No. 742,501. PATENTED OCT. 27, 1903.

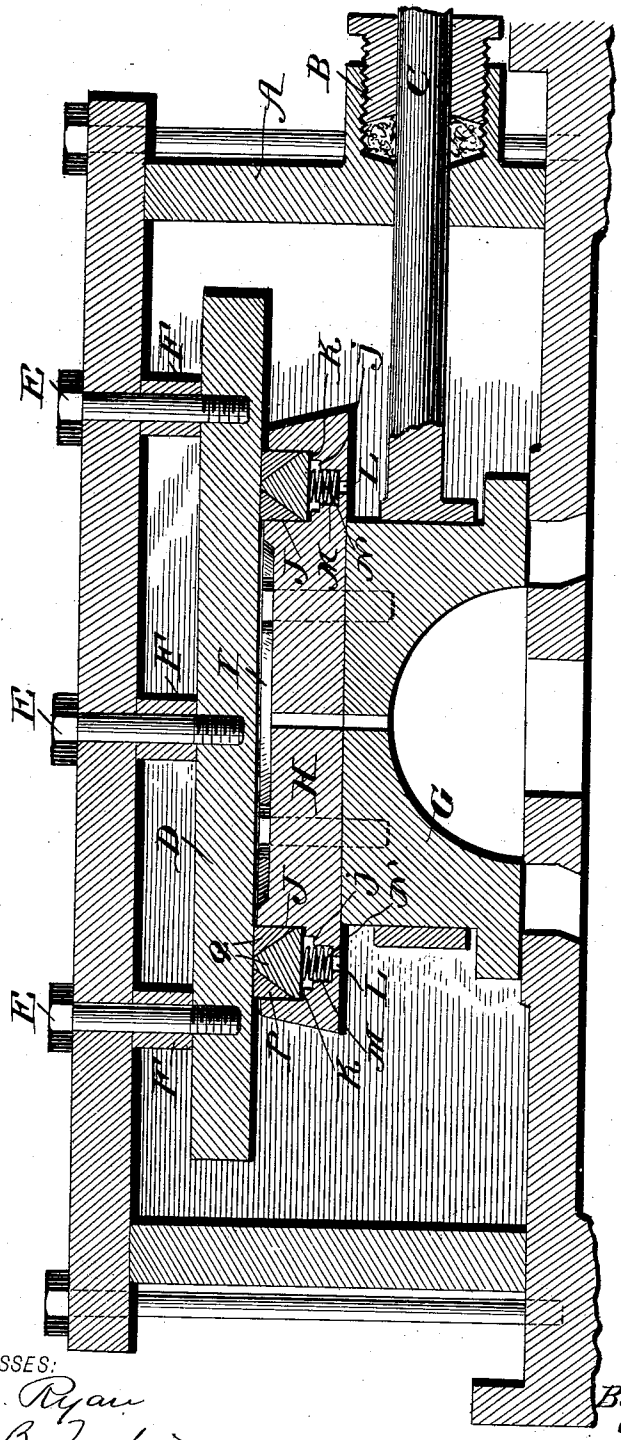
B. W. SCHENEBECK.

BALANCED SLIDE VALVE.

APPLICATION FILED OCT. 7, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.



WITNESSES:

