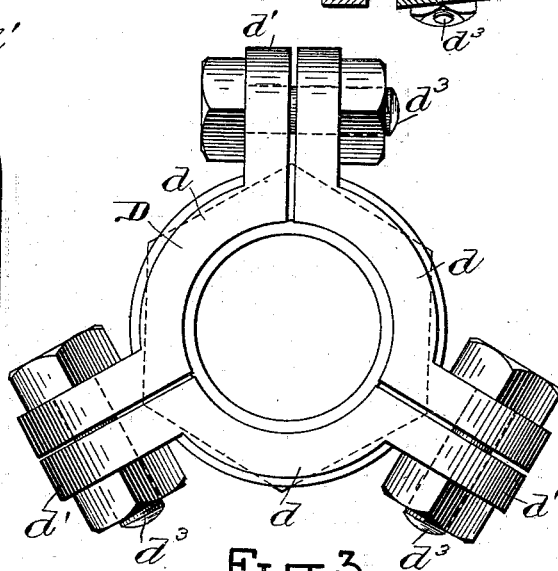
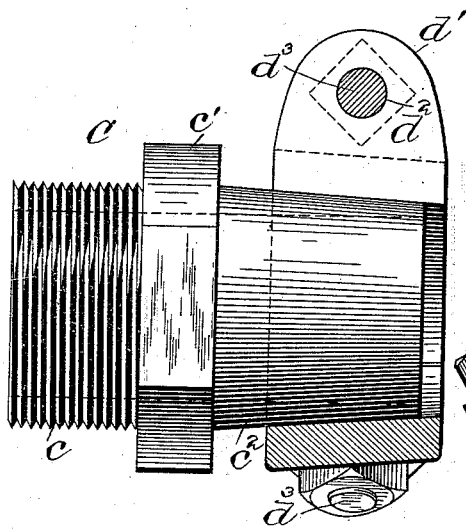
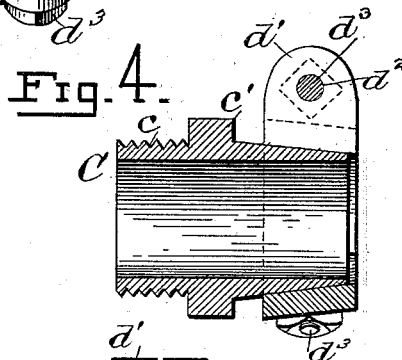
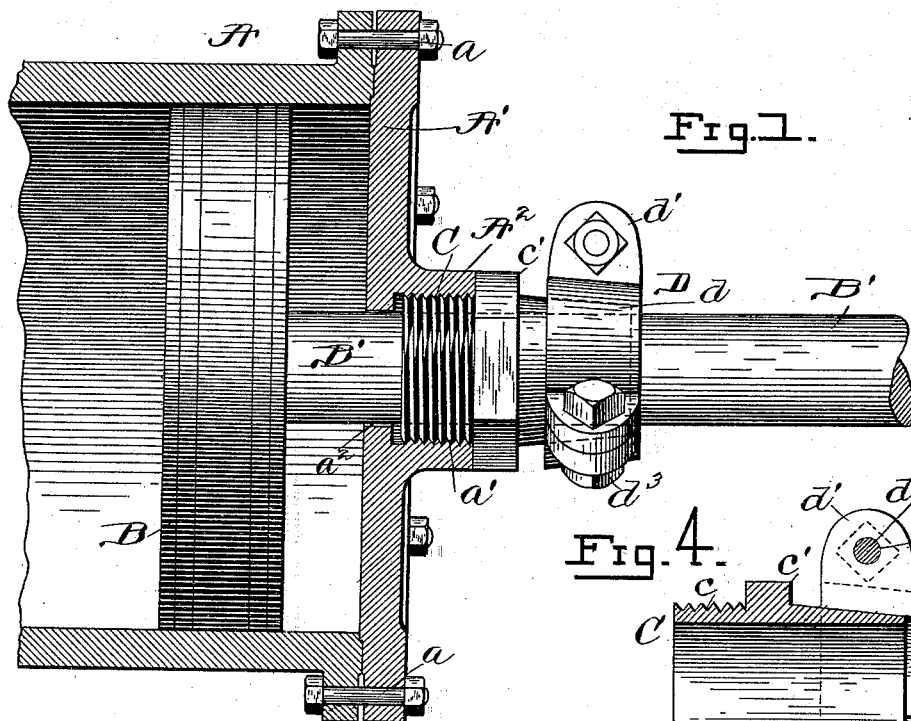


(No Model.)

