S. HUGHES.

PACKING-RING.

No. 173,638. Patented Feb. 15, 1876.

Fig. 1.

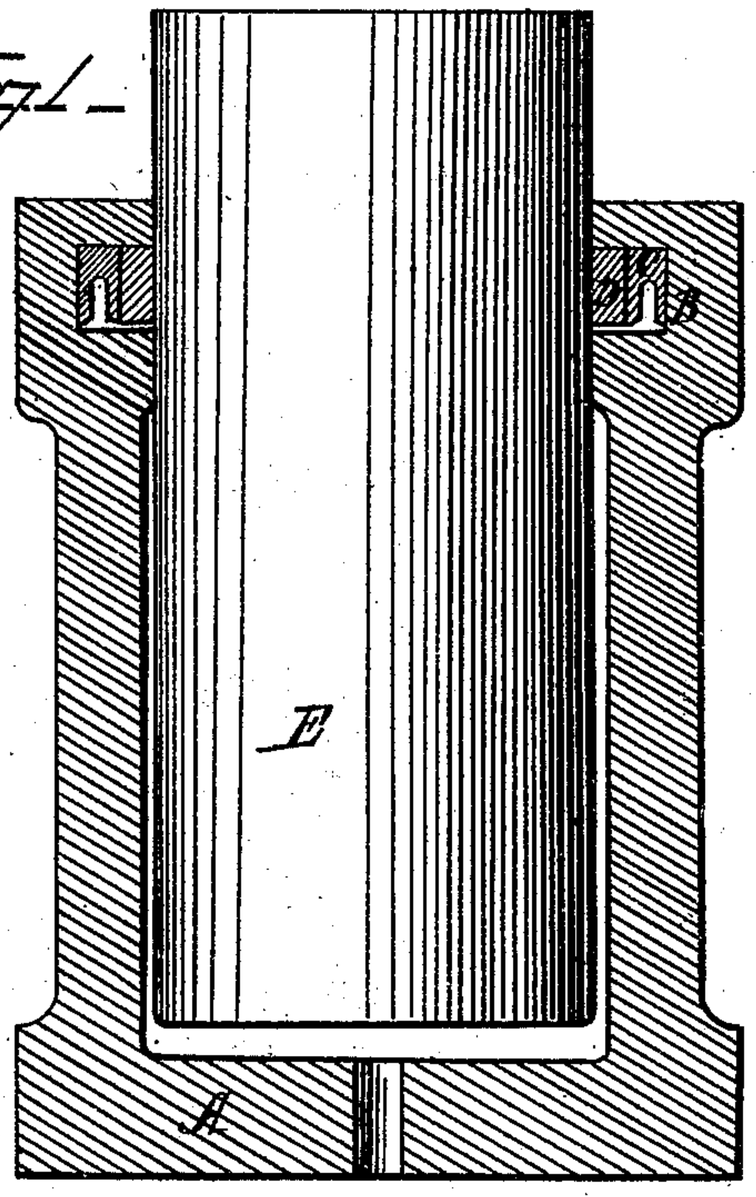


Fig. 2.

