G. M. Quickshank,

Piston Packing.

No. 112,423. Patented Mar. 7. 1871.

Fig. 1.

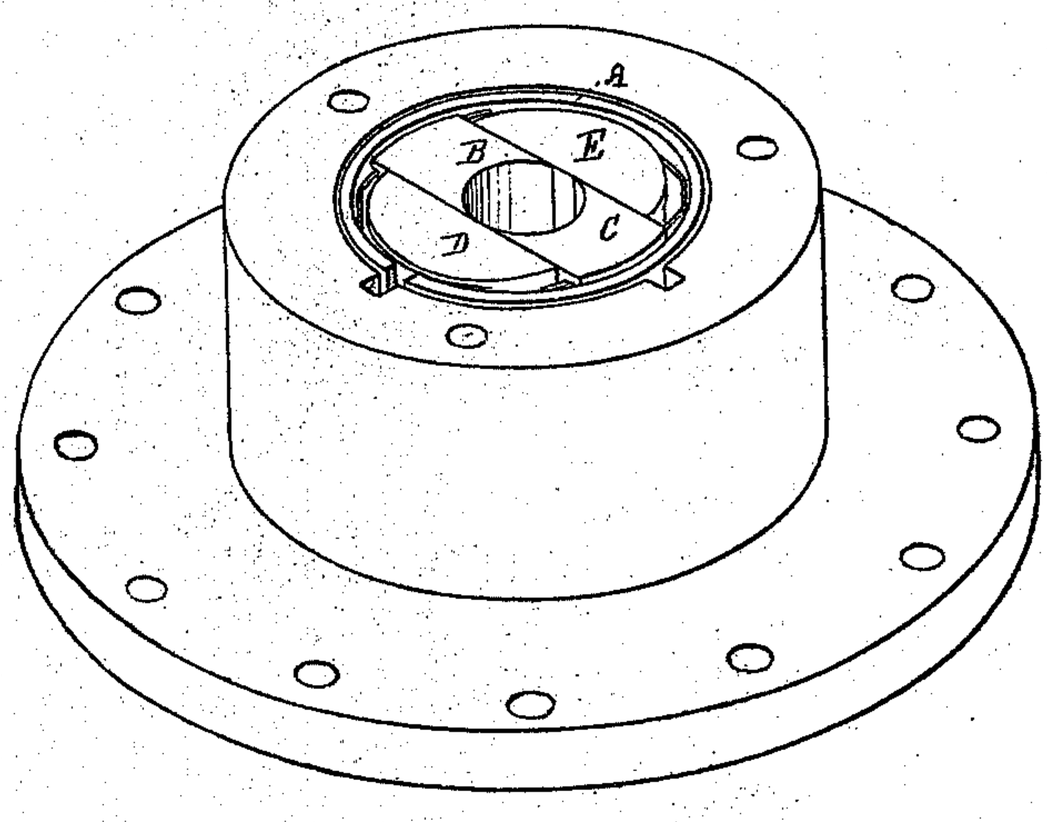


Fig. 2.

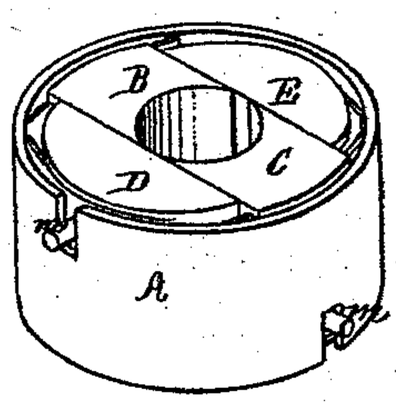


Fig. 3.

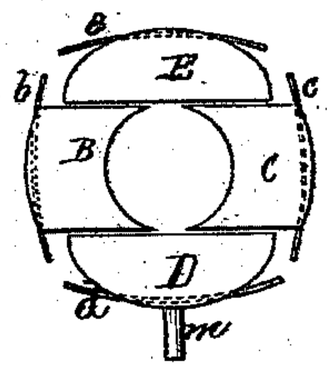


Fig. 5.

