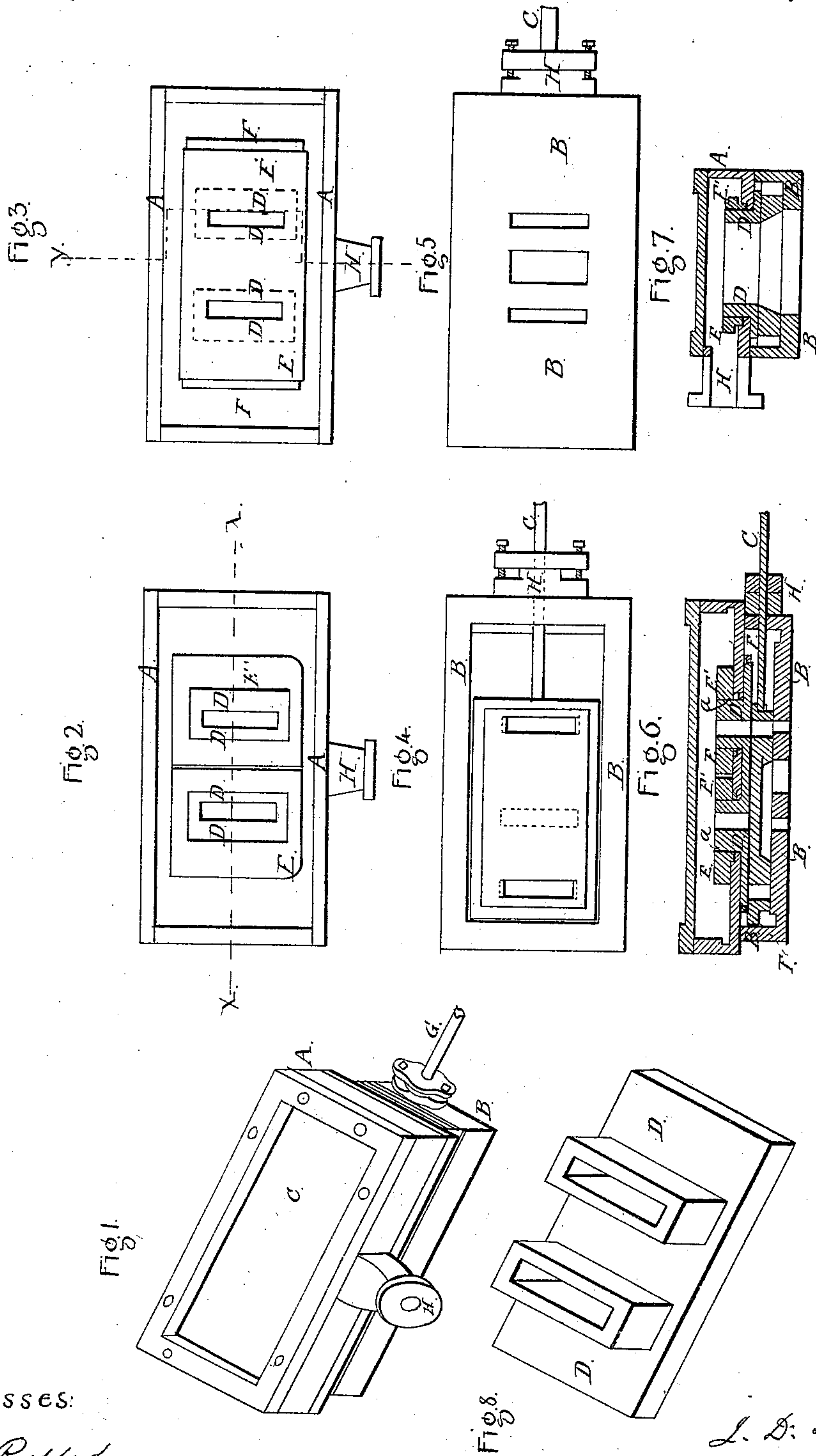


J. D. Stewart.

Slide Valve.

N^o 90,887.

Patented Jan. 1, 1869.



Witnesses:

*a Ruppert
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Inventor:

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United States Patent Office.

JOHN D. STEWART, OF LA PORTE, INDIANA.

Letters Patent No. 90,887, dated June 1, 1869.

