

*A. Jamison,
Steam Slide Valve.*

N^o 56,946.

Patented Aug. 7, 1866.

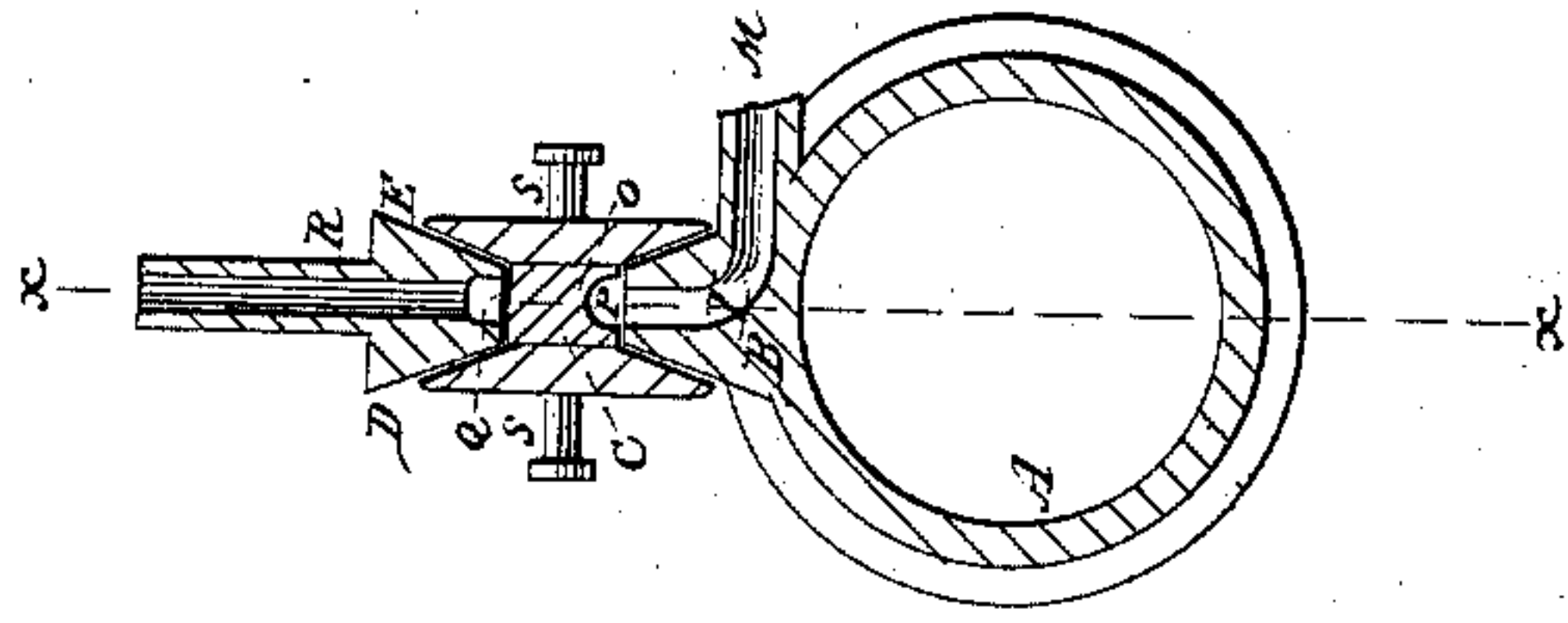


Fig. 2.

