(No Model.)

J. H. GUILEY.

PISTON ROD PACKING.

No. 323,320. Patented July 28, 1885.

Fig. 1.

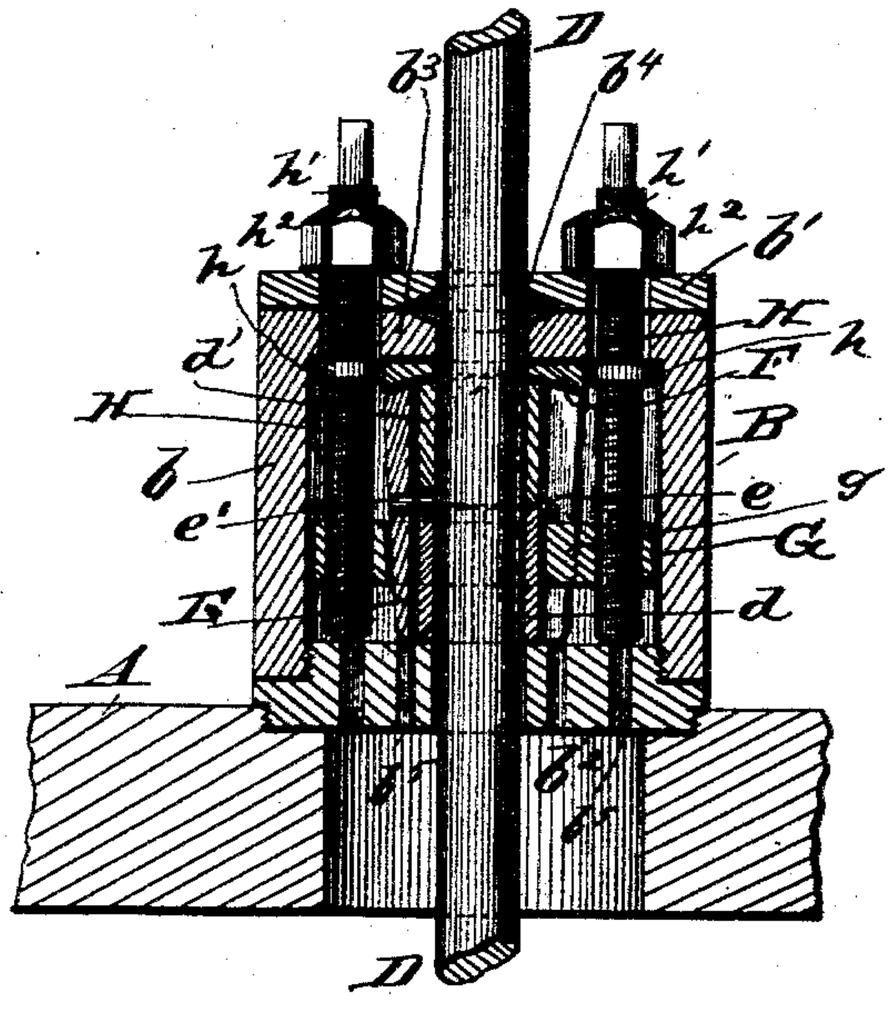


Fig. 2.

