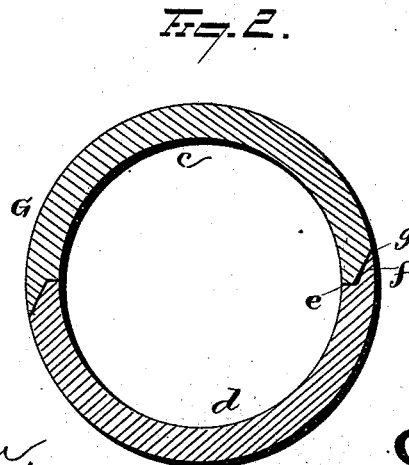
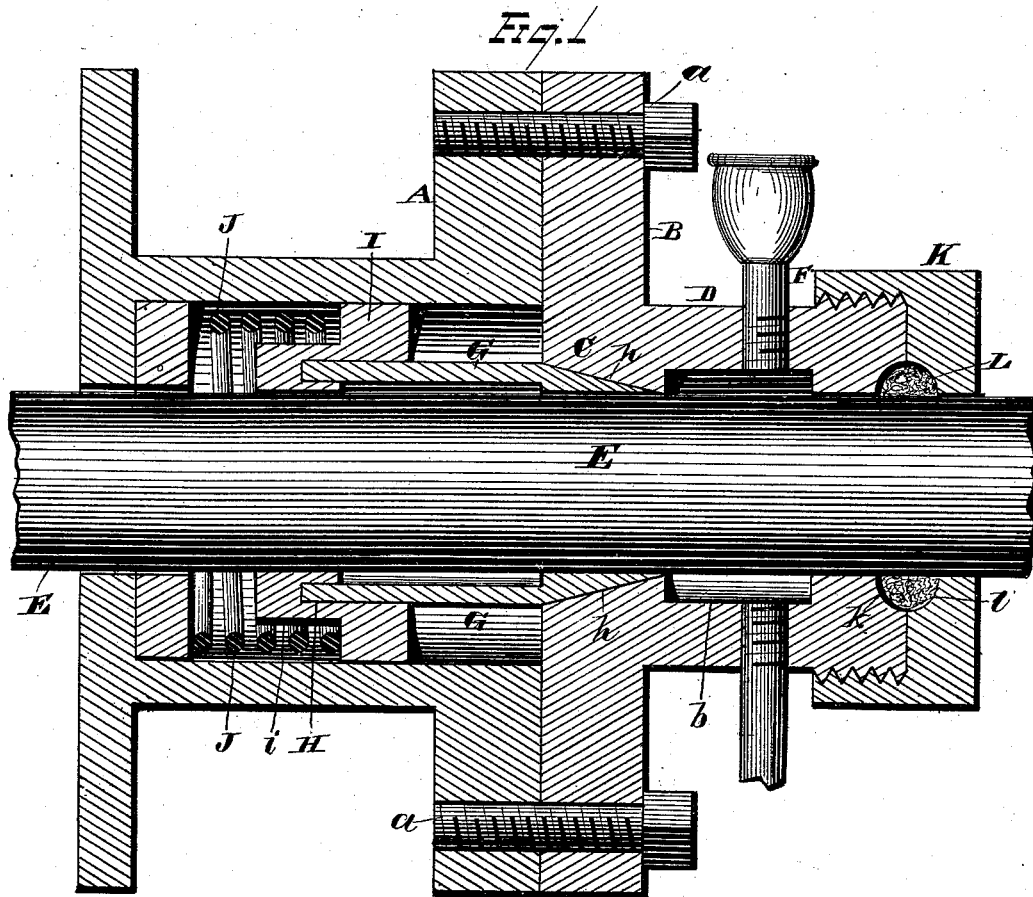


C. C. JEROME.
Stuffing-Box.

No. 215,277.

Patented May 13, 1879.



WITNESSES
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IMPROVEMENT IN STUFFING-BOXES.

Specification forming part of Letters Patent No. **215,277**, dated May 13, 1879; application filed April 3, 1879.

