

W. J. Sterens,
Steam Balanced Valve.

No 60,081.

Patented Nov. 27, 1866.

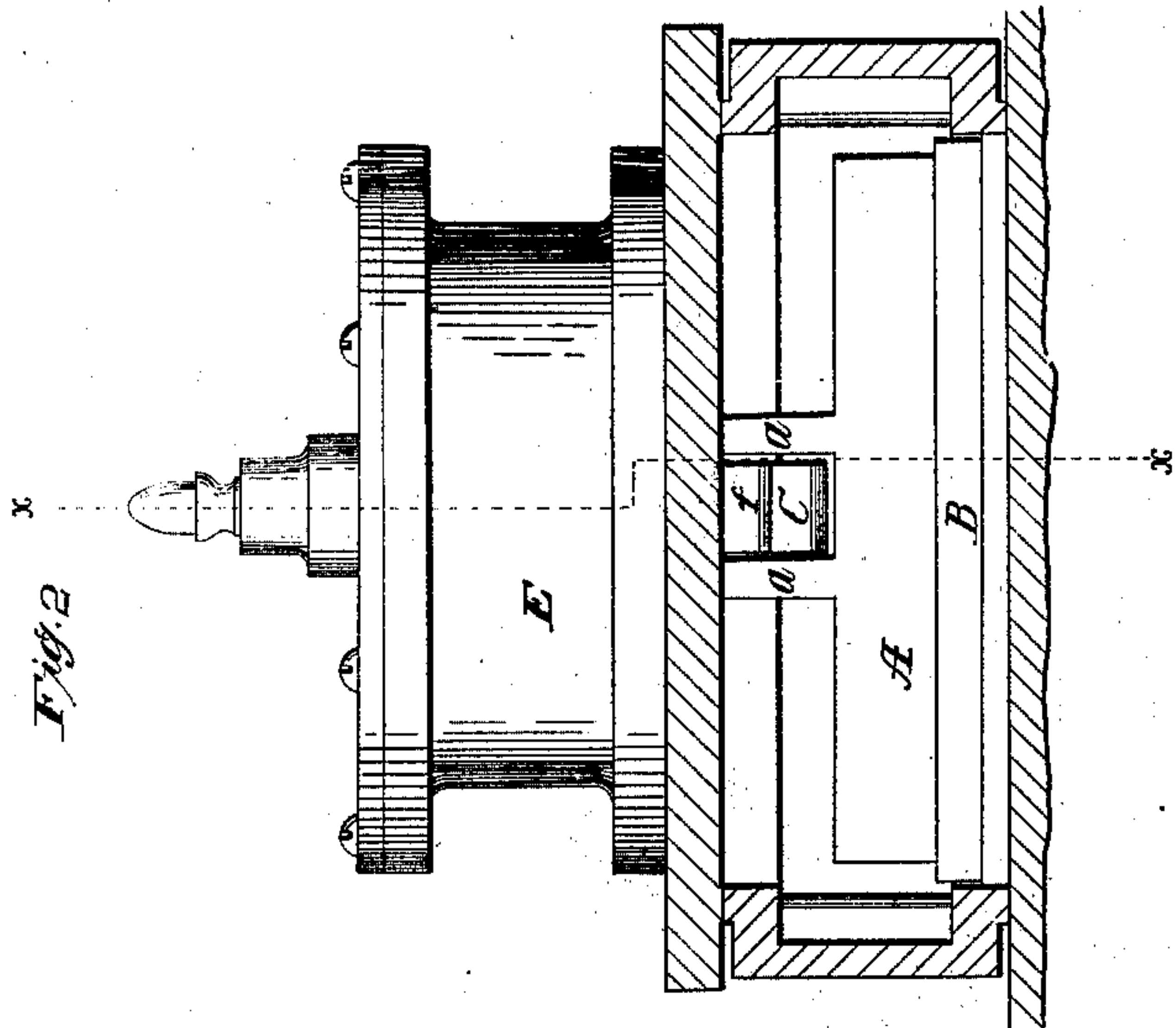


Fig. 2

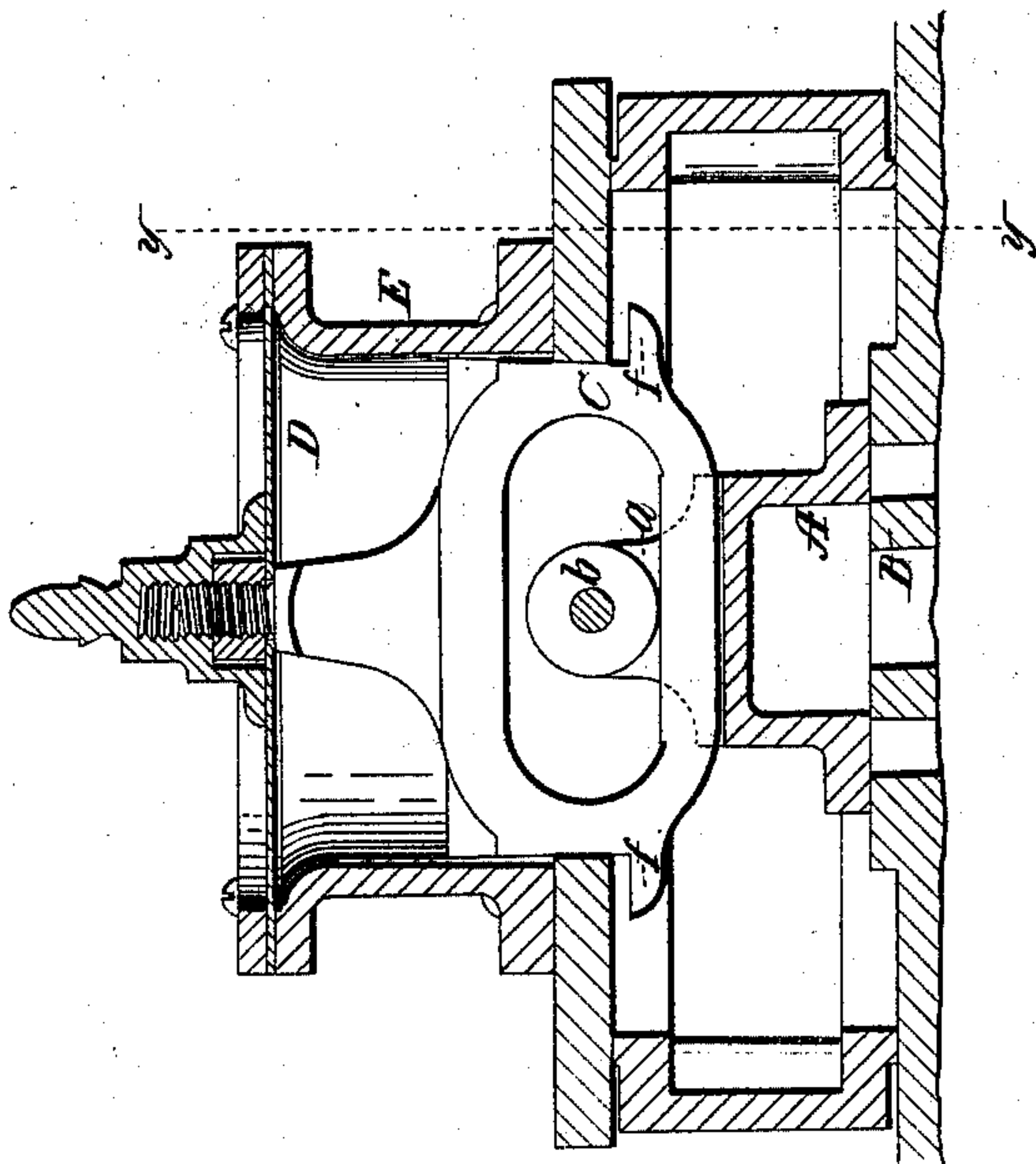


Fig. 1

Witnesses:

M. H. Winger
M. H. Cooper

Inventor:

W. J. Sterens

United States Patent Office.

IMPROVEMENT IN SLIDE VALVES.

WILLIAM J. STEVENS, OF NEW YORK, N. Y.

Letters Patent No. 60,081, dated November 27, 1866.

SPECIFICATION.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, WILLIAM J. STEVENS, of the city, county, and State of New York, 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, reference being had to the accompanying drawing, forming part of this specification, in which—

Figure 1 represents a transverse vertical section of this invention, the line *x x*, fig. 2, indicating the plane of section.

Figure 2 is a longitudinal vertical section of the same, taken on the plane of the line *y y*, fig. 1.

Similar letters of reference indicate corresponding parts.

This invention consists in the arrangement of a slotted yoke, which is suspended from the flexible top of a cylindrical case rising from the top of the steam chest, in combination with a roller fitted to travel in the slotted yoke, and which is secured to the back of the valve in such manner that by adjusting the yoke up or down the pressure of the steam on the back of the valve can be counteracted; and it also consists in providing the said cylindrical case with a flexible or yielding diaphragm or top, by which the downward pressure of the steam on the valve can be balanced by the upward pressure on said diaphragm. A valve is thus obtained which works just as free and easy under a pressure of a hundred or more pounds to the square inch as it does under the ordinary atmospheric pressure.