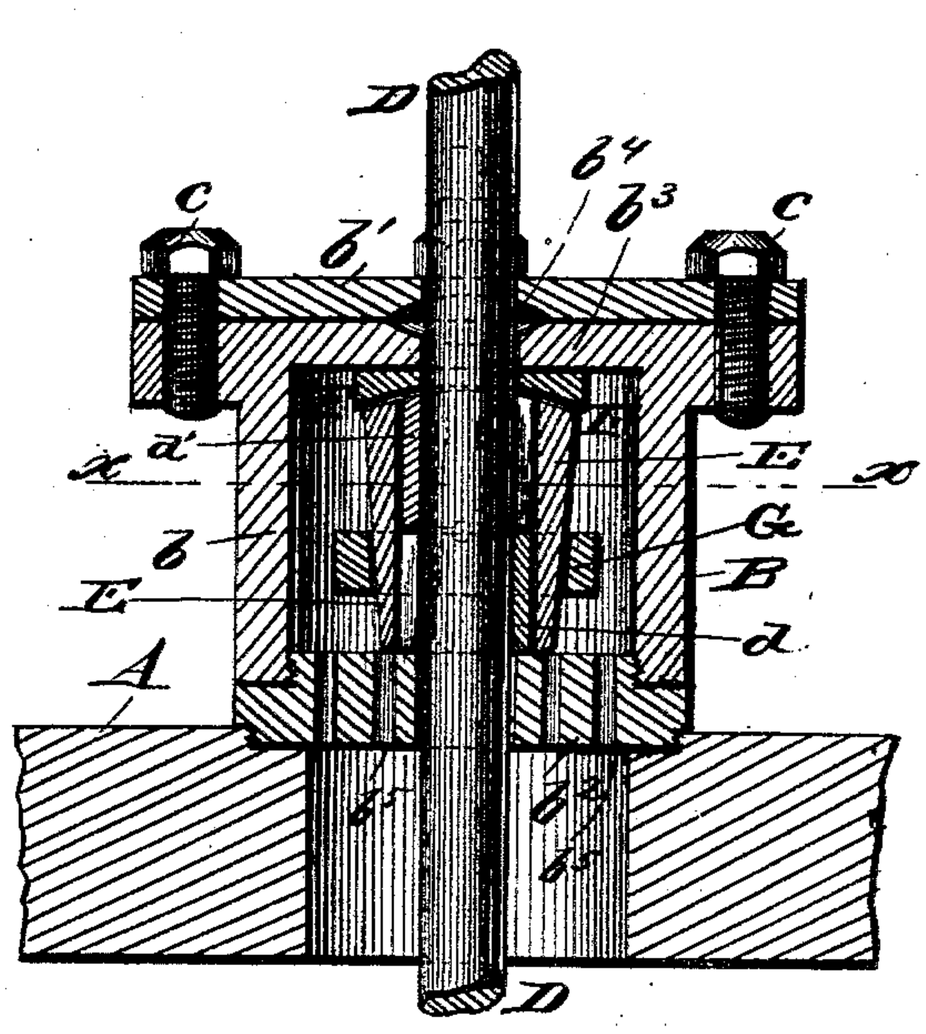


Fig. 3.

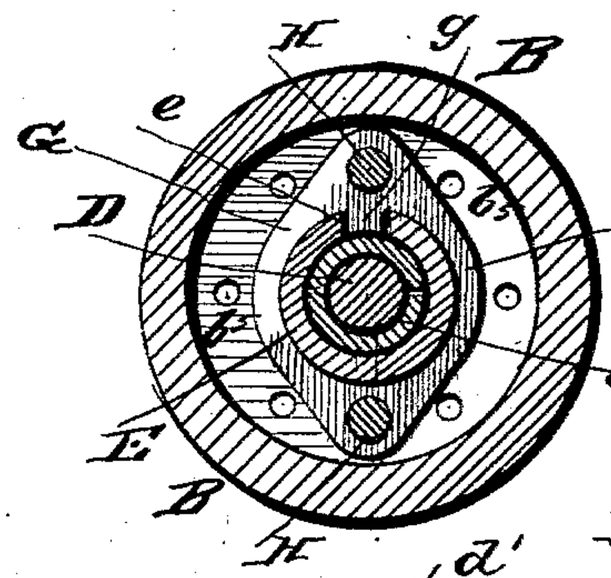


Fig. 4.

