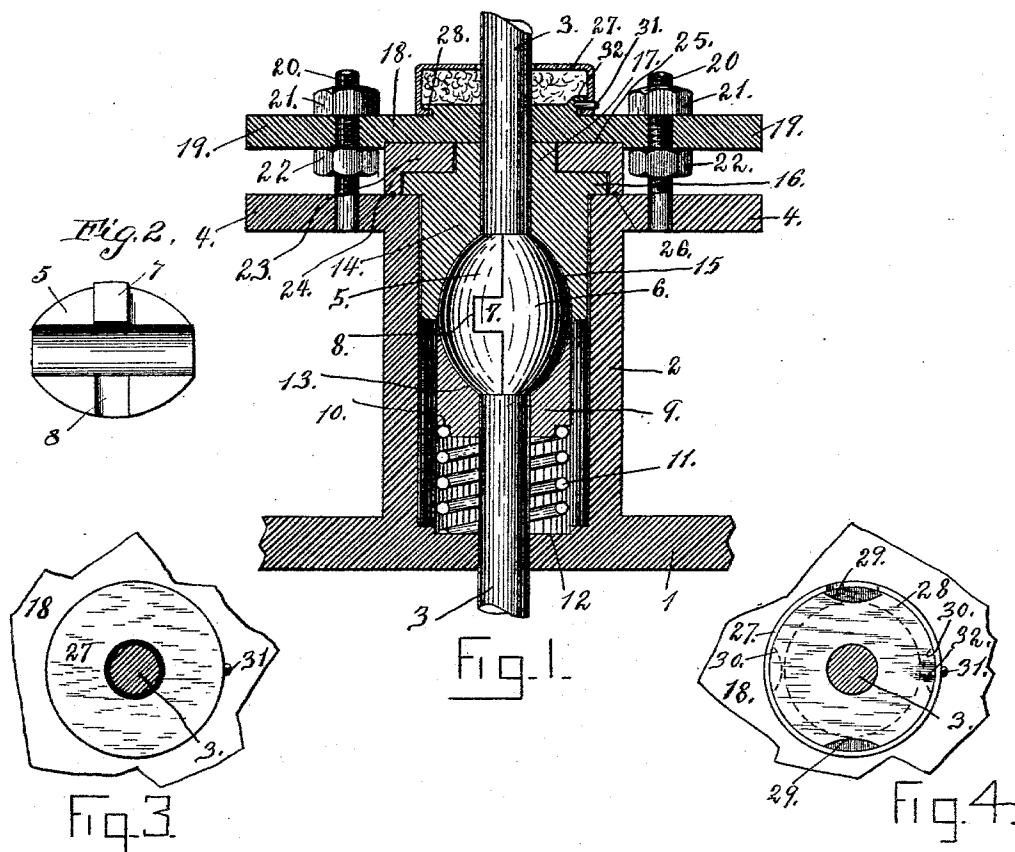


(No Model.)

L. C. S. FRICK.
STUFFING BOX.

No. 571,759.

Patented Nov. 24, 1896.



Witnesses.

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LOUIS C. S. FRICK, OF BUFFALO, NEW YORK, ASSIGNOR OF ONE-HALF TO
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STUFFING-BOX.

SPECIFICATION forming part of Letters Patent No. 571,759, dated November 24, 1896.

Application filed February 25, 1896. Serial No. 580,725. (No model.)

To all whom it may concern:

Be it known that I, LOUIS C. S. FRICK, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Stuffing-Boxes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to figures of reference marked thereon, which form a part of this specification.

My invention relates to stuffing-boxes for engines in which a soft-metal packing is employed, and more particularly to certain improvements in that form of stuffing-box and soft-metal packing for which Letters Patent No. 518,810 were granted to me April 24, 1894. The invention therein covered consisted, substantially, of a soft-metal packing of two or more separable parts which when fitted together around the piston-rod had its two tapering ends of similar configuration, and hence reversible, as well as two similar packing-rings of improved construction in which the similar tapering ends of the soft-metal packing rested.

My present invention has for its object certain improvements in the arrangement and combination of the packing-rings with the soft-metal packing and for providing a steam-tight joint in connection with the stuffing-box.

To that end my invention consists of certain improved details of construction in the component parts of the stuffing-box, which will be more fully hereinafter explained and particularly pointed out in the claims.

In the drawings, Figure 1 is a central longitudinal section of my improved stuffing-box. Fig. 2 is an inside face view of one of the similar sections of the soft-metal packing. Fig. 3 is an outer face view of the doup-box. Fig. 4 is an inside face view of the socket for the doup-box.

Referring to Fig. 1 of the drawings, 1 is the head of a steam-cylinder which is provided on its outer side with a cylindrical stuffing-box 2, and 3 is the piston-rod passing through the head 1 and the stuffing-box 2. Opposite side flanges 4 4 extend outwardly from the

upper end of the stuffing-box 2. The soft-metal packing which I employ is divided longitudinally into two similar halves or sections 5 6, which embrace opposite sides of the piston-rod 3. These sections 5 and 6 are provided upon their meeting faces with projections 7 and recesses 8, which interlock, as shown, and form tight joints. The outer faces of these sections taper equally in opposite directions, which makes the packing reversible in position in the stuffing-box, as in my former patent.

