

R. P. Baillie,

Steam Balanced Valve.

N^o 44,777. Patented Oct. 25, 1864.

Fig. 1.

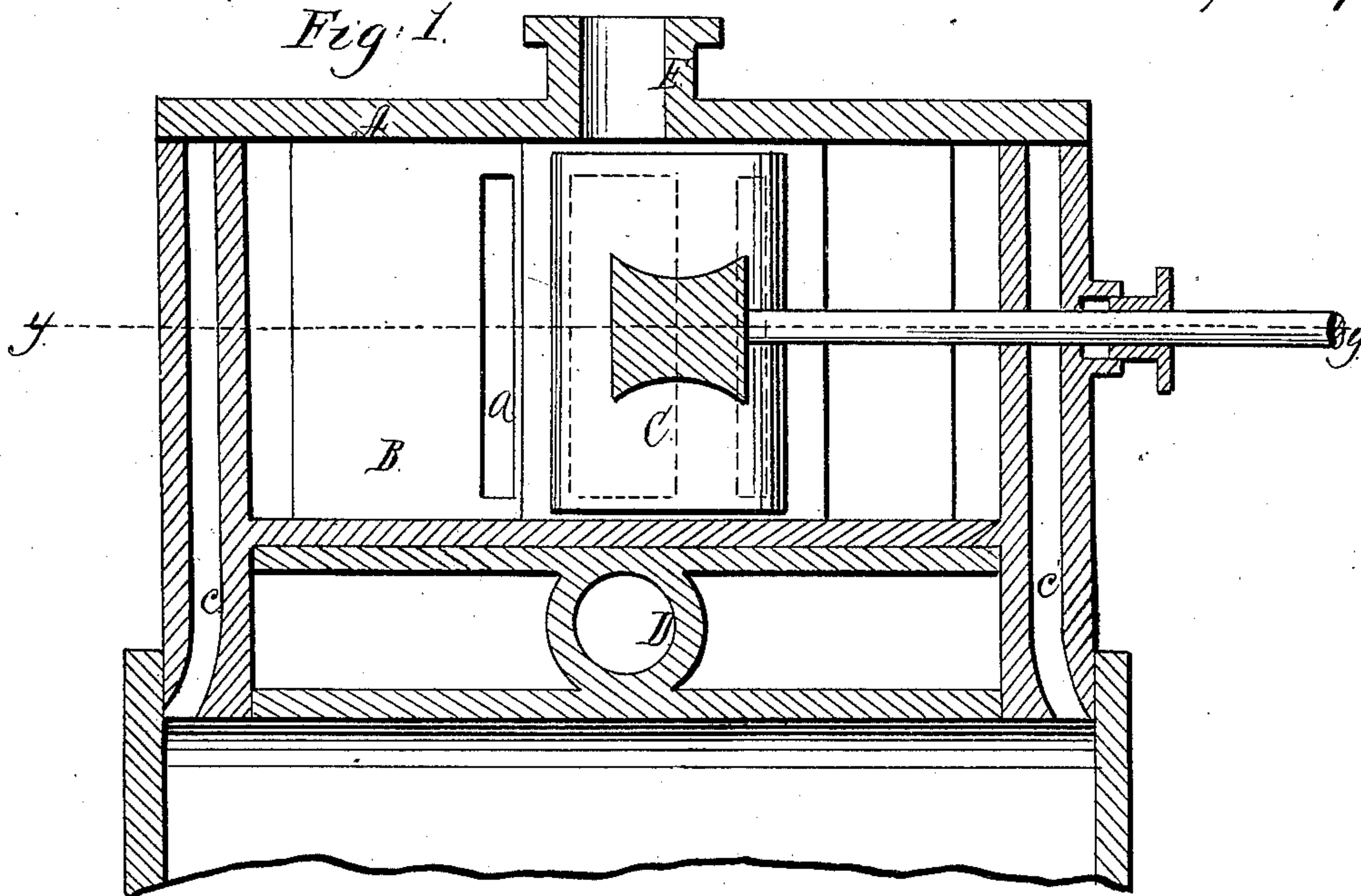
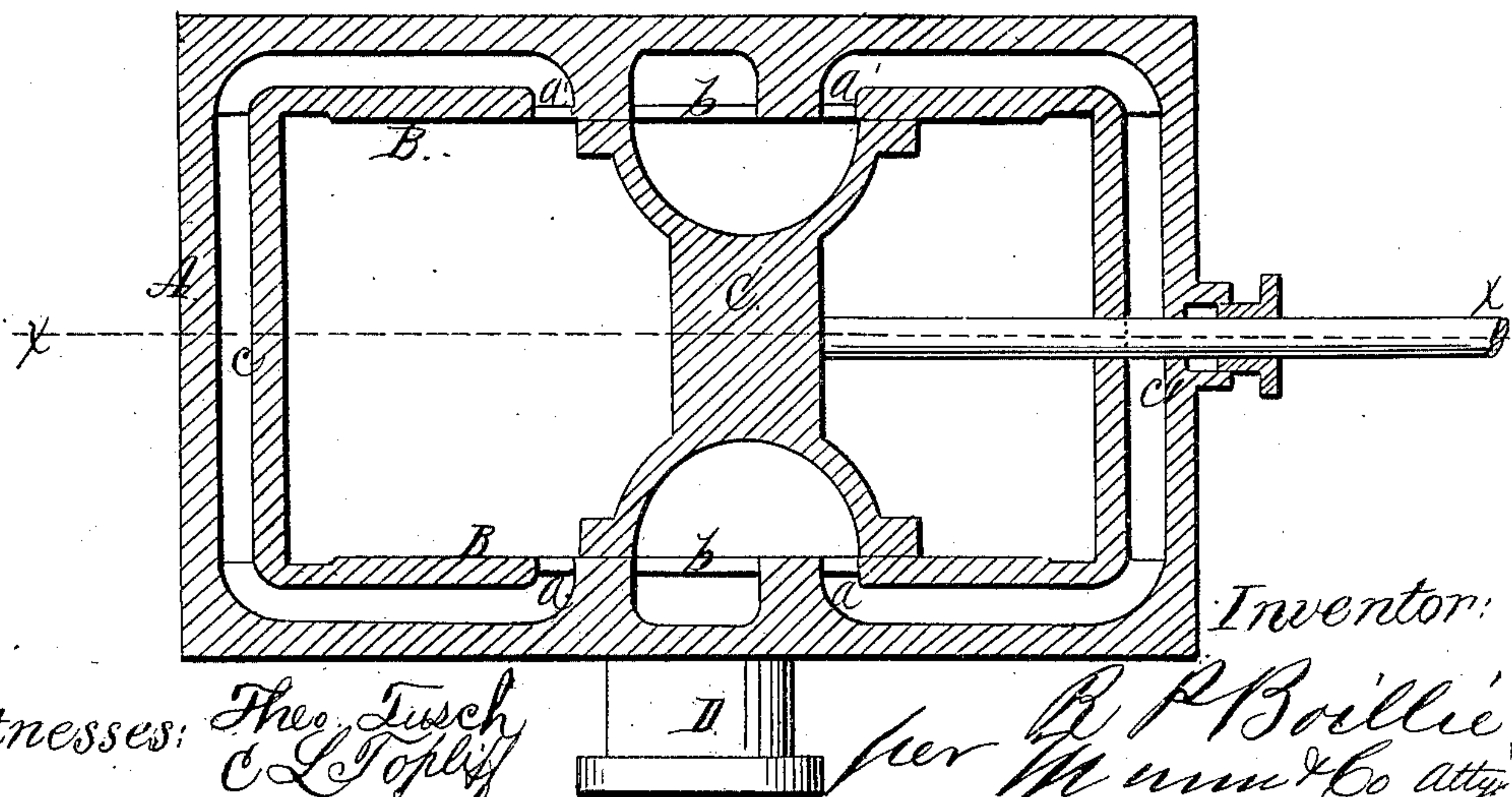