To all whom it may concern:

Be it known that I, CHARLES C. JEROME, of Chicago, in the county of Cook and State of Illinois, 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in stuffing-boxes for piston-rods and valve-stems of locomotive and other steam engines.

The object of my invention is to provide a stuffing-box of such construction that metallic packing-rings may be employed therein, and caused to automatically take up for wear, and only such portions of the metallic packing be brought in direct contact with the piston-rod or valve-stem as shall suffice to form a perfect steam-tight joint around the rod.

A further object of my invention is to provide the gland of the stuffing-box with means for lubricating the piston-rod.

A further object is to provide a sectional metallic packing-ring of such construction that the rear portion thereof, which is out of direct contact with the piston-rod, shall be prevented from closing against the rod, while its forward end may readily contract and close tightly against the piston-rod.

To these several ends my invention consists, first, in the combination, with the gland of a stuffing-box constructed with a conical counterbore on the steam side thereof, of a metallic packing ring or sleeve constructed with a conically-tapered forward end, and a cylindrical rear portion of greater inner diameter than the outer diameter of the piston-rod, and a spring-pressed follower provided with an annular recess, within which is received the rear end of the metallic packing ring or sleeve, and kept from direct contact with the piston-rod.

My invention further consists in a sectional metallic packing ring or sleeve, having a conically-tapered wearing end, said sections being provided with steam-tight joints, the inner portions of which are square, and the outer portions tapering or overlapping, whereby the

unworn portion of the ring is prevented from contracting and closing against the piston-rod, while the tapering or overlapping portions of the joint constitute perfect steam-tight joints to the packing ring or sleeve.

My invention further consists in the several details of construction and combination of parts, as will more fully appear from the following description and claims.

In the accompanying drawings, Figure 1 is a vertical section of my improved stuffing-box, and Fig. 2 is a transverse section of the packing ring or sleeve.

A represents the stuffing-box, and B the gland, which latter is constructed with a ground face, which fits steam-tight against the ground face of the stuffing-box, and is secured thereto by screws *a*, or in any equivalent manner. Gland B is counterbored, forming a conical recess, C, for the reception of the wearing end of a metallic packing-ring within the gland, thus allowing of the employment of a comparatively short stuffing-box and a long-wearing packing ring or sleeve.

The gland is provided with a cylinder, D, which latter is bored out at *b*, to form a lubricating-chamber adjacent to the piston-rod E. This lubricating-chamber is kept supplied with oil or other lubricant by means of the pipe F, to which is applied an oil-cup, for insuring a steady and continuous supply of lubricant.

G represents the metallic packing ring or sleeve, and is made in longitudinal sections *c*, each of which are furnished with the steam-joint, of the following construction: One edge of each section of the metallic packing ring or sleeve is formed with a ledge or seat, *e*, which is formed on a line radiating from the center of the sleeve or ring, said ledge or seat being of a width equal to or exceeding one-half the thickness of the ring or sleeve. The outer wall of seat *e* is made tapering, as at *f*, and projects beyond the seat, entering a corresponding recess, *g*, in the adjacent section of the ring or sleeve.

It will thus be observed that each joint of the ring or sleeve is formed two-part, the inner portion of the adjoining edges of the sections abutting against each other, while the

outer portions are formed overlapping, and thus the sections are prevented from contracting and closing around the rod until worn away, and a steam-tight joint is insured throughout the entire length of the ring or sleeve. The packing ring or sleeve is thus rendered virtually solid when in use, but is adapted to be applied to the rod without rendering it necessary to uncouple the piston-rod from its cross-head.

The outer end of the packing ring or sleeve is formed conical, as at *h*, which portion fits within the conical recess in the gland, and thus the ring or sleeve is contracted automatically as fast as worn away, and a steam-tight joint always preserved around the rod.

The inner end of the packing ring or sleeve fits within a groove, *H*, formed in the follower *I*.

