(No Model.)

J. PARKER.

BALANCED SLIDE VALVE.

No. 267,245. Patented Nov. 7, 1882.

Fig. 1.

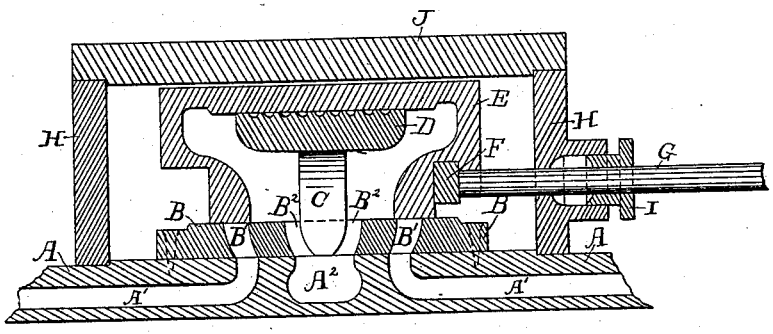


Fig. 2.

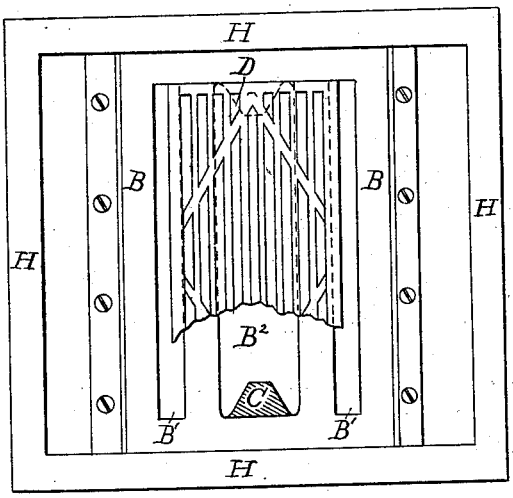
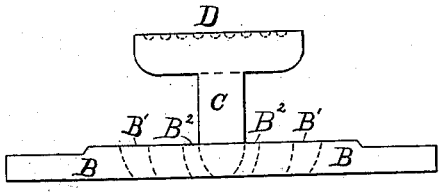


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOSEPH PARKER, OF READING, PENNSYLVANIA.

BALANCED SLIDE-VALVE.

SPECIFICATION forming part of Letters Patent No. 267,245, dated November 7, 1882.

Application filed March 16, 1882. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH PARKER, of the city of Reading, county of Berks, State of Pennsylvania, have invented a new and useful Improvement in Balanced Slide-Valves for Steam-Engines, of which the following is a specification.

This improvement relates more particularly to the valves of locomotive-engines, but is applicable to all slide-valve engines.

Referring to the drawings herewith, forming part of this specification, Figure 1 represents a longitudinal sectional elevation through the center of the valve-chest and supplemental seat; Fig. 2, a plan of the interior of the chest, showing the valve-seat and a part of the secondary supports for the valve. Fig. 3 represents a side elevation of the secondary support and its relation to the valve-seat.

Corresponding parts are indicated by letters of similar character.

A represents the original seat for the valve, A′ A′ being the steam-ports; A^2, the exhaust-port therein.

B is a supplemental plate or valve-seat, having steam-ports B′ B′ and exhaust-port B^2, corresponding on the lower face of the plate with the original seat A, and adjusted to suit the travel of the valve upon the upper face, as shown, and it represents an increase of valve travel over the valve adapted to the original seat.

C represents a post for the support of the secondary bearing or valve-seat.

D is the seat, cast with the posts C to the plate B, and forming an integral portion of the same.

E is the slide-valve, constructed as shown, and adapted to be slipped over the secondary seat and rest upon it and the seat of plate B below.

F represents a wrought-iron yoke, fitted to the body of the valve and connected to the valve-rod G, passing through the stuffing-box, as usual.

H represents the walls of the steam-chest, I the stuffing-box gland, and J the lid or cover of the chest.

In constructing new cylinders adapted to receive my improved valve the plate B will be dispensed with and the valve will rest immediately upon the cylinder-seat, as is customary. The secondary seat on new cylinders would also be cast with the cylinders, thus insuring a permanent connection between the parts; but, if found more convenient so to do, the secondary seat may be cast separately and subsequently attached to the valve-seat. The upper face of the secondary seat I corrugate or groove out transversely, and from each end in opposite directions diagonally a single groove meeting in the center. This is done to prevent unequal wear of the face and to insure at all times a film of steam between the contacting surfaces. The exposed inside area of the valve is so arranged with relation to its outer area as that there shall be an excess of pressure to retain the valve upon its seat, yet in case of water accumulating in the cylinder and driving out with overpowering force the valve is free to lift and discharge the same. The wearing-surface of D being large relatively to that of the valve upon the regular seat, it will to that extent relieve the valve of a large proportion of the pressure upon it, making it more readily handled. At the same time the increase of bearing-surface gained by this improvement prevents to a great extent the wearing and cutting down of the valve-seat, and will therefore be an economical attachment to make to locomotive and other engine cylinders already in use.

I do not propose to offer in my invention a balanced valve, but a valve so constructed and arranged as to reduce the friction upon the same, and which will in use retain its adjustment without the aid of counter-pistons, packed plates, bolts, or machinery of any description.

I am aware that I am not the first to give support to the interior of the valve, (see Patent No. 131,380, September 17, 1872, G. Westinghouse, Jr.;) but I believe myself to be the first to support a valve with a closed top in the manner described.

Having described the application and use of my improvement, and the drawings being sufficiently detailed for the information of an expert to adapt it to new or old engines, I desire to secure by Letters Patent the following claims:

1. In combination with a valve-seat, A, of

an original cylinder, or with a supplemental valve-seat, B, as shown, the secondary valve-seat D, mounted upon posts C, and having its upper face corrugated as described, and adapted to support the closed valve E, substantially as and for the purpose set forth.

2. A closed-top slide-valve, E, constructed as shown, so arranged with relation to its travel upon the seat A or B and the secondary seat D that when in contact with the seat A or B the internal bearing-face, E′, shall also be in contact with the wearing-surface of D, said surface being at all times completely inclosed beneath the top and within the walls of the valve E, substantially as shown, and for the purpose hereinbefore set forth.

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