Fig. 2.



*Witnesses: Theo. Tusch
C. L. Topley*

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UNITED STATES PATENT OFFICE.

R. P. BAILLIE, OF DETROIT, MICHIGAN.

IMPROVEMENT IN BALANCE STEAM-VALVES.

Specification forming part of Letters Patent No. 44,777, dated October 25, 1864.

To all whom it may concern:

Be it known that I, R. P. BAILLIE, of Detroit, in the county of Wayne and State of Michigan, have invented a new and Improved Balance Steam-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 vertical longitudinal section of this invention, taken in the plane indicated by the line *x x*, Fig. 2. Fig. 2 is a horizontal section of the same, the plane of section being indicated by the line *y y*, Fig. 1.

Similar letters of reference indicate like parts.

This invention consists in a steam-chest, being provided with two seats on its sides, one opposite the other, and arranged in combination with a double valve in such a manner that each valve works on one of the seats, and the two valves combined are perfectly balanced and allowed to act just as easy under a pressure of a hundred or more pounds as they do in the open atmosphere.

A represents a steam-chest, which is connected to the steam-cylinder in the usual manner, either by having it cast solid with the same, or it may be cast separate and screwed to the cylinder, if desired. Instead of having one valve-seat on its bottom, this valve-chest is provided with two seats B B on its opposite sides, as clearly shown in Fig. 2 of the drawings, and the valve C is fitted between these two seats, so that it works steam-tight on both seats. This valve may be cast solid, as shown in the drawings; but in practice it will be desirable to have the same constructed in such a manner that each half of the valve can be set up against its seat by means of set-screws or in any convenient manner, and in this case the two halves of the valve will be cast separate, each half being ground to its seat independent of the

other, but they will be connected to one and the same valve-rod.

Each seat in the steam-chest is provided with two steam-channels *a a'* and one exhaust-channel *b*, and the steam-channel *a* connects with the steam-ports *c* on one end of the cylinder, while the steam-channels *a'* connect with the steam-ports *c'* on the opposite end of the cylinder, as shown in Fig. 2. The exhaust-channels *b* of both seats lead to the exhaust-pipe D, and steam is admitted to the valve-seat through the pipe E.

In the position in which the valve is shown in the drawings the steam channels *a a* are open and the steam has free access to the steam-port *c* of the cylinder. At the same time the steam-ports *c'* communicate through the channels *a' a'* and through the cavities of the valve with the exhaust-channels *b b*, and through them with the exhaust-pipe D. From this explanation it will be seen the action of my valve is precisely the same as that of the ordinary slide-valve; but there is this difference: The back of the ordinary slide-valve is exposed to the full pressure of the steam, and such a valve moves harder and harder the higher the pressure to which it is exposed, and the evil consequences arising therefrom are well known to every engineer. In my valve the pressure of the steam on one half is perfectly balanced by its pressure on the other half. Neither half is pressed down upon its seat, and the valve therefore works just as easy under the highest pressure as it will in the open atmosphere.

I claim as new and desire to secure by Letters Patent—

The two seats B B on the opposite sides of the valve-chest A, to operate, in connection with the double-valve C, in the manner and for the purpose substantially as herein shown and described.

R. P. BAILLIE.

Witnesses:

WM. JENNISON, Jr.,
HARRY K. CLARKE.