(No Model.)

J. H. LUTON.

PACKING FOR HYDRAULIC CYLINDERS.

No. 289,776. Patented Dec. 4, 1883.

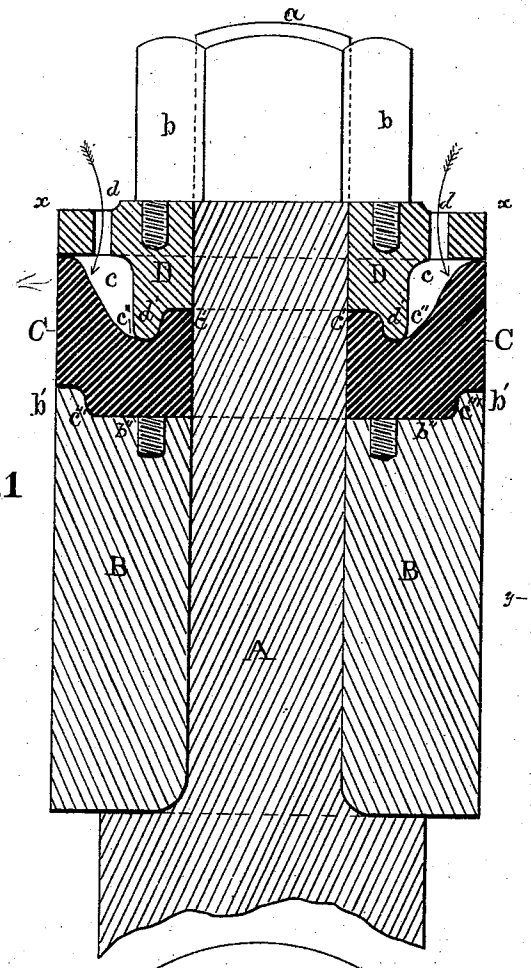


Fig. 1

Fig. 3.

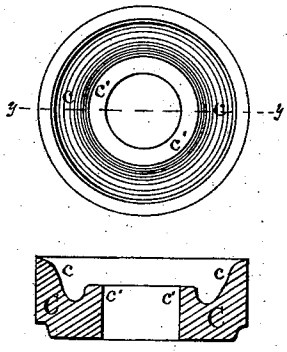


Fig. 4.

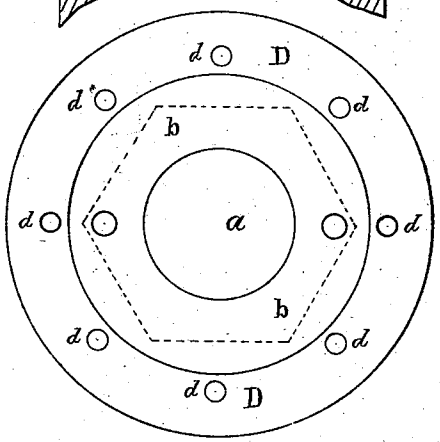


Fig. 2.

Witnesses
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UNITED STATES PATENT OFFICE.

JAMES H. LUTON, OF NORFOLK, VIRGINIA.

PACKING FOR HYDRAULIC CYLINDERS.

SPECIFICATION forming part of Letters Patent No. 289,776, dated December 4, 1883.

Application filed April 21, 1883. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. LUTON, a citizen of the United States, residing at Norfolk, in the county of Norfolk and State of Virginia, have invented certain new and useful Improvements in Packing for Hydraulic Cylinders, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to improvements in the packing-rings used in the cylinders of steam hydraulic presses; and it consists in the particular form of the cross-section of the rings, whereby greater strength of the material is obtained and the ring is enabled to maintain its original shape and purpose, all of which will be hereinafter more particularly described, and pointed out in the claims.

In the drawings accompanying and forming part of this specification, Figure 1 is a longitudinal section of the plunger of a steam hydraulic press, showing the packing-ring in position and in combination with the follower. Fig. 2 is an end view of Fig. 1 on the line *x x*. Fig. 3 is a reduced plan view of the ring. Fig. 4 is a cross-section of the ring on *y y* of Fig. 3.

A is the piston rod; B, the piston; C, the india-rubber packing-ring; D, the follower. *a* is the end of the screw on the piston-rod A, and *b* the nut which fits it and by which all the various parts are secured. These are all common to plungers of this description.

The follower D is made, as shown in Fig. 1, with a flange, *d'*, on the inside face, forming a recess, in which recess the projecting flange *c'* of the packing-ring C is made to fit, while the flange *d'* of the follower fits into the recess *c''* of the ring C, above which flange *d'* the side of the follower is straight, while the inside of the recess *c''* falls away to the outer edge of the ring C, leaving a vacuity, *c*, all around the stem of the follower. Immediately above the vacant space *c* holes *d d* are bored in the cap-plate of the follower D, (in this case I use eight holes,) through which the water communicates with the vacant space *c*, and the whole pressure of the plunger causes the hydrostatic force to press the annulus outwardly against the side of the cylinder, as shown by the arrows. The form of the flange *d'* of the follower, when screwed down, causes the interior flange, *c'*, of the ring C to be pressed tightly against the piston-rod A.

In the face of the piston B is sunk the disk-shaped space *b''*, having the flange *b'*, and in the lower face of the ring C is formed the outer annular recess *c'''*, so that the packing-ring face corresponds precisely with the face of the piston. Thus it will be seen that the softer material of the packing-ring C, which for its proper function must have a certain amount of elasticity, has at all points and surfaces such protection from undue expansion under the extraordinary pressure as to maintain the structure of the ring and preserve its integrity as long as the nature of the material will admit.

I claim—

1. The herein-described packing-ring, having on one face the recess *c''* and interior flange, *c'*, and on the other face the annular exterior recess, *c'''*, substantially as and for the purpose described.

2. The combination of the packing ring C with the cross-section, as described, having a beveled recess, *c''*, and interior flange, and on the other side the annular recess *c'''*, with the follower D, having the series of holes in its cap, and the piston B, substantially as and for the purpose described.

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

JAMES H. LUTON.

Witnesses:
H. L. MOSELY,
H. H. REESE.