T. LORD.

Piston-Rod Packing.

No. 137,783. Patented April 15, 1873.

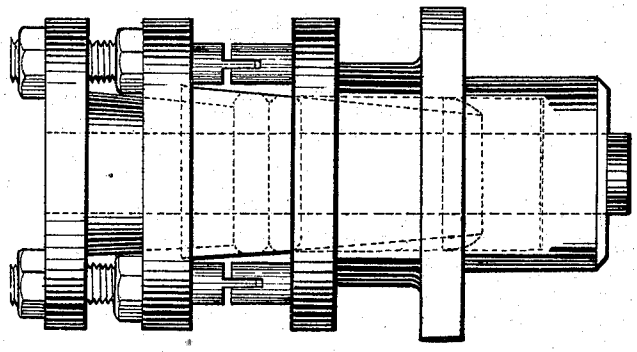

Fig. 1.

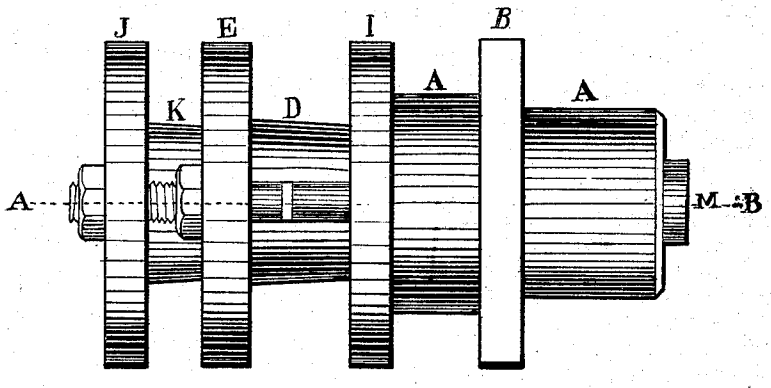

Fig. 2.

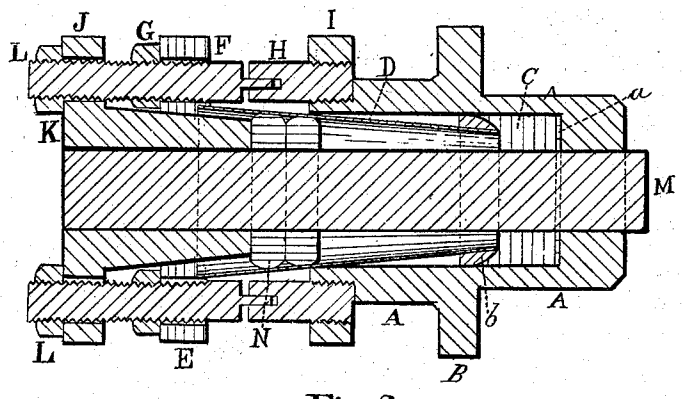

Fig. 3.

WITNESSES:

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THOMAS LORD, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR TO HIMSELF, JOSEPH KELLY, AND HENRY J. PAINE, OF SAME PLACE.

IMPROVEMENT IN PISTON-ROD PACKINGS.

Specification forming part of Letters Patent No. **137,783**, dated April 15, 1873; application filed January 20, 1873.

To all whom it may concern:

Be it known that I, THOMAS LORD, of the city and county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Piston-Rod Packing; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing which forms a part of this specification, and in which—

Figure 1 represents a top or plan view of my improved stuffing-box. Fig. 2 represents a side view of the same, and Fig. 3 represents a longitudinal central section on line A B, Fig. 2.

To enable those skilled in the art to which my invention belongs to make and use the same, I will proceed to describe it in detail.

In the drawing the part marked A is that part of the box which is rigidly fastened to the steam-chest by means of bolts which pass through holes in the flange B. The part A is chambered or bored out to receive the base or socket piece C, the bottom of which bears against a lead packing-ring, *a*. The outer face of the piece C is made concave, or in cup form, to receive the rounded base *b* on the lower end of the tapering metal packing-cup D. It will be seen that the parts C and D form a ball and socket joint. The large end of the packing-cup D fits into a recess or groove cut or formed in the inner face of the plate E, which is held in place by means of bolts F F and nuts G G. The inner ends of bolts F F are hinged to lugs H H, screwed into or otherwise fastened to flange I on the part A. Bolts F F project sufficiently far to pass through holes in flange J on the conical-shaped packing-piston K to receive the holding-nuts L L. The part M is a section of the valve rod or stem which reciprocates back and forth to give the proper motion to the valves, and it passes loosely through the base of the part A, and then through the socket piece C, lower end of the cup D, and through the packing-piston K, but steam is prevented from passing through the joints by reason of the lead packing-ring *a*, which prevents steam from escaping upon the outside of the socket piece C, and thence by the outside of the packing-cup D while the packing-rings N, made of any suitable material, prevent the steam from escaping along by the outer surface of the valve stem or rod M. The packing N is forced into the conical packing-cup D by means of the packing-piston K. As the packing wears it can be forced still further in, and the operation can be repeated until the packing is worn nearly or entirely out. The packing-cup D and the chamber in part A are so made, as respects each other, that there will be play or considerable looseness between the outer surface of the packing-cup and the inner surface of the chamber at the point where the packing-cup passes out of the chamber in the part A.

It will be observed that, owing to the conical shape or form of the packing-cup D, when the packing-piston K is forced in the sections of packing are not only forced firmly together but are also contracted so as to clasp more closely the valve-stem or rod. It will also be seen that, owing to the construction of the several parts of the packing-box, the valve-stem or rod can deviate from a straight line as it reciprocates without its being bound by the box, as is the case in the common rigid or stiff packing-boxes in use prior to my invention. The base of the packing-cup D can turn or rock in the socket piece C, while the joints in bolts F admit of a rocking motion being imparted to the packing-piston K, and all these motions can take place without injury to the packing or liability of opening the joints so as to permit the steam to escape.

Engineers and others familiar with the objections attending the use of rigid stuffing-boxes upon the valve-stems or rods of locomotives, will readily appreciate the practical value and importance of my invention.

Although I have shown and described my invention as particularly applicable to locomotives, it may be applied with equal good results to steam-engines and steam and other force-pumps, but in those cases where the piston-rod moves in a direct line, the hingers, in holding bolts F, may be dispensed with.

Having described my improvements in stuff-

ing-boxes for valve-stems or rods of locomotives, steam-engines, and pumps, what I claim as new, and of my invention, and desire to secure by Letters Patent, is—

1. The combination, with the part A, of the socket piece C, conical packing-cup D, plate E, and packing-piston K, substantially as and for the purpose set forth.

2. The hinged bolts F, in combination with the body of the stuffing-box, and the packing piston or gland, substantially as and for the purposes set forth.

THOMAS LORD.

Witnesses:

THOS. H. DODGE,

E. E. MOORE.