(No Model.) 2 Sheets—Sheet 1.

J. E. BAKER.

BALANCED SLIDE VALVE.

No. 315,459. Patented Apr. 14, 1885.

Fig. 1

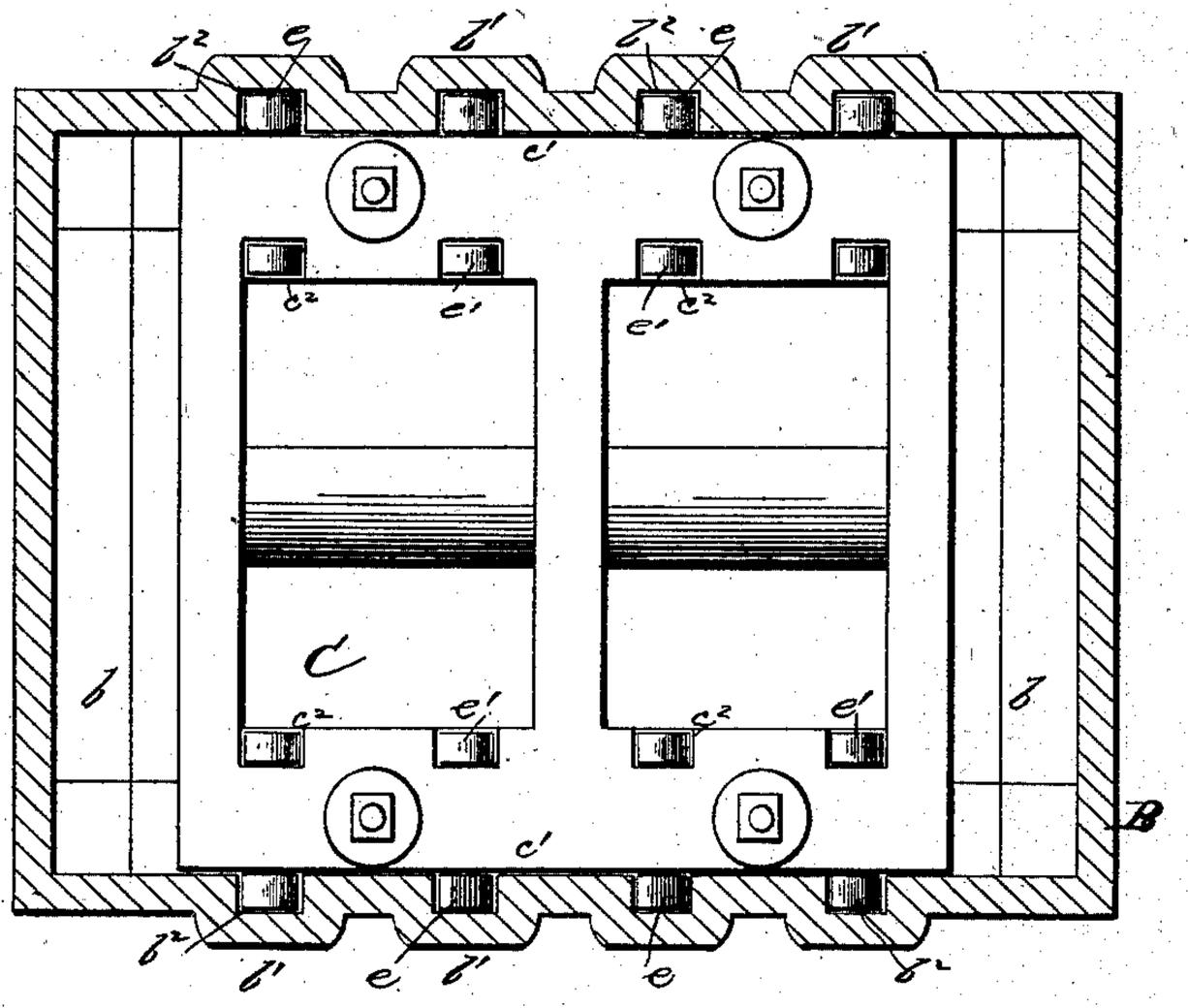
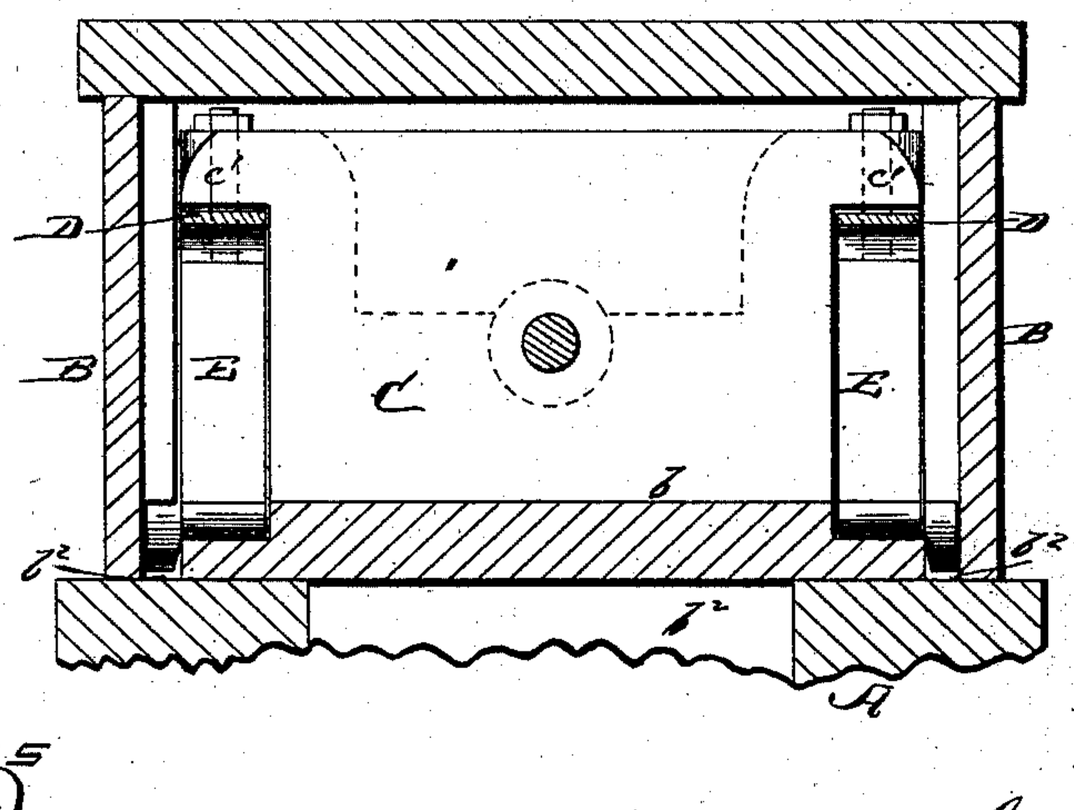


