

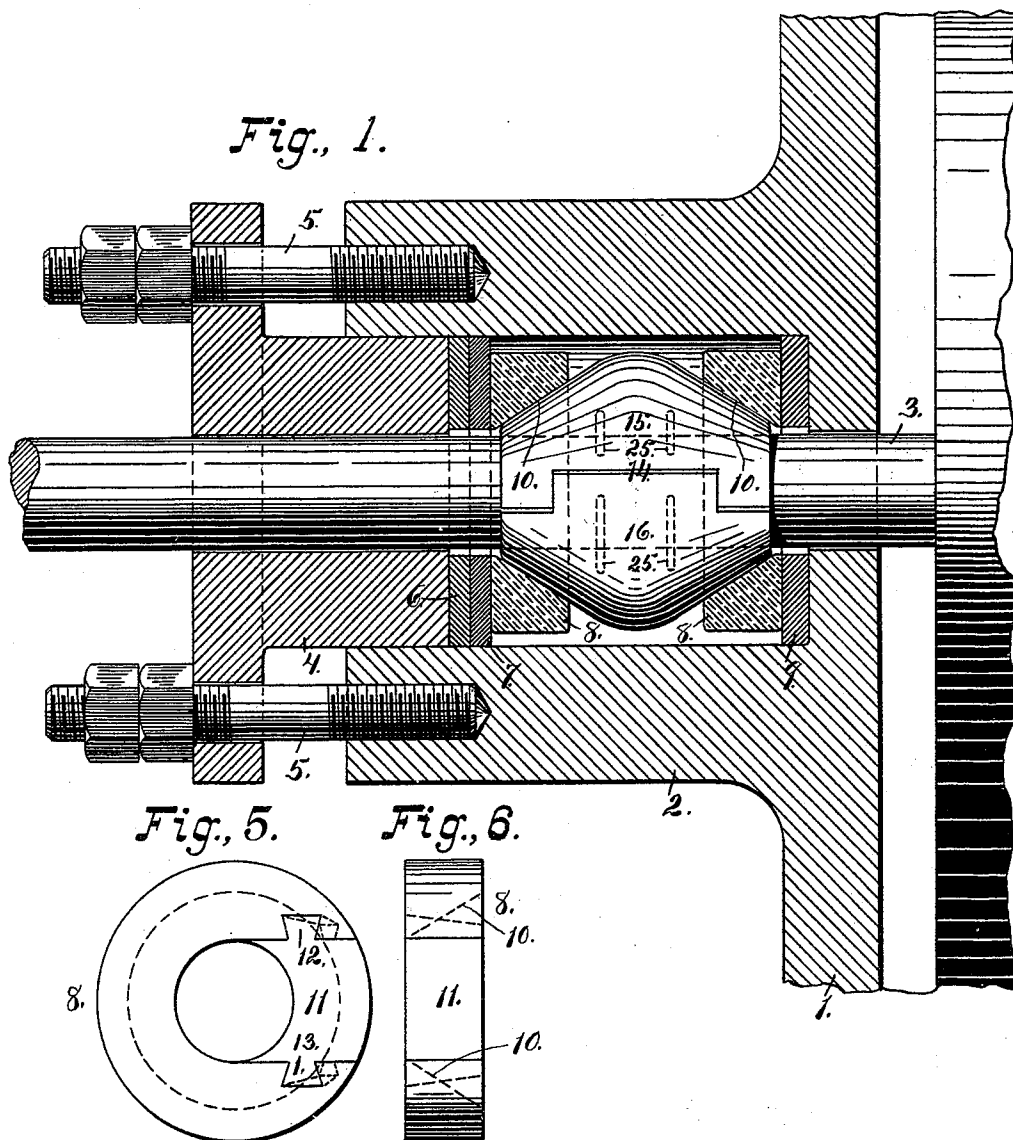
(No Model.)

