D. B. KIMMEL.
Balance-Slide Valve

No. 219,161. Patented Sept. 2, 1879

FIG. 1.

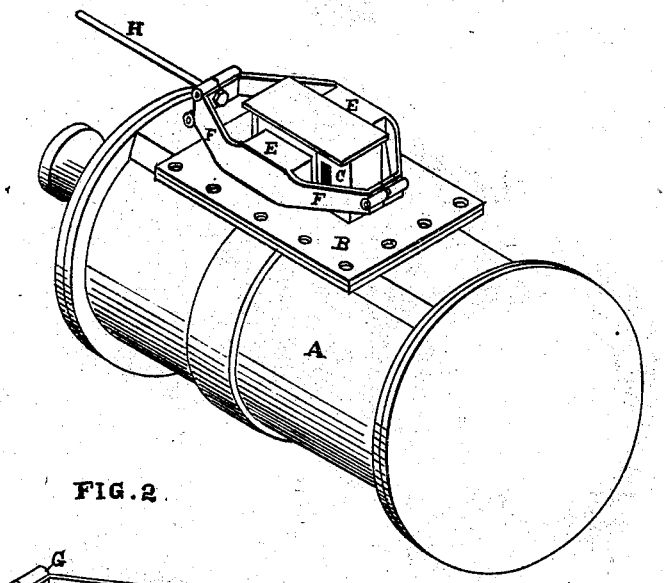


FIG. 2.

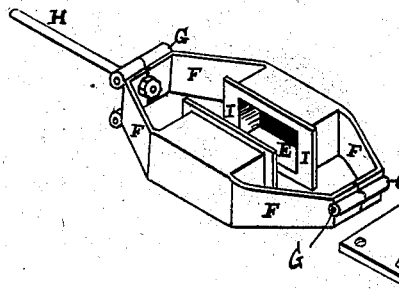


FIG. 3.

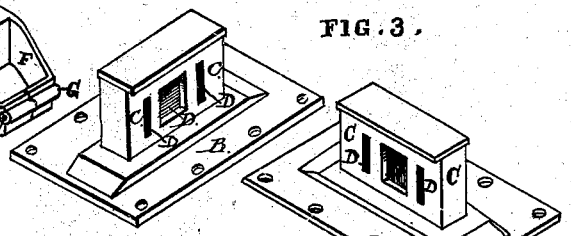
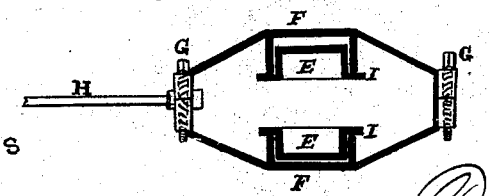


FIG. 4.



Witnesses

Frank A. Brooks
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Inventor

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Attys

UNITED STATES PATENT OFFICE.

DAVID B. KIMMEL, OF IDAHO CITY, IDAHO TERRITORY.

IMPROVEMENT IN BALANCE SLIDE-VALVES.

Specification forming part of Letters Patent No. **219,161**, dated September 2, 1879; application filed June 16, 1879.

To all whom it may concern:

Be it known that I, DAVID B. KIMMEL, of Idaho City, and county of Boise, and Territory of Idaho, have invented a Balance Slide-Valve; and I hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to certain improvements in valves for steam and other engines; and it consists in a novel construction of a double slide-valve having a vertical seat with ports so arranged upon opposite sides that they are controlled by the double valve. The two parts of this double valve are united by a frame, so as to move simultaneously and be actuated by a single valve-stem, as will be more fully described by reference to the accompanying drawings, in which—

Figure 1 is a view of my valve and seat applied to a cylinder, and having the steam-chest and cover removed. Fig. 2 is a view of the valve removed from the seat. Fig. 3 is a view of the steam-chest, showing the ports on opposite sides of the valve-seat. Fig. 4 is a horizontal section of the valve and frame.

A is the cylinder of an engine. B is the face or plate upon which the steam-chest is bolted or secured. From this face the valve-seat C arises. This seat is of considerable height, and has ports D upon each side, as shown.

Any arrangement of ports may be employed; but I have shown in the present case two steam-ports upon each side, with an exhaust-port between them.

The valve is double, consisting of the two valves E E, each of which is constructed in the usual manner of forming such valves, and one of them controls one set of ports, while the other controls the opposite set. These valves are fitted into openings or sockets in a frame, F, which extends beyond each end of the seat C, and its opposite ends may be united by a bolt or other device, G, so that they may be adjusted to fit the valves to their seats. The valves have flanges I, which project slightly beyond the edges of the sockets in the frame F, so that a slight steam-pressure will be exerted upon these flanges, and thus insure the valves working steam-tight upon their seats without undue pressure or friction.

The frame incloses the main portion of the valves, and it is sufficiently rigid to prevent the valves from being forced with great pressure upon their seats, and each valve through the frame resists the pressure of the steam upon the other, so that my valve is perfectly balanced.

A single stem, H, extends outward from the frame F at one end, and, passing through the end of the steam-chest with a suitable stuffing-box, is connected with the eccentric or other means by which the valve is to be moved.

It will be seen that my balanced valve can be easily applied to any engine by fitting the double vertical valve-seat C to the seat as ordinarily constructed, and the change can be made at small expense. It is especially fitted for locomotive-engines, in which the valves and ports are large, and the valves are subjected to great pressure and rapid motion.

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

1. The vertical valve-seat C, with its ports D upon opposite sides, as shown, in combination with the valves E and the connecting-frame F, made adjustable by bolts G, so as to hold the valves to their seats, substantially as herein described.

2. The vertical hollow valve-seat C, with its two sets of oppositely-situated ports D, in combination with the valves E E and the inclosing supporting-frame F said valves moving with the frame, and having flanges I, whereby they are held to their seats, substantially as herein described.

In witness whereof I have hereunto set my hand.

DAVID B. KIMMEL.

Witnesses:

GEO. H. STRONG,

S. H. NOURSE.