

No. 682,689.

Patented Sept. 17, 1901.

W. HESTON.
PISTON VALVE.

(Application filed Feb. 1, 1901.)

(No Model.)

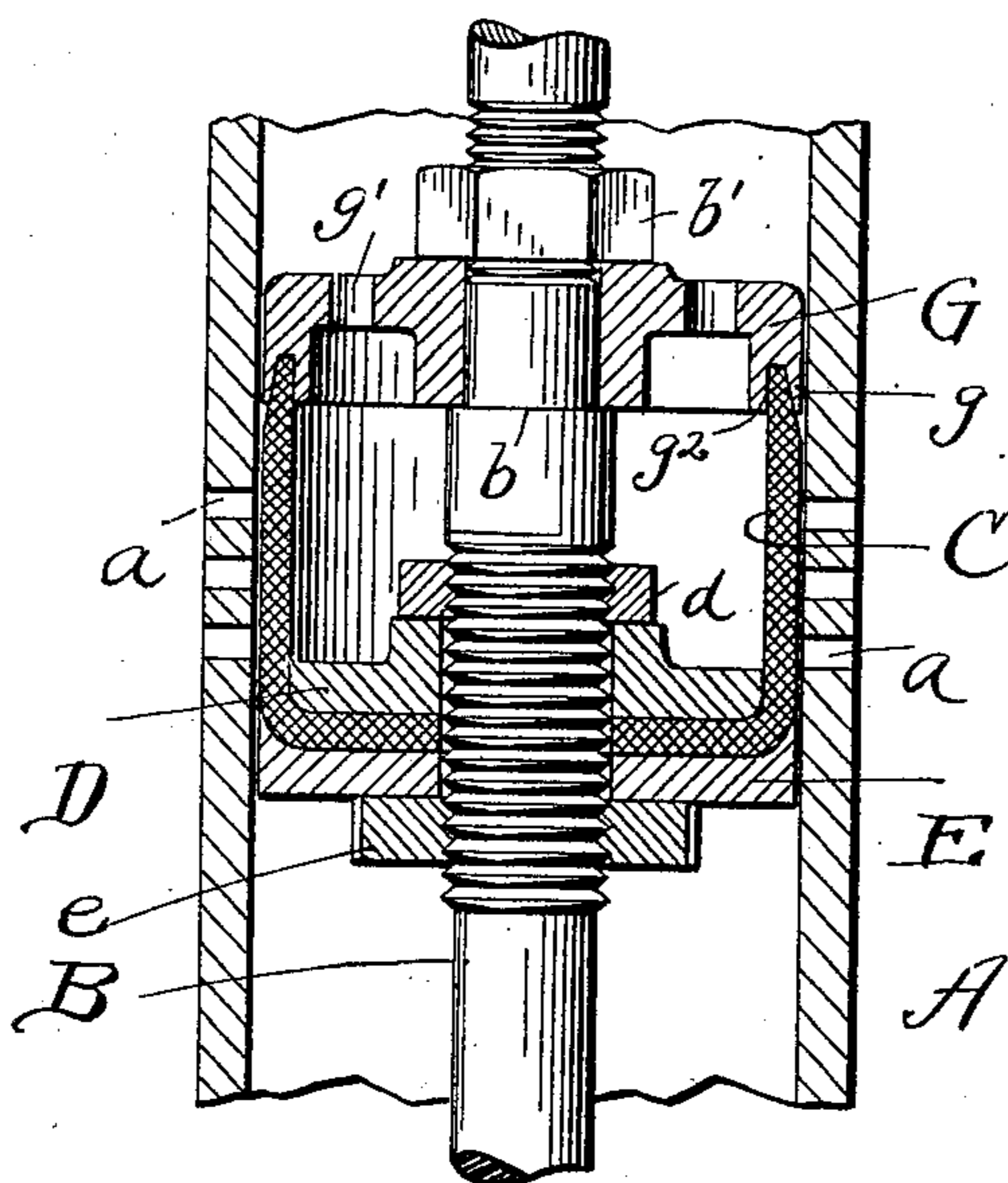


Fig. 1.

