(No Model.)

J. H. MARS.

PACKING FOR STUFFING BOXES.

No. 326,574. Patented Sept. 22, 1885.

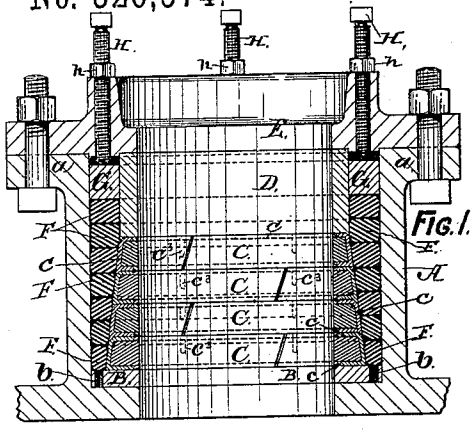


Fig. 1.

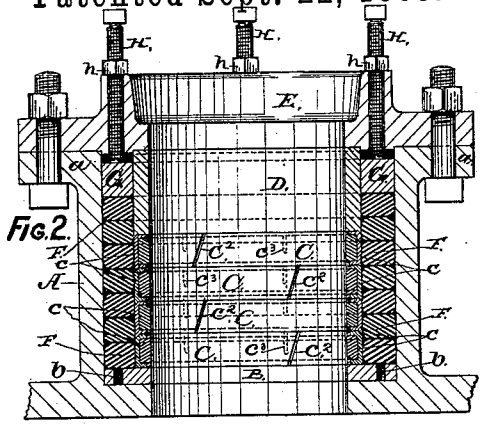


Fig. 2.

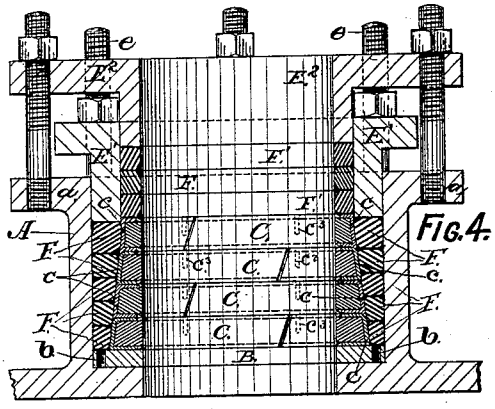


Fig. 4.

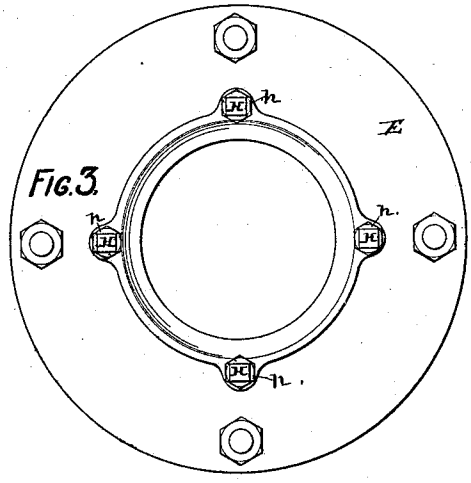


Fig. 3.

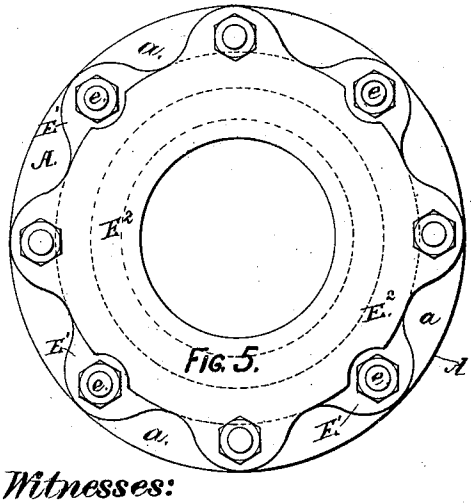


Fig. 5.

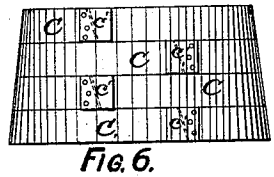


Fig. 6.

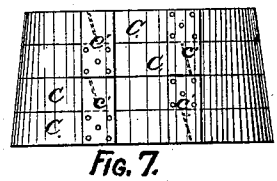


Fig. 7.

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UNITED STATES PATENT OFFICE.

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PACKING FOR STUFFING-BOXES.

SPECIFICATION forming part of Letters Patent No. 326,574, dated September 22, 1885.

Application filed March 11, 1885. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. MARS, of the city and county of Albany, in the State of New York, have invented a new and useful Improvement in Packing for Stuffing-Boxes, of which the following is a specification.

My invention consists of a series of metallic rings divided into segmental parts and backed up by a packing of elastic and compressible material, so that the metallic portion of the packing will be enabled to yield readily to any slight inequality in the size or form of the rod or plunger, which is fitted to reciprocate through a stuffing-box in which the packing is used.

