

J. B. Van Deusen,
Rotary Steam Engine.
No 64,600. Patented May 7, 1867.

Fig. 2.

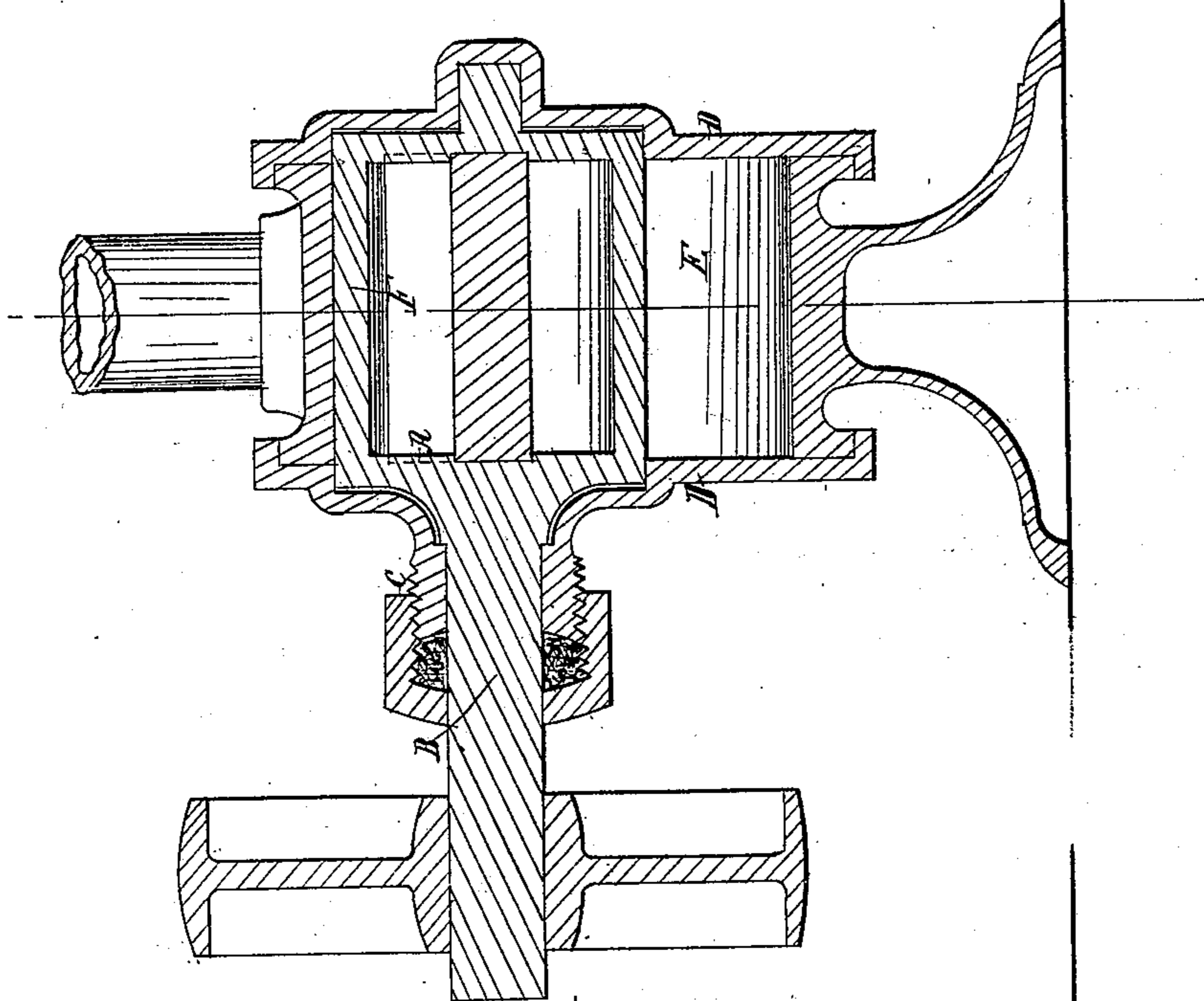
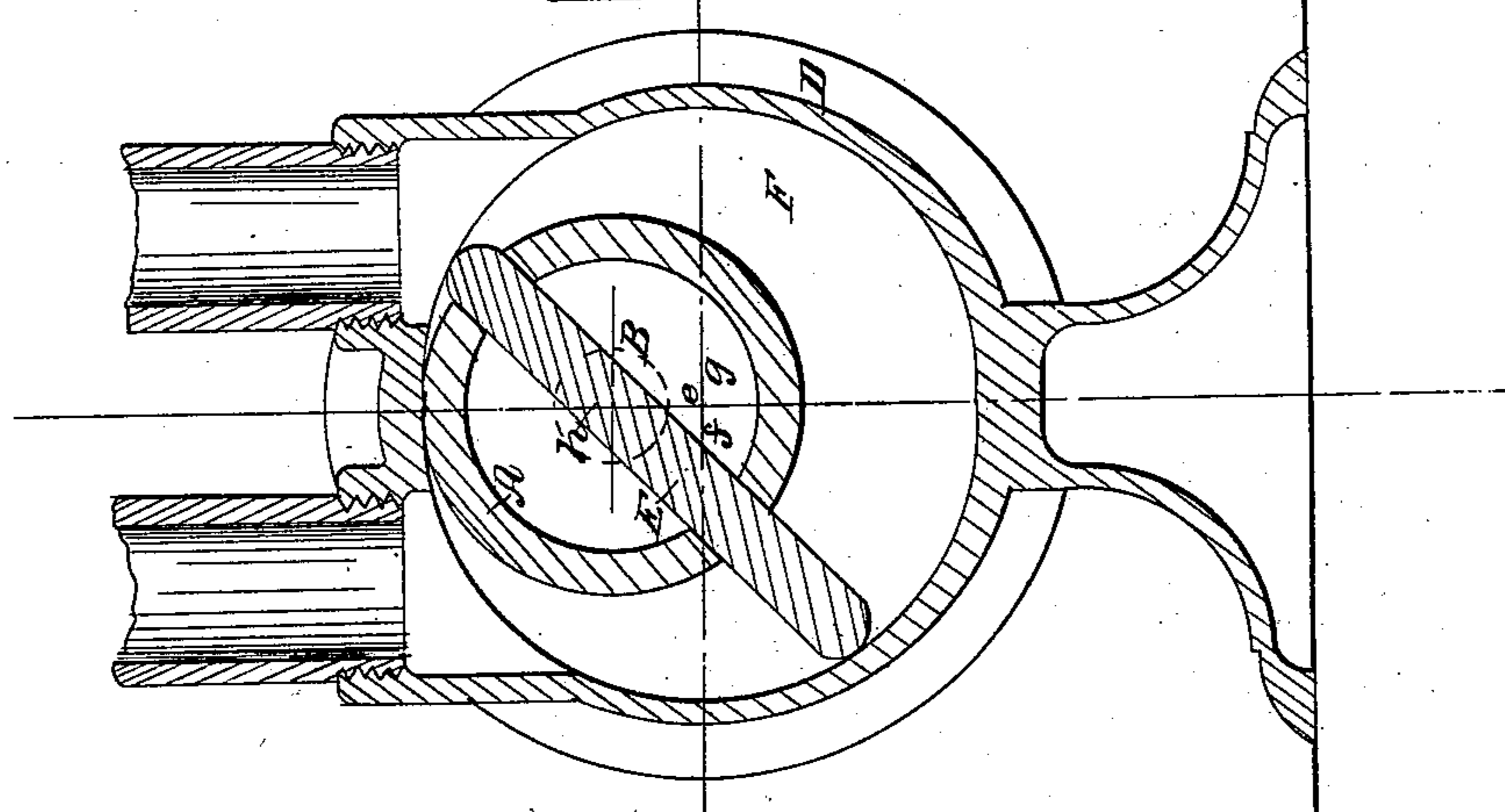


