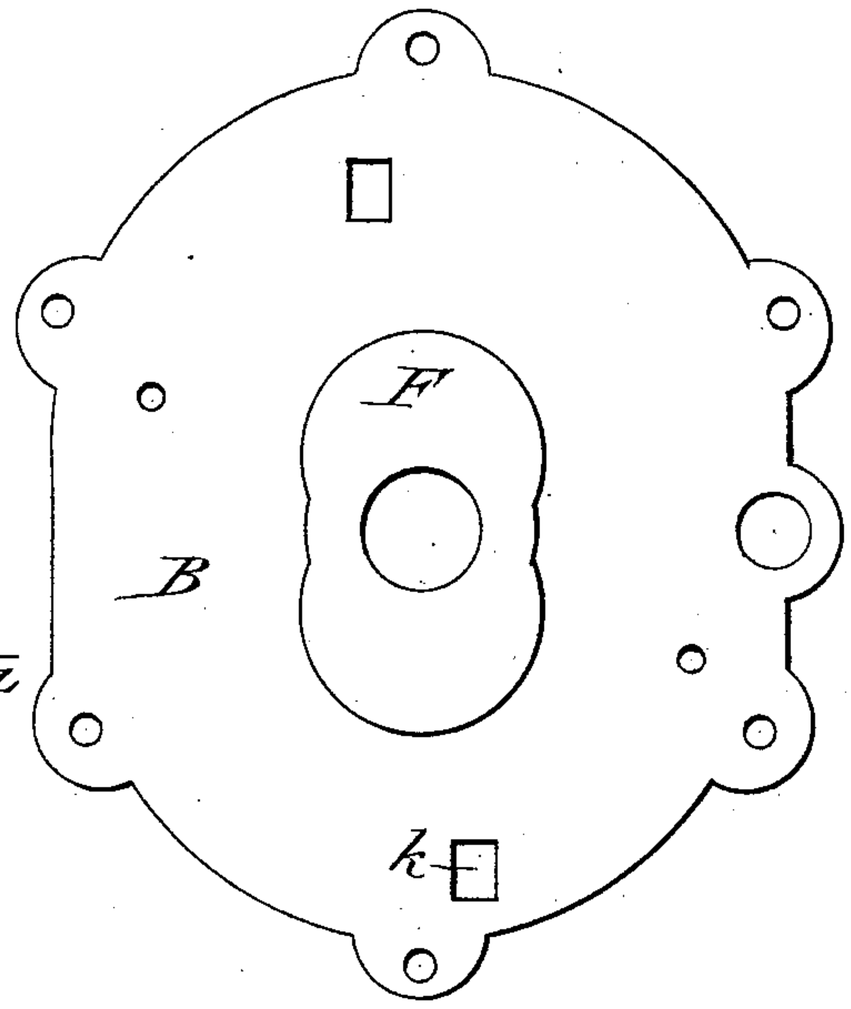


Fig. 3.

