No. 729,904. PATENTED JUNE 2, 1903.

W. F. SOMES.

METALLIC PACKING.

APPLICATION FILED FEB. 20, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

FIG. 1.

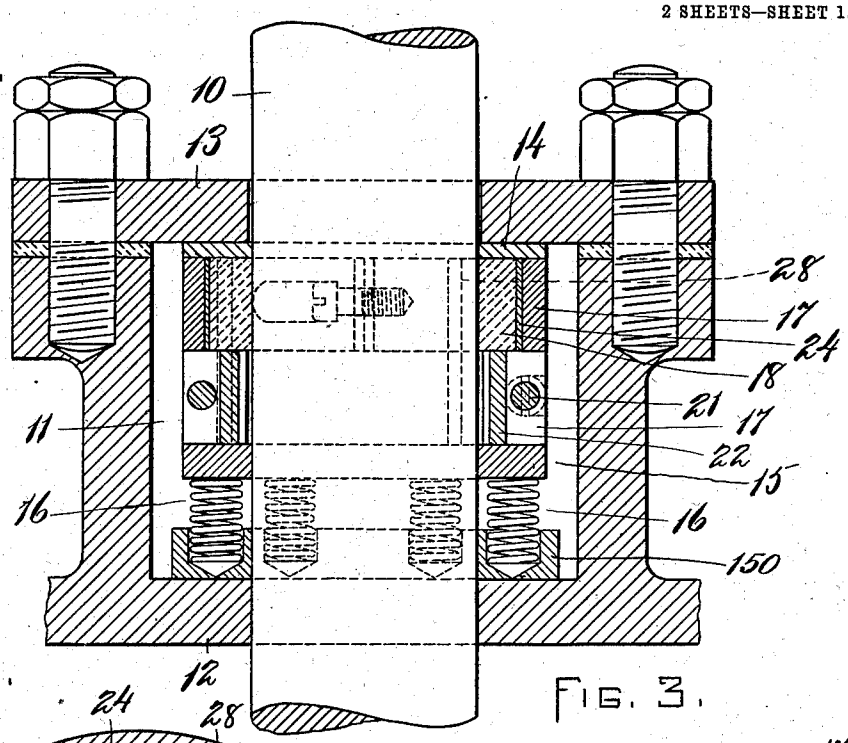


FIG. 2.

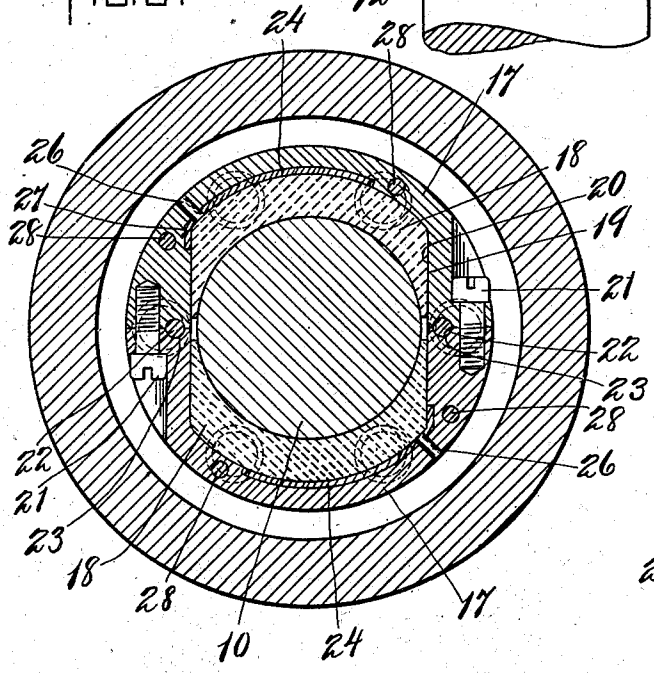


FIG. 3.

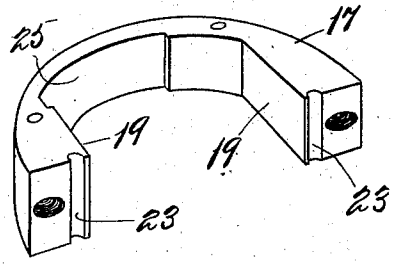
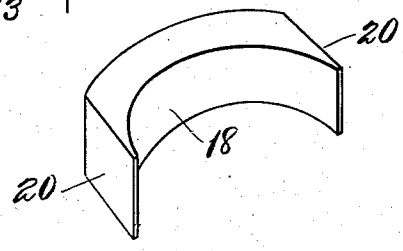


FIG. 4.



