T. TRIPP.

Packings for Piston-Rods.

No. 211,947. Patented Feb. 4, 1879.

Fig. 1.

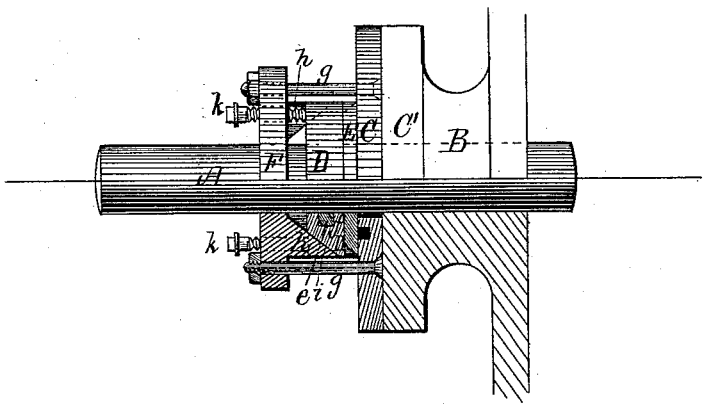


Fig. 2.

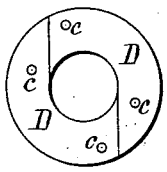


Fig. 3.

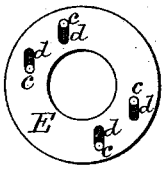


Fig. 4.

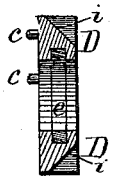
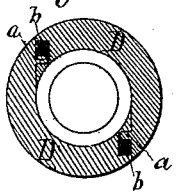


Fig. 5.



Witnesses.

H. E. Lodge

Wm. Turell Andrews, Jr.

Inventor.

Thomas Tripp.

Y. Curtis. Atty.

UNITED STATES PATENT OFFICE.

THOMAS TRIPP, OF EAST STOUGHTON, MASSACHUSETTS.

IMPROVEMENT IN PACKINGS FOR PISTON-RODS.

Specification forming part of Letters Patent No. **211,947**, dated February 4, 1879; application filed November 18, 1878.

To all whom it may concern:

Be it known that I, THOMAS TRIPP, a resident of East Stoughton, in the county of Norfolk and State of Massachusetts, have invented certain Improvements in Packings for Piston-Rods, &c., of which the following is a specification:

This invention relates to improvements in packings for piston-rods, &c., whereby such packing accommodates itself to the movements of the rod, and retains at all times a perfect bearing and a position about the rod at all times at right angles to the axis of the latter, thereby avoiding the thrusts and strains and leakage of steam incident to many piston-rod packings in use; and my improvements consist in the construction and arrangement of parts, as hereinafter described.

The drawings accompanying this specification represent, in Figure 1, a sectional elevation of a piston-rod packing embodying my improvements. Fig. 2 is an end view of the two sectional or semi rings which encompass the piston-rod, while Fig. 3 is a like view of the plate which breaks the joints of the said rings. Fig. 4 is a section of the sectional packing-plates, showing the connecting-dowels and mortises. Fig. 5 is a horizontal section in the plane of the said packing-plates.

In the above-named drawings I have represented at A what may be considered a portion of a piston-rod of a steam-engine cylinder, the front portion or flange of the cylinder-head through which the rod passes being shown at B.

In carrying my invention into effect, I provide an annular plate or flange, C, which I bolt flatwise to the portion B of the cylinder-head, the said plate C constituting, in the present instance, the base or support of my packing, and loosely surrounding the piston-rod, in order that the latter may be permitted slight side play within such plate.

The packing element in this case consists of two hook-shaped collars or sectional rings, D D, which inclose upon opposite sides the rod A outside of the base-plate C, the united outer peripheries of these rings being preferably circular, and the coinciding or meeting faces being straight and parallel, in order that one may slide upon the other as they are crowded inward to take up the wear upon their inner peripheries, while the conjoint inner peripheries of these sectional plates or semi-rings constitute a cylindrical bore to encircle tightly the rod A.

To prevent tendency to separation of the semi-rings or plates D D lengthwise of the rod A, I connect the two by dowels and mortises *a b*, while, to break the joints between the plates D D upon the inside, I employ an annular plate or washer, E, which surrounds the rod A, and is interposed between the said plate C and plates D D. The plate or washer E, in addition to breaking the joints between the plates D D and preventing escape of steam between them and the cylinder-head, also serves to confine said plates together in their proper place transversely of the piston-rod; and in order to permit of endwise movements of such rings upon one another as their inner peripheries become worn by contact with the rod, I connect such plates D D and the plate E by dowel-pins or spurs *c c*, &c., which play in slots *d d*, &c., created in the plate E, as shown in Figs. 2, 3, and 4 of the drawings.

