(No Model.)

J. LOFTUS.

STUFFING BOX.

No. 346,378. Patented July 27, 1886.

Fig. 1.

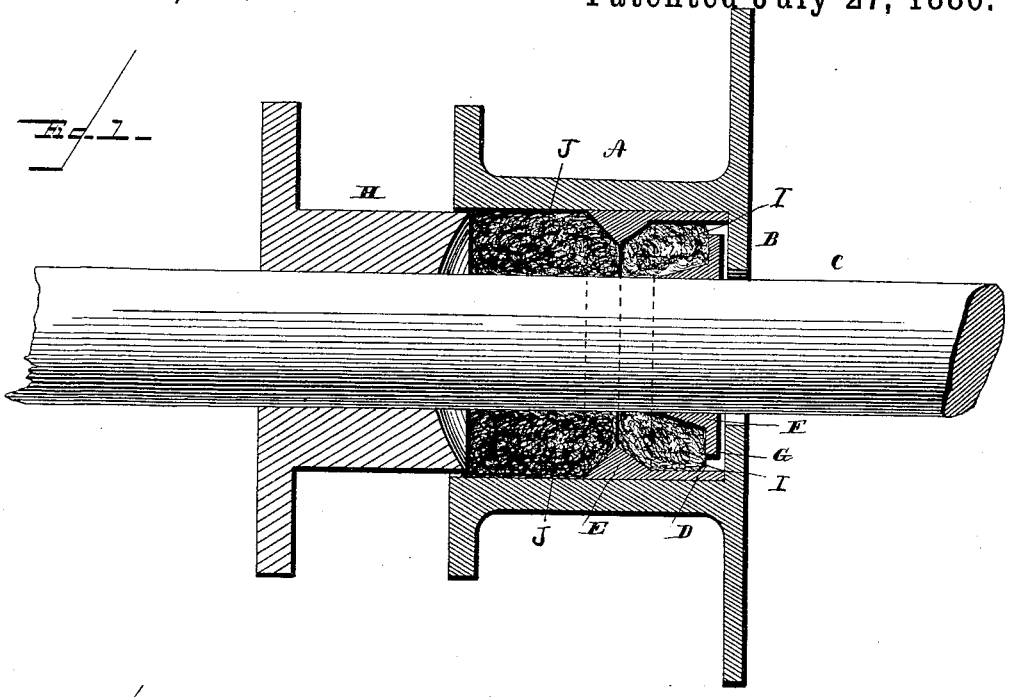
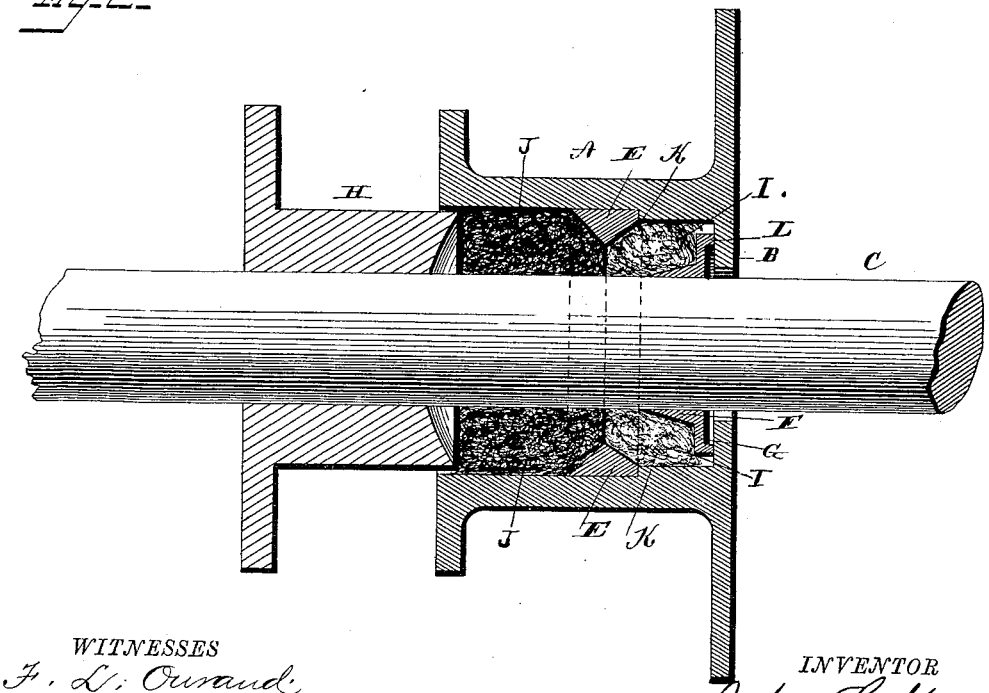


Fig. 2.



WITNESSES

F. L. Ourand

Edward Stanton

INVENTOR

John Loftus

By Louis Bagger & Co.

Attorneys.

UNITED STATES PATENT OFFICE.

JOHN LOFTUS, OF ALBANY, NEW YORK, ASSIGNOR OF ONE-HALF TO PETER KINNEAR, OF SAME PLACE.

STUFFING-BOX.

SPECIFICATION forming part of Letters Patent No. 346,378, dated July 27, 1886.

Application filed June 1, 1886. Serial No. 203,799. (No model.)

To all whom it may concern:

Be it known that I, JOHN LOFTUS, a citizen of the United States, and a resident of Albany, in the county of Albany and State of New York, have invented certain new and useful Improvements in Stuffing-Boxes; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a longitudinal vertical sectional view of my improved stuffing-box; and Fig. 2 is a similar view of a stuffing-box constructed to receive the improvement, showing a slight modification of the form shown in Fig. 1.

