W. STEPHENS.

Slide-Valves.

No. 144,295. Patented Nov. 4, 1873.

Fig. 1.

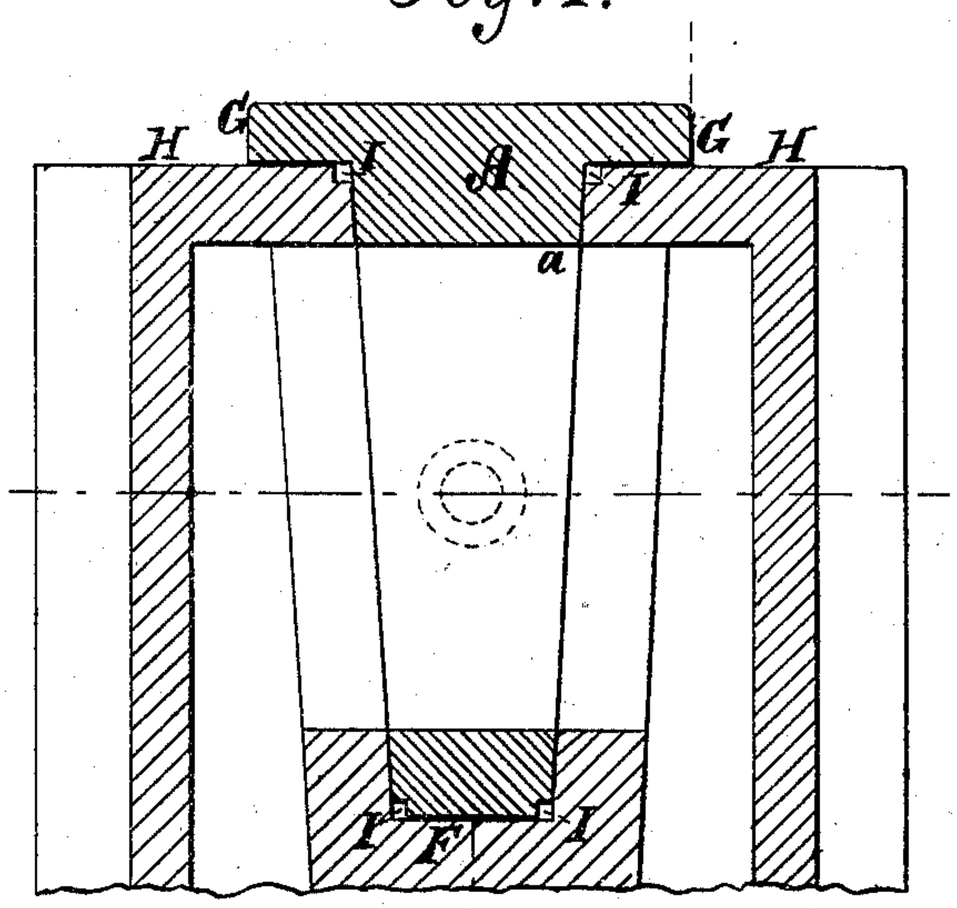


Fig. 3.