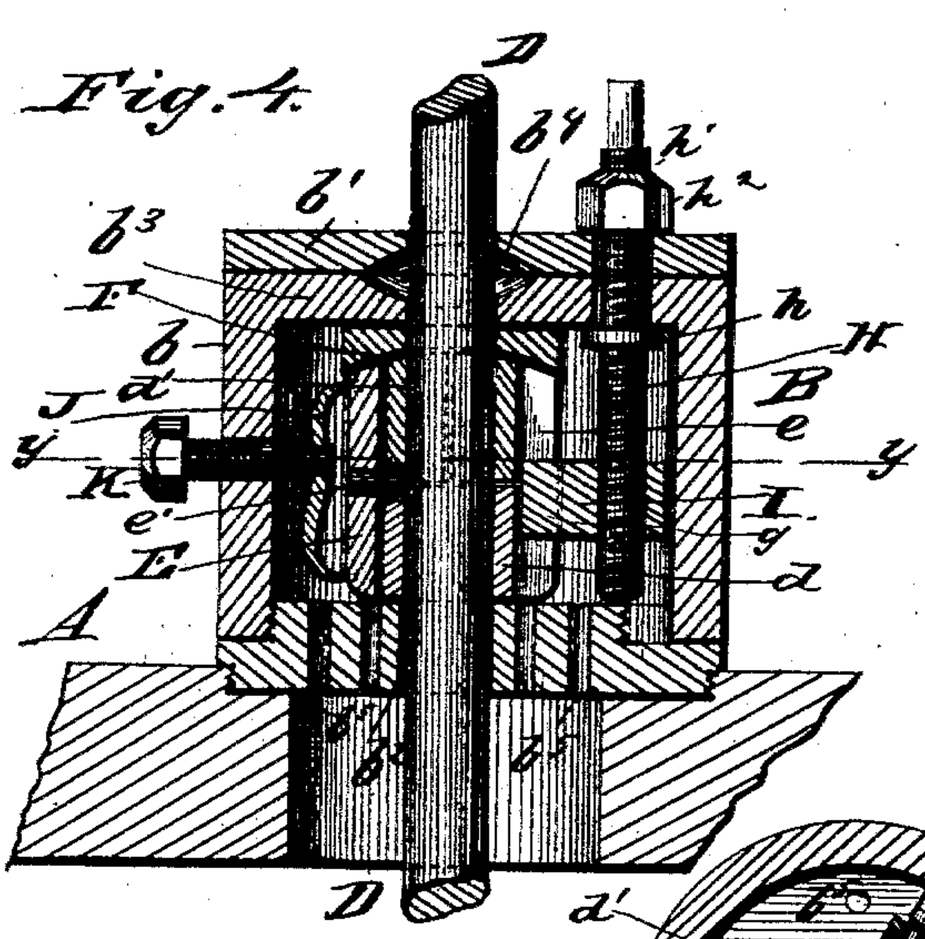


Fig. 7.

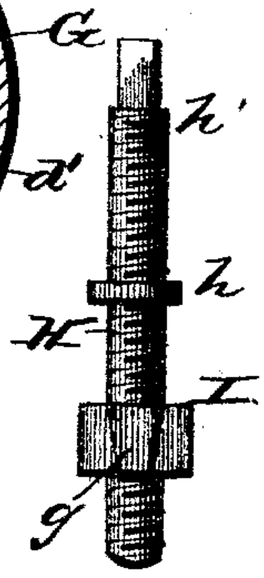


Fig. 6.

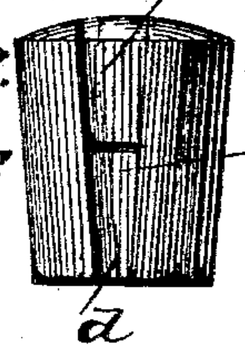
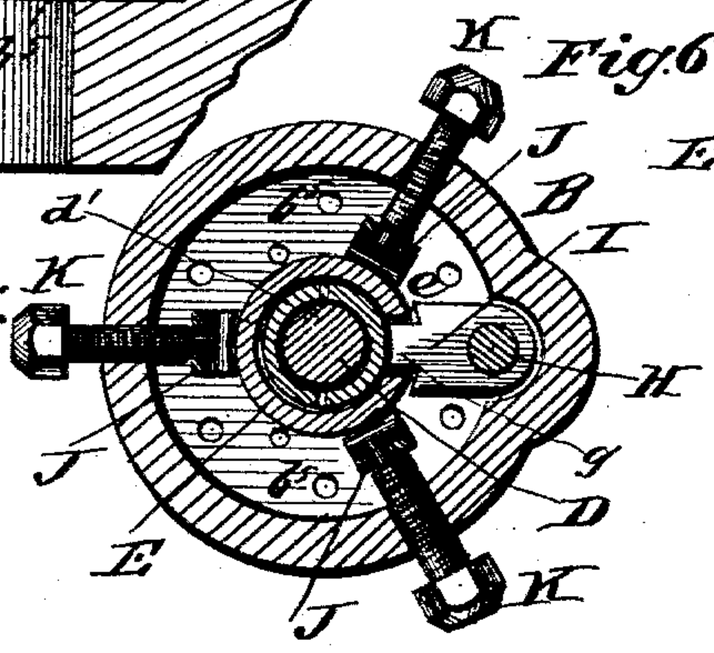