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 2

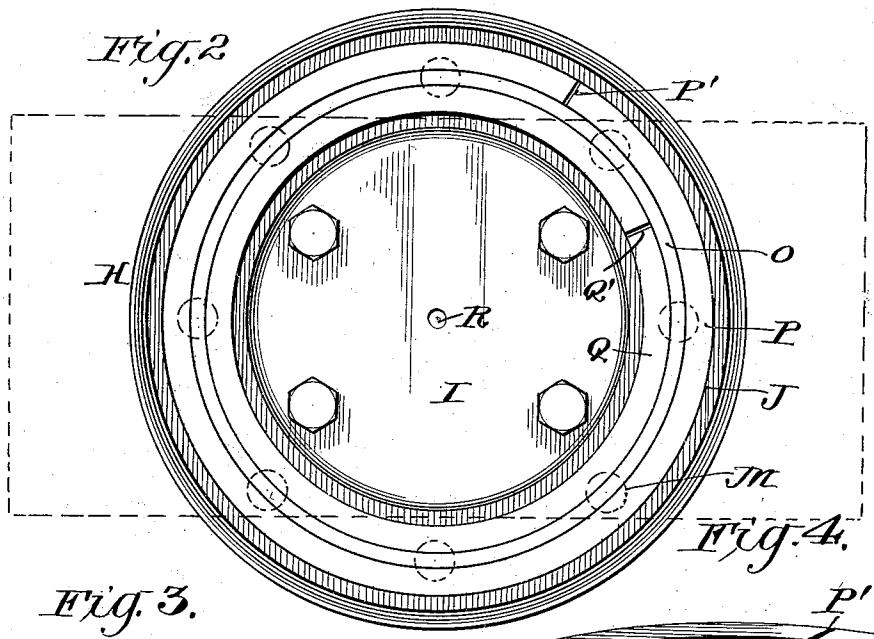


Fig. 4.

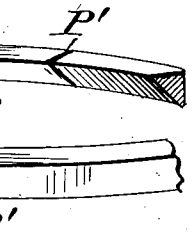


Fig. 3.

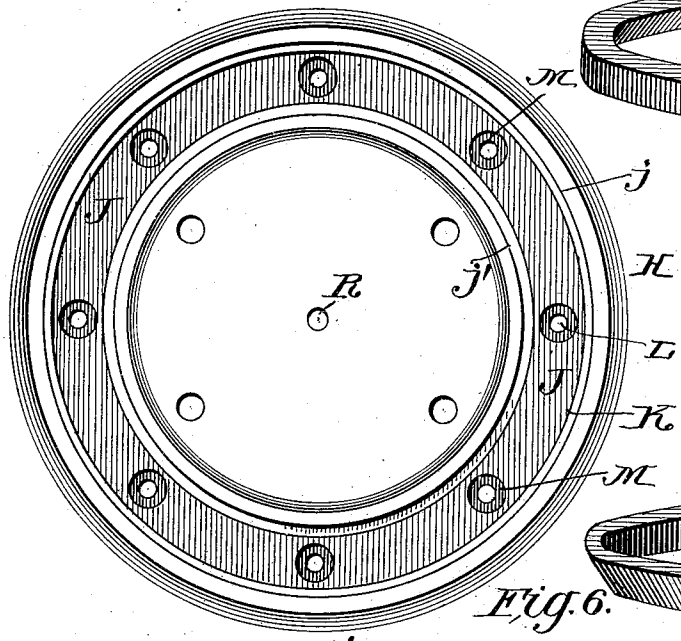


Fig. 5.

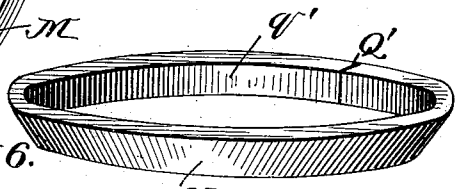
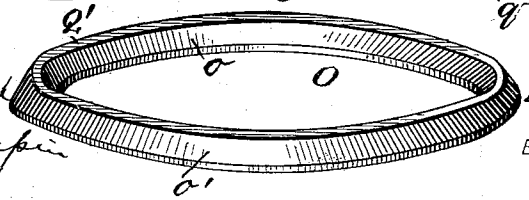


Fig. 6.



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No. 742,501. Patented October 27, 1903.

UNITED STATES PATENT OFFICE.

BARNEY WILLIAM SCHENEBECK, OF BOLINGER, LOUISIANA.

BALANCED SLIDE-VALVE.

SPECIFICATION forming part of Letters Patent No. 742,501, dated October 27, 1903.

Application filed October 7, 1902. Serial No. 126,280. (No model.)

To all whom it may concern:

Be it known that I, BARNEY WILLIAM SCHENEBECK, a citizen of the United States, residing at Bolinger, in the parish of Bossier and State of Louisiana, have made certain new and useful Improvements in Balanced Slide-Valves, of which the following is a specification.

My invention is an improvement in balanced slide-valves, and has for an object to provide a novel construction and arrangement of the balancing devices; and the invention consists in certain novel constructions and combinations of parts, as will be hereinafter described and claimed.

In the drawings, Figure 1 is a vertical longitudinal section of a slide-valve and chest embodying my invention. Fig. 2 is a top plan view of the balance-plate with the packing-rings in place. Fig. 3 is a top plan view of the balance-plate with the packing-rings removed. Fig. 4 is a detail perspective view, partly broken away, of the outer packing-ring. Fig. 5 is a detail perspective view of the inner packing-ring, and Fig. 6 is a detail perspective view of the intermediate ring.

