

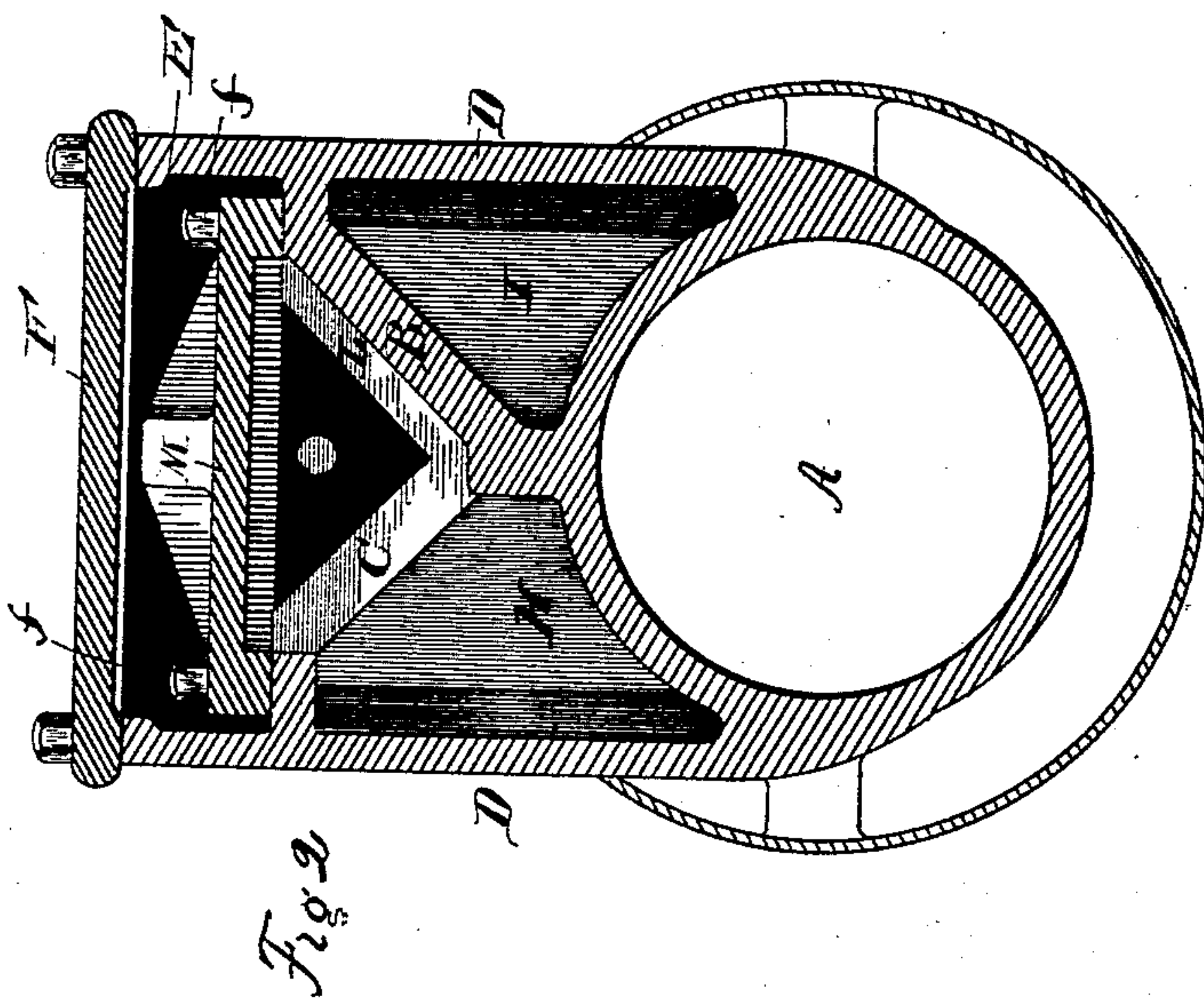
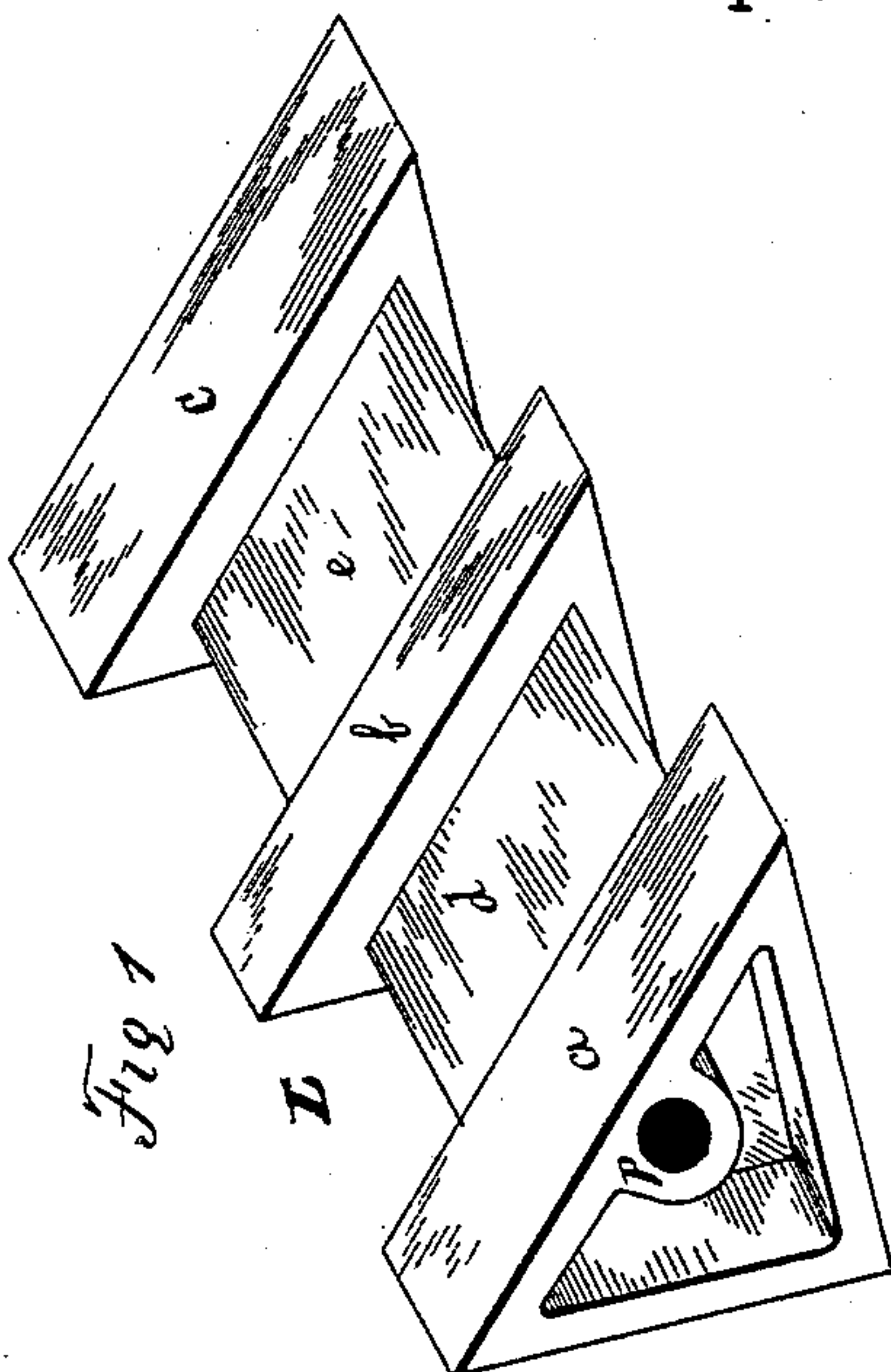
(No Model.)

