(No Model.)

M. P. McLAUGHLIN.

METALLIC PACKING FOR PISTON RODS.

No. 575,491. Patented Jan. 19, 1897.

FIG. 1.

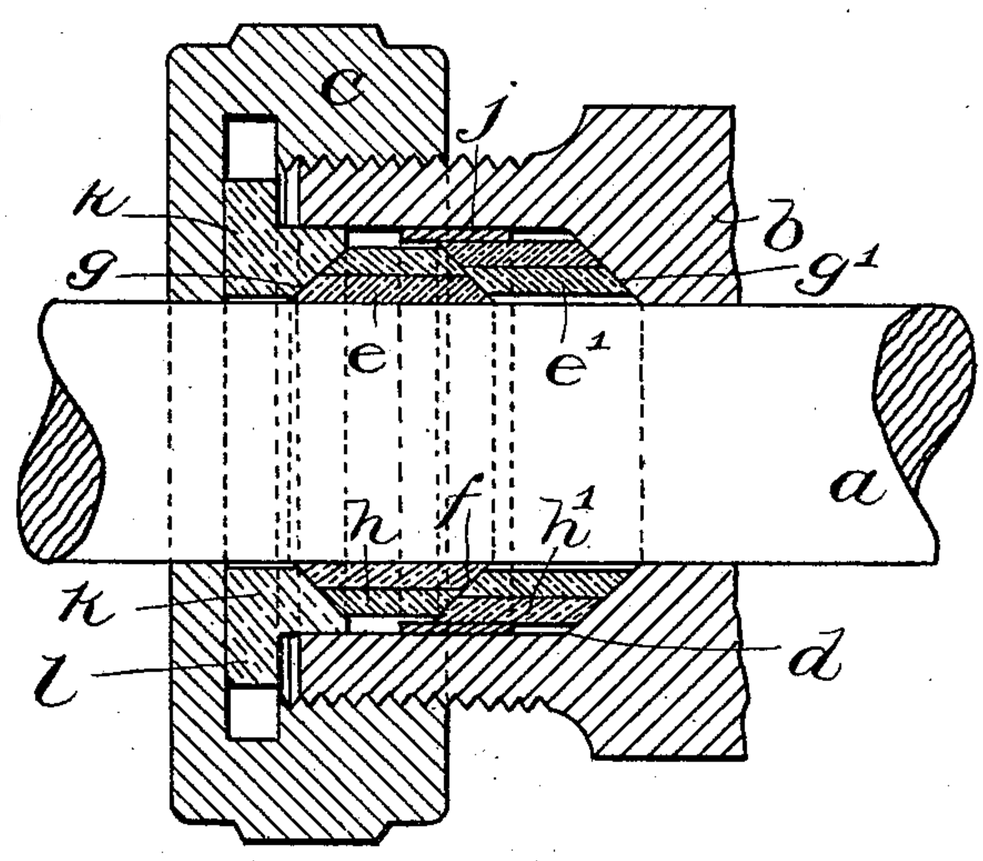


FIG. 2.