In the accompanying drawings, which, being herein referred to, form part of this specification, Figure 1 is a vertical section of a stuffing-box provided with a series of metallic rings having a coniform shape; Fig. 2, a like section with the metallic rings made in cylindrical form; Fig. 3, a plan view of the gland for the stuffing-boxes shown in Figs. 1 and 2; Fig. 4, a vertical section of a stuffing-box for a modification of my invention; Fig. 5, a plan view of glands for same; and Figs. 6 and 7 are side elevations of metallic rings, showing different modes of covering the segmental joints.

As shown in the drawings, A is the stuffing-box, made in the usual form and of any required size suited to the rod or plunger reciprocating therethrough. In the bottom of the annular space formed between the cylindrical wall of the stuffing-box and the rod or plunger, an annulus, B, is fitted to serve as a base on which the packing rests, and said annulus is provided with a series of tapped holes, *b*, which are adapted to receive lifting-screws, by which said annulus and metallic packing-rings may be lifted out of the stuffing-box without disturbing the order in which they are arranged.

The metallic packing-rings C have their inner diameters fitted to the circumference of the rod or plunger which reciprocates through them. The outer side of said rings, as shown in Figs. 1, 4, 6, and 7, is made in the form of a truncated cone; but in Fig. 2 it is made cylindrical, and either form is equally suited to the purpose. Said rings are preferably made with shells *c*, of hard metal—bronze being preferred—on their exterior and top and bottom faces, the said shells being filled with a softer anti-friction metal, which alone will have a bearing against the rod or plunger. Each of said rings is separated by diagonal joints into any preferred number of segmental pieces, and each joint should be protected on the outer side by their joint-plates c', which, as shown in Fig. 6, are secured to one end of each segmental piece, to extend horizontally over the joint; but, as shown in Fig. 7, said joint-plates are secured to the ring next above or below a joint, and extend vertically to cover the joint; and in both arrangements said joint-plates overlap the joints c^2 and prevent the elastic packing from entering said joints, where it would prevent the segmental pieces from being properly pressed into close contact with the surface of the rod or plunger. The successive layers of rings C are held in place to each other by steady-pins c^3, (shown in dotted lines in Figs. 1, 2, and 4,) by which means the relative arrangement of the several rings is maintained, so that their joints c^2 will be ranged in broken lines.

As shown in Figs. 1 and 2, a ring, D, is fitted to rest on top of the pile of packing-rings C, and is held down by a gland, E, which is bolted down to the flange *a* of the stuffing-box. Layers of elastic and compressible packing F, preferably composed of pieces of india-rubber packing, are interposed between the cylindrical wall of the stuffing-box A and the exterior surfaces of the packing-rings C in such manner that said compressible packing will be in perfect contact with both the said wall and packing-rings C. Upon said compressible packing a follower-ring, G, is fitted, to be forced downward by set-bolts H, which are inserted through the gland E, so as to compress the elastic packing F to a sufficient degree to press the segmental pieces of the rings of metallic packing into close contact with the circumference of the rod or plunger working through it. Jam-nuts *h* are fitted on the set-bolts H, for the purpose of retaining said bolts at any point to which they may be screwed down.

As shown in Fig. 4, a gland, E', of the usual form and the usual gland-bolts, *e*, are substituted for the gland, follower G, and set-bolts

H shown in Fig. 1; and instead of using the ring D for holding down the pile of metallic rings, as shown in Fig. 1, the gland E′ is bored out to receive the supplementary gland E², whose annular collar bears upon and compresses the elastic packing F′ against the upper end of the pile of metallic packing-rings C, thereby effectually packing the space between rod or plunger and the bore of the gland E′, so as to prevent any leakage of steam or other fluids at that point.

When preferred, the shells *c* of the metallic packing-rings C may be dispensed with, and in such cases said rings will be made of any homogeneous metal.

I claim as my invention—

1. In a packing for stuffing-boxes of steam-engines, &c., the combination, with metallic packing-rings C, composed of segmental sections, as described, the ring D, and gland E, having the set-bolts H, as set forth, of the compressible elastic packing F and follower G, upon which the set-bolts H bear, as explained, all being arranged to operate as herein specified.

2. A composite packing for the stuffing-boxes of steam engines, pumps, &c., consisting of metallic packing-rings composed of segmental sections fitted to bear against the circumferential surface of a rod or plunger working through it, and compressible elastic packing interposed between the outer surface of the metallic packing-rings and the cylindrical wall of the stuffing-box, and mechanism which is independent of the means for holding down the metallic packing-rings, substantially as described, for compressing said elastic packing endwise in a direction corresponding to the line of movement of the rod or plunger, as and for the purpose herein specified.

3. The annulus B, fitted into the bottom of the stuffing-box A, and provided with tapped holes *b*, as and for the purpose herein specified.

JOHN H. MARS.

Witnesses:
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