

(No Model.)

W. J. THOMAS.
BALANCED SLIDE VALVE.

No. 474,153.

Patented May 3, 1892.

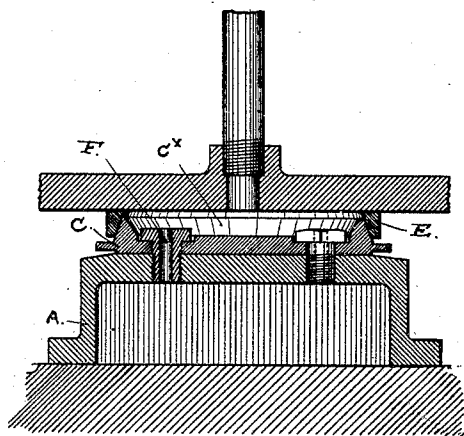


Fig. 1.

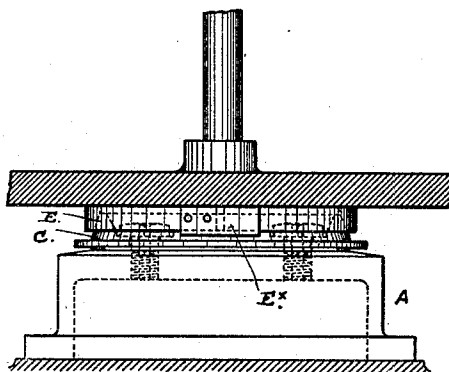


Fig. 2.

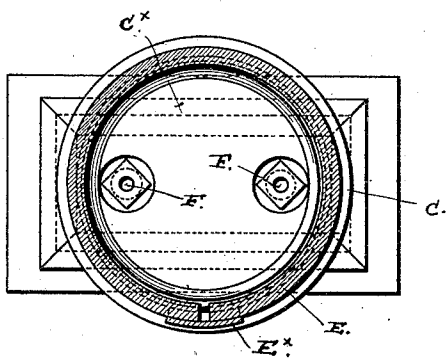


Fig. 3.

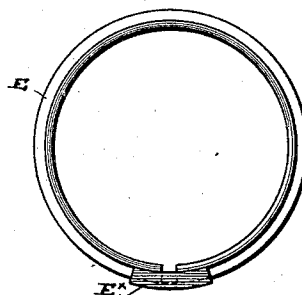


Fig. 4.

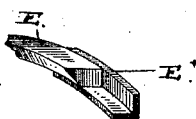


Fig. 5.

Witnesses:

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Inventor:

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By Smith & Son
his Att'y.

UNITED STATES PATENT OFFICE.

WILLIAM J. THOMAS, OF SAUSALITO, ASSIGNOR TO THE AMERICAN BALANCE-SLIDE-VALVE COMPANY, OF SAN FRANCISCO, CALIFORNIA.

BALANCED SLIDE-VALVE.

SPECIFICATION forming part of Letters Patent No. 474,153, dated May 3, 1892.

Application filed June 17, 1891. Serial No. 396,619. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. THOMAS, a citizen of the United States, residing at Sausalito, in the county of Marin and State of California, have invented certain new and useful Improvements in Balance Slide-Valves, of which the following is a specification.

This invention relates to improvements made in the construction of balance slide-valves, for which Letters Patent of the United States No. 385,431 were issued to me on the 3d day of July, 1888; and the present construction and combination of parts have for their object, mainly, to simplify the cost and labor of making and fitting the parts, to bring the steam-pressure more directly against the periphery of the bearing-ring, and to relieve the top of the valve within the bearing-ring from steam-pressure more completely. To such end and object I have produced and make use of the construction and combination of parts illustrated in the accompanying drawings, in which—

Figure 1 represents in vertical longitudinal section an ordinary slide-valve and a portion of its seat with my improvements applied to the valve. Fig. 2 is an elevation or outside view of the valve and the attached parts. Fig. 3 is a top view of the valve, the top plate, and the bearing-ring. Fig. 4 is a reversed bottom view of the bearing-ring, looking down upon the bottom side.

In this improvement upon my former patent, No. 385,431, the top plate C, fixed on the valve A, is made without an outer standing rim, and the cone d, on which the bearing-ring E sets, is depressed in the center, leaving a standing circular rim with an outside tapering face to take the bearing-ring. The space or cavity C^x within this circular rim is cut off from the surrounding steam-filled space in the valve-chest by the bearing-ring, and an aperture or passage F is carried through the top plate and the top of the valve to connect this cavity directly with the exhaust-passage in the valve. By this construction I bring full and direct pressure of the surrounding steam upon the outer face of the bearing-ring and also enable any thickness of bearing-ring to be used on the same top plate, while in the construction employed in my pat-

ent, No. 385,431, the bearing-ring is necessarily limited in thickness by being seated in a groove, and as the rim that forms the outer wall of the groove is also interposed between the bearing-ring and the surrounding steam-pressure it limits or reduces the direct pressure against the outer face.

Another advantage by dispensing with the outer rim is the ability to use a bearing-ring with an increased thickness of metal at the joint and to employ a form of expansible joint for these bearing-rings that is not only much more simple in construction and cheaper to produce than the style of joint heretofore employed by me, but it is also more nearly steam-tight. This construction, which constitutes another feature of the present improvements, is well represented in Figs. 3, 4, and 5. The ring has a flat top face or surface to bear against the top of the valve-chest and a tapering inner face to set on the conical face of the standing rim. The ends of the ring are cut square or form a simple butt-joint when pressed together, and the joint is closed to the steam in two directions, both across the bottom and across the outer perpendicular face, by an L-shaped segment-plate E', to which is riveted or otherwise secured one end of the ring, while the opposite end of the ring is unattached and is free to slide on it. This form of joint insures complete exclusion of steam-pressure from the space above the valve and also reduces considerably the expense of making the bearing-ring. The top plate is secured to the valve by one or more screws F^x, having an aperture or passage F in the screw extending longitudinally through it from end to end, and the end of the screw is carried through the top of the valve, so that its passage opens into the exhaust space or passage when the screw is driven home. The chief advantage of this construction is that it dispenses with packing between the top plate and the top of the valve and the nice fitting of parts which the use of a direct passage or aperture through the top plate into the valve would require.

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

1. The combination, with a slide-valve, of

a top plate having a standing ring with an extreme tapering face near the outer edge or rim, a center depressed portion with a passage communicating with the exhaust, and an expansive ring tapered to fit the outer wall of the standing ring and having the top face projecting above the said ring, as set forth.

2. In a balanced slide-valve, a top plate having a standing rim, with tapering outer face or wall within the edge or margin of the plate, in combination with an expansible ring tapered to fit the standing rim and to project above it, and a holding-screw having a longitudinal passage through it and extending through the plate and the top of the valve,

constructed and applied for operation as set forth.

3. The combination of the valve A, top plate C, having a beveled standing ring or flange on its upper face, and screws securing the top plate to the valve, having apertures F through them, with a bearing-ring E, fitting upon the ring or flange on the top plate, as set forth.

In testimony that I claim the foregoing I have hereunto set my hand and seal.

WILLIAM J. THOMAS. [L. S.]

Witnesses:

JAMES L. KING,
EDWARD E. OSBORN.