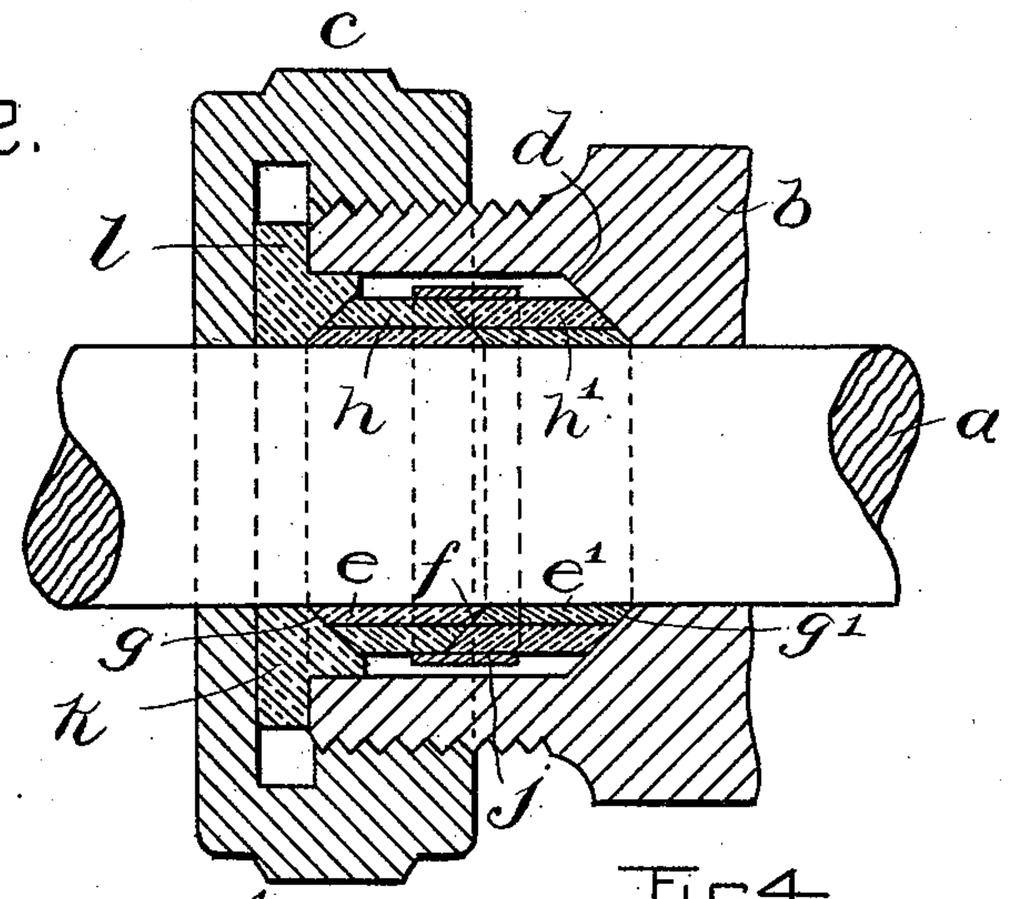


FIG. 3.

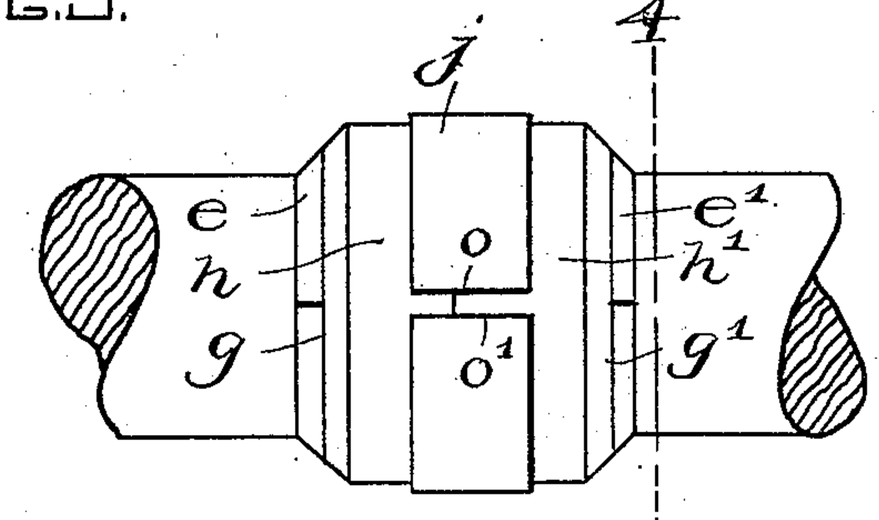
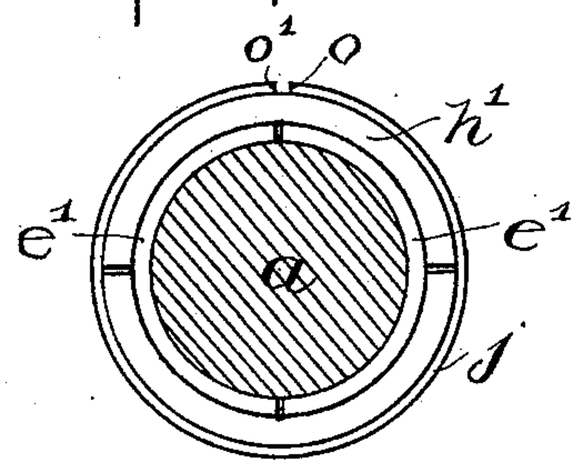


FIG. 4.



WITNESSES:

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UNITED STATES PATENT OFFICE.

MILTON P. McLAUGHLIN, OF SOMERVILLE, MASSACHUSETTS, ASSIGNOR OF TWO-THIRDS TO PHILIP M. HAMMETT, OF MELROSE, AND SAM W. SIMONDS, OF BOSTON, MASSACHUSETTS.

METALLIC PACKING FOR PISTON-RODS.

SPECIFICATION forming part of Letters Patent No. 575,491, dated January 19, 1897.

Application filed August 7, 1896. Serial No. 602,022. (No model.)

To all whom it may concern:

Be it known that I, MILTON P. McLAUGHLIN, of Somerville, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Metallic Packing for Piston-Rods, of which the following is a specification.

This invention has relation to metallic packings for piston-rods, and has for its object to provide a packing of the class mentioned so constructed and having its parts so arranged that after it is once secured in the stuffing-box or casing the wear will be compensated for automatically and there will be no necessity of tampering in any way with the packing to render it proof against the passage of water and steam.

