No. 803,406. PATENTED OCT. 31, 1905.

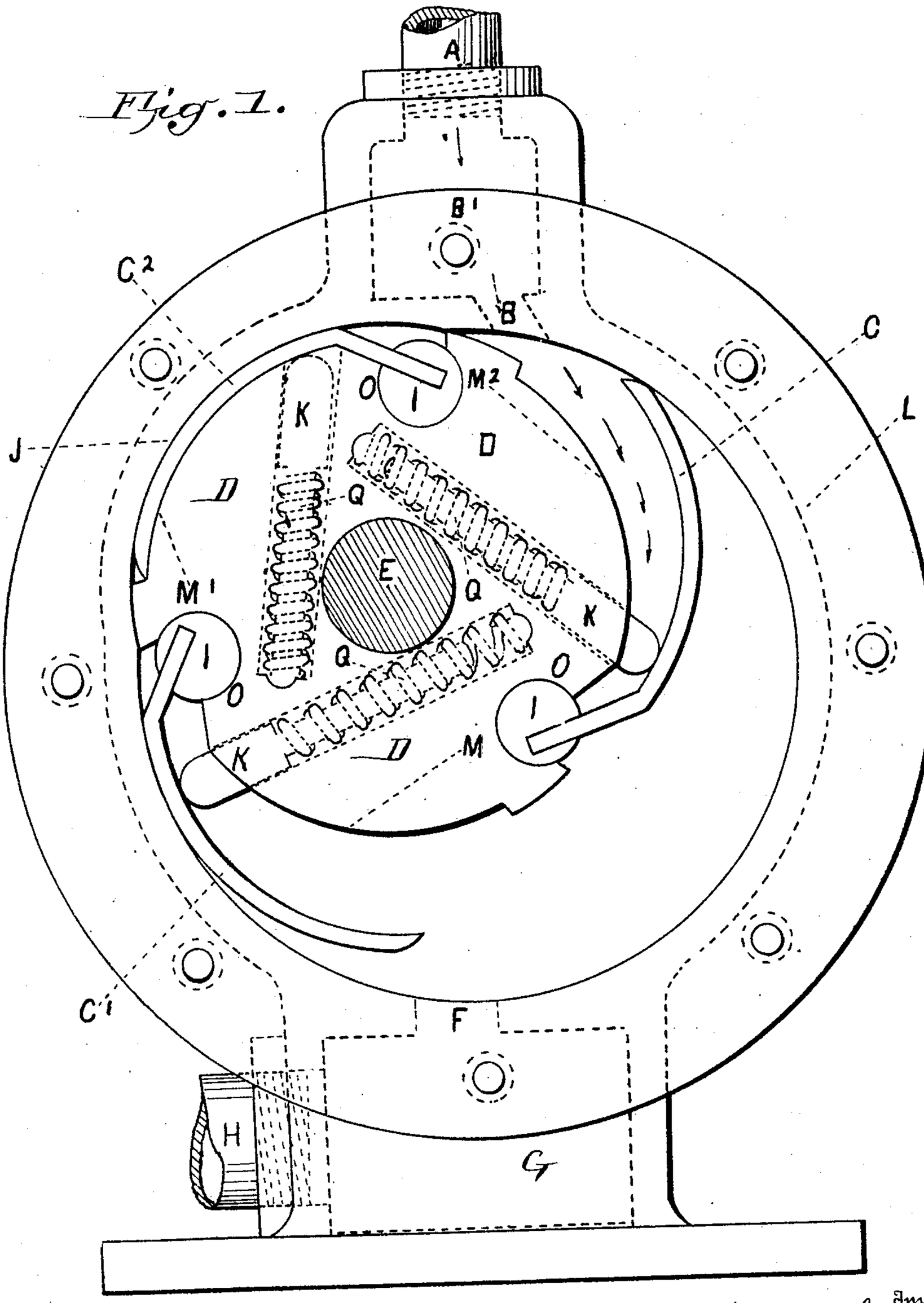
T. DAVIS.

ROTARY ENGINE.

APPLICATION FILED MAY 18, 1905.

2 SHEETS—SHEET 1.

Fig. 1.




