(No Model.)

S. ARMSTRONG.
Piston Head.

No. 230,987. Patented Aug. 10, 1880.

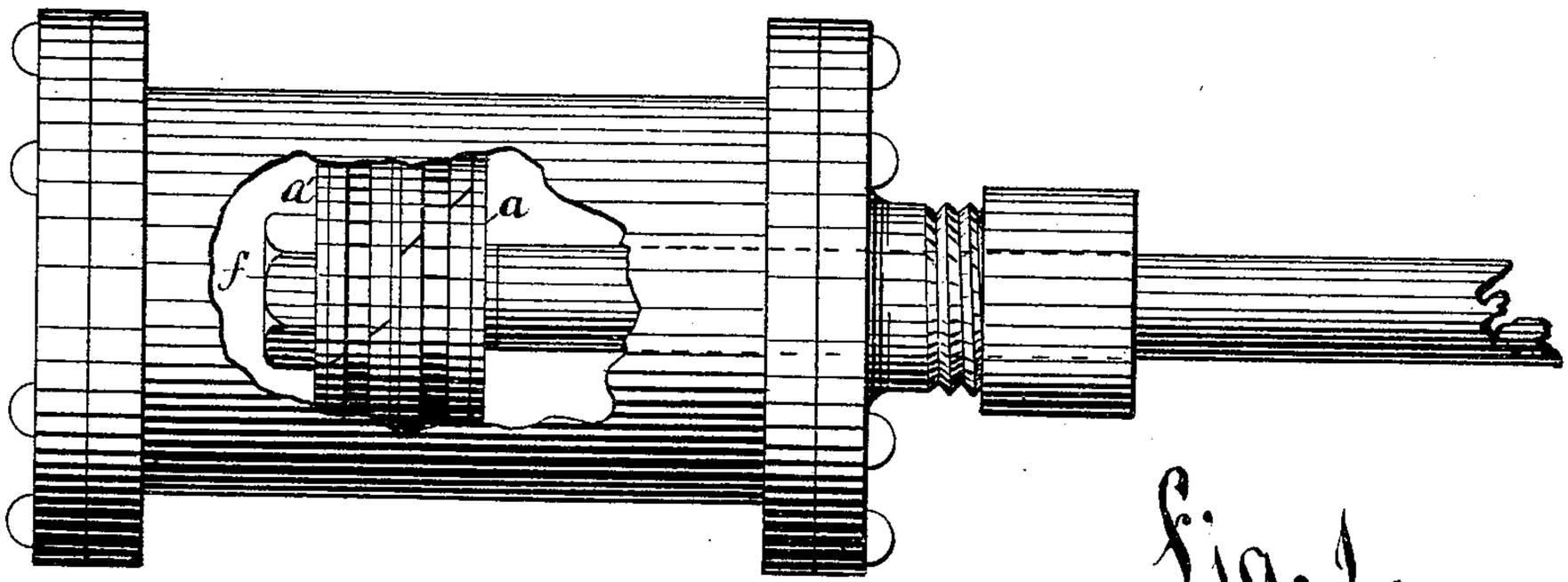

Fig. 1.

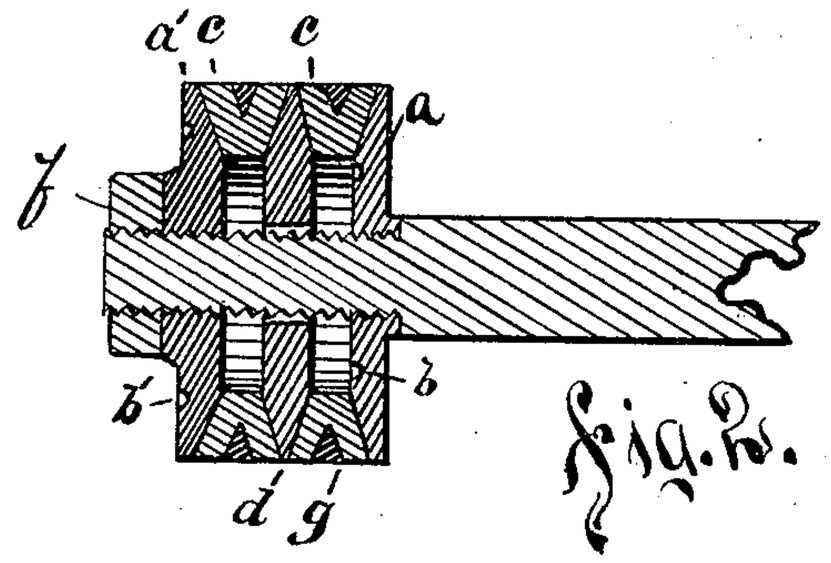

Fig. 2.

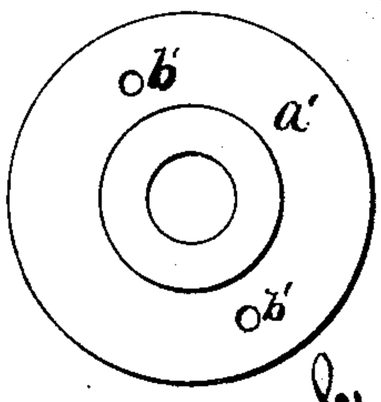

Fig. 3.