WITNESSES:

A. D. Harrison

George Pezzetti

INVENTOR:

W. F. Somes

by Wright Brown & Quinby

Attys.

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

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FIG. 5.

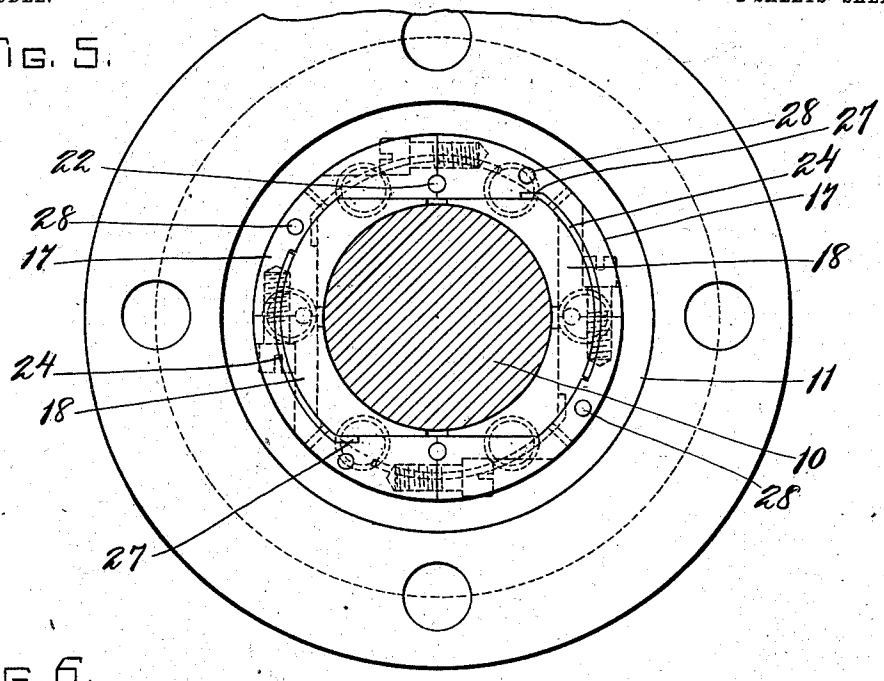
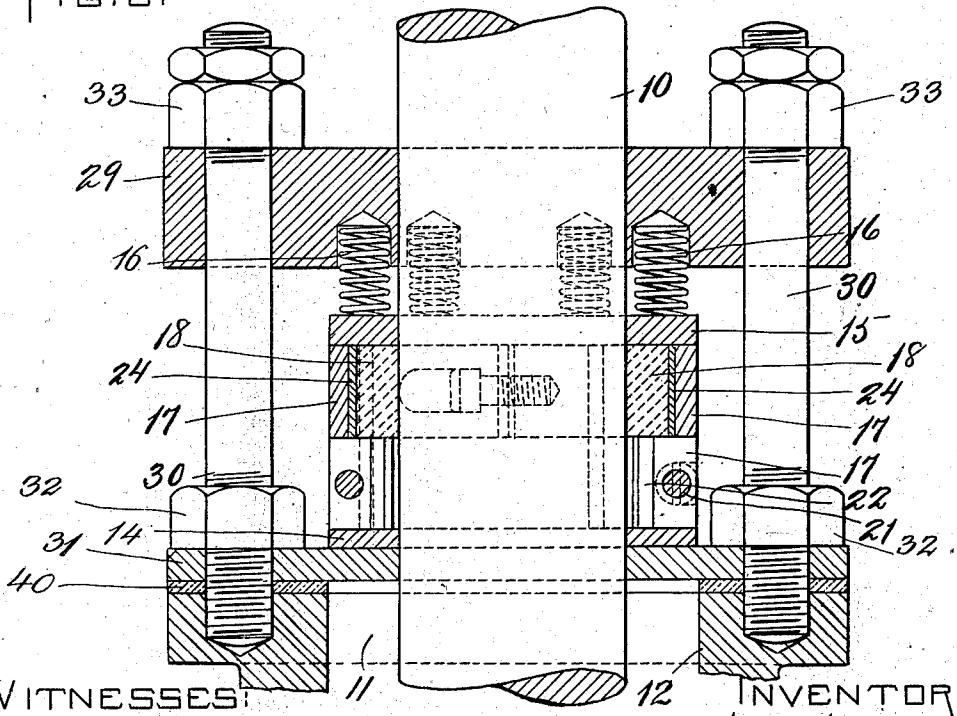


FIG. 6.



