

(No Model.)

R. C. PAUL.

STEAM ENGINE VALVE AND SEAT.

No. 402,472.

Patented Apr. 30, 1889.

Fig. 1.

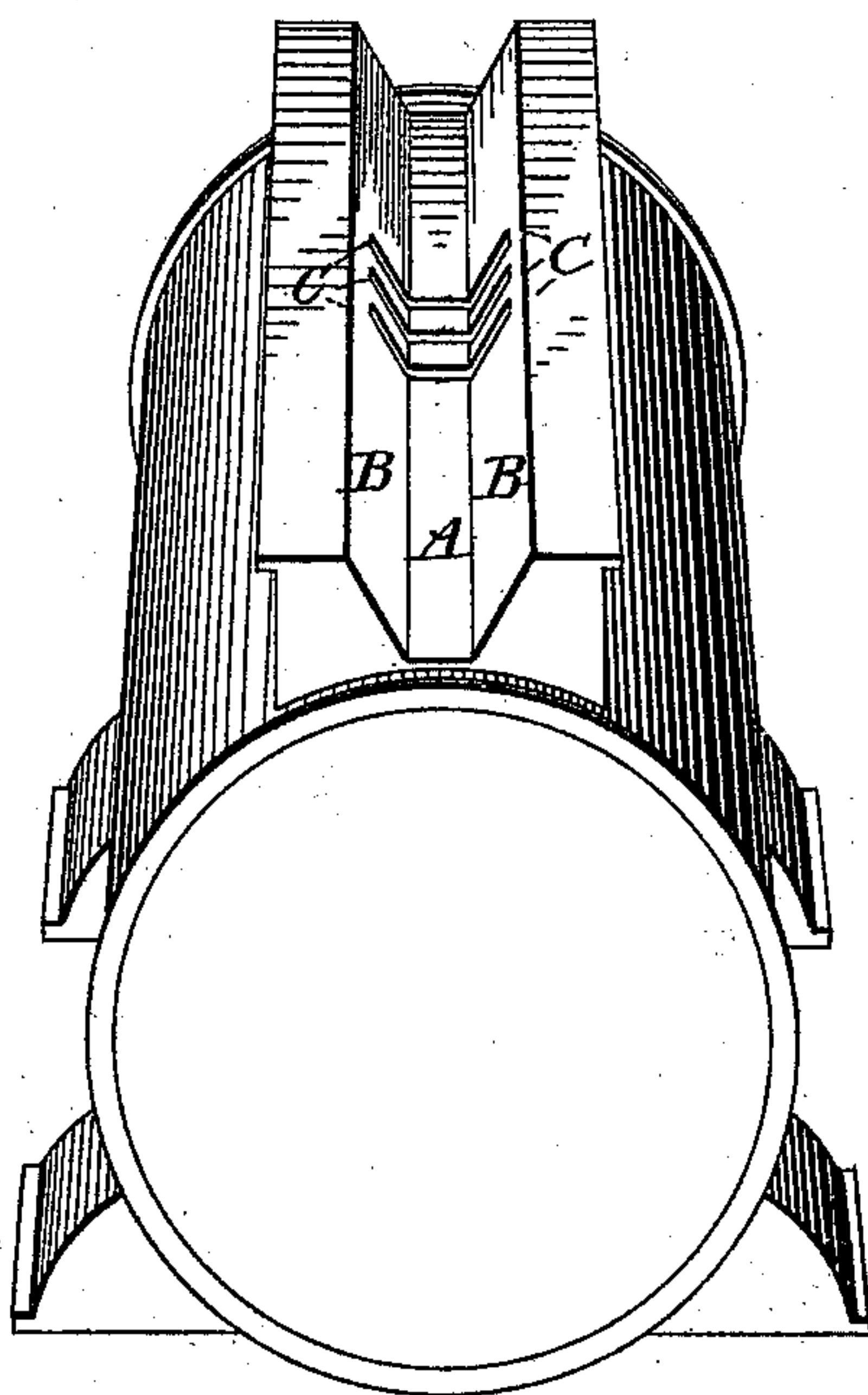
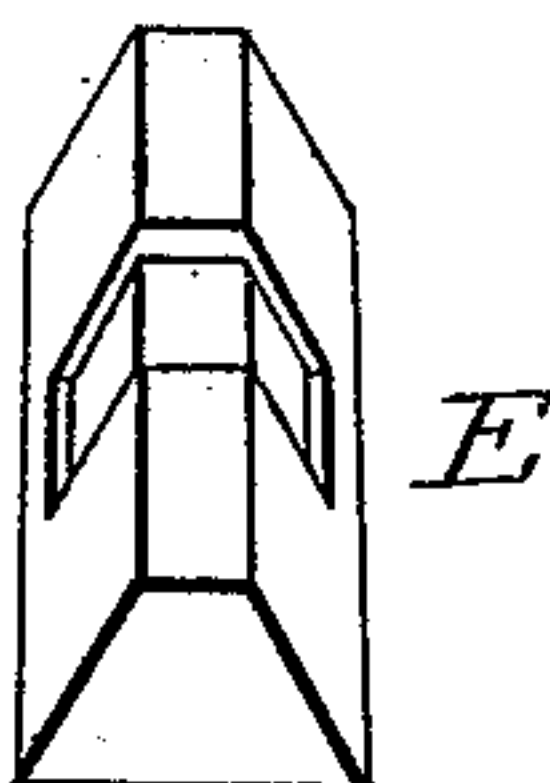