Fig. 5.



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UNITED STATES PATENT OFFICE.

JACOB H. GUILEY, OF EAST SAGINAW, MICHIGAN, ASSIGNOR OF ONE-THIRD TO JAMES E. WRIGHT, OF SAME PLACE.

PISTON-ROD PACKING.

SPECIFICATION forming part of Letters Patent No. 323,320, dated July 28, 1885.

Application filed September 13, 1884. (No model.)

To all whom it may concern:

Be it known that I, JACOB H. GUILEY, a citizen of the United States, residing at East Saginaw, in the county of Saginaw and State of Michigan, have 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 to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a vertical sectional view of my device. Fig. 2 is also a similar view. Fig. 3 is a horizontal sectional view taken on line *x x*, Fig. 2. Fig. 4 is a vertical sectional view of a modification. Fig. 5 is a horizontal section taken on line *y y*, Fig. 4; and Figs. 6 and 7 are detail views.

This invention has relation to packing devices for valve-rods or piston-rods; and its main object is to so construct a packing-box that the gradual wear of said rod will be effectually taken up and the box at all times kept tight.

The invention consists in placing around the valve or piston-rod, within the packing-chamber, a number of unclosed or longitudinally-cleft rings, which, by means of an adjusting or binding-plate moved up or down by suitable screws, are made to close on the rod as it wears.

The invention also consists in the construction and novel arrangement of parts, as hereinafter set forth.

In the accompanying drawings, the letter A represents the cylinder-head, and B the packing-box or stuffing-box, composed of the body or cylinder *b*, outer covering-plate, *b'*, and inner plate, b^2, screwing into the open inner end of the cylinder *b*. This cylinder has its outer end closed by the plate b^3 immediately within the covering-plate *b'*, both plates being provided with central circular openings for the accommodation of the piston-rod.

b^4 is a chamber formed by equally rabbeting or otherwise cutting away the meeting edges of the piston openings in the plates *b'* and b^3, said chamber containing the waste or wicking.

The plate b^2 is rabbeted or otherwise properly formed at its edge, meeting the cylinder-head, so as to be fitted snugly into a suitably-shaped opening in the latter, and provided around its central piston-opening with apertures b^5 b^5, by which steam may be admitted from the cylinder to the packing-chamber.

The covering-plate *b'* is held to the packing-box and the latter to the cylinder-head by the stud-bolts *c c*, which pass through proper lugs or extensions on said plate and on the plate b^3, and screw into the cylinder-head.

D is the piston-rod, passing through proper openings in the plates *b'* b^2 b^3, and surrounded within the packing-chamber by the slitted rings *d* and *d'*. Said rings are of about equal length, the ring *d* lying to the rear of or below the ring *d'* on the piston-rod, and having its end abutting against the surface of the plate b^2, while the outer end of the ring *d'* abuts against a ring hereinafter more fully described. The cleft openings of said rings extend longitudinally, and are set diametrically opposite to each other.