To these ends the invention consists of a metallic packing having its parts constructed and arranged in the way that I shall now proceed to describe in detail, and then point out in the claim hereto appended.

Reference is to be had to the annexed drawings, and to the letters marked thereon, forming a part of this specification, the same letters designating the same parts or features, as the case may be, wherever they occur.

Of the drawings, Figure 1 shows in section my improved metallic packing as being confined within a stuffing-box or casing. Fig. 2 illustrates the same when the packing-rings are worn. Fig. 3 illustrates a piston-rod with packing surrounding the same, the casing and nut being omitted. Fig. 4 is a section on the line 4 4 of Fig. 3.

Referring to said drawings, the piston-rod is indicated by *a*, and passes through the usual externally-threaded casing *b*, there being a nut *c* threaded on said externally-threaded casing, as illustrated in Fig. 1.

Between the casing and the piston-rod I place my improved metallic packing.

The casing is greater in internal diameter than the piston-rod and is frusto-conical at its inner ends, as shown at *d*, or, in other words, it is beveled, as at *d*.

The packing consists of an inner ring divided into two parts *e e'* by an inclined section *f*. The outer ends of the sections *e e'* are oppositely beveled at *g g'*, while the ends of the section *e'* are beveled in the same direction and at the same angle.

The whole ring is cut diametrically or axially into two parts, as illustrated in Fig. 4. Upon the inner ring *e e'* is placed an encircling ring, which may be, though not necessarily, likewise divided into two sections *h h'* in a manner similar to that in which the ring *e e'* is divided, and having its ends beveled to form continuations of the bevels *g g'* and *f*. The bevels *g'* and *i'* on the portions *e' h'* of the rings correspond to the bevel *d* of the casing.

j is a strong spring-ring encircling the rings *e' h'* and having its ends separated, as shown in Figs. 2 and 3. *k* is a stuffing-ring having a flange *l* abutting against the end of the casing when the packing has been adjusted and having a flange *m* extending into the casing, being formed as a bevel *n*, corresponding to the bevels *g* and *i* of the metallic rings.

The nut *c* forces the ring *k* into place with the flange abutting against the ends of the casing, with its beveled sides pressing tightly against the beveled edges of the rings and with the bevel of the casing against the bevels *g* and *i* of said ring.

In placing the rings upon the rod the sections *e e'* of the inner ring have their beveled ends pressing against each other and against the bevels of the ring *k* and of the casing, and the outer ring and the spring encircle them. Then the ring *k* is forced tightly in by the nut *c*, and in doing this the ring-section *e* wedges the halves of the ring-section *e'* apart against the outer ring and the tension of the spring, as shown in Fig. 1.

After the parts have all been secured in place, as just described, they are allowed to remain permanently until they assume the positions in Fig. 2, since the sections of the rings automatically compensate for the wear upon themselves, as I shall now proceed to describe.

As the ring-section *e* wears away the ring-section *e'* is gradually forced down upon the rod by the outer ring and the spring until the parts assume the position illustrated in Fig. 2, and the gradual closing of the ring-section *e'* upon the rod forces its outer end and the outer end of the ring-section *e* against the

bevels of the casing and the ring *k*. This wedging action of the outer beveled ends of the inner ring-sections is augmented by the movement of the piston-rod and the pressure of the air or steam, as will be readily understood. Thus it will be seen that the wear upon the sections is automatically compensated for by the movement of said inner ring-sections *e'* caused by the pressure of said spring *j*. When the rings are first placed upon the packing, the ends *o o'* of said spring are slightly separated to allow for future contraction. Preferably the rings break joint, as shown in Fig. 4, to prevent steam passing between the ends of the halves of the ring-sections.

One of the chief advantages of my invention is that it may be employed in the ordinary stuffing-box or casing without changing the latter in any way and without adding any other parts.

Having thus explained the nature of the invention and described a way of constructing and using the same, though without attempting to set forth all of the forms in which it may be made or all of the modes of its use, I declare that what I claim is—

The combination with an externally-threaded casing having a bevel, a nut threaded upon the casing, and a stuffing-ring having a bevel opposite the bevel of the casing of an inner metallic packing-ring formed of two sections with abutting beveled edges, the outer edges of said ring having bevels corresponding to the bevels of the stuffing-ring and the casing, an outer packing-ring encircling the inner ring, both of said packing-rings being formed in halves and breaking joint with each other, and a strong metallic spring encircling the said packing-rings.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 30th day of July, A. D. 1896.

MILTON P. McLAUGHLIN.

Witnesses:

ARTHUR I. PLAISTED,

JOHN HUNNEWELL.