2 Sheets—Sheet 1.

L. C. S. FRICK.
STUFFING BOX.

No. 518,810.

Patented Apr. 24, 1894.



Witnesses:

Geo. P. Wightman

Samuel J. Harris.

Inventor

Louis C. S. Frick.
by Miller and Heddick.

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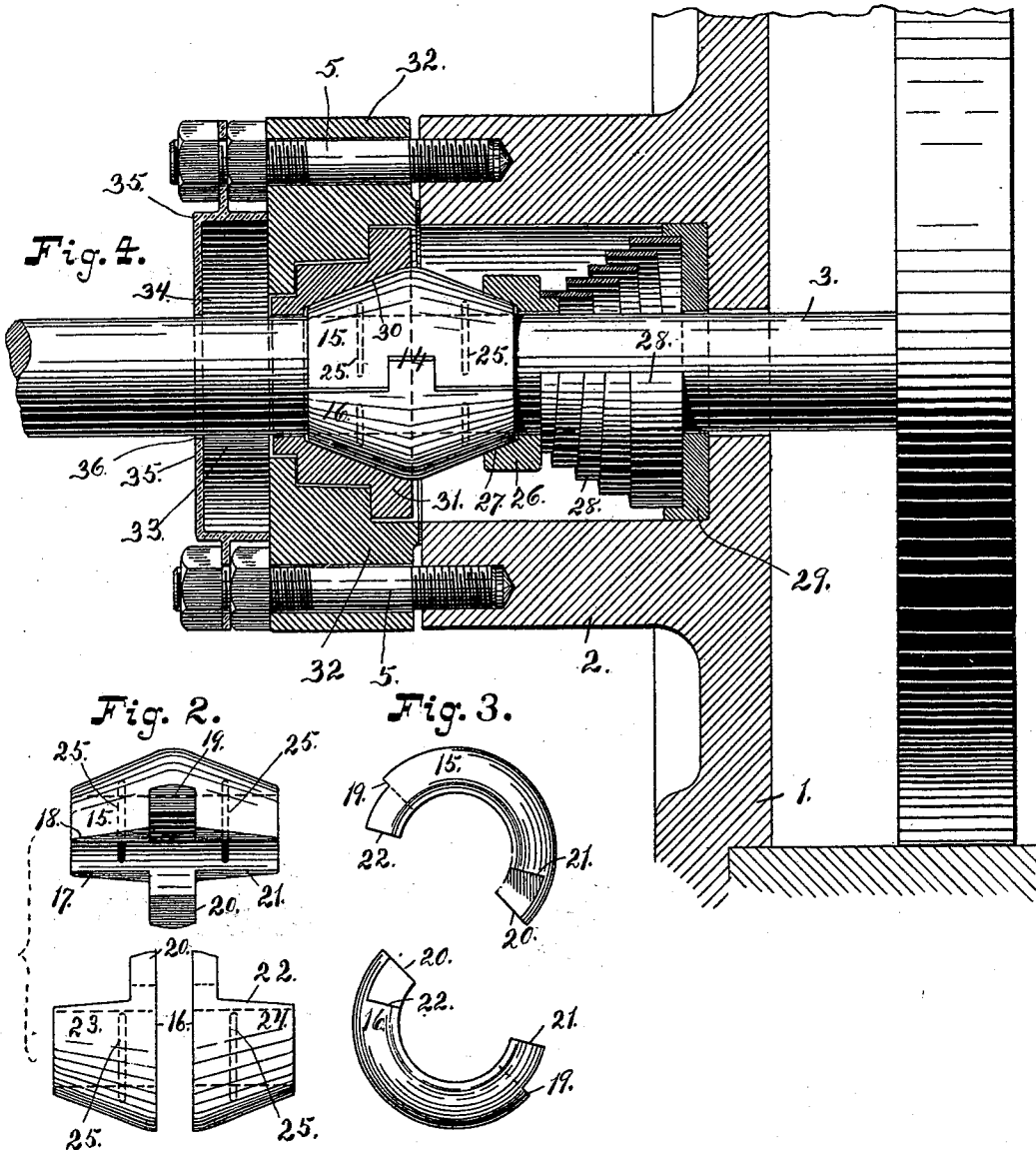
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UNITED STATES PATENT OFFICE.