2 Sheets—Sheet 1.

S. S. BABBITT.
SLIDE VALVE FOR ENGINES.

No. 436,393.

Patented Sept. 16, 1890.



WITNESSES:
Geo. H. Harvey
& E. Johnston

INVENTOR.
Seward S. Babbitt
By A. C. Johnston
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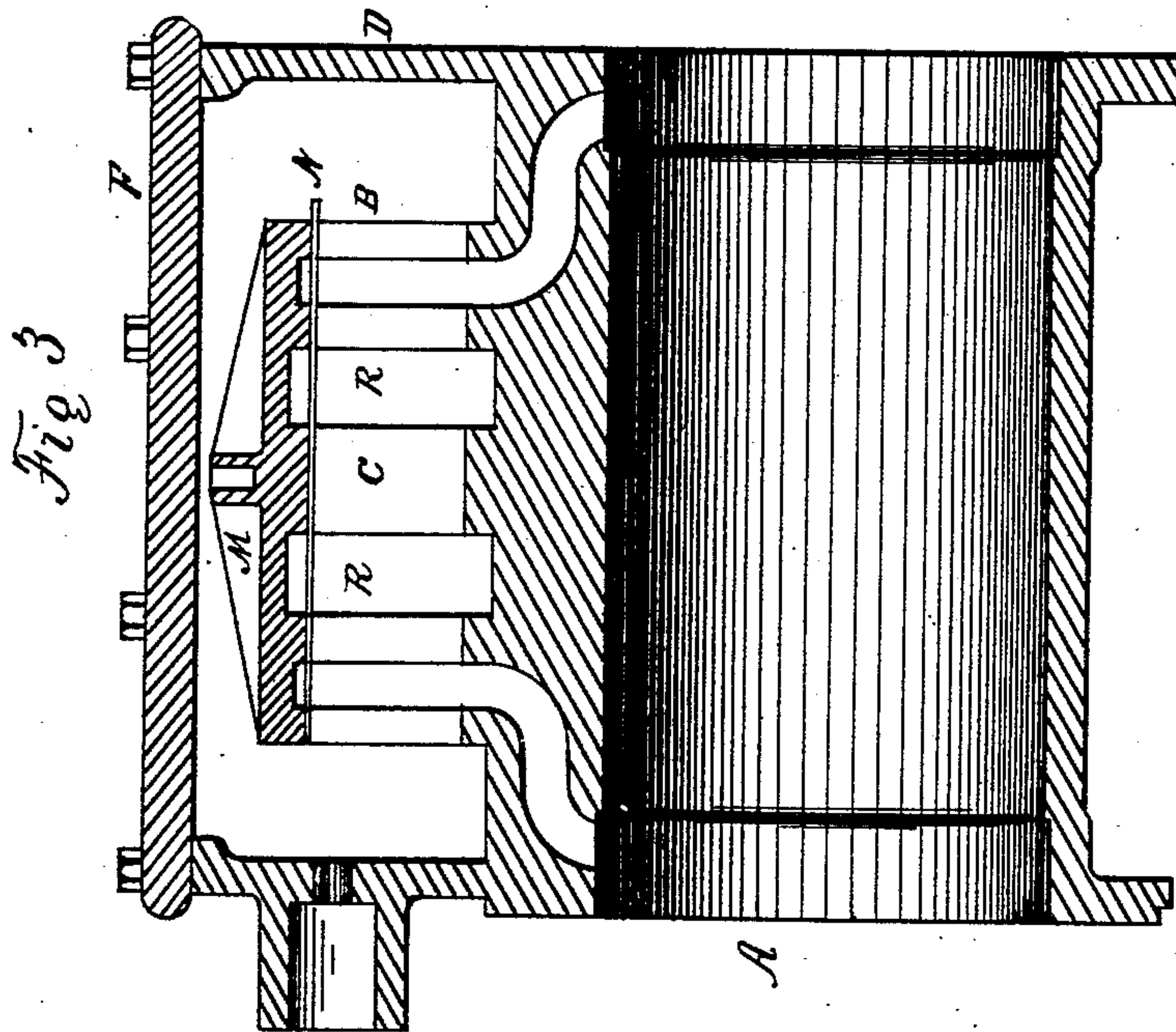
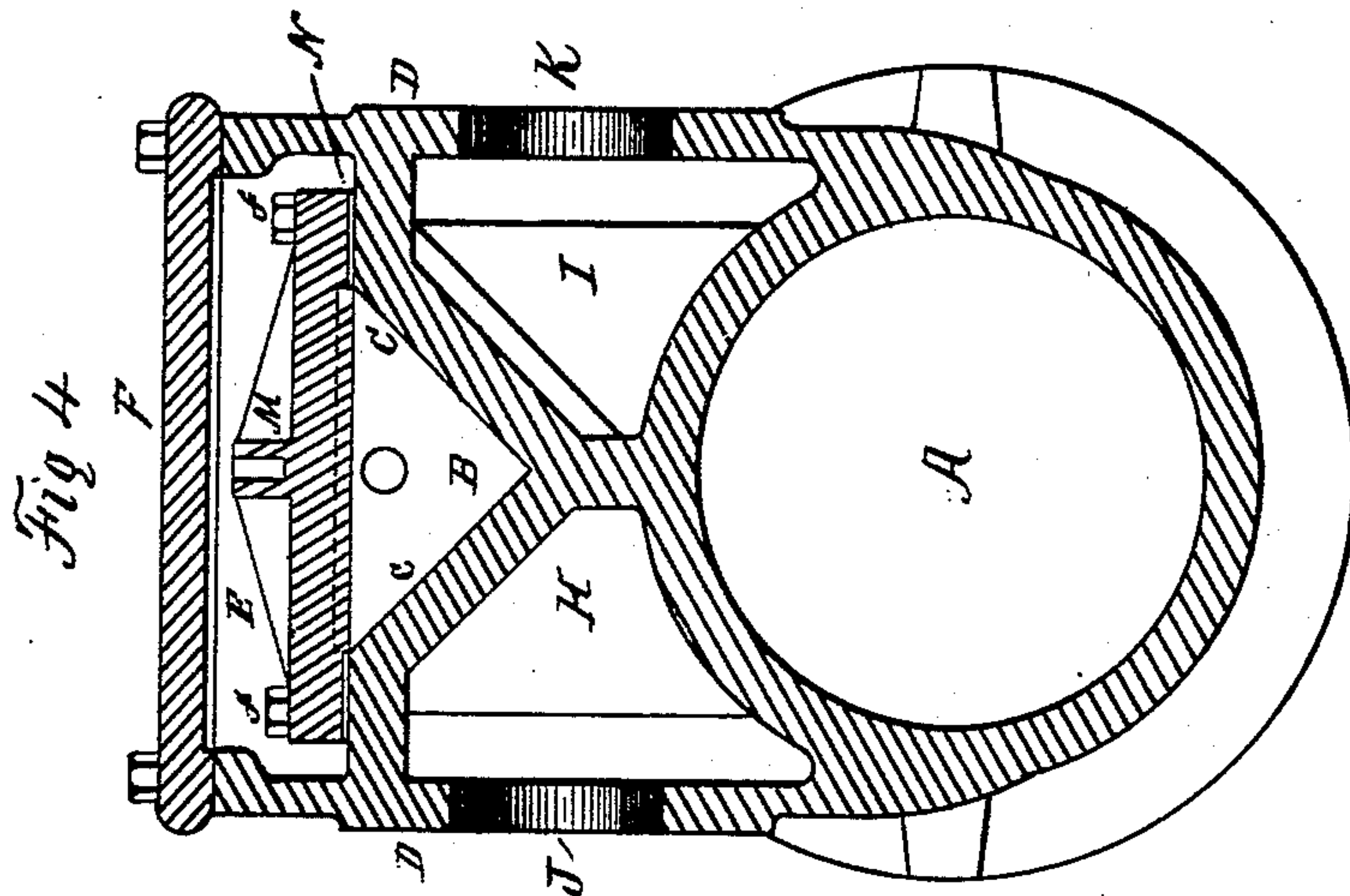
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UNITED STATES PATENT OFFICE.