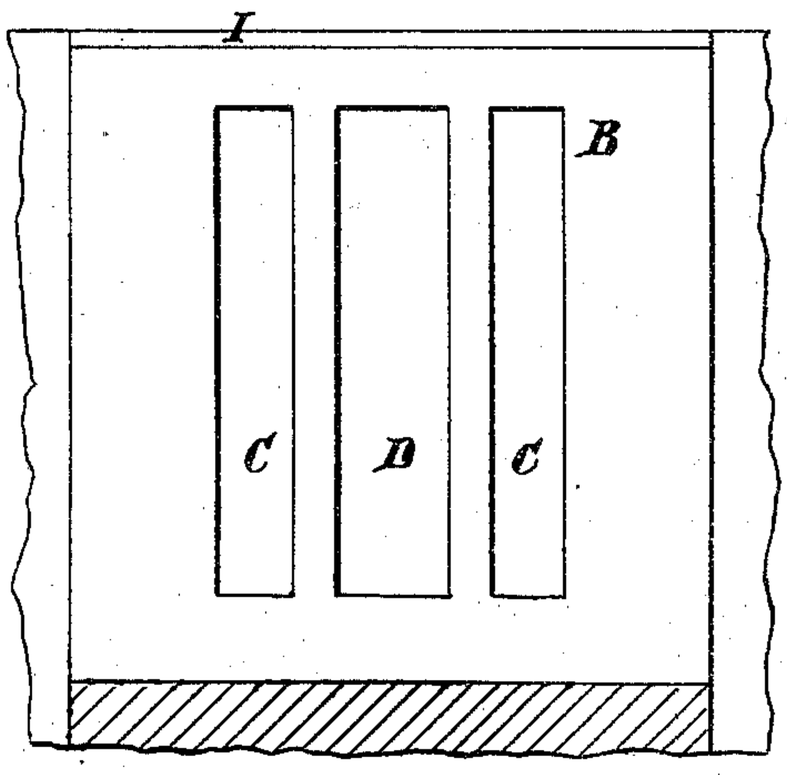


Fig. 2.

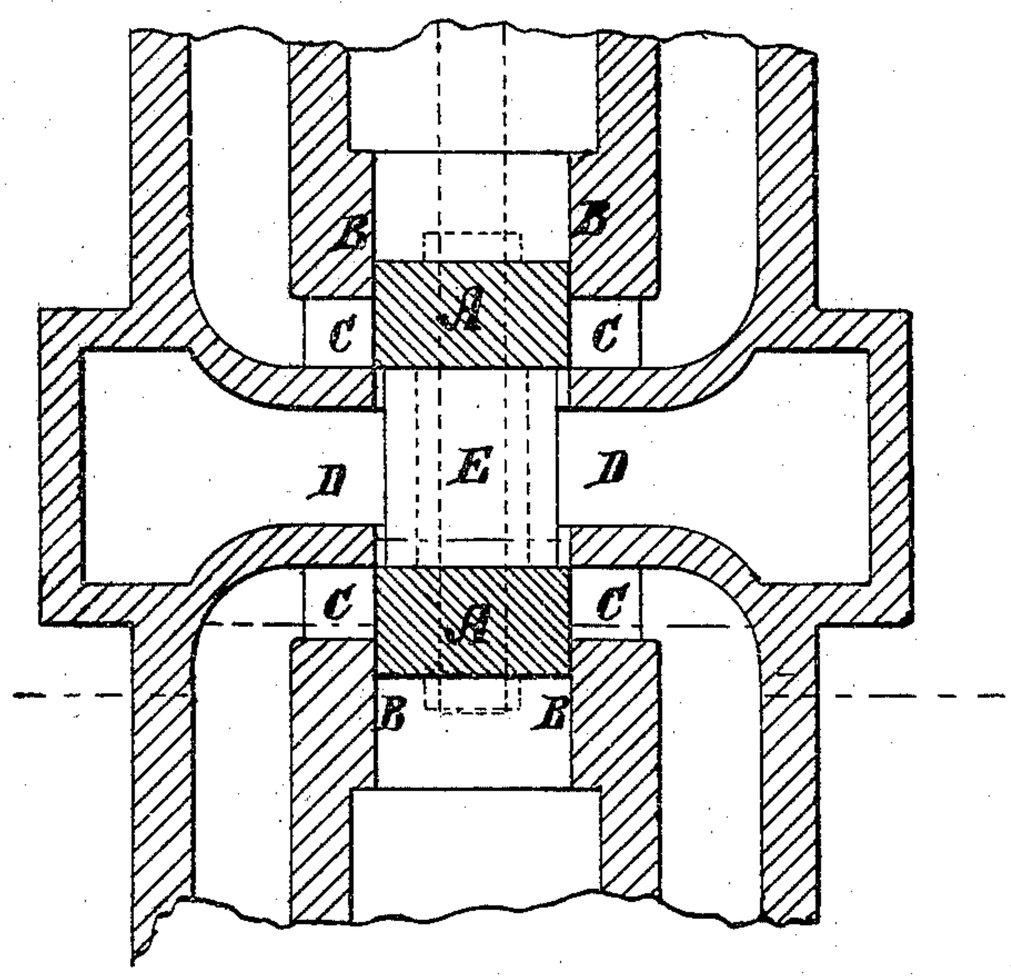
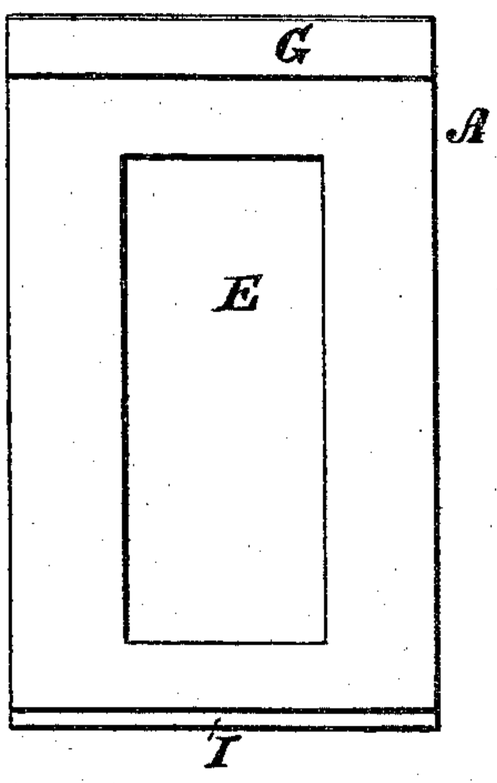