J. LISTER.
PISTON ROD PACKING.

No. 524,831.

Patented Aug. 21, 1894.



WITNESSES:

Fred W. Hersey.

Chas. H. La Porte.

INVENTOR:

Joseph Lister
H. H. Bliss
att'y

UNITED STATES PATENT OFFICE.

JOSEPH LISTER, OF CHICAGO, ILLINOIS.

PISTON-ROD PACKING.

SPECIFICATION forming part of Letters Patent No. 524,831, dated August 21, 1894.

Application filed May 19, 1894. Serial No. 511,787. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH LISTER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have
5 invented certain new and useful Improvements in Piston-Rod Packing; and I do 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 appertains
10 to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Figure 1 is a vertical section showing part
15 of an engine cylinder, and also the piston, the piston-rod and some of the adjuncts. Fig. 2 is a view of the packing tube detached, and showing part of the compressing device in section. Fig. 3 is an end view of that
20 shown in Fig. 2. Fig. 4 is a longitudinal section of the tube.

In the drawings, A indicates a portion of an engine cylinder sufficient to illustrate the manner of applying my invention thereto. It
25 is provided with a cylinder-head A' bolted at a in substantially the usual way. The head has an outward extending boss or packing-box A² provided with an internal thread a', there being an aperture at a² through the head so
30 that the rod B' of the piston B can readily reciprocate through it.

As is well known, it is necessary to insert a packing between the cylinder-rod B' and the box A² of such nature as to prevent leakage
35 entirely of steam, and at the same time allow the easy sliding of the rod B'. To accomplish this packing, numerous means have been devised. One device which I have employed consists of a packing-tube of comparatively soft metal having a cylindrical
40 threaded external portion adapted to have a nut-like collar placed concentric with the shaft and turned on the conical thread to compress the metal.

I have found that under some circumstances, as for instance with large engines, it is advantageous to apply the compression in a
45 different way, that is to say, apply it without requiring the slipping or moving longitudinally of the compression device along the surface of the cone. In order to apply the compressing power to greater advantage in such cases I employ means such as are herein shown.

C indicates the packing-tube as a whole, it having the inner cylindrical threaded part c, 55 the central polygonal flanged part c' and the exterior smooth surfaced cone c². These parts c, c', c² are cast integral, of suitable metal, I at present preferring Babbitt-metal. Any substance can be employed which can
60 be utilized to form a continuous tube entirely around the piston-rod without any joints or lines of separation, which can be easily compressed uniformly toward the center, and which will have sufficient expanding action
65 on the releasing of the compression to permit a loosening of the joint.

Upon the smooth surfaced cone c² I fit a three-part compression device, each part thereof being indicated by D. Each of these
70 has a central curved portion d and radially extending arms d' d' provided with bolt apertures at d². The arms d' can be placed opposite to the corresponding parts of the adjacent sections, and can be drawn together
75 by the bolt d³ passing through the aperture d². With a mechanism of this sort a very powerful compression can be exerted without the necessity of exerting any force
80 to cause the compression device D D to move longitudinally of the cone c². Therefore a thicker cone can be treated, as the metal can be delicately crowded inward or allowed to expand as required in order to properly regulate the degree of tightness of the packing. 85

What I claim is—

In a piston-rod packing, the combination with the cylinder head and the packing box A, of the packing tube C having the cylindrical threaded part c which engages with the packing
90 box, the flange c' and the smooth surfaced cone c², the three-part compression device, each part D being adapted to press radially against the said cone, and the screw-threaded clamping mechanism for drawing together
95 the sections of the compressing device and acting in planes transverse to the axis of the cone, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH LISTER.

Witnesses:

E. R. BLISS,
LORING W. POST.