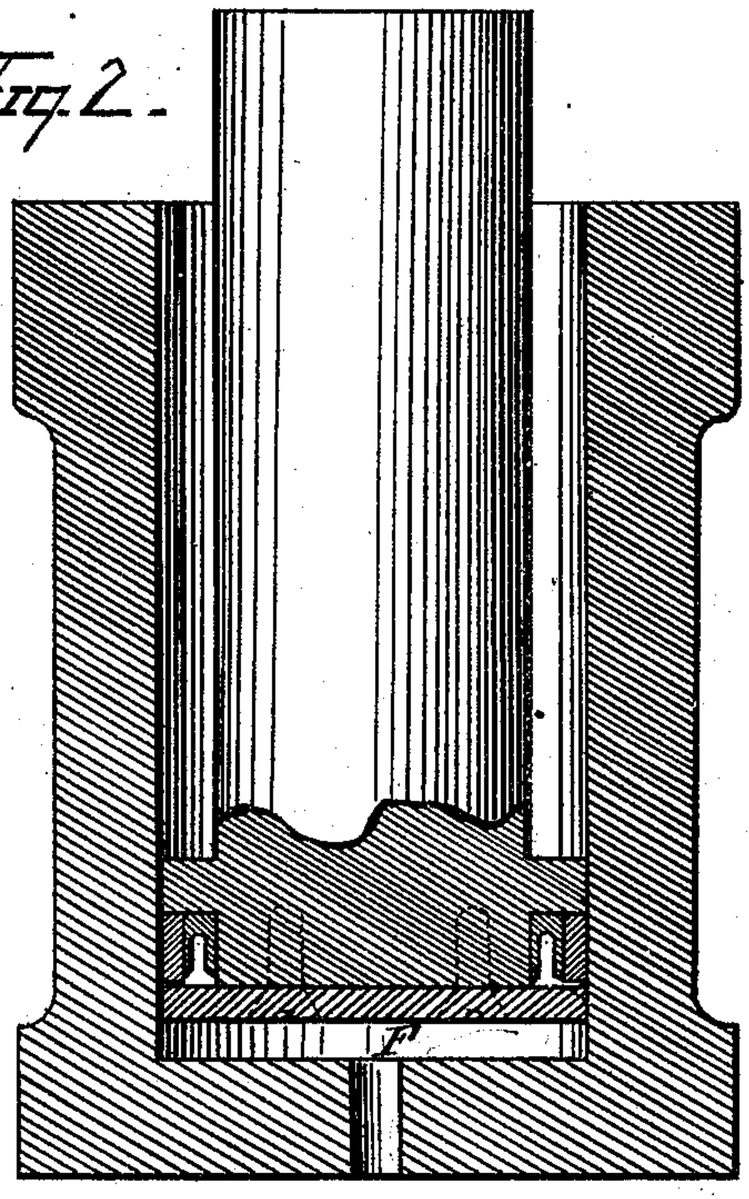


Fig. 3.

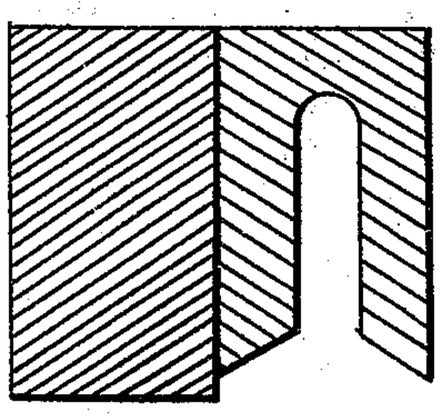


Fig. 4.

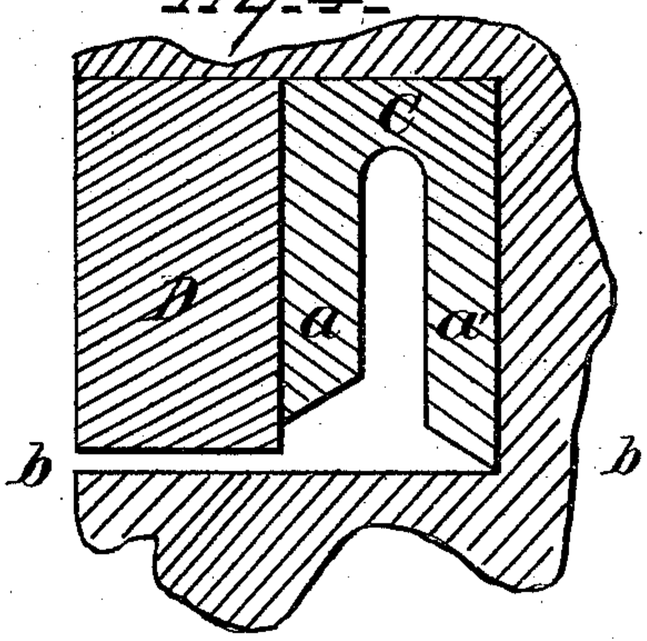
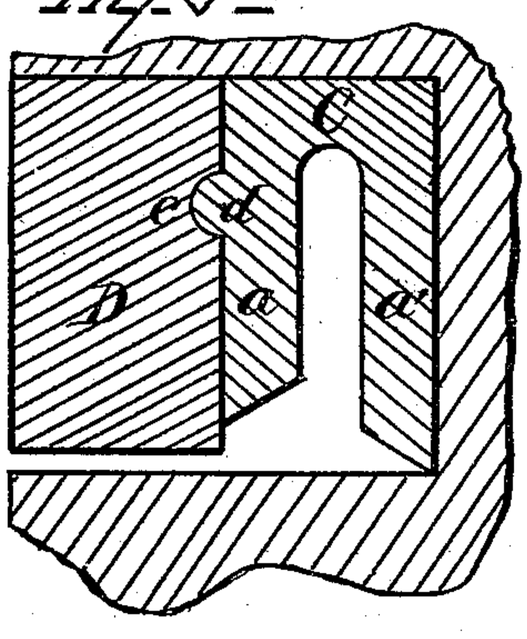