SEWARD S. BABBITT, OF PITTSBURG, PENNSYLVANIA.

SLIDE-VALVE FOR ENGINES.

SPECIFICATION forming part of Letters Patent No. 436,393, dated September 16, 1890.

Application filed August 17, 1889. Serial No. 321,175. (No model.)

To all whom it may concern:

Be it known that I, SEWARD S. BABBITT, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Slide-Valves for Steam-Engines; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to an improvement in slide-valves for steam-engines; and it consists of a slide-valve of prismoid or triangular form having certain parts thereof of equal sectional area with intermediate parts of less and different sectional area, in combination with an angular valve-seat provided with suitable steam inlet and outlet ports and a cap rigidly affixed to the upper edges of said angular seat and over the valve, the whole being inclosed in a properly-constructed valve-chest in connection with a steam-engine cylinder, as will be hereinafter more fully described by reference to the accompanying drawings, wherein—

Figure 1 represents an enlarged isometrical perspective view of my improved slide-valve as seen when detached from the engine. Fig. 2 is a transverse vertical section of a steam-engine cylinder with its valve-chest containing an angular valve-seat and prismatoidal valve thereon. Fig. 3 is a longitudinal vertical section of a steam-engine cylinder with its valve-seat and chest. Fig. 4 is a central transverse vertical section of the same.

