C. T. SLEEPER.

STUFFING-BOXES FOR STEAM-ENGINES.

No. 192,026. Patented June 12, 1877.

Fig. 1

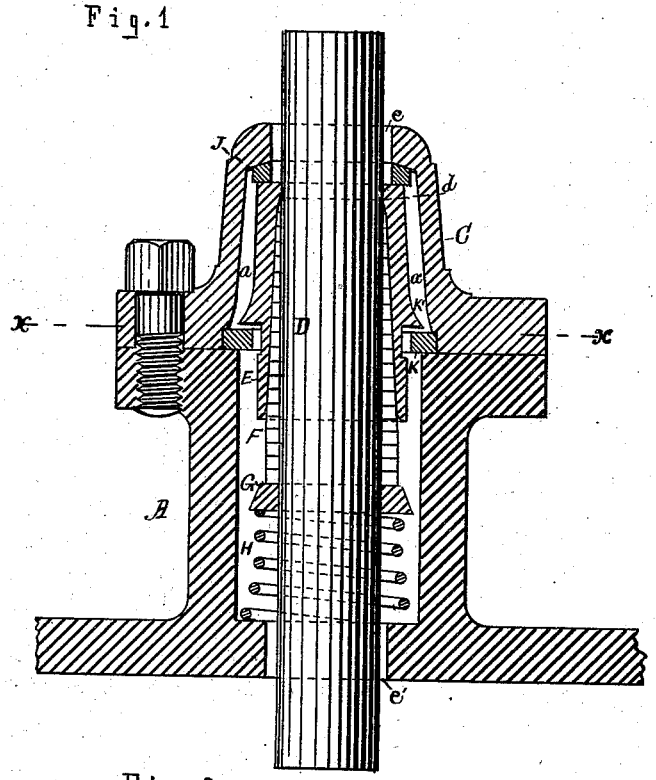
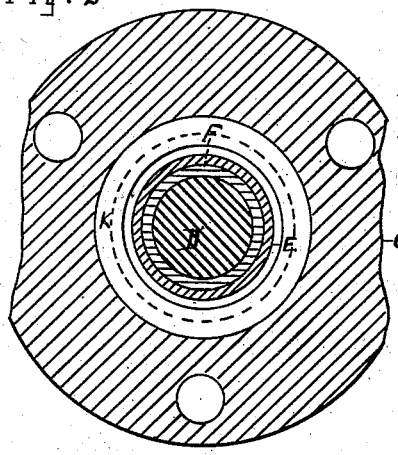


Fig. 2



WITNESSES:

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INVENTOR:

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UNITED STATES PATENT OFFICE.

CHARLES T. SLEEPER, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF HIS RIGHT TO GEORGE G. BENEDICT, OF SAME PLACE.

IMPROVEMENT IN STUFFING-BOXES FOR STEAM-ENGINES.

Specification forming part of Letters Patent No. **192,026**, dated June 12, 1877; application filed April 25, 1877.

To all whom it may concern:

Be it known that I, CHARLES T. SLEEPER, of Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Stuffing-Boxes for Steam-Engines: and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable others skilled in the art to which my invention appertains to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1 represents a longitudinal central section of a stuffing-box embodying my said invention, and Fig. 2 represents a cross-section of the same taken on the line *x x* drawn across Fig. 1.

Like letters of reference indicate like parts.

My invention relates to that class of stuffing-boxes in which metal packing-rings are used; and the object of my invention is to improve the construction of the same, so as to render the packing of the rod more complete, and permit of the packing rings and the parts containing the same to be fitted into the ordinary stuffing-box, and to move laterally with the piston-rod in the event the latter should be out of line.

To that end my invention consists in the arrangement of the several parts, as hereinafter more fully described and claimed.

In the drawing, A represents the ordinary stuffing-box, which is formed upon the outside of the cylinder-head in the usual manner. C represents an elongated cap, which is bolted to the flange of the stuffing-box A, as shown in Fig. 1, and is provided with an elongated chamber, *a*, formed therein, the diameter of which is equal to, or slightly greater than, the diameter of the chamber in the stuffing-box A. D represents the piston-rod, which passes loosely through openings *e* and *e'* formed centrally through the cap C and the cylinder-head, and so as to admit of a slight lateral movement within the said openings without coming in contact with the walls thereof in the event the rod in its action should move from a straight line. E represents a cylindrical sleeve which is fitted around the piston-rod, and within the chamber *a* of the cap, and extends backward into the chamber of the stuffing-box, as shown in Fig. 1. The diameter of this sleeve is less than the diameter of the chamber in the cap and stuffing-box, so as to leave an unobstructed space between its periphery and the wall of the chambers, and allow the sleeve to freely move laterally with the piston-rod. The chamber or cavity in the sleeve, through which the piston-rod passes, is made slightly conical, its greatest diameter being at the end entering the stuffing-box A, and is provided at its opposite end with a curved retaining-shoulder, *d*. F represents a series of soft metal packing-rings, which are fitted around the piston-rod within the cavity of the sleeve E, and from the inner end of the sleeve back into the stuffing-box A, as shown in Fig. 1. G is an annular ring or follower, which is fitted around the piston-rod, and so as to rest against the inner packing-ring. H is a coiled spring, which is loosely fitted upon and around the piston-rod between the cylinder-head and the follower G, the object being to hold the packing-rings within the sleeve when not subjected to the pressure of steam. J is an annular metal ring, which is fitted between the outer end of the sleeve and inner surface of the end wall of the cap C, and against the end of the sleeve by a flat ground joint, and is rounded off on the side opposite to the sleeve, so as to fit into a corresponding recess in the cap, the object being to allow the ring to rock sufficiently to accommodate itself to the position of the end of the sleeve, so as to insure a steam tight joint irrespective of any angle of the sleeve produced by a lateral movement of the piston-rod. K represents an annular ring, which is fitted into a recess formed in the end of the cap adjacent to the stuffing-box A, and is so arranged as to rest against the end of the stuffing-box and held in a fixed position by the pressure of the cap upon being secured to the stuffing-box. K' is an annular flange or shoulder, which is formed upon and around the sleeve at the proper point to engage with, or rest against, the outer surface of the ring K, and so as to prevent the sleeve from being moved inward against the pressure of the spring should the packing in the sleeve wedge against the piston rod during the backward movement of the latter.

Having thus described my invention, what

I claim as new, and desire to secure by Letters Patent, is—

1. The combination with the sleeve E, arranged to admit of a lateral movement with the piston-rod, and provided with the shoulder K′, of the cap C and rings J and K, substantially as and for the purpose specified.

2. The combination with the sleeve E, fitted within the cap C and stuffing-box A, and having the conical cavity provided with the curved retaining-shoulder *d*, and having the external shoulder K′, of the ring K, series of packing-rings F, follower G, and spring H, substantially as and for the purpose specified.

CHARLES T. SLEEPER.

Witnesses:

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