

S. D. White,
Steam Balanced Valve.
N^o 50,527. Patented Oct. 17, 1865.

Fig. 1

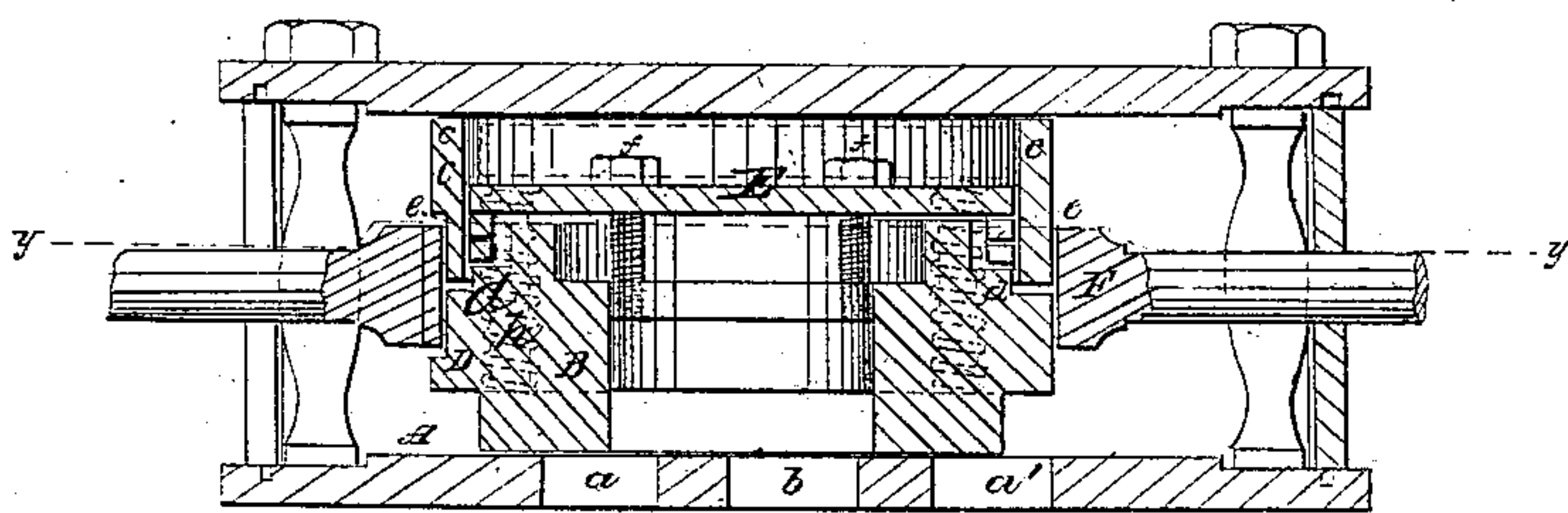
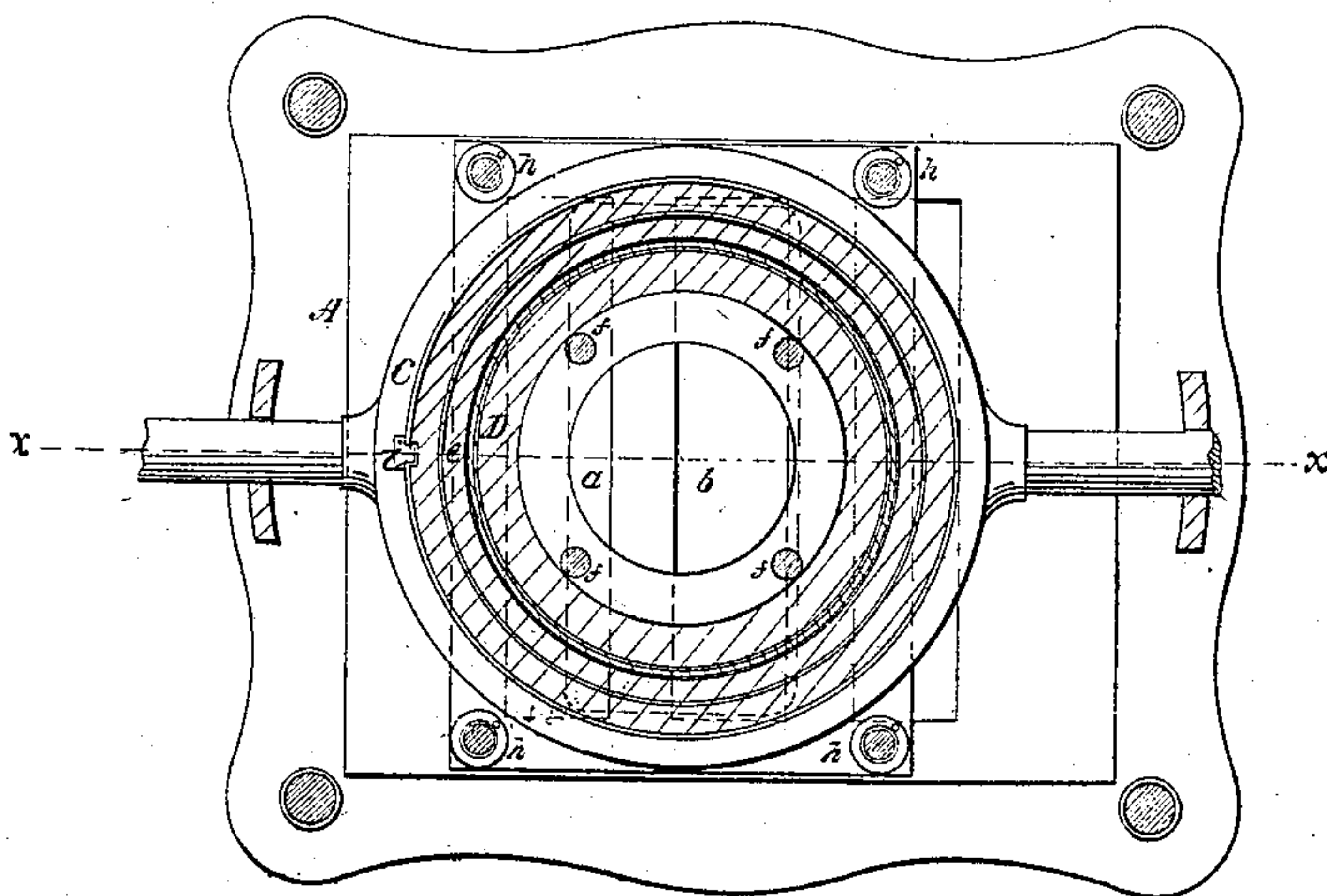