LOUIS C. S. FRICK, OF BUFFALO, NEW YORK.

STUFFING-BOX.

SPECIFICATION forming part of Letters Patent No. 518,810, dated April 24, 1894.

Application filed November 13, 1893. Serial No. 490,758. (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 packing is employed and more particularly to certain improvements in that form of stuffing-box for which Letters Patent No. 404,529 were granted to me June 4, 1889. In such patent an oval shaped packing was employed the abruptly tapering end resting against a spring-pressed follower and the gradually tapering end resting in a tapering cavity of the bushing. The packing was made in two separable parts adapted when fitted together to surround the piston-rod. Such packing owing to its peculiar configuration was non-reversible.

The object of my present invention is to vary the shape of the packing and the parts which receive its tapering ends for the accomplishment of improved results and to that end it consists in providing a packing of two or more separable parts which when fitted together around the piston-rod has its two tapering ends of similar configuration and hence reversible.

My invention further consists in two similar packing rings of peculiar construction in which the similar tapering end of the packing rests in lieu of the spring-pressed follower and bushing employed in the construction shown in my above named patent.

I will now minutely describe the manner in which I have carried out my invention and then claim what I believe to be novel.

In the accompanying drawings, Figure 1 is a longitudinal sectional elevation of my improved stuffing-box, applied to the piston-rod of a steam cylinder. Fig. 2, is a side elevation of the metallic packing, showing the two

halves thereof separated, and also one half separated into two parts thereof. Fig. 3 is an end elevation of the halves of said packing separated. Fig. 4 shows my improved packing as applied to the stuffing box shown in my former patent. Fig. 5 is an end view of my improved packing ring showing a dove-tailed section which can be removed, thereby doing away with slipping the same over the end of the piston-rod. Fig. 6 is a side view of the same.

Like numerals of reference refer to like parts on the several figures.

1 represents the head of a 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.

4 shown in Fig. 1 represents a gland fitting into the opening of the stuffing box 2 and adjustably held to the latter by bolts 5 passing through the gland. A tight joint is formed between the gland 4 and the stuffing box 2 by means of packing rings 6 and 7 of asbestos, rubber or other suitable material, arranged between the gland 4 and one of the packing rings 8.

8, 8, as shown in Fig. 1 are hard metal packing rings with their outward faces against the rubber packing rings 7 and 9, thereby forming a tight joint. The packing rings 8 are provided with an outwardly tapering cavity 10.

As shown in Figs. 5 and 6, 11 is a section with dove tails 12 and 13 which are tapered inwardly, so as to prevent the section 11 from slipping inwardly, thereby enabling the placing of the hard metal packing ring 8 in its proper position, without disconnecting the piston-rod 3 to pass it over.

14 as shown in Fig. 1, represents the packing of soft metal surrounding the piston-rod 3, and which is made equally tapering forwardly and rearwardly. The metallic packing 14 is divided longitudinally into two halves or sections 15 and 16, which embrace opposite sides of the piston-rod. The sections 15 and 16 are provided at their continuous longitudinal faces with interlocking projections and recesses 17, 18, 19, 20, 21, 22, as shown in Figs. 2 and 3, whereby tight joints are formed between the sections. Each section can also be

divided into two sections 23 and 24, as shown in Fig. 2, whereby tight joints are formed between these sections in like manner.