E represents a cleft or unclosed ring fitting over the rings *d* and *d'*, and having its outer surface beveled from within outwardly. Its inner narrower end abuts against the surface of the plate b^2, while its outer end abuts against the ring, hereinbefore mentioned. The longitudinal opening or cleft *e* of the ring E has its inner narrower end adjacent to the plate b^2, and is thence beveled outwardly to its other end, for a purpose hereinafter mentioned. The cleft *e* is set at right angles to the cleft in the rings *d* and *d'*, as shown. A stud, *e'*, is provided on the inner surface of the tube E, and designed to fit into notches of the meeting edges of the rings *d* and *d'*. By means of the stud said rings have their openings held in relative position.

F is a ring provided with a circular central opening for the passage of the piston-rod, and having its upper or outer flat surface lying against the plate b^3 and its lower circularly concave surface fitting over the rounded ends of the tubes E and *d'*. In this manner a ball-

and-socket joint is formed of sufficient extent to insure the close working of the ring and tubes on the rod, even when the latter runs slightly out of line, and thus prevent leakage of steam.

G is an adjusting or binding plate provided with a central opening beveled to receive and accommodate the tapered tube E, and having formed on the edge of said opening the wedge-shaped pin *g*, which is suitably beveled to enter and spread apart the edges of the slit *e* when the adjusting-plate moves downward.

H H are similar adjusting-screws, which are situated on opposite sides of the packing-case, and are equidistant between the screws *c c*. The screws H H pass unthreaded through openings in the plates b' and b^3, and are provided with circular lugs *h h*, which may be made to abut or bind against the latter plate. These screws H engage the adjusting-plate G by threaded openings, and have their inner rounded ends bearing against the plate b^2, as shown. The outer threaded ends h' of the screws H engage the nuts h^2, and by this means the lugs *h* are drawn close against the plate b^3. The ends of the screws beyond the nuts are squared, so that the screws may be turned to move the plate G upward or downward.

A modification of the device is shown in Figs. 4 and 5 of the drawings. In this case one of the screws H and the adjusting-plate are omitted, and the ring E is formed with its outer surface straight instead of tapering, a wedge-piece, I, engaged and actuated by the remaining screw H entering the cleft *e* of said tube. The ring E is kept central against the unequal pressure of the piece I by means of the vertical springs J, whose ends bear against said ring, and whose central portions are pressed inward by the adjusting-screws K, which pass through the sides of the cylinder.

If the packing-box is for a valve-rod, the letter A would indicate the proper plate of the steam-chest. The entire device is adapted to be used in connection with a piston-rod or valve-rod, actuated by water or otherwise, or by steam.

The mode of operation is as follows: As the rod D wears, and it becomes necessary to bring the rings *d d'* closer upon it, the adjusting-plate G is drawn upward by the screws H H, allowing the wedge-piece *g* to rise into the wider part of the cleft *e*, and the opening in the adjusting plate then acts on the beveled surface of the ring E, driving it inward upon and closing the rings *d* and *d'*. The bevel of the surface of the tube E, being the same as the bevel of the slit *e*, prevents binding in the action of either of these parts. In the modification the closing is effected more by the spring or elasticity of the ring E; but it is assisted by the action of the springs J.

Having described this invention, what I claim, and desire to secure by Letters Patent, is—

1. In a stuffing-box, the combination, with the plates b', b^2, and b^3, the rod D, and the cleft-rings *d*, *d'*, and E, of the adjusting-plate G, having the wedge-piece to enter the cleft of the said rings E, and screws H, adapted to operate substantially as specified.

2. In a stuffing-box, the combination, with the plates b', b^2, and b^3, the rod D, the cleft-rings *d*, *d'*, and E, and the screws *c c*, of the adjusting-plate G, the ring F, and the screws H, substantially as specified.

3. In a stuffiing-box, the combination, with the plates b', b^2, and b^3, the rod D, and the cleft-rings *d*, *d'*, and E, of the adjusting-screws H, having the squared ends h', and nuts h^2, substantially as specified.

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

JACOB H. GUILEY.

Witnesses:

JOHN E. NOLAN,

JAMES L. T. FOX.