WITNESSES:

A. D. Harrison

George Bigelli.

INVENTOR:

W. F. Somes

by Wright Brown Quinby & Atty.

THE HOBBS ATTERBURY PHOTO-LITHO. WASHINGTON, D. C.

No. 729,904. Patented June 2, 1903.

UNITED STATES PATENT OFFICE.

WALTER F. SOMES, OF MALDEN, MASSACHUSETTS, ASSIGNOR OF TWO-THIRDS TO C. E. MORSE, OF SOMERVILLE, MASSACHUSETTS, AND GEORGE W. BANISTER, OF DORCHESTER, MASSACHUSETTS.

METALLIC PACKING.

SPECIFICATION forming part of Letters Patent No. 729,904, dated June 2, 1903.

Application filed February 20, 1902. Serial No. 94,890. (No model.)

To all whom it may concern:

Be it known that I, WALTER F. SOMES, of Malden, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Metallic Packings, of which the following is a specification.

This invention relates to metallic packings for piston-rods; and it consists in the novel features of construction and arrangement which I shall now proceed to describe and claim.

Of the accompanying drawings, Figure 1 represents an axial section through the packing-box of a cylinder, provided with my improved piston-rod packing. Fig. 2 represents a transverse section thereof. Figs. 3 and 4 represent detail perspective views showing sections of the holder and packing. Fig. 5 represents an end view of the packing-box and contents. Fig. 6 represents an axial section showing a different method of mounting the packing.

The same reference characters indicate the same parts in all the figures.

Referring to Figs. 1 to 5, inclusive, 10 represents the piston-rod, and 11 represents a packing or stuffing box having an inner wall 12 and an outer wall 13. Any desired number of the units comprising my improved packing may be laid against each other in parallel planes, two units being illustrated in the drawings, the packing units being mounted between outer and inner washers 14 15. A series of helical springs 16 16, interposed between the washer 15, and a socketed washer 150, next to the inner wall 12 of the packing-box, press the packing structure axially in an outward direction, so as to assist in the maintenance of a steam-tight fit between the outer washer 14 and the end wall 13 and also between the various transverse faces of the washers and packing units, all of which are ground to a steam-tight fit.

The packing units are constructed as follows: 17 17 are two complemental sections fitted together to form a divided annular holder, between which and the piston-rod 10 are interposed the radially-movable packing blocks or sections 18 18, fitted to conform to the piston-rod and having their inner end abutments separated sufficiently to allow for their approach due to the wear of the surfaces. The holder 17 17 is formed internally with two parallel straight bearing or guiding surfaces 19 19, each of which surfaces, as will be noted, is formed partly on each of the two sections 17 of the holder, and the packing blocks or sections 18 are formed with complemental external straight bearing-surfaces 20 20, fitted to slide against the surfaces 19. The sections 17 17 of the holder are separably held together by screws 21 21, and the joints between them are made steam-tight by forcing, after the sections have been screwed together, pins 22 22 into pin-sockets 23 23, each of which is formed partly in each section 17 of the holder, said pins also preserving the sections against relative diametric movement and insuring the proper alinement at all times of the two portions of each of the bearing-surfaces 19.

24 24 are leaf-springs fitted in sockets or recesses 25 in the holder-section 17 and having curved free-end portions which press yieldingly inward on the outer ends of the packing blocks or sections 18. Dowels 26 26 hold these springs against axial movement; but the springs are loosely fitted to the holder without fastening devices, so that when the packing-blocks 18 are out of the way the springs may be readily inserted or removed. When in place, however, one end of each spring 24 is held or anchored against movement by having a straight end portion 27 confined between the holder-section 17 and the bearing portion 20 of the corresponding packing-block 18, said packing-block being in sliding relation to the spring end 27 and permitted to slide freely with relation thereto, but preventing said spring end from coming out of place so long as the packing-block sufficiently covers or overlaps it. I thus provide a simple means of mounting the springs which does away with fastenings and yet confines the springs properly in place at all times.