A represents a slide valve of any suitable form or shape, and made to fit steam tight on its seat B. From the back of the valve there rise two lugs, *a*, which straddle a slotted yoke, C, and form the bearings for the axle of a roller *b*. This roller travels in the slot of the yoke, as shown in fig. 1; and it will be readily understood, from said figure, that by adjusting the yoke up or down the pressure of the slide valve on its seat can be counteracted, and the slide valve can be made to work free and easy, independent of the pressure of the steam to which it may be exposed. The slotted yoke C is suspended from a flexible or yielding diaphragm D, which forms the top of a cylindrical case E, which rises from the steam chest cover, and said yoke may be made adjustable by suitable nuts, or in any other desirable manner. The area of the diaphragm D is so adjusted that is, the area is of such extent, that the upward pressure of the steam on its inner surface will balance the downward pressure of the steam on the back of the valve; therefore, a valve is obtained which is self-balancing, and which, when once adjusted, requires no further attention. The slotted yoke C is provided with stops *f*, which will strike the inner surface of the steam-chest cover, if said yoke rises up too high. The object of these stops is to prevent the valve from jumping off its seat, and also to save the flexible top D from being forced out any further than it properly should be.

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

1. The arrangement, relatively to each other, of the slotted yoke C, flexible diaphragm D, roller *b*, stop *f*, and valve A, substantially as shown and described.
2. The arrangement of the flexible diaphragm D, with the yoke C, and roller *b*, substantially as specified.
3. The stops *f*, in combination with the yoke C, diaphragm D, and valve A, substantially as and for the purpose set forth.

WM. J. STEVENS.

Witnesses:

M. M. LIVINGSTON,
JOHN R. COOPER.