Fig. 4.



Witnesses:

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Per

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UNITED STATES PATENT OFFICE.

WILLIAM STEPHENS, OF PITTSTON, PENNSYLVANIA.

IMPROVEMENT IN SLIDE-VALVES.

Specification forming part of Letters Patent No. **144,295**, dated November 4, 1873; application filed August 4, 1873.

To all whom it may concern:

Be it known that I, WILLIAM STEPHENS, of Pittston, in the county of Luzerne and State of Pennsylvania, have invented a new and Improved Slide-Valve, of which the following is a specification:

The invention will first be fully described, and then pointed out in the claim.

Figure 1 is a transverse sectional elevation of my improved valve, taken on the line *x x* of Fig. 2. Fig. 2 is a horizontal section taken on the line *y y* of Fig. 1. Fig. 3 is a longitudinal section taken on the line *z z* of Fig. 1, and Fig. 4 is a side elevation of the valve.

Similar letters of reference indicate corresponding parts.

A represents the truncated wedge-shaped valve; B, the walls between which it is arranged, and constituting the double seat with double induction-ports C and exhaust D. E is the exhaust-cavity in the valve. It is in this example an opening entirely through the valve, but it is not essential to have it so. The steam enters the ports C at the ends of the valve, which moves far enough to open them in that way. At the lower edge the valve rests on a flat seat, F, and at the top it may or may not be provided with flanges G to bear on the top H of the seat. It is fitted on these parts so that it just wedges into the cavity between the seats steam-tight. I represents channels in the corners of the valve at the lower edges, and in the corners of the seat at the top, to admit steam as a check, which prevents the leaking of the valve to some extent. Such channels can also be employed to limit or balance the down pressure. It is believed that the pressure on the top will be governed by the area of the cross-section of the ports at the line *a*, and it can be reduced to the requisite amount for keeping the valve steam-tight by such channels I, admitting the steam under it.

The wear will, of course, be greater on the seat F than on the valve-seats B; but, as the valve tightens upon the seats by a direct downward movement, which must be greater than a movement directly toward the seats would be, such greater wear at the lower edge will probably be beneficial. But this can be regulated by the flanges G, so as to have it as nearly as possible right to cause the valve to wear tight on the seats.

The double seats afford greater length of ports with a valve and cylinder of a given size than can be had with the ordinary arrangement. The double ports will unite in one passage in any suitable way.

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

The valve A, having flanges G G, combined with walls B, having the upper and lower steam-channels I I, arranged as and for the purpose described.

WILLIAM STEPHENS.

Witnesses:

JAMES HELM,

ADRIAN MERRITT.