When two or more units of the packing are employed together, they are mounted so as to

break joints, as indicated in Fig. 5, and are prevented from rotating relatively to each other by dowels 28 28.

In addition to the foregoing construction for a piston-packing my invention consists in mounting a piston-packing of any suitable steam-tight construction—such, for instance, as that which I have described—on the outside of a cylinder substantially as represented in Fig. 6, and in the particular construction or equivalent which is shown in said figure for utilizing certain parts of the stuffing-box structure usually found on engines for the purpose of mounting the packing. In this instance a cover-plate 31 is fitted with a rubber packing-gasket 40 to the outer side of the stuffing-box 11 to form a seat for the piston-rod packing and is secured in place by nuts 32, screwing on the bases of the bolts 30, which are or may be the bolts usually found on engines for securing and setting up the gland. Two units of metallic packing are shown mounted between inner and outer plates 14 15, the former seated on the plate 31. Springs 16 are interposed between the plate and an outer abutment-plate 29, adjustably held by nuts 33 33 on the outer ends of the bolts 30, so as to press axially inward on the packing. All sliding faces are suitably ground to a steam-tight working fit, and the steam is prevented by the described arrangement from escaping to the atmosphere. The advantage of this construction is that it renders the piston-packing at all times visible and accessible and more easily applied and removed than a packing confined in a stuffing-box.

It will be noted that the packing units are free to move transversely with the piston, should any such movement of the latter occur, without transmitting their movement to the cage 29 30, whereby loosening of the cage from any such movement of the packing is prevented.

I claim—

1. In a metallic piston-rod packing, the combination of an annular holder comprising a plurality of separable sections having straight internal bearing-surfaces partly formed on each of the sections, interlocking and packing means on the respective sections extending for substantially the whole axial length of the joints and adapted to preserve the portions of each bearing-surface in alinement, means for separably securing the sections together, and an expansible packing having external bearing-surfaces coöperating with the bearing-surfaces on the holder.

2. In a metallic piston-rod packing, the combination of an annular holder comprising a plurality of separable sections having straight internal bearing-surfaces partly formed on each of the sections, pin-sockets formed partly in each of the adjacent sections of said holder and lying substantially parallel to the meeting faces of said sections, packing and alining pins fitted in said sockets and extending from substantially the whole axial length of the joints, means for separably securing said sections together, and an expansible packing having external bearing-surfaces coöperating with the bearing-surfaces on the holder.

3. In a metallic piston-rod packing, the combination of a holder, a packing-section having a bearing portion fitted to slide in relation to said holder, and a spring loosely mounted in said holder and having a yielding portion pressing inwardly on said packing-section, and a fixed portion held or anchored by said bearing portion of the packing-ring.

4. In a metallic piston-rod packing, the combination of a holder, a packing-section having a straight bearing portion mounted in sliding relation to said holder, and a loosely-mounted spring having a straight portion at one end confined between the holder and the said bearing portion of the packing-section, and a yielding portion pressing inwardly on the packing-section.

5. The combination with the stuffing-box casing of an engine-cylinder, of bolts projecting therefrom, a cover-plate secured thereto and forming a packing-seat, a packing mounted on the outer side of said plate, an outer abutment-plate held by the said bolts, and spring means interposed between said abutment-plate and packing and pressing inwardly on the latter.

6. The combination with a cylinder and piston-rod, of a seat on the cylinder, an external packing having a sectional portion and means yieldingly pressing said portion against the piston-rod, and a skeleton structure through which said packing is exposed having an outer abutment holding said packing to a steam-tight fit against said seat, and means to adjust said abutment axially of the piston-rod, said packing being free to move with respect to said structure laterally with the piston-rod.

7. The combination with a cylinder and piston-rod, of a seat on the cylinder, an external packing having a sectional portion and means yieldingly pressing said portion against the piston-rod, and a skeleton structure through which said packing is exposed comprising an outer abutment and adjusting-bolts for adjusting the same axially with respect to said seat, whereby the packing is held to a steam-tight fit against said seat, said packing being free to move with respect to said structure laterally with the piston-rod.

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

WALTER F. SOMES.

Witnesses:
CHAS. C. LIVERMORE,
GEO. LATIMER.