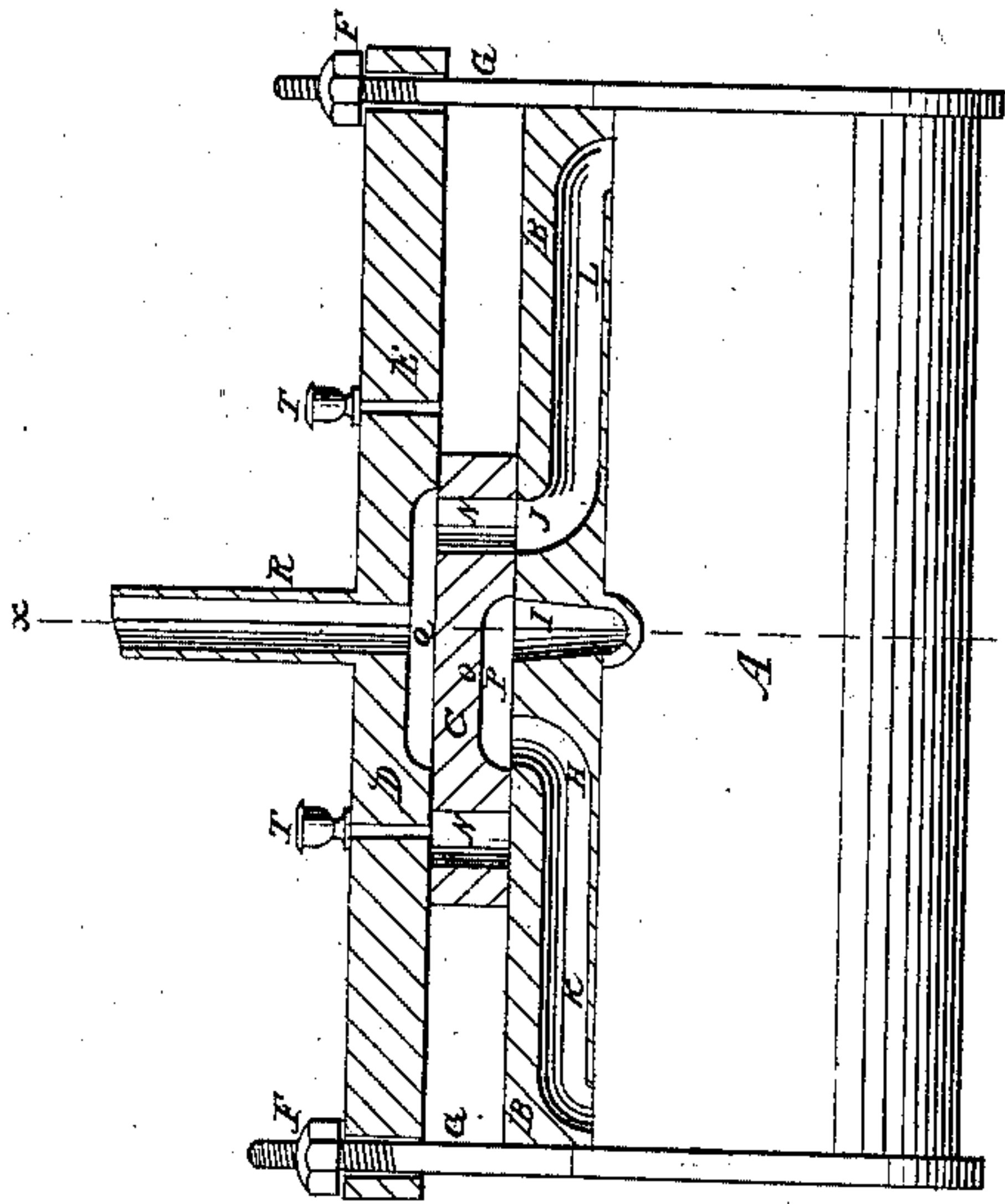


Fig. 1.

Witnesses.

*Alex F Roberts
Jas A Service*

Inventor.

*Andrew Jamison
per Mum & Co
Attorneys*

UNITED STATES PATENT OFFICE.

ANDREW JAMISON, OF TAYLORSTOWN, PENNSYLVANIA.

IMPROVEMENT IN STEAM-ENGINE VALVES.

Specification forming part of Letters Patent No. 56,946, dated August 7, 1866.

To all whom it may concern:

Be it known that I, ANDREW JAMISON, of Taylorstown, in the county of Washington and State of Pennsylvania, have invented new and useful Improvements in Valves for Steam-Engines; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

The valve embraced in the present invention is arranged upon one side of the piston-cylinder, in and between two similar conical or wedged-shaped faces or seats, with their apices or edges toward each other, the valve being made of suitable shape to straddle both of the said faces. The steam enters the valve under its center portion, where, in usual valves for steam-engines, it escapes, from which, passing to the piston-cylinder at either one or the other of its ends, according as the steam-inlet through the valve is in communication with either one or the other of its ports, it acts upon the piston, moving it forward within the cylinder, when, having reached the opposite end of the cylinder, steam is then admitted thereto at such end, the steam back of the piston exhausting therefrom through the port at the opposite end, passing up into the valve and through it into the upper valve face or seat, from whence it escapes at or near the center of the same.

By constructing and arranging a valve and its seat according to the present invention, no steam-chest is required and the packing of the valve-rod is dispensed with, a valve being produced which, without a steam-chest, can be effectively balanced, and no packing required, results of the utmost importance and advantage, as is well known to all conversant with steam-engines.