To temporarily seal the joint between the bores of the plates D D and the periphery of the rod A until such plates find a smooth and fair bearing upon such rod, I employ an annulus, *e*, of india-rubber or other elastic material, which is let into a common channel, *f*, created in the conjoint inner peripheries of the plates. As the plates D D become fitted to the rod the packing-ring *e* may be removed or allowed to remain, as may be preferred.

To confine the plates D D in place upon the rod I employ an annular head or follower, F, which encircles said rod, and is confined to the plate C by bolts *g g*, &c., while, to crowd the plates D D closely up to and so as to tightly hug the rod, I form upon the inner face of such head F two obliquely inclined or sloping ears, *h h*, which operate with correspondingly-inclined faces *i i* formed upon the peripheries of the plates D D, as shown in Fig. 1 of the drawings.

It will be evident that by crowding the head F inward by means of the nuts of the bolts *g* the inclined ears of such head will wipe against the adjacent sloping faces of the plates D D, and force the latter inward upon opposite

sides of the rod A, so as to tightly encircle and hug the latter and prevent escape of steam at this point, while at the same time the intermediate packing plate or ring F is tightly crowded up to its seat upon the base-plate C.

As before stated, the dowel-pins *a* are for the purpose of preventing end-play of the plates D D lengthwise of the rod A, and with small piston-rods they serve the purpose without aid from other sources; but with large piston-rods, in which the plates are of considerable size, I prefer to employ gage-screws *k k*, &c., which are screwed through the outer head or cap F, and abut against the outer ends of the plates.

Should the inner peripheries of the plates D D in time become worn so as to permit of leakage of steam between them and the collar E or the plate C, or between them and the rod A, or again between the collar E and plate C, by reason of general slackness of parts, the screws *k* are to be retracted to a slight extent, and the nuts of the bolts *g* screwed inward upon the cap F to a corresponding degree, which effectually tightens the joints between the various parts.

It will be seen that I am enabled to dispense with springs as now generally employed in packings of this character to maintain the parts generally in place about the piston-rod.

It will also be seen that any lateral swaying or irregular movements of the piston-rod with respect to the axis of the cylinder do not tend to loosen or start the various joints of my packing, as the entire device moves with the piston-rod and slides upon the base-plate C, or the cylinder-head flange, and accommodates itself to the movements of the rod, so that the thrusts and strains upon the latter have no tendency to effect separation of the various component parts of the packing, or to spread the joint between it and the head of the cylinder, as the bolts *g* will swing sufficiently to permit of the bodily movement of the packing device without throwing its various parts out of place or disturbing its relations with the rod.

The entire device is outside of the cylinder and readily accessible. It is simple, effective, and durable, and for these reasons not subject to derangement or rapid wear.

I claim—

1. A rod-packing composed of the sectional plates D D, collar or annular plate E, and head or cap F, with its oblique or sloping ears *h h* acting upon the peripheries of the plates, the said parts being connected with the cylinder-head directly, or by means of the base-plate C, by the bolts *g g*, as shown and described.

2. The packing plate or collar E, disposed between the sectional plates D D on the one side and the cylinder-head or the plate C on the other, and serving to break the joints between the said plates D D and confine them together upon the rod transversely of the latter.

3. The auxiliary packing or elastic strip *e*, in combination with the plates D D and rod A.

4. The head F, with its oblique or sloping ears *h h* operating with the inclined faces upon the plates D D in line with the guide-slots in plate E.

5. The peculiar shape of the plates D D, as shown in Fig. 2 of the drawings—that is to say, with semi-cylindrical bores, which united serve to inclose the piston-rod, and with straight parallel edges at right angles to their flat faces, to meet and slide upon each other, to compensate for wear upon the bores.

6. In general combination, the sectional plates D D, collar or annular plate E, cap F, with its ears *h h*, and the base-plate C, the whole constructed and operating with the piston-rod and the cylinder-head, substantially as and for purposes stated.

THOMAS TRIPP.

Witnesses:
WM. TURELL ANDREWS, Jr.,
H. ELLERTON LODGE.