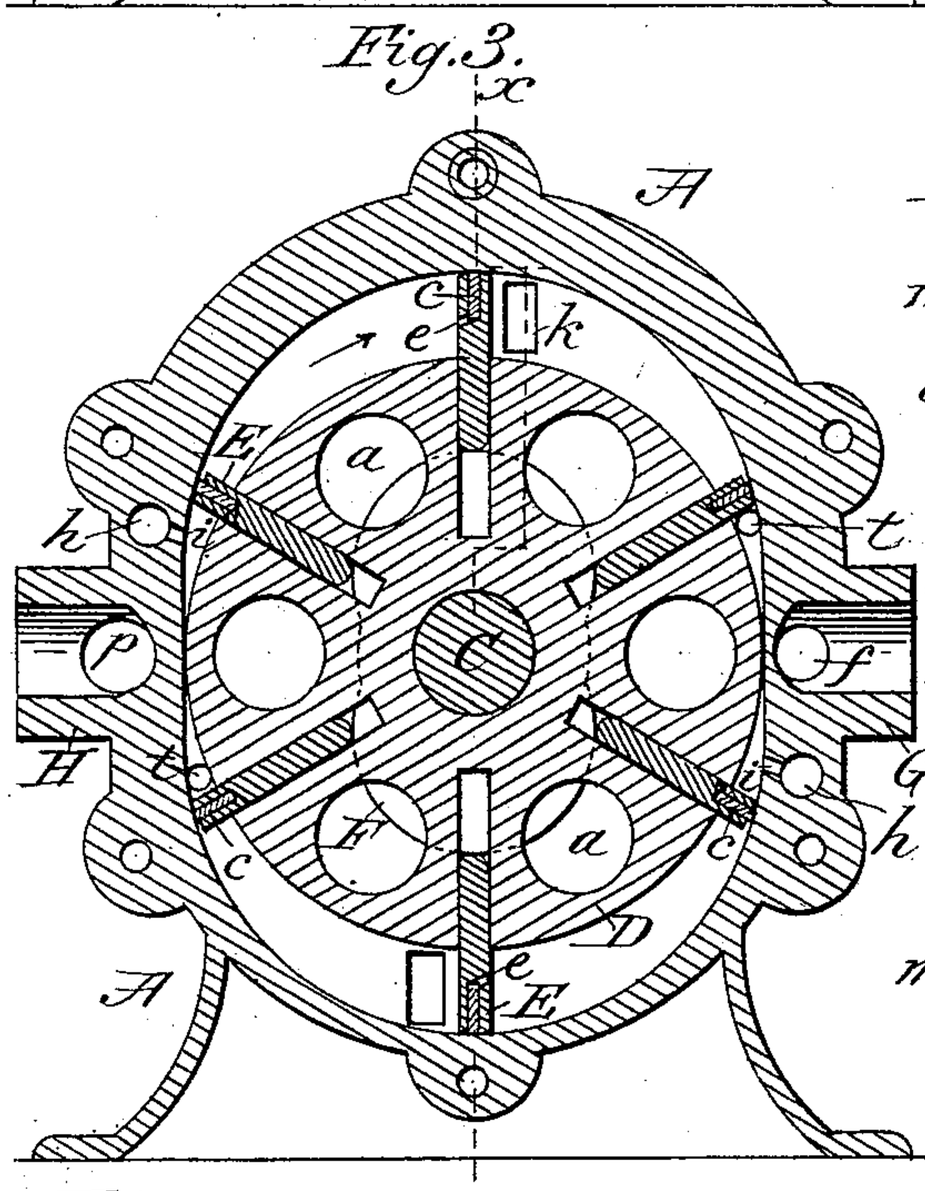
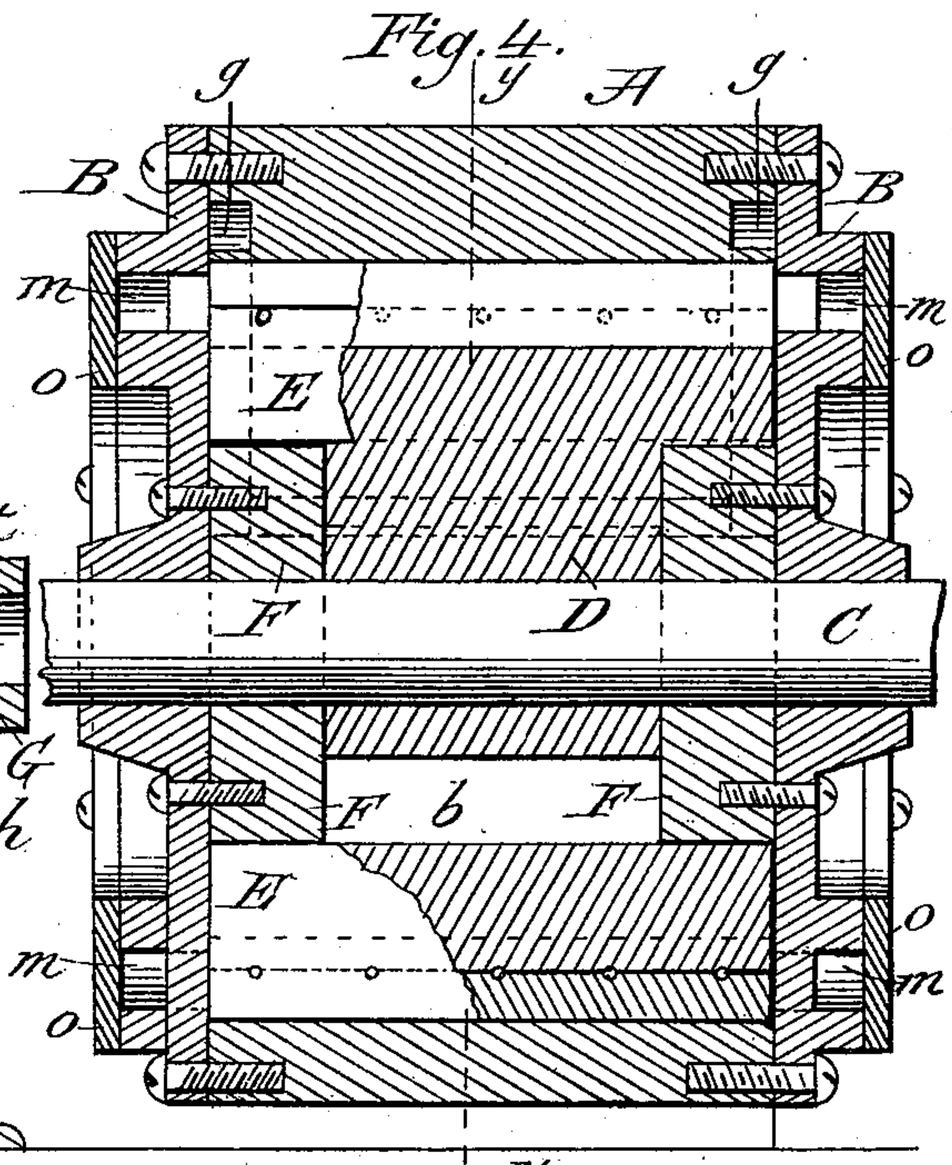


