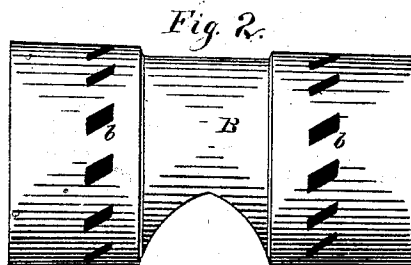
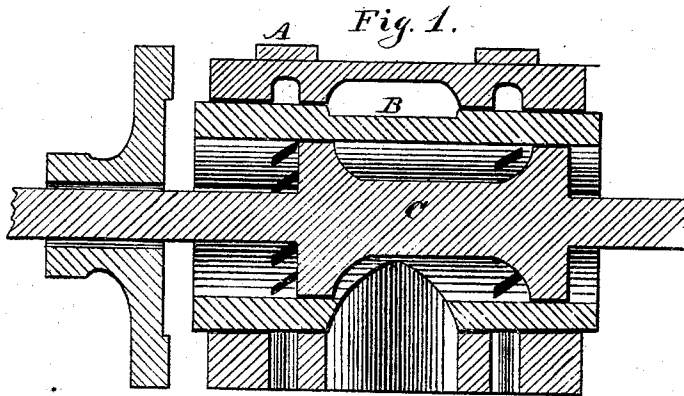


S. MALTBY.

Piston Balance-Valves for Steam-Engines.

No. 148,075.

Patented March 3, 1874.



Witnesses.

Geo. W. F. Smith
J. R. P. Smith

Inventor.

Samuel Maltby

UNITED STATES PATENT OFFICE.

SIDNEY MALTBY, OF CLEVELAND, OHIO.

IMPROVEMENT IN PISTON BALANCE-VALVES FOR STEAM-ENGINES.

Specification forming part of Letters Patent No. **148,075**, dated March 3, 1874; application filed February 2, 1874.

To all whom it may concern:

Be it known that I, SIDNEY MALTBY, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain Improvements in Piston Balance-Valves, of which the following is a specification:

This invention relates to certain improvements in that class of steam-valves known as piston-valves; and the invention consists of a tapering sleeve or bush arranged within the valve-case, having an external annular depression, an opening over the exhaust-port, and diagonal port-openings, as hereinafter more fully specified and claimed.

To enable my invention to be fully understood, I will proceed to describe the same in detail with reference to the accompanying drawing.

Figure 1 is a vertical longitudinal section of a valve and steam-chest containing my improvement. Fig. 2 is a detached view of the before-mentioned sleeve which embodies my improvement.

A represents the case of the valve, the inside surface being provided with annular chambers forming the steam-ports leading to the cylinder. B is a sleeve whose outside surface is straight from one end to the other, but is made slightly tapering from end to end, so that one end is a little smaller in diameter than the other. By this means it is easily made

to fit inside the case A. There is also a slight annular depression in the outer surface of the said sleeve B, in width corresponding to the exhaust-chamber in the case A. A portion of the under side of the sleeve B is cut away directly over the exhaust-port. Through the sleeve B are also made diagonal openings *b b*, connected with the annular lead-ports in the case A. C is a piston-valve fitted to play inside of the sleeve B. This valve and case may set inside of a steam-chest, in which case the case A need not have heads attached, but should the valve and case be used or placed on a cylinder alone, then the ends of the case A must be closed with closely-fitting heads. Making the openings *b* diagonal makes the valve-wear alike on its whole surface.

I am aware that it is not new to provide valve-cases with interior bushings, and I do not desire to claim this.

But what I do claim is—

The tapering sleeve or bush B, having an external annular depression and an opening over the exhaust-port, and provided with diagonal openings *b*, substantially as and for the purpose described.

SIDNEY MALTBY.

Witnesses:

GEO. W. TIBBITTS,
CHARLES A. STIBLE.