It will be observed that the inner end of the packing ring or sleeve is bored out or formed of a greater inner diameter than the outer diameter of the piston-rod, so that only the conical end of the packing ring or sleeve is forced in direct contact with the piston-rod. This is an important and valuable feature of my improvement, the principle underlying which is that only so much of the metallic packing should be brought in direct contact with the rod as will constitute a perfect steam-tight joint, and the remaining portion of such packing ring or sleeve is held in reserve and out of contact with the rod, thus reducing the friction on the piston-rod to its minimum degree.

Follower *I* is provided with a shoulder, *i*, against which is seated one end of a spiral spring, *J*, the opposite end of which rests against the end of the stuffing-box, said spring serving to keep the metallic packing ring or sleeve pressed firmly in its conical seat, and thus preserving a steam-tight joint under all circumstances.

The follower may be of any desired length to embrace the rear portion of the packing-sleeve and prevent the same from buckling.

It will be understood that the spring-pressed follower serves the double purpose of forcing the metallic packing ring or sleeve to its conical seat and insuring a perfect steam-tight joint, and automatically taking up for all wear of the rod and packing, and also serves to retain the rear end of the sleeve from contact with the piston-rod, and preserve the same intact until the sleeve is worn away sufficiently to admit such portion into the conical seat in the gland.

The outer end of the collar of the gland is recessed at *k*, and provided with screw-threads, for the attachment of a cap, *K*, which is constructed with a recess, *l*, and thus when the cap is screwed down upon the gland the recesses *k l* will constitute a receptacle within which may be placed a wiper, *L*, consisting of any suitable fibrous material, which serves to keep the rod clean and prevent sand or other

abrasive substance from being carried into the stuffing-box and destroying the metallic packing. Instead of securing this cap by means of screw-threads, the cap may be made of struck-up sheet metal, or of sheet metal spun into the desired form, and provided with an outwardly-projecting flange, which rests against the face of the gland, and is secured thereto by one of the gland-fastening bolts.

It is evident that many slight changes may be resorted to in the details of construction and arrangement of parts without departing from the spirit of my invention, and hence I do not limit myself to the exact construction shown and described; but

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the gland or face-plate of a stuffing-box constructed with a conical recess formed on its inner face, and with an annular seat which fits steam-tight against the end of the stuffing-box, of a metallic packing ring or sleeve having a conically-tapered end and a spring-pressed follower, for forcing the conical end of the packing ring or sleeve into the conical recess in the gland or face-plate, substantially as and for the purpose set forth.

2. The combination, with the gland or face-plate of a stuffing-box, having a conical recess formed in the steam side thereof, of a metallic packing ring or sleeve having a conically-tapered forward end, and a cylindrical rear portion of greater inner diameter than the outer diameter of the piston-rod or valve-stem, and a spring-pressed follower provided with an annular groove for retaining the rear end of the packing ring or sleeve from direct contact with the rod or stem, substantially as set forth.

3. The combination, with a metallic packing-sleeve, of a spring-pressed follower constructed with an annular groove for retaining the rear end of the sleeve from contact with the valve-stem or piston-rod, substantially as set forth.

4. A metallic packing ring or sleeve formed in longitudinal sections, the adjacent edges of which are provided with abutting and overlapping portions, substantially as set forth.

5. The combination, with a gland constructed with a conical recess in the steam side thereof, of a sectional packing ring or sleeve and a spring-pressed follower provided with an annular groove, substantially as set forth.

6. As a new article of manufacture, a stuffing-box consisting of the stuffing-box proper, provided with a packing-ring formed with a conically-tapered end; a follower within which is seated the inner end of the metallic packing; a spring arranged to force the packing-ring outwardly; a gland constructed with a conical recess for receiving the conical end of the packing-ring, and provided with a lubri-

ating-chamber, and also provided with a cap, which is secured to its outer end, the adjacent faces of the gland and cap forming a chamber, within which is placed suitable fibrous packing material, for preventing sand or other abrasive material from entering the stuffing-box, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 24th day of March, 1879.

CHARLES C. JEROME.

Witnesses:

F. O. McCLEARY,
E. I. NOTTINGHAM.