Having thus in general terms specified the nature of and results secured by the present invention, I will now proceed to describe the same in detail, reference being had to the accompanying plate of drawings, in which—

Figure 1 is a side elevation of a piston-cylinder with a valve, constructed and arranged according to my improvements, placed upon the upper side of the same, the valve and its seats, with the steam, exhaust, and other pas-

sages or ports, in longitudinal section; and Fig. 2 a transverse vertical section taken in the plane of the line *x x*, Fig. 1.

Similar letters of reference indicate like parts.

A in the drawings represents a piston-cylinder, the length and diameter of which is to be varied according to the power required for the engine. Along the upper edge of the piston-cylinder and extending in the direction of its length, a conical or wedge-shaped strip, B, is secured, which strip constitutes one of the seats of the valve C, the other or upper one, D, of which is formed by a similar conical or wedge-shaped strip, E, placed over vertical posts G at each end of the cylinder, with its edge or apex toward the edge or apex of the cylinder-strip B. Between these two strips or seats B and D the valve C is placed, which, upon each side and in the direction of its length, is grooved or cut out, corresponding to the wedge or conical shape of each of the seats B and D, both of which the valve straddles, as plainly shown in the drawings. (See Fig. 2 especially.)

The upper seat, D, is held down upon the valve by screwing the nuts F upon the posts G down against the same.

In the valve seat or strip B of the cylinder three ports or openings, H, I, and J, are made at equal distances apart and of equal lengths, and in the same line with each other, the end openings, H and J, of which communicate with the ends of the cylinder corresponding thereto through suitable passages K and L, made in the valve-seat B, whereas the center port, I, opens to the outside of the cylinder M just below the valve. Through the valve C, near each of its ends, a similar port or opening, N, is made, and its under side or face, O, is cut out or grooved out for a portion of its length, at P, as plainly shown in the drawings, this groove terminating at each end at equal distances from the end ports of the valve and being of sufficient length, as well as the end ports, N, of the valves being made at such points of the valve and with reference to the end ports of the lower valve face, that when either one of the valve end ports is in full communication with the corresponding end port of the lower valve-seat the said groove or cut-out portion of the valve will form a communication between

the center port of the valve-seat and the other or opposite end port of the same to that with which the end port of the valve was in communication, as before stated.

The under side of the upper valve-face is grooved for a portion of its length from its center point for equal distances toward each end, and with the center of this groove O, and half-way of its length, a communication is had through the port R, extending up through the valve-seat to its upper side. The groove in the upper seat of the valve is to be of such a length that when either one of the end ports of the valve is in communication with the corresponding end port of the lower valve-seat such groove will be in communication therewith, but closed to the other end port of the valve, as shown in Fig. 1.

Upon each side of the valve, at or about half-way of its length, but directly opposite to each other, is a projecting pin or arm, S, to which it is intended to hang a rod or rods suitably connected with the working parts of the engine to move the valve forward and backward over its seat upon the cylinder and between it and the upper seat, for alternately opening and closing the valve to the admission of steam to the piston-cylinder and the exhausting of the steam therefrom through the several ports and communications of the valve and its seats, arranged with regard to each other as hereinabove described.

The side port of the piston-cylinder is the steam-port, and the port at the center of the upper seat of the valve the exhaust-port.

From the above description of the construction and arrangement of the valve and its seats it is plain to be seen that no steam-chest is required; that the balancing of the valve can be made perfect, or sufficiently so, it being only necessary to make the valve and its rod-connections of such a weight as to counteract the upward pressure of the steam upon the valve, which is very slight, and furthermore, from the shape of the valve and its seat the parts will wear evenly and to a perfect fit, the bearings of the valve being tightened or loosened at pleasure by turning the screw-nuts in the proper direction therefor.

For the lubrication of the valve and its seats two lubricating-cups, T T, are employed in the upper valve-seat, D, where they are placed in such positions as to communicate with the end ports of the valve as it is moved forward and backward upon its seat, as plainly shown in the drawings, Fig. 1, this arrangement of the cups lubricating both seats and all sides and surfaces of the valve, as is obvious without further explanation.

What I claim as new, and desire to secure by Letters Patent, is—

The saddle-shaped valve C, and its seats B and D, made of corresponding shape thereto, when arranged together substantially in the manner and so as operate as and for the purposes specified.

ANDREW JAMISON.

Witnesses:

ALEXANDER WILSON,
DAVID REED.