The invention I have made is applicable to any style or size of slide-valve engine, the object being to provide a valve that will permit steam to pass entirely around the same and across its cap or cover, whereby a pressure of steam is had thereon equaling the steam-pressure in the cylinder, the valve and its seat being constructed to afford large steam-passages of great length across the engine.

The engine-cylinder A, being of suitable size, is provided with a valve-seat B, the inclined sides C of which meet directly over the center of the cylinder A in a line parallel with its axis. The downward angle of this valve-seat rests upon and forms part of the upper surface of the cylinder, being cast integral therewith. From the cylinder A vertical walls D extend upward and join the widest portion of the valve-seat B, and from thence a short

distance above it, forming a valve-chest E, that is provided with a suitable cover F, bolted thereon. The juncture of each inclined under surface of the valve-seat with the upper portion of the cylinder A and its vertical walls D forms two separate chambers H I, into one of which live steam under pressure is permitted to enter through an opening J in the side of said chamber in connection with a steam-generator, which steam on passing through the proper channels leading into the cylinder A and after performing its required functions is allowed to enter the opposite chamber and escape through an exhaust-opening K into the atmosphere, after the manner of steam-engines generally.

Within the angular or V-shaped valve-seat B is placed a long prismatoidal valve L, composed of the parts *a b c*, of equal size, connected by two intermediate parts *d e*, of less and different size, each of which may be solid or hollow. The angular sides of the valve L exactly correspond in form and size with those of the seat upon which they are intended to slide with sufficient closeness as to leave no space for the entrance of steam between the bearing-surfaces of the valve and its seat other than those constructed for the passage of steam.

A stationary cap M is arranged over the valve L and secured in proper position by means of bolts *f*. Around and under the edges of this cap M is a thin tapering copper plate N, that may be moved to adjust the cap to the upper and contiguous surface of the valve, and thus compensate for any differences produced by wear of the parts or for other purposes. This valve is provided with a hole P in one end for the introduction and attachment of a rod connected with the engine for imparting a reciprocating movement to the valve in substantially the same manner as slide-valves are operated in other engines, and it may be provided with such other appliances and appendages as are required and generally made use of in contrivances of this character.

When steam under pressure is permitted to enter the chamber H, intended for its first reception, it will immediately find its way to the valve L through the side openings R in its seat and pass entirely around the valve,

producing an equal pressure on all sides thereof, and from thence the steam will enter the cylinder A through such opening leading thereinto as may at the time be uncovered
5 by the valve, and after acting on the engine, whereby the position of the valve is changed, in such a manner as to close the ports through which the steam first entered the cylinder, and opening that end of the cylinder to the ex-
10 haust-chamber through which the used steam is allowed to escape, at the same instant the opposite end of the cylinder is opened for the reception of live steam, which in completing its task is allowed to escape while the reverse
15 end of the engine is taking steam, and thus constant action of the engine and its valve is produced.

Having thus described my improvement, what I claim is—

20 In a slide-valve, substantially as described, a V-shaped valve-seat having the vertically-inclined sides *c c*, which meet at a line in the

vertical plane of the axis of the cylinder and extend longitudinally of the same, said in-
clined sides having the inlet and exhaust 25 openings and the flanges at their upper edges to receive a cap, the inlet and outlet chambers H I, situated on opposite sides of the V-shaped seat and formed by the inclined sides of the seat and by the vertical walls D, which 30 walls extend from the cylinder above the valve-seat and the valve-chest, the cover F, for closing the valve-chest, the cap M, secured to the flanges at the upper edges of the inclined sides, and a sliding prismatic valve 35 fitted on the V-shaped seat below the cap M, substantially as and for the purpose described.

In testimony whereof I have hereunto set my hand this 8th day of May, A. D. 1889.

SEWARD S. BABBITT.

Witnesses:

A. C. JOHNSTON,
C. S. JOHNSTON.