Inventor
Thomas Davis.

Witnesses
Samuel E. Wade
Amos W. Hart

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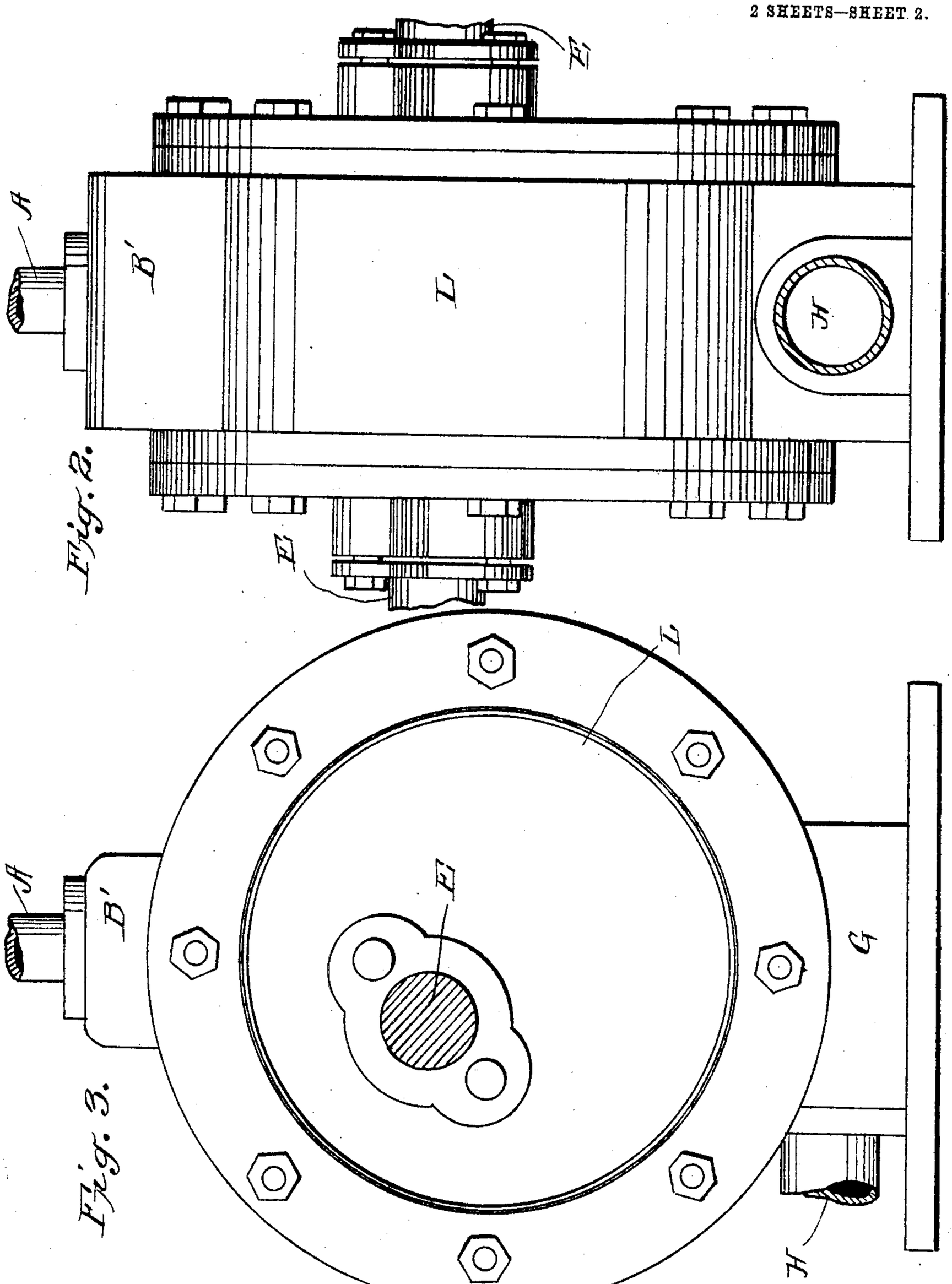


Fig. 2.

Fig. 3.