Fig. 1.



Witnesses:
J. W. Coombs
G. W. Reed

Inventor:
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United States Patent Office.

JOSEPH B. VAN DEUSEN, OF NEW YORK, N. Y.

Letters Patent No. 64,600, dated May 7, 1867.

IMPROVEMENT IN ROTARY STEAM ENGINES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, JOSEPH B. VAN DEUSEN, of the city, county, and State of New York, have invented a certain new and useful Improvement on Rotary Engines, applicable either as motors or pumps, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, forming part of this specification, and in which—

Figures 1 and 2 represent views at right angle to each other of a rotary engine constructed according to my improvement, like letters referring to like parts in both figures.

My invention relates to that class of rotary engines having a revolving cylinder or hub, which may be either of equal diameter through its length or of conical configuration in direction thereof, radially sliding piston, and elliptically-shaped stationary cylinder of equal or tapering diameter, in which the revolving hub and its piston work from or around a centre which is eccentric to the centres of the elliptically-shaped cylinder; and it consists, first, in the construction of the side plates, in which the revolving cylinder has its bearings, with recesses of equal diameter with said cylinder, and of sufficient depth to admit so much of the length of the cylinder as is not intersected by the sliding piston, and thereby give strength to the cylinder and insure a more perfect joint between the edges of said piston and the face plates of the stationary cylinder. It also consists in the arrangement of the ingress and egress ports immediately on either side of the permanent abutment of the stationary cylinder, thereby insuring the escape of all the exhaust steam between said abutment and the piston before they come in contact.

Referring to the accompanying drawing, A represents the revolving cylinder or hub, attached to or connected with a shaft, B, working through a stuffing-box, *c*. This cylinder, which works in cavities in the sides D of the stationary cylinder, and intersects at its periphery the extremity of one of the vertical radii of the latter, is provided with a radially sliding piston, E, fitting through slots in said cylinder, and revolving with the cylinder A within an elliptically-shaped stationary cylinder, F, the several centres, *e, f, g*, of which are eccentric to the centre *h* of the revolving cylinder, the diameter of which should rule the proportions of the elliptical cylinder as follows: thus, the radius of the revolving cylinder and vertical or minor radius of the outer cylinder or chamber being given, to find the radius of the major axis of the ellipse, add the square of the minor radius of the latter to the square of the distance between the centres of the revolving cylinder and minor axis, and take the square root of the sum total, which will give the correct radius for the major axis of the elliptical chamber or outer cylinder for the piston E to work throughout a revolution in close contact with said cylinder, to which S S' are the inlet and outlet pipes or passages. The point at which the periphery of the inner or revolving cylinder comes in contact with the inner periphery of the outer cylinder is called the permanent abutment, and may be fitted with any suitable metallic or other packing, and immediately on either side of this abutment are arranged the ingress and egress pipes for the admission and escape of the steam, so that whichever way the cylinder is rotated, (for it may be reversed by changing the current of the steam from one to the other of these pipes,) every particle of exhaust steam escapes before the piston comes in contact with the permanent abutment, and a smooth, steady motion is the result.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The revolving cylinder A, constructed so that its ends rotate within recesses in the side plates of the stationary chamber F, substantially as shown and described, for the purposes specified.
2. The arrangement of the ingress and egress ports in relation to the permanent abutment and to the revolving cylinder fitted with a single sliding piston for operation substantially as set forth.

J. B. VAN DEUSEN.

Witnesses:

J. W. COOMBS,
GEO. W. REED.