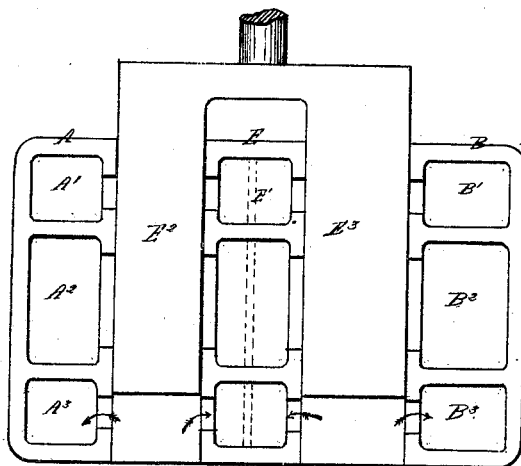


*J.C. Woodhead,*

*Slide Valve.*

*No. 112002.*

*Patented Feb. 21. 1871.*



WITNESS  
*Perceval Beckett.*  
*Benjamin Hollows*

INVENTOR.  
*John C. Woodhead*

# UNITED STATES PATENT OFFICE.

JOHN C. WOODHEAD, OF PITTSBURG, PENNSYLVANIA.

## IMPROVEMENT IN SLIDE-VALVES.

Specification forming part of Letters Patent No. **112,002**, dated February 21, 1871; antedated February 18, 1871.

*To all whom it may concern:*

Be it known that I, JOHN C. WOODHEAD, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Balance Slide-Valves; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to that class of valves known as "balance slide-valves;" and it consists in constructing the valve with a central casing having a diaphragm, and employing two valves in connection with the same, as will be fully described hereinafter.

In the drawing a plan view of my invention is shown.

To enable others skilled in the art to make and use my invention, I will now proceed to describe fully its construction and manner of operation.

A and B represent two vertical casings, which are provided with ports or openings A' A<sup>2</sup> A<sup>3</sup> B' B<sup>2</sup> B<sup>3</sup> in the sides, as shown in the drawing. These openings pass through said casing in such manner as to correspond at the base with the ordinary openings or parts in any ordinary form of valve-seat. A plate is placed over said casings and secured thereto in any proper manner.

E represents a central casing, which is preferably used with the diaphragm E'.

E<sup>2</sup> E<sup>3</sup> represent valves, which are provided with central openings with the ordinary relative size to the other parts, which act as the exhaust of an ordinary slide-valve.

All the parts are so arranged relatively to each other that when the valves are reciprocated steam will be admitted sidewise into any of the side openings of casings A and B, which may be exposed. The steam traversing through said openings will pass through the ordinary cylinder-ports and be used in the ordinary manner. As the upper parts of the valves press against the casing-plate no pressure of steam can bear upon the same, and the valve is thus left free to move, untrammelled by any back-pressure. The action of exhausting is not different from that performed in ordinary cylinders, except that the steam passes through the several exhaust-ports of the chambers.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

The central casing, E, with diaphragm E', when employed in connection with two valves, as described, for the purpose set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

JOHN C. WOODHEAD.

Witnesses:

PERCIVAL BECKETT,  
BENJAMIN FALLOWS.