9 is the lower packing-ring of hard metal loosely surrounding the piston-rod and of smaller diameter than the chamber of the stuffing-box. Its lower end has the annular shoulder 10, adapted for the reception of the upper end of the spiral spring 11, the lower end of which rests in the socket 12 in the floor of the stuffing-box. In the upper end of the ring 9 is the tapering cavity 13, in which the lower tapering end of the packing 5 6 rests.

14 is the upper packing-ring of hard metal, its lower end having the tapering cavity 15, which bears against the upper tapering end of the packing 5 6. This ring 14 rests loosely in the upper end of the stuffing-box, its annular flange 16 limiting its downward movement.

17 is a central cylindrical extension of the ring 14, upon which rests the tightening-disk 18, having opposite side flanges 19 19, corresponding in size and position with the flanges 4 4 upon the stuffing-box.

Bolts 20 20, rigidly secured in the flanges 4 4, pass loosely through holes in the flanges 19 19, upon which are threaded the upper nuts 21 21 and lower nuts 22 22.

A ring 23 surrounds the extension 17 of the packing-ring 14 and has a downwardly-extending annular flange 24 surrounding the flange 16 of the ring 14 and resting upon the upper or outer end of the stuffing-box. The upper surface of this ring 23, as well as the extension 17, rest within a shallow socket 25 in the under surface of the tightening-disk 18.

In an annular groove in the lower surface of the flange 24 of the ring 23 is placed a packing-wire 26 to form a steam-tight joint with the stuffing-box.

Upon the upper face of the tightening-disk 18 and surrounding the piston-rod 3 is the doup-box 27, which is secured in position as follows: 28 is a raised annular flange cut away 5 on opposite sides, as at 29 29. Upon opposite sides of the inner lower edge of the side cylindrical wall of the doup-box 27 are the ears 30 30. (Shown in dotted lines in Fig. 5.) In securing and locking the box these ears 10 30 30 are passed down below the flange 28 at the cut-away portions 29 29, and on turning the box the ears pass under the flange to the position shown in Fig. 5, after which a removable pin 31 is passed through a hole in 15 the box and is engaged in a socket 32, which serves to securely lock the box, within which is placed a filling of hemp or other fiber saturated with doup or other lubricant.

In the form of stuffing-box just described 20 the soft-metal packing is forced tightly against the piston-rod by the hard-metal packing-rings 9 and 10 through the agency of the spiral spring 11, and the escape of steam past the sides of the ring 14 is prevented by 25 the wire packing 26 between the ring 23 and the stuffing-box and the socket 25 in the under face of the tightening-disk 18, into which socket the ring 23 extends snugly. The contact of the reciprocating piston-rod with the 30 contents of the doup-box 27 serves to both wipe the rod and lubricate the same during its movement through the packing and its rings.

I claim—

- 35 1. The combination with the flanged stuffing-box, piston-rod and sectional soft-metal packing 5, 6, of the spring-pressed packing-ring 9 with tapering cavity 13 the flanged packing-ring 14, 16, with tapering cavity 15, 40 the ring 23 with annular flange 24 and the tightening-disk 18, 19, provided with a shallow socket on its under side adapted for the reception of the ring 23 all combined and operating substantially as shown and described.
- 45 2. The combination with the flanged stuffing-box, piston-rod and sectional soft-metal

ring 9 with tapering cavity 13, the flanged packing-ring 14, 16, with tapering cavity 15, the ring 23 with annular flange 24, the tightening-disk 18, 19, provided with a shallow socket on its under side adapted for the reception of the ring 23 and the doup-box 27 removably secured around the piston-rod and to the tightening-disk 18 all combined and operating substantially as shown and described.

3. The combination with the flanged stuffing-box, piston-rod and sectional soft-metal packing 5, 6, of the spring-pressed packing-ring 9 with tapering cavity 13, the flanged packing-ring 14, 16, with tapering cavity 15, the ring 23 with annular flange 24 having the wire packing 26 interposed between it and the stuffing-box, and the tightening-disk 18, 19, all combined and operating substantially as shown and described.

4. The combination with the flanged stuffing-box, piston-rod and sectional soft-metal packing 5, 6, of the spring-pressed packing-ring 9 with tapering cavity 13, the flanged packing-ring 14, 16, with tapering cavity 15, the ring 23 with annular flange 24 having the wire packing 26 interposed between it and the stuffing-box, the tightening-disk 18, 19, and the doup-box 27 removably secured around the piston-rod and to the tightening-disk 18 all combined and operating substantially as shown and described.

5. In a stuffing-box the combination with the tightening-disk 18 provided with the raised annular flange 28 with cut-away portions 29 and socket 32, of the doup-box 27 provided with the ears 30, 30, the doup-box being secured to the tightening-disk by the pin 31 engaging with the socket 32 substantially as and for the purpose stated.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

LOUIS C. S. FRICK.

Witnesses:

W. T. MILLER,
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