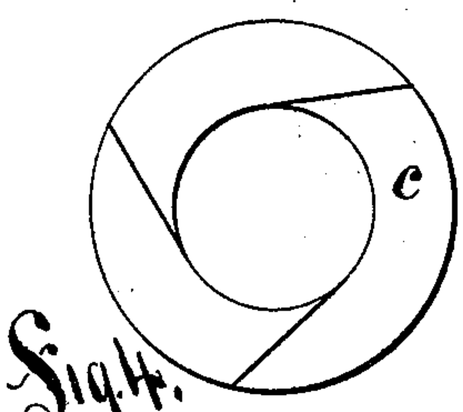

Fig. 4.

Witnesses:
Charles R. Bell
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UNITED STATES PATENT OFFICE.

SAMUEL ARMSTRONG, OF NEWARK, NEW JERSEY.

PISTON-HEAD.

SPECIFICATION forming part of Letters Patent No. 230,987, dated August 10, 1880.

Application filed May 31, 1880. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL ARMSTRONG, of the city of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Piston-Heads and Pump-Plungers; 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 appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The object of this invention is to render the piston-heads, pump-plungers, &c., more durable, less liable to get out of repair, more effective, less expensive, and easier of adjustment than those heretofore in use.

The invention consists in forming the head from several layers of metal plates or rings constructed and arranged upon the end of the piston, so that by compression the diameter of the head may be increased as desired.

It consists, further, in the combination of two outer or compression plates with threaded central apertures therein for the insertion of and to engage with the threaded portion of the piston-rod, the inner faces of said plates being partially beveled off, with rings inversely and reciprocally beveled to engage with the compression-plates, said rings being divided into two or more parts, as hereinafter described, and having a groove for the reception of elastic packing cut into and around the periphery thereof.

It finally consists in duplicating the inversely-beveled rings before mentioned to any desired extent, and separating them by intermediate rings having both edges beveled to engage with said inversely-beveled rings, and in further combinations of parts, all of which will be hereinafter more fully set forth and claimed.

Referring to the accompanying drawings, in which similar letters of reference indicate like parts in each of the several figures, Figure 1 represents a steam or pump cylinder partially broken away and showing the piston-head embodying my invention. Fig. 2 is a section of said head. Fig. 3 is the outer face of the compression-plate, showing the means for screwing the same upon the rod; and Fig. 4 is a side or face view of one of the divided rings, showing the manner of cutting them.

In carrying out the invention, I first construct the inner compression-plate, *a*, having a threaded aperture through which to insert the corresponding threaded end of the piston-rod, and having on the inner face the notches *b* for screwing said plate into position, and also having the inner face partially beveled, as in the manner shown in Fig. 2. I then construct the ring *c*, having the groove *g* cut into and around its periphery for the reception of rubber or other appropriate elastic packing. This ring has its sides or faces inversely beveled to correspond to the compression-plates, and is separated or divided into two or more parts by cuts which run obliquely or tangentially across both the face and periphery of the plate, substantially as shown in Figs. 1 and 4.

Should I wish to increase the width of the head I can, and in practice probably will, duplicate the ring *c*, having the inversely-beveled edges, and separate them by the intermediate plate, *d*, which will have both its edges beveled to properly engage with said rings *c*. I then construct the outside compression-plate, *a'*, with its threaded central aperture and notches, *b'*, which act as means for screwing upon the rod the said outer compression-plate.

In arranging my invention for operation, I first screw upon the piston-rod the inner compression-plate, *a*, with the beveled face inwardly. I then place successively the divided rings *c* and the intermediate rings or plates, *d*, in the order shown. Then the outside compression-plate is screwed upon the rod, which action brings the plates and rings into proper contact and relation to one another. The lock-nut *f* is finally screwed upon the end of the rod to hold the compression-plate in position and to prevent it from becoming unscrewed. To adapt the head thus formed to the cylinder all that now becomes necessary is to screw the outer compression-plate, *a'*, against the ring, when it will expand said ring or rings and bring them into close engagement with the inside surface of the cylinder.

As the rings wear away it is only necessary to repeat the operation from time to time.

Having thus described my invention, what I claim, and wish to have secured by Letters Patent, is—

1. In a piston-head or pump-plunger, the combination of the plates *a* and *a'*, sectional and peripherally-grooved rings *c*, and intermediate rings, *d*, the several rings and plates being beveled, substantially as shown, and arranged to operate as set forth.

2. A piston-head composed of the compression-plates *a a'*, having their interior faces partially beveled, and having means thereon for screwing said plates into position, of the inversely-beveled rings *c*, divided and having grooves for the reception of elastic packing, of said elastic packing, and of the intermediate ring or rings, *d*, and lock-nut *f*, all arranged and operating substantially as and for the purpose set forth and shown.

In testimony that I claim the foregoing I have hereunto set my hand this 20th day of May, 1880.

SAMUEL ARMSTRONG.

Witnesses:

OLIVER DRAKE,

CHARLES H. PELL.