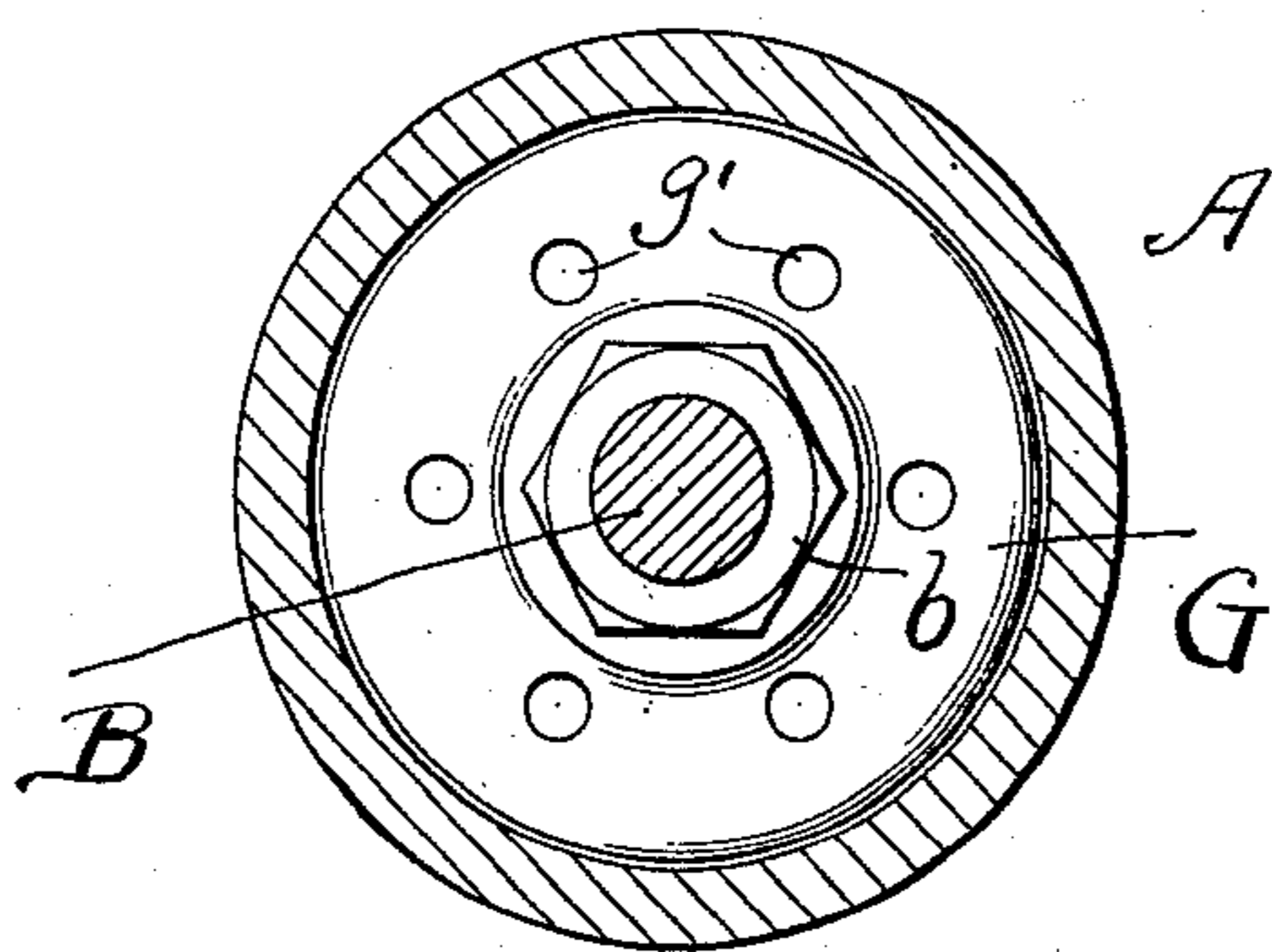


Fig. 2,

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UNITED STATES PATENT OFFICE.

WILLIAM HESTON, OF HOMESTEAD, PENNSYLVANIA.

PISTON-VALVE.

SPECIFICATION forming part of Letters Patent No. 682,689, dated September 17, 1901.

Application filed February 1, 1901. Serial No. 45,570. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HESTON, a citizen of the United States, residing at Homestead, in the county of Allegheny and State of Pennsylvania, have invented a certain new and useful Improvement in Piston-Valves, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

10 The invention is an improvement in hydraulic piston-valves employing a packing consisting of a leather cup, the object being to minimize the injury suffered by the leather cup in moving across the port-openings in the cylinder.

15 The invention is characterized by a perforated disk secured to the piston-stem and having a cylindrical flange in which an annular groove is formed which takes over the edge of the leather cup and prevents said edge from contacting with the cylinder.

20 The invention consists in the construction and combination of parts hereinafter described, and pointed out definitely in the claims.

25 In the drawings, Figure 1 is a central longitudinal section of a piston embodying my invention. Fig. 2 is a plan view of the piston.

30 Referring to the parts by letters, A represents the cylinder, and *a* the port-openings therein.

B represents the stem of the piston, which is threaded at various points, substantially as shown.

35 C represents the leather cup, the end of which embraces the piston-stem and is clamped between two disks D E by means of the nuts *d* *e*, which screw upon the piston-stem. This is the usual construction of the piston-valves of the sort which this invention seeks to improve.

40 G represents a disk having a plurality of perforations *g'* and having at its margin a cylindrical flange *g*. In this cylindrical flange is a groove *g²*, whose outer wall is beveled, substantially as shown. The edges of the

leather cup enter this groove and are thereby protected from contact with the wall of the cylinder. This disk abuts against the shoulder *b* on the piston-stem and is held against this shoulder by the nut *b'*, which screws onto the piston-stem. The perforations *g'* in the disk permit the water under pressure to pass through it and get inside the leather cup, whereby the leather is forced against the walls of the cylinder; but this action of the water upon the leather does not withdraw the edges of the leather cup from the described groove. The edges of the leather therefore do not contact with the cylinder, and consequently with that part thereof in which the port-openings are formed, and therefore the most common source of injury to pistons of this sort is abolished.

Having described my invention, I claim—

1. The combination of a piston-stem, a leather cup, and disks embracing the stem and clamping the end of the cup between them, with a perforated metal disk secured upon said stem and having an annular groove which takes over the edge of said leather cup, substantially as specified.

2. The combination of a piston-stem having the external shoulder *b*, a leather cup, and two disks embracing the piston-stem and clamping the end of said cup between them, with a perforated metallic disk embracing the piston-stem and abutting against the shoulder *b*, and a nut *b'* which screws onto the piston-stem and clamps said perforated disk against said shoulder, said perforated disk having at its margin a cylindrical flange in the end of which is an annular groove which takes over the edge of said leather cup, substantially as specified.

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

WILLIAM HESTON.

Witnesses:

E. L. THURSTON,
E. B. GILCHRIST.