14 as shown in Fig. 1, represents the packing 5 surrounding the piston-rod 3, and which is tapered in like manner forwardly and rearwardly and seated with its tapering portions in the outwardly tapering cavities 10 of the metallic packing rings 8, and whereby tight 10 joints are formed between the same. The packing 14 has grooves 25 on the inside as shown in Figs. 1, 2, and 4, for the purpose of having them filled with oil from the piston-rod 3, thereby assisting in preventing the leakage 15 of steam or other fluids.

My improved form 14 of soft metal packing is shown in Fig. 4 as applied to a stuffing-box similar in arrangement to that shown in my former patent herein mentioned, in which 26 20 represents a ring or follower arranged within the stuffing box 2, behind the packing 14, and provided with a tapering cavity 27, which bears against the rearwardly tapering end of the packing 14.

28 is a volute spring surrounding the piston-rod and bearing with its front end against the rear side of the follower 26 and with its rear end against a recessed ring 29, arranged in the rear end of the stuffing box 2.

30 The spring 28 presses the follower 26 against the rear end of the packing 14 thereby forcing the latter into the tapering cavity 27, and compressing the sections tightly around the piston-rod. The rear portion of the packing 35 sections are compressed directly by the ring 26 embracing the same, and the front portion of the packing is compressed by being driven into the tapering cavity 30 of the bushing 31. The external diameter of the bushing 31, as 40 shown in Fig. 4, is somewhat smaller than that of the bore of the gland 32, to give the bushing a slight vertical play in the gland, so that as the piston-rod and cross head of the engine descend slightly by wear the bushing will take part in the sinking of the piston-rod and thereby prevent binding of the same.

33 is a ring of felt or other suitable material surrounding the piston-rod in front of the packing, and whereby the rod is kept 50 clean, serving at the same time as a lubricator. The ring 33 bears against the outer end of the bushing 32 and against an annular shoulder 34, near the outer end thereof, and is held in its seat by the retaining plate 35, 55 secured to the outer end of the gland 32. The opening 36 in the retaining plate 35 is somewhat larger than the piston rod 3 as shown, to allow the rod to descend slightly as the cross head of the engine becomes worn.

60 Upon removing the nuts of the bolt 5, (see Fig. 1,) the gland 4 can be moved on the pis-

ton rod away from the end of the stuffing box 2, and the packing sections 15 and 16 can be removed when worn and be replaced by new sections if required.

It will be observed that the metallic packing 14 can be readily renewed when it is required, or when slightly worn it can be given space for wear by filing the surfaces 17, 18, 19, 20, 21, and 22, as shown in Figs. 2 and 3, 7c and again continue its wear, and by reason of its tapering ends being of similar configuration it can be reversed at will upon the piston rod to insure an even wearing of parts.

I claim—

1. In a stuffing box for engines, the combination with the conical packing; of the hard metal packing ring provided with an outwardly tapering cavity for the packing and comprising a main section having a radial 80 opening, and a removable section with dove tails at its sides engaging grooves in the sides of said opening, as and for the purpose set forth.

2. In a stuffing box for engines, the combination with the conical packing; of the hard metal packing ring provided with an outwardly tapering cavity for the packing and comprising a main section having a radial 90 opening, and a removable section with dove tails at its sides engaging grooves in the sides of said opening, said dove tails and grooves tapering inwardly, as and for the purpose set forth.

3. In a stuffing-box for engines, the combination with a soft metal reversible packing consisting of two longitudinally separable halves which when fitted around the piston-rod has its two tapering ends of similar configuration, of a retaining gland and two hard-metal packing rings having tapering cavities 100 for the reception of the tapering ends of the soft-metal packing such packing rings having removable sections with dovetails at their sides, substantially as and for the purpose 105 stated.

4. In a stuffing-box for engines the combination with a soft-metal reversible packing consisting of longitudinal halves each composed of transversely separable sections; of a 110 retaining gland and two hard-metal packing rings having cavities for the reception of the ends of the soft metal packing, such packing rings having dovetailed removable sections substantially as and for the purpose stated. 115

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,
O. E. HODDICK.