IMPROVEMENT IN STEAM-BALANCED SLIDE-VALVES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JOHN D. STEWART, of La Porte, in the county of La Porte, and State of Indiana, have invented a new and useful Improvement in Seats for Balanced Slide-Valves; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1 is a perspective view of the chest which encloses the valve and its seats, together with the rod for operating the valve and the steam-induction pipe;

Figure 2 is a plan or top view of the upper section of the steam-chest, showing also the glands which hold the packing in position, which surrounds the projections upon the movable valve-seat;

Figure 3 is a bottom view of the same, showing the lower surface of the movable valve-seat;

Figure 4 is a plan or top view of the lower section of the steam-chest and the slide-valve which moves therein;

Figure 5 is a bottom view of the same, showing the induction and eduction-ports in the valve;

Figure 6 is a longitudinal vertical section of the valve-chest and valve, showing also the movable, or adjustable upper seat of such valve;

Figure 7 is a vertical transverse section of the same; and

Figure 8 is a perspective view of the adjustable valve-seat, with its projections and induction-steam ports.

Corresponding letters refer to corresponding parts in the several figures.

This invention relates to balanced slide-valves; and

It consists in the combination and arrangement of such a valve, with its adjustable upper seat, and with reference to the glands, and packing for the same, as will be more fully explained hereinafter.

A, in the drawings, represents the upper section of the steam, or valve-chest, which may be rectangular, or of any other suitable form, its lower surface being provided with a disk, or plate, the lower surface of which is flush with the bottom of the side walls of this section of the chest.

This disk, or plate is to be provided with slots, or apertures for the passage of the projections formed upon the adjustable seat.

The upper half or portion of this disk is to have a recess formed around the one above described, for the reception of packing, as shown in figs. 6 and 7 of the drawings.

B represents the lower section of the chest, which is to be of the same size and form as the upper section, above described, and is to be provided with the usual opening for the passage of the valve-rod, and with the usual, or any approved form of stuffing-box and gland for packing such valve-rod.

C represents the cover of the steam-chest, which may be of the usual form, and it, together with the two sections of the steam, or valve-chest, may be secured to the cylinder in any convenient manner.

C' represents the slide-valve, which is to be placed within the section B of the chest, and bear upon a seat formed thereon, or upon the surface of the cylinder. This valve may consist of a flat disk, or plate of metal, of equal thickness throughout, but having, near its ends, slots, or passages, corresponding in size and shape with the induction-steam passages in the cylinder to which it is to be applied, they being so arranged as to admit steam alternately to each end of the cylinder, as the valve is moved for that purpose.

Upon the under side of this valve, or upon that side which comes in contact with the lower or inner valve-seat, there is to be formed a concave or otherwise suitable cavity, through which the steam is to pass in escaping from the cylinder. The arrangement of the above-described openings or parts is clearly shown in fig. 4 of the drawings.

D represents the upper adjustable seat of the valve C', it being a disk, or plate of metal, of suitable thickness to withstand the pressure of the steam, without being sprung, or bent thereby.

Upon the upper side of this disk, or plate, there are to be formed two projections, which are to be of sufficient height to extend up through the disk, or plate upon the bottom of section A of the steam-chest, and receive the packing and glands, as shown in figs. 6 and 7.

Through these projections and through the plate, there are to be formed apertures, or ports for the passage of the steam from section A of the chest to the cylinder, which ports, or passages are to be of the same area, and be arranged the same as the ports, or passages described as being in the lower valve-seat or in the cylinder, so that when one of the apertures, or ports in the valve is directly in line with either of these apertures, or ports, the steam will pass directly to the cylinder through such passages.

E E' represent glands, the aperture through which is to be of the form and size of the projections upon the valve-seat D, and they are to be provided, upon their lower or inner surfaces, with a flange, or projection, to enter the recess in the lower plate of section A, as shown at *a a'*, in figs. 6 and 7, and bear upon and retain the packing in its position. These glands are to be held in their places, and pressed down upon the packing, when necessary, by means of screws, which are to pass down through them, and into threaded holes formed in the plate of section A of the steam-chest.

F F represent cleats, or projections, which are to be formed upon the lower surface of section A of the steam-chest, they being so arranged as to be in con-

tact with the ends of the adjustable seat D, and thus prevent any endwise or longitudinal movement of such seat, consequent upon its resting upon the valve C'.

G represents the valve-rod used for imparting motion to the valve in the usual manner.

H represents the pipe through which the steam passes to the chest.

a a represent the packing which is used to prevent the passage of steam from the upper to the lower sections of the chest, around the projections upon the adjustable seat.

Having thus described my invention,

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

1. The construction of the adjustable upper valve-seat, with its projections and apertures, arranged substantially as shown and described.

2. The combination of the adjustable valve-seat D, section of steam, or valve-chest A, and valve C', substantially as shown and described.

3. The arrangement of the glands E E', packing *a a*, and adjustable seat D, substantially as shown and described.

4. The arrangement of the stops, or projections F F upon the plate of section A of the steam-chest, and at the ends of the adjustable valve-seat D, substantially as shown and described.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

JOHN D. STEWART.

Witnesses:

JOHN D. STEWART, Jr.,
A. T. BLISS.