Fig. 4.



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(No Model.) 2 Sheets—Sheet 2.

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ROTARY ENGINE.

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Fig. 5.

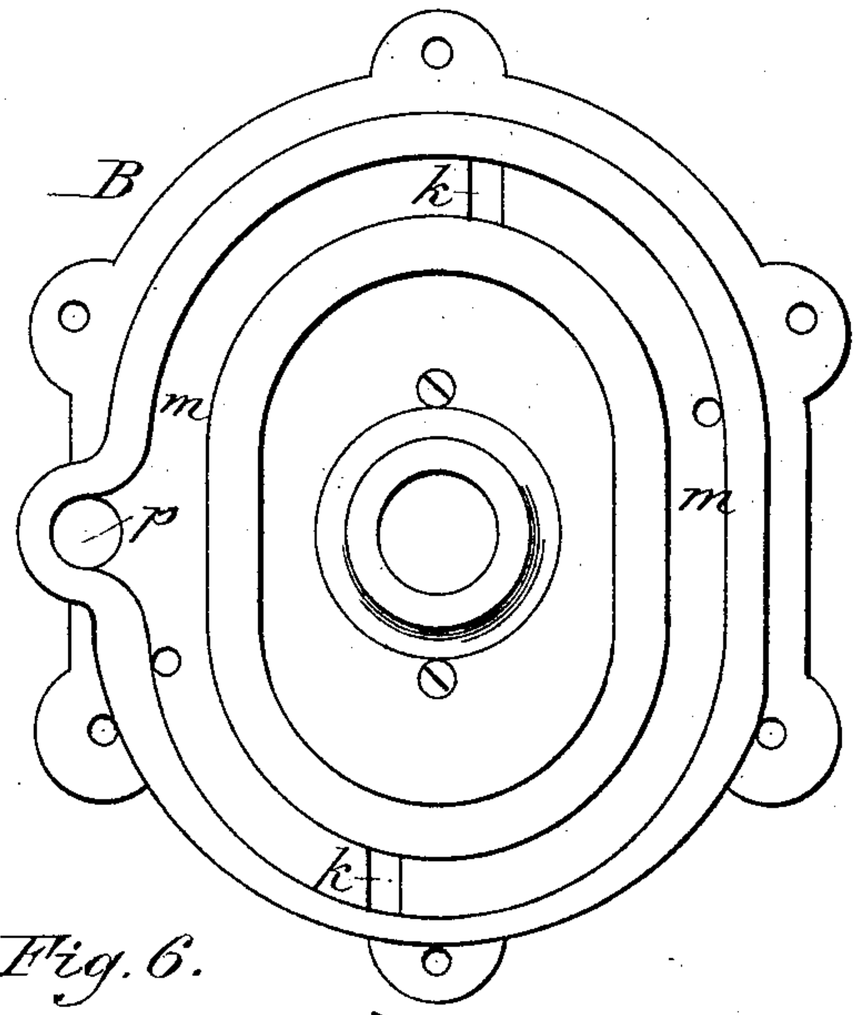


Fig. 6.

