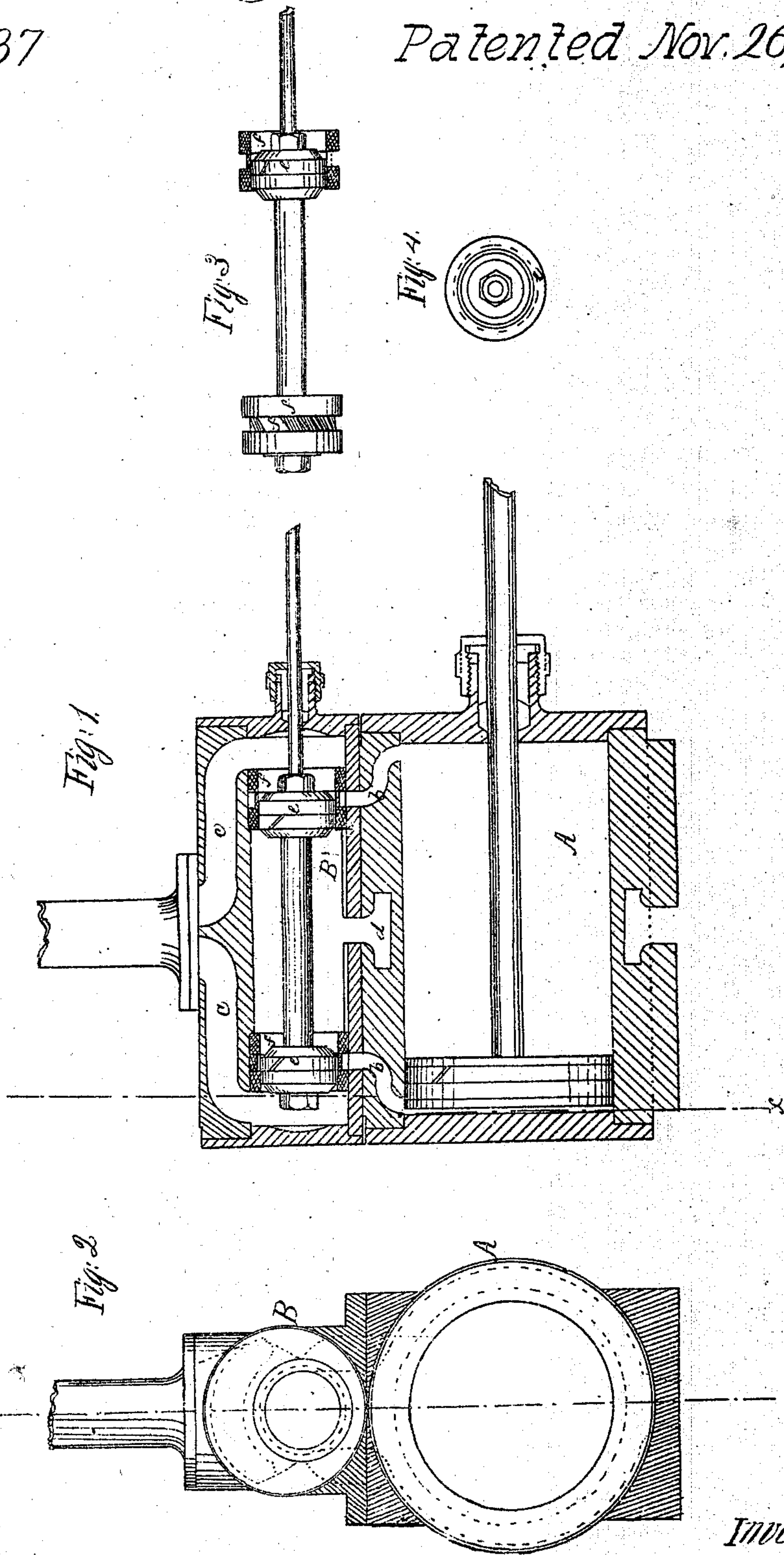


I. Soule.

Steam-Engine Piston Valves.

N^o 71337

Patented Nov. 26, 1867.



Witnesses
Amos Hatch
P. Miller

Inventor
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United States Patent Office.

ISAAC SOULE, OF ALBANY, NEW YORK.

Letters Patent No. 71,337, dated November 26, 1867.

IMPROVEMENT IN STEAM-ENGINE PISTON-VALVES.

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, ISAAC SOULE, of Albany, in the county of Albany, and State of New York, have invented a new and useful Improvement on Balance-Valves for Steam-Engines; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a longitudinal central sectional view of the steam-chest and cylinder, with my valve and spirally-slotted bushing applied thereto.

Figure 2 is an end sectional view taken in the line *x x*, fig. 1.

Figures 3 and 4 are detail views or isolated parts of my invention.

The object of this invention is to render balance-valves more easily operated than any heretofore used, by admitting the steam between the two followers or sliding-disks, secured to a rod, and arranged within a suitable cylinder, and also permitting the exhaust steam from the engine to act upon or against said followers in such a manner as to accelerate the motion, or assist the operation of said valve. The followers slide within detachable bushings, provided with spiral slots, to prevent the packing-rings of the followers from becoming unequally worn or channelled. Said slots, with encircling chamber, form the steam-ports.

To enable others skilled in the art to fully understand and construct my invention, I will proceed to describe it, as follows:

A, figs. 1 and 2, represents an ordinary engine-cylinder, and fitted so as to have secured thereto a cylindrical steam-chest, B, and having steam communication together, at the ports *b b'*. The exhaust-port is represented at *c c*, fig. 1. The steam is admitted into the chest B at the point *d*, and between the followers *e e*. Said followers are provided with suitable packing-rings, in order to compensate for the wear that they are subjected to in passing or sliding within and in contact with the inner surface of the spirally-slotted bushing *f f*. The disks or followers *e e* are secured to a rod in such a manner as to give the proper lap and lead at the steam-ports in the bushings *f f*. In the drawing, fig. 1, steam is represented as entering the cylinder A through the port *b*, and exhausted through the port *b'*. It, therefore, will be readily perceived the advantage that this arrangement possesses over other balance-valves, when used in connection with the detachable, spirally-slotted bushings *f f*.

1. I claim the bushings *f f*, constructed substantially as and for the purpose specified.

2. I claim the steam-passages arranged as described, with reference to the followers *e e* and bushings *f f*, for the purpose herein set forth.

Witnesses:

J. W. LATCHER,
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ISAAC SOULE.