In the construction shown the steam-chest A has a suitable opening and stuffing-box at B for the valve-rod C and is provided with a pressure-plate D, which is preferably a separate plate secured by means of bolts E to the top of the chest and spaced apart from such top by the blocks F, surrounding the bolts E, as shown. This pressure-plate provides a surface against which bears the balance-plate or packing devices connected therewith, as shown in Fig. 1.

The valve G is connected with the rod C and supports the balance-plate H, which latter is preferably circular in form, has its center depressed at I, and is provided in its upper face outside the depressed portion I with an annular groove J, which is rabbeted at K, providing the upper enlarged portion of the groove to receive the rings, presently described, and the lower portion, which provides at *j* a channel passing around beneath the intermediate ring, so the steam admitted through openings L in the bottom of the groove may operate evenly upon the different portions of the under surface of the intermediate ring, as will be understood from Fig. 1 of the drawings. The balance-plate is also preferably provided with sockets M, which may for convenience be arranged concentric with the openings L and receive springs by which the rings are held firmly against the pressure-plate when the steam is cut off from the steam-chest. I have made provision for eight of the springs N, but manifestly the number may be varied according to the size of the valve or otherwise, as may be desired.

The rings O, P, and Q operate in the groove J, the ring O being the intermediate ring, the ring P the outer ring, and the ring Q the inner ring. The rings P and Q are split at P′ and Q′, while the intermediate ring O is unbroken. This ring O is tapered on its inner and outer faces at *o* and *o′* toward its upper edge, producing a wedge-like construction, which operates upon the inner tapered edge *p* of the ring P, and the outer tapered edge *q* of the ring Q, the opposite walls *p′* and *q′* of the rings P and Q being straight to coincide with and fit against the outer and inner walls *j* and *j′* of the groove J.

It will be noticed especially from Figs. 1 and 6 of the drawings that the ring O is provided at opposite sides at its base portion with vertical faces which fit the side walls of the groove J, so the said ring O can slide freely up and down in said groove and will present a comparatively broad wearing-surface, the inclined operating-faces of the ring O being above the vertical side faces thereof, as shown in the said Figs. 1 and 6.

In the operation of the invention when steam is admitted to the chest A it will pass through the openings L, operate against the broad under face of the intermediate ring O, and force such ring upwardly toward the pressure-plate and actuate the inner and outer rings Q and P upwardly against the pressure-plate, and also expand the outer ring and contract the inner ring so the said rings P and Q will be forced out and in against the outer and inner walls of the groove J, thus packing the joints within the balance-plate and also against the pressure-plate, securing a steam-joint as desired. An opening or vent is provided at R through the balance-plate

and valve, so any steam that may leak above the balance-plate can escape through the exhaust.

The upper edge of the intermediate ring Q may be flattened at Q', as shown, and avoid any wearing of the pressure-plate should the said ring be forced up into contact with said plate in the operation of the valve.

It will be understood that in the use of my invention I will ordinarily employ a vacuum relief-valve in connection with the balance-valve, as when a locomotive is running and the steam is shut off a partial vacuum is formed in the steam-chest, which will cause the valve to chatter and thus raise, besides drawing cinders into the steam-chest, the vacuum relief-valve being employed to avoid this difficulty and operating to admit air into the chest when the steam-pressure is shut off. It will be noticed that the upper edge of the intermediate ring is so much narrower than the corresponding edges of the outer and inner rings, so that the intermediate ring will wear faster than the outer rings, whereby the outer and inner rings will keep a steam-tight joint as the parts wear.

In practice the pressure-plate is shown set within the balance-plate about one-eighth of an inch, and the balance-rings are put in so that they stand about one-fourth of an inch higher than the balance-plate, so when the pressure plate is put down on the rings the spiral springs N will be pressed down and will hold the rings tightly against the pressure-plate.

What I claim is—

The improvement in balanced valves herein described comprising the combination with the pressure-plate and the valve provided with an annular groove, of the intermediate ring provided at the opposite sides of its base with the vertical side walls and having the inwardly-sloping surfaces above the said side walls, and the inner and outer split rings provided with the sloping faces coinciding with those of the intermediate ring and arranged for operation thereby substantially as set forth.

BARNEY WILLIAM SCHENEBECK.

Witnesses:
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W. F. JOHNSON.