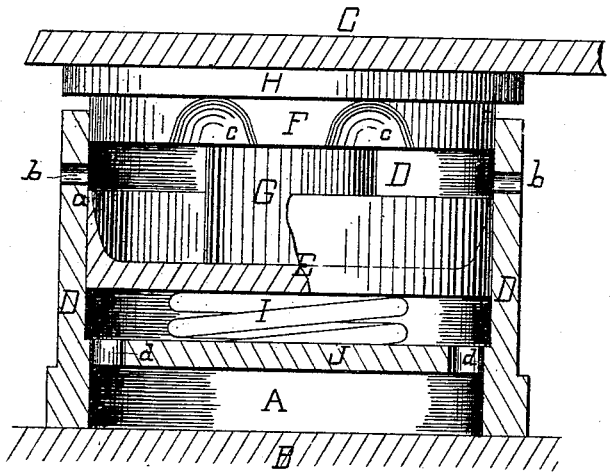
G. MOSSOP.

Balanced-Valves.

No. 167,462. Patented Sept. 7, 1875.



WITNESSES
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GEORGE MOSSOP, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN BALANCED VALVES.

Specification forming part of Letters Patent No. **167,462**, dated September 7, 1875; application filed June 28, 1875.

To all whom it may concern:

Be it known that I, GEORGE MOSSOP, of the city of Philadelphia and State of Pennsylvania, have invented Improvements in Slide-Valves for Steam-Engines, of which the following is a specification:

The invention has for its objection the disburdening a slide-valve of the pressure of steam in the steam-chest.

The accompanying drawing—a vertical diametrical section—fully illustrates the nature and object of the invention.

A represents a slide-valve; B, the face of the steam-cylinder; and C, the steam-chest cover. On the back of the valve is a cylinder, D, into which is fitted the pistons E F, which are connected by the bolt G, so as to be either rigid or flexible. The piston E, shown partly sectioned, is annular, and has its wall *a* gradually thinned toward the top, to spring and spread when pressure is applied. The upper piston has a cap or flange, H, which presses against the inner side of the valve-chest cover C. The steam in the steam-chest enters the cylinder D through the openings *b* and the indentations *c* made in the flange H. Its pressure on the upper piston F, together with that exerted on the flange H, is slightly in excess of that on the bottom piston E, by which the top or cap H is forced, steam-tight, against the inner side of the valve-chest cover, without causing excessive friction when the valve is in motion. The pressure of the steam against the thinned wall *a* of the lower piston E springs it, steam-tight, against the surface of the cylinder, and thus prevents the steam from escaping into the valve.

When the steam is shut off from the steam-chest, the contact of the piston F and the steam-chest cover is retained by a spring, I, which bears between the valve E and the top J of the valve A. The water of condensation which may settle in the bottom of the cylinder D, when the piston E is cooled and contracted, is drained off through the openings *d* in the top of the valve, to the exhaust-openings of the same.

The rod or bolt G which connects the pistons can, as before stated, be rigid or flexible—flexible to permit the piston F to accommodate itself to any unevenness of the steam-chest cover.

The cylinder D and the pistons can be of other forms than cylindrical.

I claim as my invention—

1. In a balanced valve, the combination of the cylinder D, the pistons E F, and apertures for conducting the steam to the space between the said pistons, substantially as and for the purpose shown and described.

2. The piston E, having a thin tapering shell, *a*, in combination with the cylinder D, said shell being forced, by the action of the steam, steam-tight against the piston D, substantially as shown and described.

In testimony whereof I hereunto sign my name in presence of two subscribing witnesses.

GEORGE MOSSOP.

Witnesses:

FRANCIS D. PASTORIUS,

PHILIP A. CREGAR.