Witnesses
Samuel E. Slade
Amos W. Hart

Inventor
Thomas Davis

# UNITED STATES PATENT OFFICE.

THOMAS DAVIS, OF NEW HAVEN, CONNECTICUT.

## ROTARY ENGINE.

No. 803,406. Specification of Letters Patent. Patented Oct. 31, 1905.

Application filed May 18, 1905. Serial No. 261,069.

*To all whom it may concern:*

Be it known that I, THOMAS DAVIS, a citizen of the United States, residing at New Haven, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in Rotary Engines; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, an end view of my improved engine, a cylinder-head being removed to show the interior parts. Fig. 2 is a side view, and Fig. 3 is an end view, of the same.

This invention is an improvement in the class of rotary engines which are particularly adapted for use of steam or compressed air.

In carrying out my invention I employ a cylinder H formed at the top or at other convenient point with an inlet-port B, opening outward into an inlet-chamber B′, which communicates through a pipe A with the source of pressure, be it either steam or compressed air. At the bottom of the cylinder is a port F, opening outward into the exhaust-chamber G, from which the exhaust may be conducted through a pipe H to any convenient point. In one side of the inner wall of the cylinder is a chamber J, cut upon a circle eccentric to and smaller than the circle of the main body of the cylinder. Extending longitudinally through the cylinder is a shaft E, located eccentrically, which may be a driving-shaft, on which is mounted a rotary piston D, the length of which is equal to its diameter, and the diameter of this piston is three-quarters of the diameter of the cylinder and is concentric with and hence exactly fits the recess J. In the face of the piston are three grooves or channels M, M′, and M², which receive blades C, C′, and C², the blades corresponding in thickness to the depth of the grooves, so that the blades when closed are flush with the surface of the piston and complete the circle thereof. These blades are held in place by having their ends bowed and secured in rods or shafts I, which extend longitudinally through the piston in bearings O, formed therefor, the rods being free to rock in said bearings. The rotary piston D is provided with three tangential holes P, each of which receives a plunger K and a spring Q, the plungers bearing against the inner faces of the blades and tending to force them away from the piston and holding them in close contact with the inner wall of the cylinder, but yielding to permit the blades to enter the grooves M as those blades enter the recess or chamber J. As the piston revolves so that the blade C passes the port B, or, in other words, escapes from the wall of the chamber J, its plunger K will force it out of its seat or away from the face of the piston, allowing steam or air entering through the port B to pass between the blade C and exerting its force outward and downward causes the piston to revolve, at the same time holding the blade C firmly against the wall of the cylinder and form a tight joint therewith. As the piston revolves, drawing the blade C downward and past the exhaust-port F, the next succeeding blade C² will have passed the port B, so as to be operated by the motor fluid introduced, the entrance of a new charge taking place at the same time that the exhaust-port F is opened so that exhaust steam or air in the cylinder may escape therefrom and not retard the forward movement of the piston. As the blade C² passes the exhaust the blade C′ will have arrived at the upper point and be ready to receive the pressure of steam or air, and these operations continue in succession. It will thus be seen that the pressure upon the piston is continuous in one direction, and, as before stated, the exhaust taking place at the time a charge is admitted there is no possibility of back pressure.

The advantage due to the arrangement of the exhaust-port F at the bottom of the cylinder is that any condensation of steam will readily escape at that point.

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

A rotary engine comprising a cylinder, a recess formed therein, the wall of said recess forming an arc of a circle of smaller diameter than the diameter of the cylinder, a piston eccentrically mounted in said cylinder and of a diameter to closely fit the surface of said recess, said piston formed with grooves in its face, longitudinally-arranged rods mounted in said piston, blades connected with said rods and extending over said grooves and so as to cover the same, said rods being free to turn whereby said blades may be moved away from the face of said piston, spring-plungers mounted tangentially in said piston and bear-

ing against the inner face of said blades, an inlet-port at the top of said cylinder and in position to open between one of the blades and the adjacent face of the piston, and an exhaust-port at the bottom of said cylinder and opened by the passage of said blades in the rotation of the piston, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

THOMAS DAVIS.

Witnesses:
FREDERIC C. EARLE,
CLARA L. WEED.