

J. C. FURNESS.

Improvement in Metallic-Packing for Piston-Rods, &c.
No. 132,361.

Patented Oct. 22, 1872.

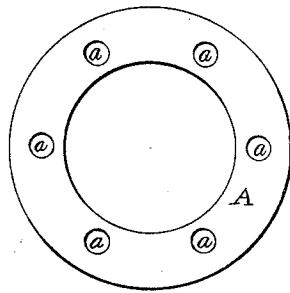


FIG. 2.

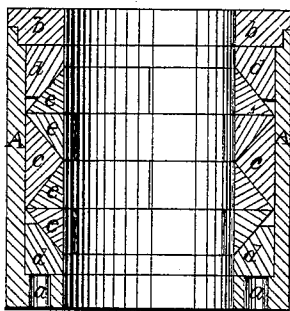


FIG. 1.

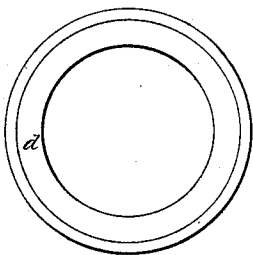


FIG. 4.

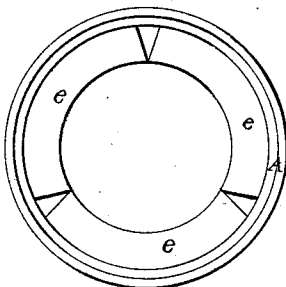


FIG. 3.

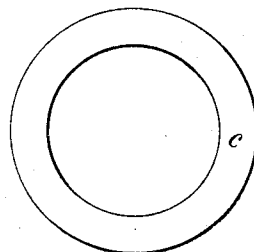


FIG. 5.



FIG. 8.



FIG. 6.

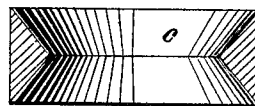


FIG. 9.



FIG. 7.

WITNESSES.

William W. Swan
Francis H. Swan

INVENTOR.

James C. Furness

UNITED STATES PATENT OFFICE.

JAMES C. FURNESS, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN METALLIC PACKINGS FOR PISTON-RODS, &c.

Specification forming part of Letters Patent No. 132,361, dated October 22, 1872.

To all whom it may concern:

Be it known that I, JAMES C. FURNESS, of Boston, in the State of Massachusetts, have invented an Improved Metallic Packing; and I do hereby declare the following to be a full and correct description of the same, reference being had to the accompanying drawing, in which—

Figure 1 is a sectional elevation; Fig. 2 is a bottom view of the same; Fig. 3 is a plan with the upper portions removed; Figs. 4, 5, and 6 are plan views of rings and other pieces of Babbitt or similar metal used for packing or stuffing; and Figs. 7, 8, and 9 are sectional elevations of the parts shown, respectively, in Figs. 4, 5, and 6.

A is the box, of brass or other suitable metal, through which the piston travels, and which contains the metallic packing. *b* is a flanged plate, forming a top to the box. This flanged plate is kept in its place by the ring-plate, bolts, and screws, which secure the box to the steam-cylinder in the ordinary manner. In the bottom of the box A are holes *a a*, communicating directly with the interior of the cylinder. *c* is a ring of packing-metal fitting closely in the box, as shown. A section of the ring *c* presents an isosceles triangle, as shown, the base resting against the box and the other two sides sloping toward each other, each at an angle of forty-five degrees to the sides or top of the box. *d d* are top and bottom rings of packing, also shown in section in Fig. 1. The face of each of the rings *d* which is toward the ring *c* is also at an angle of forty-five degrees to the top and sides of the box. The edge of each of these rings has a slight portion cut away to allow them a slight movement toward *c*. *e e e e* are pieces of packing, shown in section in Fig. 1, the section being a right-angled triangle. They are packed in the manner shown in Fig. 1, there being two layers of the pieces *e e* between the ring *c* and each of the rings *d*, as there shown, and several pieces forming one layer, as shown in Fig. 3. A section through the two layers lying between the ring *c* and either ring *d* is the reverse of a section of the ring *c*.

The operation is as follows: Steam entering

the holes *a* drives the packing toward the other end of the box, and the ring *d* approaching the ring *c*, the inclined surfaces of the two rings drive the layers of packing between them toward the axis of the box and into contact with the piston-rod, and the other layers of packing are forced forward in like manner against the piston-rod by the ring *c* approaching the second ring *d*. However much the pieces are worn away by friction they continue to be driven against the piston-rod, forming always a perfect packing until the ring *c* lies in contact with the rings *d d*.

It will be found, in practice, that when the piston reverses its motion back-steam will cause the packing to work perfectly.

In applying this invention to a piston-head the rings *c* and *d* are cast as if they had been cut open and the ends had been joined by bending the metal in the opposite direction, so that the part of the ring which, in the drawing, lies against the box will then lie against the piston-head. The pieces *e e* are in like manner reversed, and in operation are forced outward against the cylinder by the rings *c* and *d* reversed as aforesaid. In applying the invention to a piston-head it will be found better to make steam-holes *a* in each plate of the piston-head; and I prefer to make the reversed ring *c* fast in its place, the other rings working toward it. It is obvious that instead of two layers of packing between the ring *d* and the ring *c* one might be used having two sloping sides and a perpendicular side, the latter in contact with the piston-rod or cylinder; but I prefer the double layer, as previously described.

I claim—

The combination, in a packing-box, of the ring *c*, packing-segments *e e e e*, and rings *d d*, all constructed, arranged, and operating in the manner and for the purpose specified.

The above specification of my said invention signed and witnessed at Boston this 16th day of April, A. D. 1872.

JAMES C. FURNESS.

Witnesses:

WILLIAM W. SWAN,
FRANCIS H. SWAN.