Fig. 2



Witnesses

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STEPHEN D. WHITE, OF CENTRALIA, ILLINOIS.

IMPROVEMENT IN SLIDE-VALVES.

Specification forming part of Letters Patent No. 50,527, dated October 17, 1865.

To all whom it may concern:

Be it known that I, STEPHEN D. WHITE, of Centralia, in the county of Marion and State of Illinois, have invented a new and Improved Balance-Slide Valve; 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, in which—

Figure 1 represents a longitudinal vertical section of this invention, the line *x x*, Fig. 2, indicating the plane of section. Fig. 2 is a horizontal section of the same, taken in the plane indicated by the line *y y*, Fig. 1.

Similar letters of reference indicate like parts.

This invention relates to a balance-valve which is made in two parts, the bottom part being made to work steam-tight against the seat or bottom, and the top part steam-tight against the cover of the valve-chest.

The invention consists in the use of a follower and packing-rings, in combination with the upper part of the valve, which is forced up against the cover of the valve-chest, by means of springs, in such a manner that the valve is free to lengthen and shorten like a telescope without allowing the steam to escape at the joint between its two parts, and the upper part of the valve is free to work steam-tight against the cover of the valve-chest, whereas the bottom of the valve at the same time works steam-tight against the seat or bottom of the valve-chest, and the valve is perfectly balanced.

A represents a valve-chest, the bottom of which forms the seat for the valve B, and is provided with ports *a a' b* forming the steam and exhaust ports, the same as an ordinary steam-chest.

The valve B is made in two parts, which are similar in appearance, except that the top part, C, is bored out round and provided with an annular projection, *c*, or top which bears against the cover of the valve-chest. The lower part, D, of the valve is formed like an ordinary slide-

valve, with a round body, equal in diameter to the upper part, and it is provided with a projecting rim, *d*, which fits nicely into the upper part, C. Metallic packing-rings *e*, which fit steam-tight into the upper part, C, of the valve, are pressed down upon the rim *d* by means of a follower, E, which is fitted into the upper part, C, and secured to the lower part, D, by screws *f*. By the action of these screws the packing-rings *e* are pressed steam-tight against the upper edge of the rim *d*, leaving at the same time the upper part of the valve to rise and fall, without, however, allowing the steam to leak through. Springs *h*, which bear on the corners of the two parts B C of the valve-hold the lower part down upon its seat and the upper part up against the cover of the valve-chest. These springs must be strong enough to overcome the friction between the outer surface of the packing-rings *e* and the inner surface of the upper part, C, of the valve.

The follower may either be solid, as shown in Fig. 1 of the drawings, or if it is desired to exhaust through the top of the valve-chest, it must be made open.

For the purpose of imparting the requisite reciprocating motion to the valve, a yoke, F, may be employed, which fits round the body of the valve and which is provided with a feather-key, *i*, catching in grooves in both parts of the valve, so that by this key said parts are prevented from turning one independent of the other. It must be remarked, however, that any other suitable device may be substituted for the yoke, and I do not wish to confine myself in this respect to the precise arrangement shown in the drawings.

I claim—

The arrangement within the steam-chest A of the parts C and D of the valve, the follower E, springs *h*, packing-rings *e*, operating as described.

STEPHEN D. WHITE.

Witnesses:

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