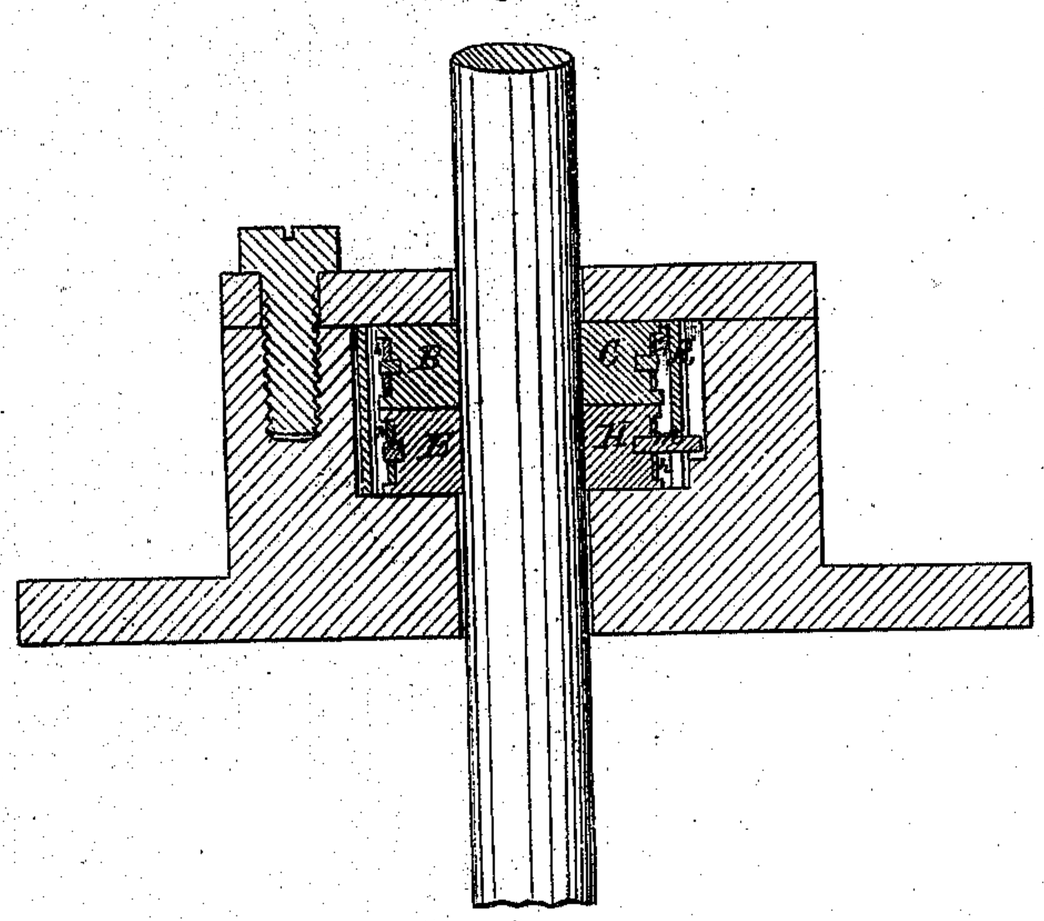


Fig. 4.

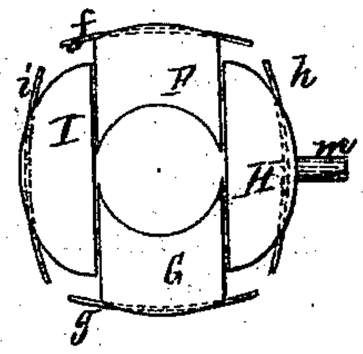
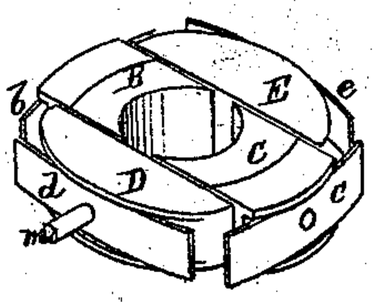


Fig. 6.



Witnesses,
Phil. F. Larner.
Frank A. Jackson

Inventor.
George M. Quickshank
By Wm. C. Wood
Attorney.

UNITED STATES PATENT OFFICE.

