

J. DARLING.
ROTARY STEAM ENGINE.

No. 66,570.

Patented July 9, 1867.

Fig. 2.

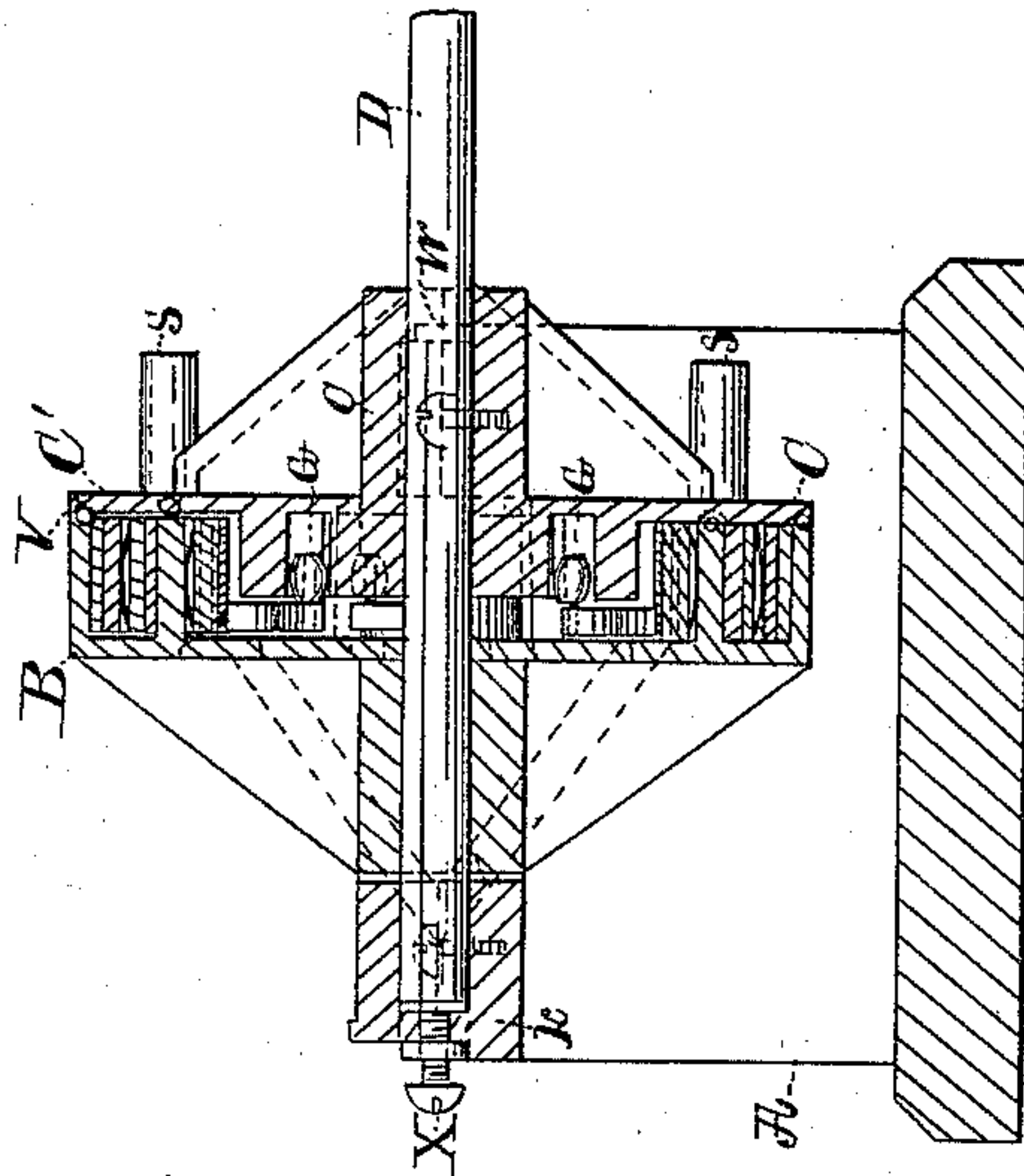
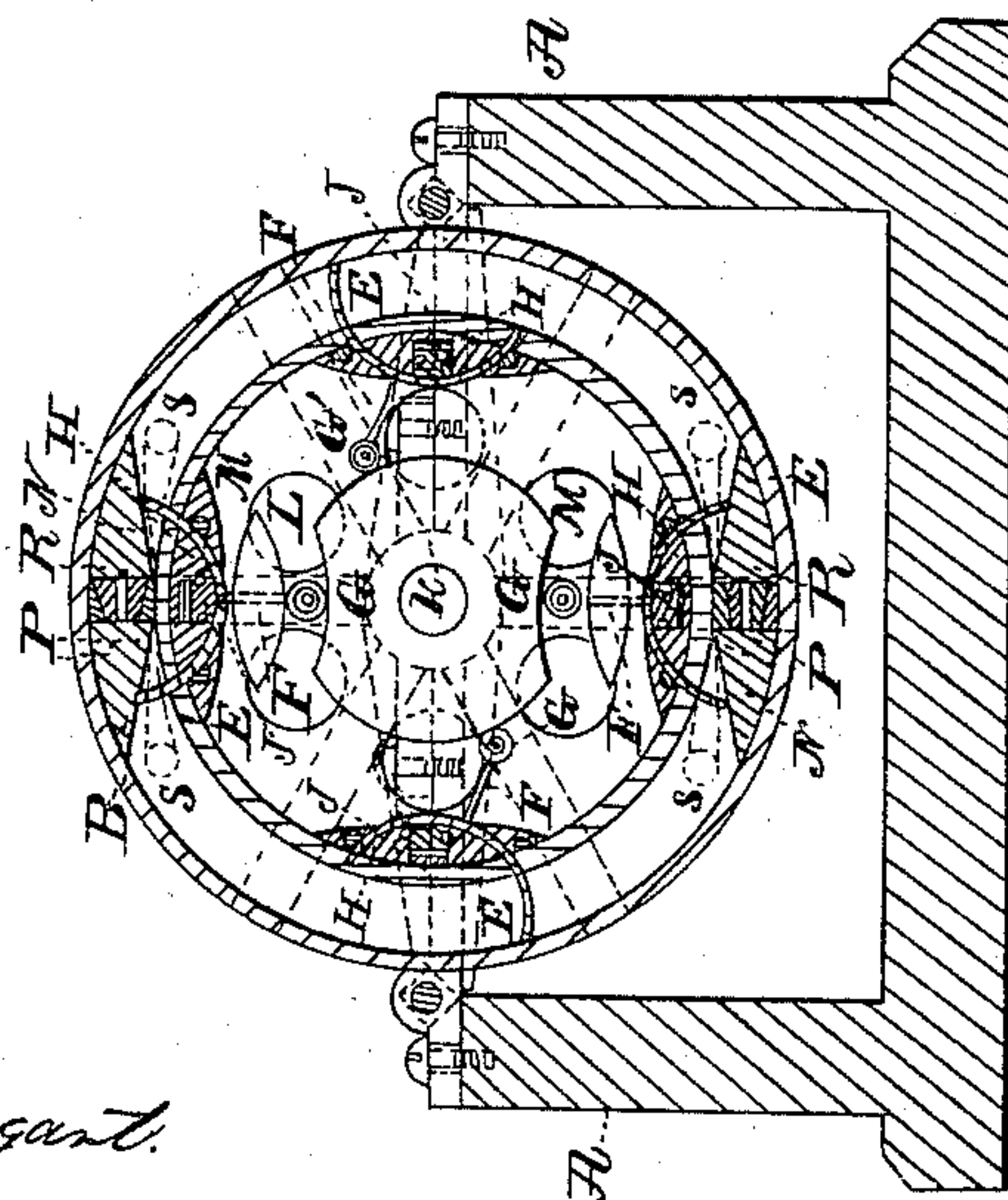