Fig. 5.



WITNESSES

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SAMUEL HUGHES, OF CHARLESTON, SOUTH CAROLINA.

IMPROVEMENT IN PACKING-RINGS.

Specification forming part of Letters Patent No. **173,638**, dated February 15, 1876; application filed January 14, 1876.

To all whom it may concern:

Be it known that I, SAMUEL HUGHES, of Charleston, in the county of Charleston and State of South Carolina, have invented certain new and useful Improvements in Packing for Engines; and I do hereby 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

Figure 1 is a vertical section of a pump-cylinder and my improved packing located in a recess in the cylinder. Fig. 2 is a vertical section of a cylinder and piston, and my improved packing combined with the piston. Fig. 3 is a section of the packing-rings. Figs. 4 and 5 are modified forms of packing-rings.

Heretofore cup-packings have been used in hydraulic engines; but from their construction and arrangement, relative to the cylinder or piston, the outer surface of the packing sustains all of the wear, and as that portion of the packing subjected to wear is of necessity of limited thickness, in order that it may respond to the pressure of liquid in the rear of the same, it follows that the entire packing-ring must often be replaced by a new one.

The object of my invention is to avoid the difficulties above enumerated, and furnish a cup-packing of such a construction that the same, when worn, can be renewed without disturbing any other than the wearing-surface of the packing; and to that end my invention consists in the combination, with cup-packing placed in a cylinder or piston, of an independent wearing-ring, substantially as hereinafter set forth.

In the accompanying drawings, A is the cylinder, having a groove, B, within which is placed the cup-packing C, formed of any suitable flexible material. Against the inner surface of packing C is placed a wearing-ring, D, preferably of fibrous or flexible material, although a steel split ring might be used in some cases.

As a portion of the liquid escapes past the piston or plunger E, it will enter an opening leading into the cup-packing, and there expand the packing, and force the wearing-ring D tightly against the piston.

When the wearing-ring becomes worn, it can easily be replaced by a new one, without disturbing the rest of the packing.

In Fig. 2 the cup-packing and wearing-ring are secured to the end of the plunger, and there retained by a detachable plate, F. In this case the liquid forces the wearing-ring out against the cylinder.

In Fig. 4 the cup packing C is formed with portion *a'* snugly fitting within groove B, while the other portion, *a*, of the packing is made enough shorter to allow liquid to enter beneath wearing-ring D, through opening *b*, and expand the cup-packing to force the wearing-ring D against the piston or plunger.

The form of packing shown in Fig. 5 differs from that shown in Fig. 4 only in one feature, and that relates to the method of securing the wearing-ring to the outer surface of the cup-packing.

As the latter is usually made of rubber, a rib, *d*, may be formed on its outer periphery, and a groove, *c*, upon the inner surface of the wearing-ring D. When the several parts are placed in position, the wearing-ring is prevented from slipping down and closing opening *b*, and therefore this construction insures a tight joint under any circumstances that may arise.

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

The combination, with a cup-packing, of an independent wearing-ring, substantially as and for the purpose described.

In testimony that I claim the foregoing I have hereunto set my hand this 8th day of January, 1876.

SAMUEL HUGHES.

Witnesses:

THOS. B. HALL,

ALBERT W. BRIGHT.