GEORGE M. CRUICKSHANK, OF PROVIDENCE, RHODE ISLAND.

IMPROVEMENT IN METALLIC PISTON AND VALVE-ROD PACKINGS.

Specification forming part of Letters Patent No. **112,423,** dated March 7, 1871.

To all whom it may concern:

Be it known that I, GEORGE M. CRUICKSHANK, of the city and county of Providence, and State of Rhode Island, have invented a new and useful Improvement in Metallic Piston and Valve-Rod Packing.

My invention relates to that class of metallic packing which is formed of segmental blocks of metal fitted to encircle the rod, and which is actuated by springs into a close contact therewith.

My invention consists in the novel construction and arrangement of these segments, by means of which their wearing may not only be continuously compensated, but, by the introduction of space-blocks, the entire packing may be utilized; and I do hereby declare that the following specification, taken in connection with the drawing furnished and forming a part of the same, is a true, clear, and exact description thereof.

Reference being had to the drawing, Figure 1 represents a cylinder-head with my improved packing in position. The outer or face plate is removed. Fig. 2 represents the packing with the case containing it removed from the cylinder-head. Fig. 3 represents one section or half of the packing, the several parts being separated for the purpose of fully exhibiting their form and relative positions. Fig. 4 represents the remaining section or half of the packing. Fig. 5 represents, in longitudinal vertical section, the cylinder-head and the case containing the packing, and the several parts in position. Fig. 6 represents one section of the packing with space-blocks introduced.

The same letters of reference are used in all the figures.

A represents the case, which contains the packing.

B, C, F, and G are the packing-segments, which come in contact with the circumference of the rod. Each of these has a width a trifle less than the diameter of the rod, and at their inner ends they are recessed or turned out to correspond with one-half of the circumference of the rod. When placed in position the outside edges of the packing should not come quite in contact, and with that exception the two should fully embrace the rod.

It will be observed that blocks B and C are placed at right angles to blocks F and G, so that the joints are not coincident. Each of these blocks is provided with a spring, marked, respectively, *b f c g*, which, by bearing against the inner walls of the case A, causes the packing to maintain close contact with the rod.

D, E, H, and I represent guide-blocks placed on each side of the packing-segments, overlapping their joints. Each of these is provided with a spring, marked *d*, *e*, *h*, and *i*, respectively, which, by bearing against the interior of the case A, cause them to bear firmly against the segments and hold them in position. Guide-blocks D and H are provided, also, with fixed dowels *m*, which enter corresponding slots in the edge of the case A and the recess in the cylinder-head into which it is placed.

It will be observed that the segmental packing, as it wears away, is compensated by the action of the springs. The blocks being slightly less in width than the diameter of the rod, it is evident that no contact between the two can ever occur, and by the introduction of space-blocks of a cheaper metal between the springs and the outer ends of the segments the expensive metallic packing may be fully economized.

The guide-blocks need not be made of the same kind of metal as that used for the segments, as they will never come in frictional contact with the piston-rod.

I am aware that quite a variety of segmental metallic packings actuated by springs have been proposed. I am not aware that any have heretofore been made in which the segments were so formed that while the wear was being continuously compensated it was impossible for them to come in contact and prevent proper relation with the piston-rod. Neither am I aware, prior to my invention, of the use of guide-blocks which serve to hold the several segments in proper relation to the valve or piston-rod.

In segment-packings composed of semi-triangular blocks having their points of contact with the rod at their inner ends to continuously compensate for their wear, broad spaces must be left between them; or, if narrower spaces be employed, the edges would soon come together and prevent proper contact with the rod.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The improvement in metallic packing for piston and other similar rods, consisting of the segments B and C, corresponding in form, having parallel sides, and of a width sufficiently less than the diameter of the rod with which they are to be used to prevent their contact while compensating for their continuous wear, and at the same time to practically surround the rod, substantially as shown and described.

2. The segments B, C, F, and G, in combination with the guide-blocks D, E, H, and I, all provided with springs, arranged and operating as described.

GEORGE M. CRUICKSHANK.

Witnesses:

HENRY MARTIN,

JOHN C. PURKIS.