Similar letters of reference indicate corresponding parts in both the figures.

My invention has relation to stuffing-boxes for piston-rods; and it consists in the improved construction and combination of parts of a stuffing-box, in which the inner portion of the box is provided with means for retaining loose packing, while the outer end of the stuffing-box is provided with compact packing, as hereinafter more fully described and claimed.

In the accompanying drawings, the letter A indicates the stuffing-box, which is of the usual construction, and formed with an inwardly-projecting flange, B, at its inner end, forming an aperture slightly larger than the piston-rod, which is lettered C. A sleeve, D, fits loosely in the inner portion of the bore of the stuffing-box, and is formed with an inwardly-projecting rib, E, upon the inner side of its upper end, which rib is preferably V-shaped in section. The lower edge of the sleeve rests upon the flange of the stuffing-box and fits tightly upon the same. An outwardly-tapering sleeve, F, or bushing-ring fits tightly upon the piston-rod, sliding snugly upon the same, and the inner thick end of this sleeve is provided with an outwardly-projecting flange, G, which may rest and fit upon the flange of the stuffing-box.

The gland H of the stuffing-box is of the usual construction, and secured in the usual manner.

When the improvement is applied to a stuffing box, the tapering sleeve is slid upon the piston-rod, and the sleeve having the rib placed in the box, with its lower or inner end resting against the flange of the stuffing-box, and packing I is thereupon placed loosely in the space formed at the inner end of the stuffing-box between the tapering sleeve and the rib of the larger sleeve, and after this packing has been put in place tight packing J is forced into the space between the rib of the sleeve and the gland, the said gland compressing the packing tightly.

It will be seen that the force of the steam within the cylinder will cause a portion of the steam to raise the tapering sleeve from its seat upon the flange, and to thus enter the space filled with the loose packing, where it will condense and form a lubricant, the condensed steam being prevented from passing back into the cylinder again by the tapering sleeve, which will be drawn back upon its seat on the flange when the steam in that end of the cylinder is exhausted.

The tapering shape of the sleeve upon the piston-rod will prevent any of the loose packing from being carried back by the return-stroke of the piston-rod, and will also serve to loosen the packing from contact with the said piston-rod by reciprocating as the steam enters the stuffing-box and as the steam in the cylinder is exhausted, and the V-shaped rib upon the upper portion of the inner side of the larger sleeve will prevent the tight packing in the outer portion of the stuffing-box from being forced into the space occupied by the loose packing.

The foregoing description and Fig. 1 of the drawings describe and show the construction of the improvement when applied to stuffing-boxes of the usual construction; but the stuffing-box may be made expressly to receive this improvement, and in this case the inner end of the box may be constructed with an annular shoulder, K, as shown in Fig. 2, which shoulder takes the place of the inner portion of the larger sleeve, and the ring formed by the V-shaped rib rests upon this shoulder. The flange of the tapering sleeve may also have an inwardly-projecting rib or flange, L, with

which it bears against the flange of the stuffing-box.

In packing the piston-rods in low-pressure engines the tapering sleeve and the larger sleeve should also be applied to the gland.

The aperture formed at the inner end of the stuffing-box by the flange is sufficiently large to allow the piston-rod to vibrate in the box, and the tapering sleeve will have sufficient space within the box to vibrate with the piston-rod, the flange being of a smaller diameter than the inner bore of the sleeve within the box.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In a stuffing-box, the combination of an inwardly-projecting rib near the inner end of the box and a tapering sleeve having the piston-rod sliding snugly within it, and having its wide inner end fitting upon the flange at the inner end of the stuffing-box, as and for the purpose shown and set forth.

2. In a stuffing-box, the combination of an inwardly-projecting removable rib or ring near the inner end of the bore of the stuffing-box with a tapering sleeve upon the piston-rod having the said rod sliding snugly within it, and having an outwardly-projecting flange upon its inner end, resting upon the flange at the inner end of the stuffing-box, as and for the purpose shown and set forth.

3. In a stuffing-box, the combination of an inwardly-projecting removable rib or ring near the inner end of the bore of the stuffing-box, a tapering sleeve upon the piston-rod having the rod sliding snugly within it, and having an outwardly-projecting flange upon its inner end, resting upon the flange of the stuffing-box at the inner end of the same, loose packing placed between the rib and the tapering sleeve, and compact packing outside of the rib, as and for the purpose shown and set forth.

4. In a stuffing-box, the combination of an inwardly-projecting rib or ring near the inner end of the bore in the box, loose packing in the inner portion of the box confined by the rib, and compact packing at the outer end of the box, as and for the purpose shown and set forth.

5. In combination with a stuffing-box having an inwardly-projecting flange at the inner end of its bore, a sleeve fitting freely within the box, and resting upon the flange, and formed with a rib V-shaped in section upon the upper portion of its inner side, a tapering sleeve having the piston-rod sliding snugly within it, and having a flange at its inner end, resting against the flange of the stuffing-box, loose packing in the space between the sleeve with the rib and the tapering sleeve being retained by the rib, and compact packing in the outer end of the stuffing-box forced against the rib, as and for the purpose shown and set forth.

6. In a stuffing-box having an inwardly-projecting flange at the inner end of its bore, a tapering sleeve having a recess within its base, having the piston-rod sliding snugly within its bore, and having its inner thicker recessed end resting upon the flange of the stuffing-box, as and for the purpose shown and set forth.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

JOHN LOFTUS.

Witnesses:

ARTHUR L. ANDREWS,

SAML. ANABLE.