Fig. 2.



Witnesses,
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ROBERT C. PAUL, OF CUMBERLAND, MARYLAND.

STEAM-ENGINE VALVE AND SEAT.

SPECIFICATION forming part of Letters Patent No. 402,472, dated April 30, 1889.

Application filed May 18, 1888. Serial No. 274,347. (No model.)

To all whom it may concern:

Be it known that I, ROBERT C. PAUL, a citizen of the United States, residing at Cumberland, in the county of Alleghany and State of Maryland, have invented a new and useful Improvement in Steam-Engine Valves and Seats, of which the following is a specification.

My invention relates to the ordinary steam-engine having the common sliding valve.

The object of my invention is to relieve much of the superabundant pressure upon the top of the valves of these engines, and by this means economize their power and prevent much of the wear and destruction of their machinery resulting from this undue pressure. The valve-seats in these engines being a perfect plane, in order to get sufficient area in the mouths of the cylinder-ports for the admission of the necessary volume of steam, and at the same time to have them of convenient width, it is necessary to have the ports of great length, and the valves adapted to them must have an area correspondingly large to cover them. This necessarily requires valves with large top surfaces, which, on account of their extensive areas, subjects them to a powerful pressure by the steam, under the drag of which the power of the engine is seriously crippled. I avoid to a great extent this difficulty of valve-pressure by constructing a valve-seat and valve to correspond, by means of which a valve with small top area is adapted to work over ports of large or sufficient dimensions. This I do in the following manner, reference being had to the accompanying drawings.

Figure 1 is a perspective top view of the valve-seat mounted upon its cylinder; Fig. 2, a perspective view of the valve, showing the bottom side.

In Fig. 1, A B B represent a trough-shaped valve-seat having the narrow bottom A, the slanting sides B B, and the ports C C C. These ports are like those in ordinary engines in regard to their distance from each other, their position over the cylinder, and in their use of receiving and expelling the steam from the cylinder, and are only different by opening laterally as well as downward from the valve-seat. By having a valve, E, Fig. 2, with its bottom side to correspond to the shape of the valve-seat the device is complete.

The ports opening into the sides B B, as well as through the bottom A of the valve-seat, the required length to give them sufficient opening is obtained, while they can be covered by a valve of much smaller area than if they opened from a valve-seat with a plane surface.

I do not claim my invention of a depressed valve-seat and valve to correspond, as shown in my specification, to be new.

What I claim is—

Cylinder-ports in steam-engines which open from the bottom and sides of a depressed or trough-shaped valve-seat, in combination with said seat and its valve, substantially as set forth.

R. C. PAUL.

Witnesses:

JOS. A. GONDER,
S. P. HARBAUGH.