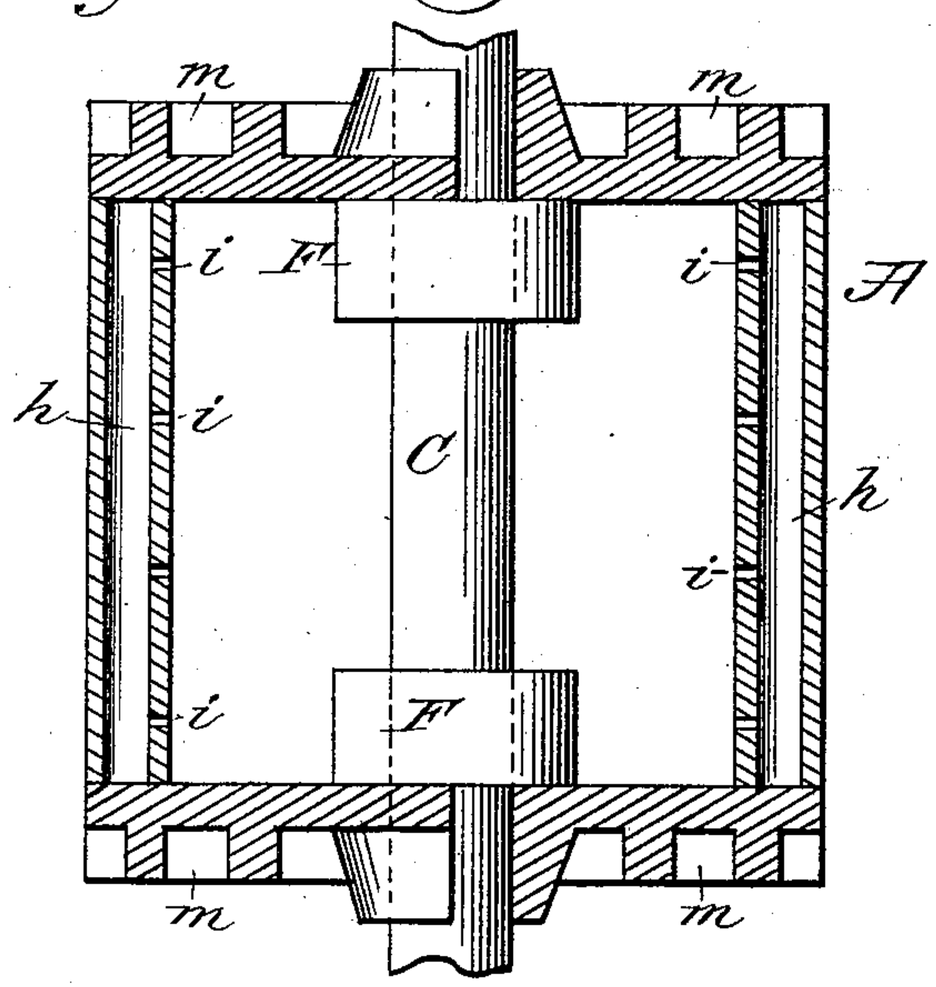


Fig. 7.

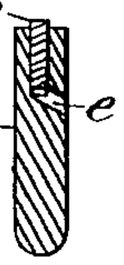
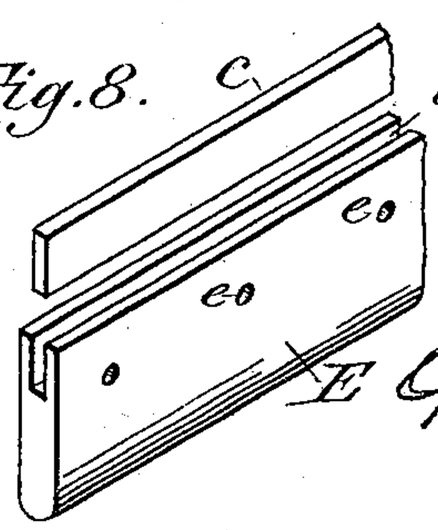


Fig. 8.



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UNITED STATES PATENT OFFICE.

JOHN MOFFET, OF NEW YORK, N. Y.

ROTARY ENGINE.

SPECIFICATION forming part of Letters Patent No. 300,998, dated June 24, 1884.

Application filed September 27, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHN MOFFET, a citizen of the United States, residing at New York, in the county of New York and State of New York, 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 letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to improvements in rotary steam-engines; and it consists in certain peculiarities in the construction and arrangement of parts, as hereinafter more fully described and claimed.

In the annexed drawings illustrating the invention, Figure 1 is an end elevation of my improved rotary steam-engine with one of the heads or casing end plates removed. Fig. 2 is a plan view of the inner side of one of the casing-heads. Fig. 3 is a sectional elevation on the line *y y* of Fig. 4. Fig. 4 is a section on the line *x x* of Fig. 3. Fig. 5 is a plan view of the outer side of one of the casing-heads, with a portion removed so as to show the exhaust-passages. Fig. 6 is a section on the line *z z* of Fig. 1, the cylinder being removed. Fig. 7 is a cross-section of one of the sliding piston-blades; and Fig. 8 is a perspective view of one of said piston-blades with steam packing-strip detached.

