R. M. BECK.

PISTON.

No. 192,409. Patented June 26, 1877.

Fig. 1.

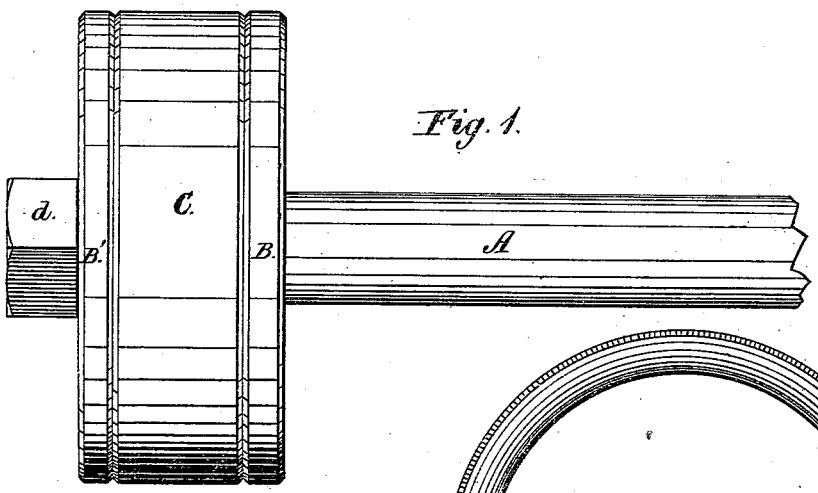


Fig. 3.

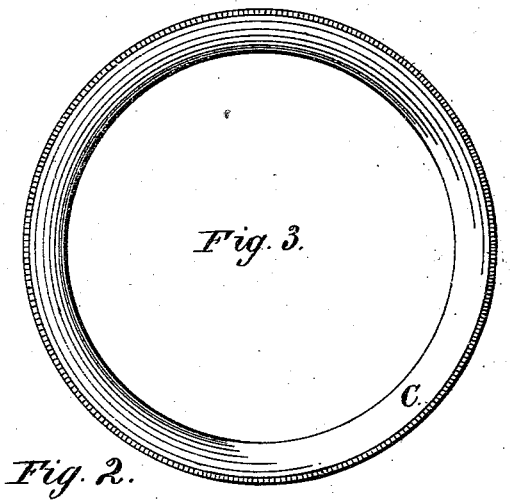
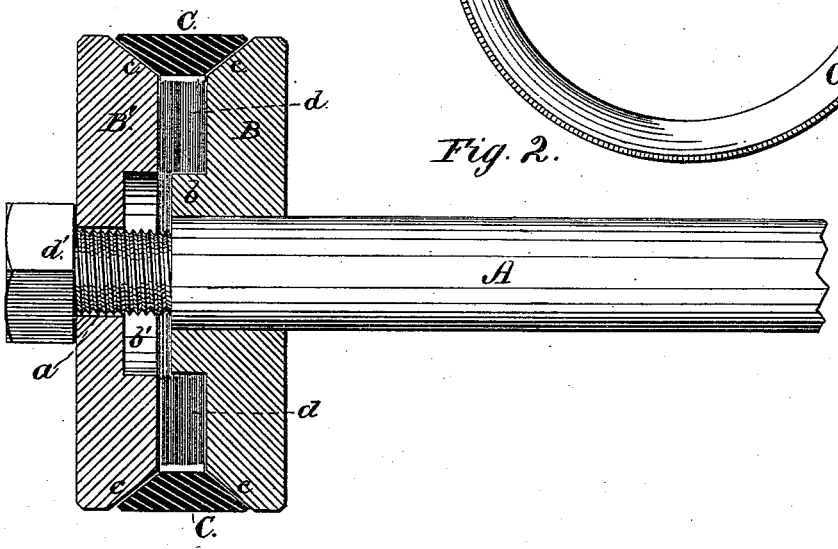


Fig. 2.



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UNITED STATES PATENT OFFICE

ROBERT M. BECK, OF WESTMINSTER, MARYLAND, ASSIGNOR TO THE TAYLOR MANUFACTURING COMPANY, OF SAME PLACE.

IMPROVEMENT IN PISTONS.

Specification forming part of Letters Patent No. **192,409**, dated June 26, 1877; application filed May 21, 1877.

To all whom it may concern:

Be it known that I, ROBERT M. BECK, of Westminster, in the county of Carroll and State of Maryland, have invented a new and Improved Piston; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, forming part of this specification, in which—

Figure 1 is a side and Fig. 2 a sectional view; Fig. 3 a detail of the continuous soft-metal packing-ring.

My invention relates to an improved form of piston, designed primarily to increase the durability and wearing qualities of the same; and it consists in the particular construction and arrangement of parts, as hereinafter fully described and pointed out in the claim.

In the drawing, A represents the piston-rod, and B B′ the two disks, of which B is provided with a central boss or hub, *b*, and is made fast upon the piston-rod, while B′ is loose from the rod, and is provided with a central depression, *b′*, corresponding to the hub *b*, and also a concentric perforation to receive the screw-threaded end *a* of the piston-rod. These two disks are formed with beveled edges *c c*, and are brought together by means of a screw-nut, *d*, arranged upon the screw-threaded end of the piston-rod.

C is the packing-ring, which is made continuous and jointless, with a plain periphery and beveled inner edges corresponding to the bevel of the two disks. This ring is composed of any soft metal or composition of metal, but I prefer an alloy of tin and bismuth, as this is not injurious to the cylinder, and makes a good wearing material.

To prevent the ring from being packed too tightly from the action of the steam and thus rendered immovable in the cylinder, I locate a series of soft-metal washers, *d*, upon the boss *b* of the disk B, which washers determine the approach of one disk toward the other, and regulate the amount of the expansion of the ring to compensate for the wear, without permitting the excessive expansion and objectionable steam-packing of the ring. As the ring is required to be expanded from time to time, a washer is each time removed in order to permit the disks to approach the other so much, and by reason of their beveled edges give the proper amount of expansion to the packing-ring, the hub *b* and recess *b′* operating as guides in the adjustment of the loose disk, so as to hold the latter concentric.

I am aware of English Patent No. 2,076 of 1854, in which are shown the features of the continuous packing-ring, and the guiding of the two parts of the piston by a boss or hub, but the piston here shown cannot permit the location of the washers near the periphery, which, by reason of the greater area presented, is the most desirable place to resist steam-packing, and it cannot employ a single nut to compress the two parts of the piston in expanding the ring.

I am also aware of the English Patent No. 2,990 of 1873, in which is shown a single nut for compressing the two parts of the piston, and washers to determine their adjustment; but here it will be seen there is no boss and recess to effect the guiding of the parts, and the washers are not arranged at their proper place near the periphery. By my arrangement it will be seen that I secure a threefold result; first, the expansion of the packing-ring by a single nut; secondly, the guiding of the parts of the piston by the boss and recess; and, thirdly, the arrangement of the washers near the periphery of the piston and upon the boss of the stationary part of the same, whereby the effect of the steam upon the packing-ring is better obviated.

Having thus described my invention, what I claim as new is—

The combination of the rigid disk B, having boss *b*, and the loose disk B′, having depression *b′*, with the interposed adjusting-washers *d*, arranged upon the boss *b* near the periphery of the piston, and the continuous or jointless expansible metallic packing-ring C, substantially as described, and for the purpose set forth.

ROBT. M. BECK.

Witnesses:
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