Fig. 1.



Witnesses:
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Inventor:
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United States Patent Office.

JEREMIAH DARLING, OF CINCINNATI, OHIO.

Letters Patent No. 66,570, dated July 9, 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, JEREMIAH DARLING, of the city of Cincinnati, county of Hamilton, and State of Ohio, have invented a new and "Improved Steam Engine;" and I do hereby declare the following to be an exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification, in which—

Figure 1 represents a cross-section of side elevation.

Figure 2, a cross-section of end view.

The nature of my invention consists in the construction of the cylinder by which the edges, the valves, and the ends of the packings all revolve against the face-plate, with springs and rollers attached to the valves that operate around the eccentric, and between the eccentric and the lugs or guides for the rollers. The abutments also on the face-plate fit and grind against the back end of the cylinder, so as to preserve the wear equal to that that runs against the face-plate.

A represents the frame that supports the engine; B, the outside of the cylinder; C, the outside of the face-plate; D, the shaft that revolves with the cylinder B, and operates through the face-plate C that is stationary, and is fastened down permanently to the frame A. The valves E E E E, on the inside of the cylinder B, are semicircular plates, with springs F and rollers G attached, and having packings H on each side of the valve, and a spring, J, to force the packings to their bearings against each valve to prevent the passage of steam. That part of the shaft D that revolves with the cylinder B, operates in a box, K, whilst the opposite end of shaft D revolves in the centre of the face-plate C. On the centre of the face-plate C is a solid eccentric, L, with two lugs or guides M, one on each side, for the purpose of allowing the rollers G to pass around and upon the eccentric L, and between it and the guides M, for the purpose of holding the valves E to their seats in the cylinder to prevent the passage of the steam. There is also on the face-plate C an abutment, N, on each side, one opposite the other, and in each abutment N are packings P, with a spring, R, between to hold the packings to their seats against the cylinder B to prevent the passage of the steam. Four apertures in the face-plate C are for the reception and discharge of the steam, the reception or inlet always diagonally opposite to each other, and the discharge or egress also diagonally opposite. A groove, T, in the face-plate C, extends from the apertures S, on an incline, to the packing P of the abutment N, for the purpose of relieving the valve E of resistance or any reactionary force whilst passing over the entire abutment N. V shows grooves that may be cut into the face-plate C, and the edges of cylinder B to insert a packing if necessary. To keep the cylinder B steam-tight, I have two bolts, W, passing across the frame parallel with the shaft D, for the purpose of moving the box K so as to regulate the tightness of the cylinder by starting the nut of bolt W, or the screw X, against the end of the shaft D, and by this means I also keep the packings and valves to their places steam-tight.

By my invention I equalize the pressure of the steam on both sides, having the ingress and egress apertures S always diagonally opposite each other, which prevents the friction on the opposite side, as usual with an ordinary rotary engine that takes the steam upon one side; and may therefore use my engine for forcing air or water, as well as be driven by steam or water.

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

1. The combination of the semicircular valves E with their springs F and rollers G, operating as herein described.

2. I also claim the cylinder, when constructed with its valves E and packings H, and operating against a stationary face-plate, C, having its eccentric L, guides M, abutments N, all arranged and combined as herein described and for the purposes set forth.

JEREMIAH DARLING.

Witnesses:

J. FRANKLIN REIGART,
DANIEL REIGART.