Like letters of reference designate like parts in the several views.

The shell or casing A is vertically elongated, and is provided at each end with a head or end plate, B, each of which is provided centrally with a bearing for one end of the cylinder-shaft C. This shaft carries a cylinder, D, that may, if desired, be perforated longitudially, as shown at *a a*, for the purpose of securing lightness. In the periphery of the cylinder D are formed radial slots *b b*, for the reception of the piston-blades E E. Each end of the cylinder D is also cored or recessed in a circular form, to enable it to pass around a stationary cam, F, that is secured to the inner side of each head of the casing, the diameter of the circular core or recess corresponding with the long or vertical diameter of the cams. The piston-blades E E rest in the slots *b b*, with the inner edges of their ends bearing against the periphery of the vertically-elongated cams F F, the form of which is shown in Figs. 1 and 2. It will be seen that as the cylinder D is rotated the piston-blades E E, being moved in contact with these stationary cams, are thus alternately projected and withdrawn, so as to form, in connection with the walls of the casing, an abutment for the expansion of steam, whereby the cylinder is continuously rotated, together with its shaft. The outer edge of each sliding piston-blade E is grooved longitudinally for the reception of a metallic packing-strip, *c*, as shown in Figs. 7 and 8. In order that these packing-strips *c* may always bear uniformly upon the interior of the shell or casing, and thus compensate for wear of the parts, I connect the bottom of each groove *d* with the pressure side of the piston or blade E by means of perforations *e e*, through which sufficient steam is admitted to the grooves *d d* back of the packing-strips *c c* to insure their steady pressure against the walls of the shell or casing during the rotation of the cylinder. By this means the piston-blades E are rendered self-packing, and the wear of the same as well as of the cams F and of the shell or casing is readily compensated.

Steam is admitted to the interior of the casing through a main port, G, whence it passes through a transverse passage, *f*, in the body of the shell or casing to a curved groove, *g*, formed in each end of the casing, and thence through transverse passages *h h*, that are also formed in the body of the shell or casing and connect the end grooves or passages, *g g*. The transverse inlet-passages *h h* communicate with the interior of the shell by perforations *i i*, through which steam is admitted back of the piston-blades, thus actuating the same by expansion, and thereby rotating the cylinder, so as to gradually project and withdraw the pistons in their passage over the cams F, as before explained.

In the inner side of the casing-heads B B, at top and bottom, on each side, are oblong passages *k k* for exhaust-steam, which is thus conducted into a passage, *m*, on the outer

side of each head. These exhaust-passages *m m* are formed as shown in Fig. 5, and are covered by plates *o o*, Fig. 4. They are connected on one side of the shell or casing A by a transverse passage, *p*, which communicates with the external exhaust-port, H. The exhaust-passages *m m* also communicate with the interior of the shell by small openings *t t*, Figs. 1 and 3, which serve as auxiliary exhausts to secure as perfect a vacuum as may be, in advance of the piston-blades.

It will be observed that the inner surface of the shell or casing A, on each side, near the line of steam-inlets *i i*, is vertical, and presents a perfectly smooth plain surface, which forms a close joint with the surface of the rotating cylinder and its pistons, a perfect abutment for the expansion of steam being thus afforded without any liability of leakage. I am aware, however, that rotary engines with elliptical or vertically elongated casings are not new, and also that it is common to pack the piston-blades of such engines by admitting steam-pressure back of metallic strips inserted in the grooved edges of said blades. By arranging the steam-ports, as shown and described, the pressure is more evenly distributed and the cylinder is made to rotate without jar or vibration.

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

1. In a rotary engine, the combination, with a vertically-elongated shell or casing having steam inlet and exhaust passages formed in the ends and sides, of stationary cams secured to the inner sides of the casing-heads, a shaft passed through the center of said cams and journaled in the casing-heads, a slotted cylinder secured to said shaft, and sliding piston-blades supported in said cylinder with their ends bearing against the cams, substantially as described.

2. In a rotary engine, the combination of the shell A, having steam-inlet passages G *f g h i* and exhaust-passages *k k m m t t p* H, the stationary cams F F, shaft C, cylinder D, and sliding piston-blades E E, substantially as described.

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

JOHN MOFFET.

Witnesses:
WM. H. ELTING,
KING C. GILLETTE.