Fig. 2



Witnesses
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H. C. McArthur

Inventor
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per
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(No Model.) 2 Sheets—Sheet 2.

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BALANCED SLIDE VALVE.

No. 315,459. Patented Apr. 14, 1885.

Fig. 3

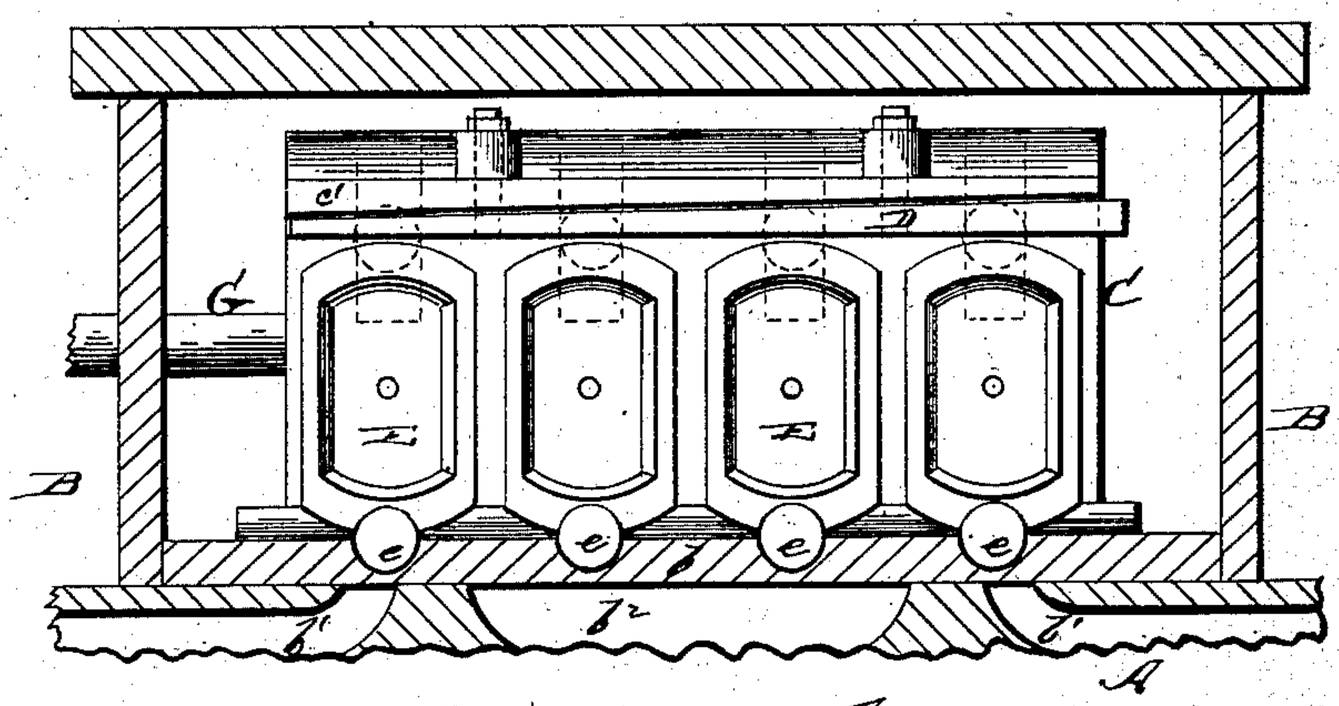


Fig. 4

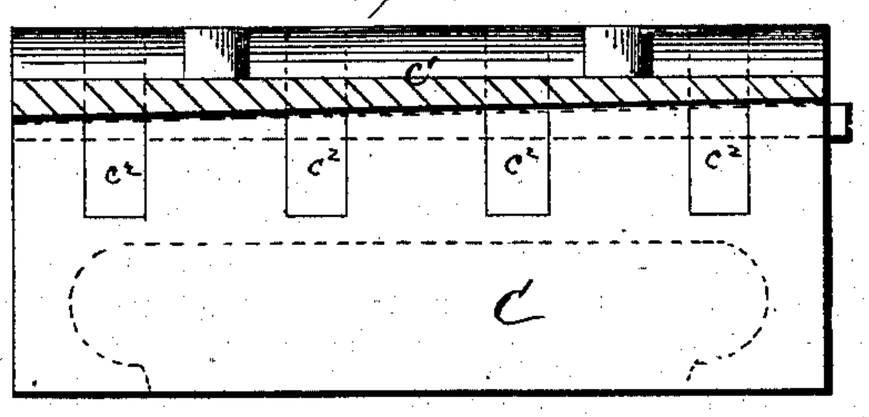


Fig. 5

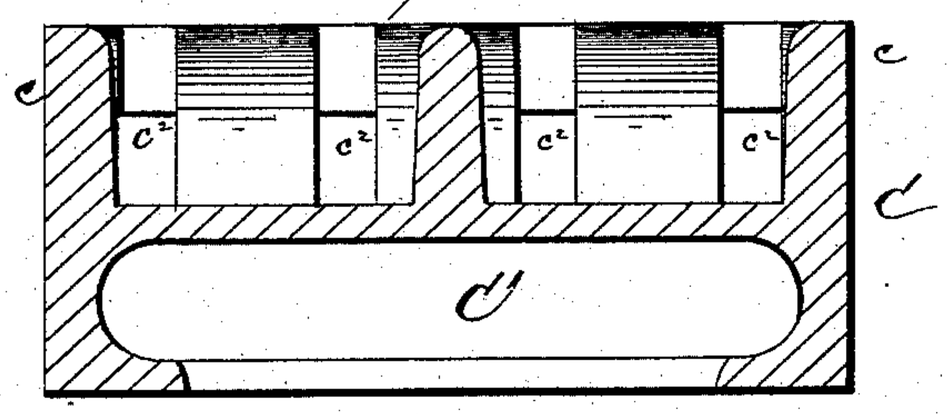
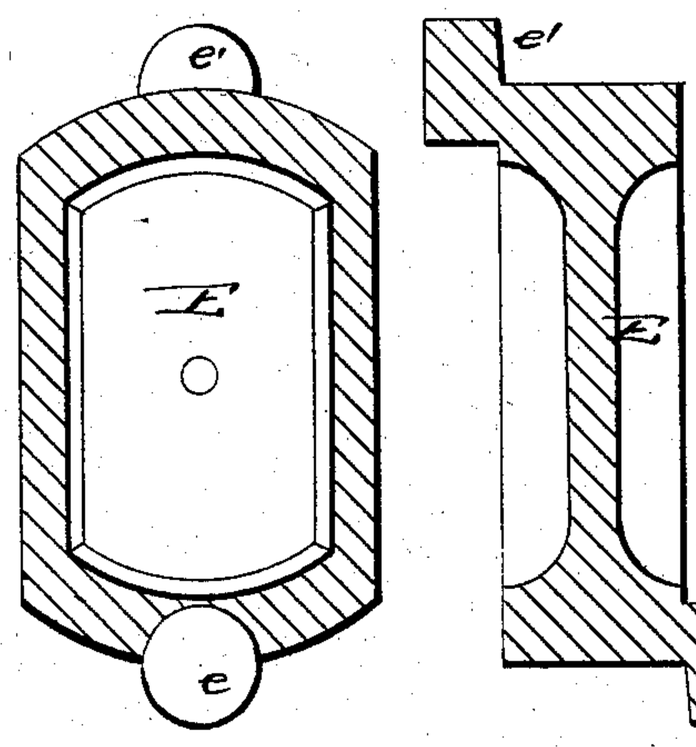


Fig. 6



Witnesses

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UNITED STATES PATENT OFFICE.

JAMES E. BAKER, OF MADISON, WISCONSIN.

BALANCED SLIDE-VALVE.

SPECIFICATION forming part of Letters Patent No. 315,459, dated April 14, 1885.

Application filed February 28, 1884. (No model.)

To all whom it may concern:

Be it known that I, JAMES E. BAKER, a citizen of the United States, residing at Madison, in the county of Dane and State of Wisconsin, have invented certain new and useful Improvements in Balanced Slide-Valves, of which the following is a specification, to wit:

This invention relates to slide-valves for steam-engines; and it consists in certain peculiarities of construction and arrangement of the same, substantially as will be hereinafter more fully described, and pointed out in the claims.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the accompanying drawings, in which—

Figure 1 is a plan view of my valve. Fig. 2 is a cross-section of the same; Fig. 3, a side elevation of the valve and its supporting parts. Fig. 4 is an end view of the valve; Fig. 5, a longitudinal section of the valve itself; and Fig. 6 is a view of the rockers upon which it is supported.

A represents a portion of a steam-cylinder, and B the steam-chest, formed with the valve-seat *b* and the usual supply and exhaust ports, *b' b²*, leading to the cylinder.

C represents the valve, made flat upon its under face and cored out to form an exhaust-chamber, C', as shown by Fig. 5. This valve is cast with an upwardly-extending rib or flange, *c*, on each side or entirely around it, and upon each side this is again formed with a horizontal flange, *c'*, which forms a bearing upon which the valve is supported. This flange is formed wedge-shaped, or thicker at one end than the other, and to its under side is bolted a wedge-shaped piece of metal, D, rendered adjustable horizontally, by which the valve is raised or lowered to properly adjust it to its seat and compensate for any wear. In the vertical flanges *c* at the sides of the valve are formed a series of recesses or slots, *c²*, the use of which will presently appear. The valve case or chest B is formed upon its sides, near the seat *b*, with a series of projections, *b'*, within which are formed recesses *b²*, extending slightly below the seat, as seen in the drawings. The valve is supported by a series of cast rockers or plates, E, having their ends curved on a circle struck from a single central point, which rest upon the valve-seat below, and support the flange *c'* of the valve above. These rockers are each cast with two circular lugs, *e e'*—the former, upon the lower outer side of the rockers, being seated in the recesses *b²* of the valve case or seat, and the latter, working in the slots or recesses *c²* in the valve, being formed on the upper and inner side of the rockers, as shown. Each of these lugs is formed with its center upon or near the periphery of the curved ends of the rockers, so as to project beyond them, and a line drawn from center to center of the lugs would pass nearly or quite through the point from which the curved rockers are struck. The valve has the usual rod, G, attached to it, and is adjusted upon its wedge D so that its lower side will just clear the seat, and may then be reciprocated without appreciable friction, and with no increase of power to correspond to the increase of steam-pressure. The valve is wholly supported by and moves upon the rockers E, and as these rock back and forth upon surfaces curved from the same point, or forming parts of a true circle, the relative position of the valve and its seat is never changed, and all slipping of the rockers is obviated by the lugs *e e'*, which effectually hold them in place, while allowing them free movement in the proper direction.

It is obvious that, if desired, only the two pairs of rockers supporting the ends of the valve may be provided with the lugs *e e'*, and the others operated in proper position by being connected by links from center to center of the rockers; but I prefer to use the form herein shown. The number of rockers upon each side may also be varied to suit the size of the valve or the use to which it is to be put.

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

1. In a balanced slide-valve, the combination, with the valve formed with supporting-flanges and having recesses in its main body alongside and upward through the supporting-flanges, of the valve-seat formed with recesses at its edges alongside the valve, and the rolling or rocking supports, substantially as described and shown.

2. In a balanced slide-valve, the combination of a valve with a series of rocking supports having bearing-surfaces and circular lugs at each end, the one at the upper end engaging with and rolling within the recesses in the side and body of the valve, and the lower one engaging in like manner within the recesses of the seat, substantially as shown and described, and for the purpose set forth.

3. In a balanced slide-valve, the combination of the valve formed with a wedge-shaped supporting-flange, and provided with an adjustable wedge-shaped piece, with the seat and the supporting-rockers, substantially as shown and described.

4. In a balanced slide-valve, the valve C, formed with a wedge-shaped supporting-flange, c', and provided with an adjustable wedge-shaped piece, D, in combination with the case B, having seat b, and the supporting-rockers E, substantially as and for the purpose set forth.

5. In a balanced slide-valve, the valve C, formed with steam-exhaust C′, flanges c and c', and the recesses or slots c^2, in combination with the wedge D, rockers E, having lugs e e', and the chest or case B, having seat b and recesses b^2, all constructed and arranged to operate substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES E. BAKER.

Witnesses:
W. C. McARTHUR,
W. S. McARTHUR.