

J. M. Alonan's Piston Packing.

116336

Fig. 3.

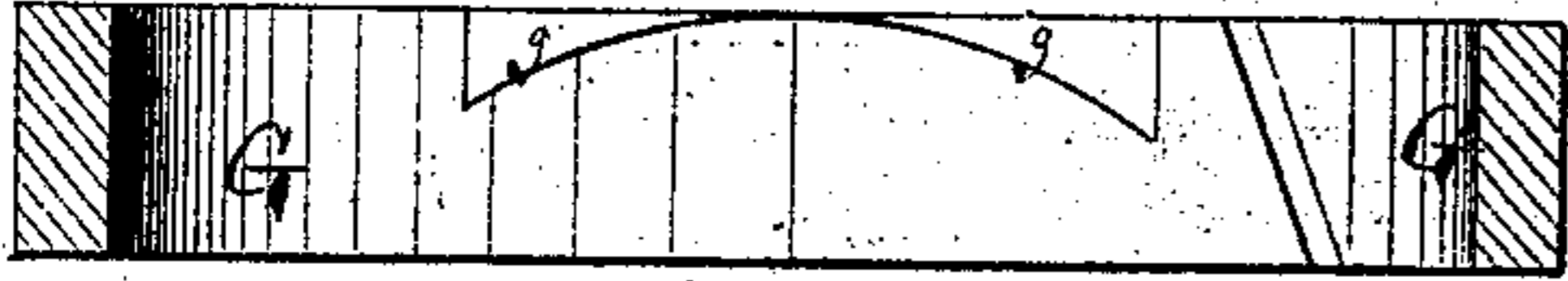
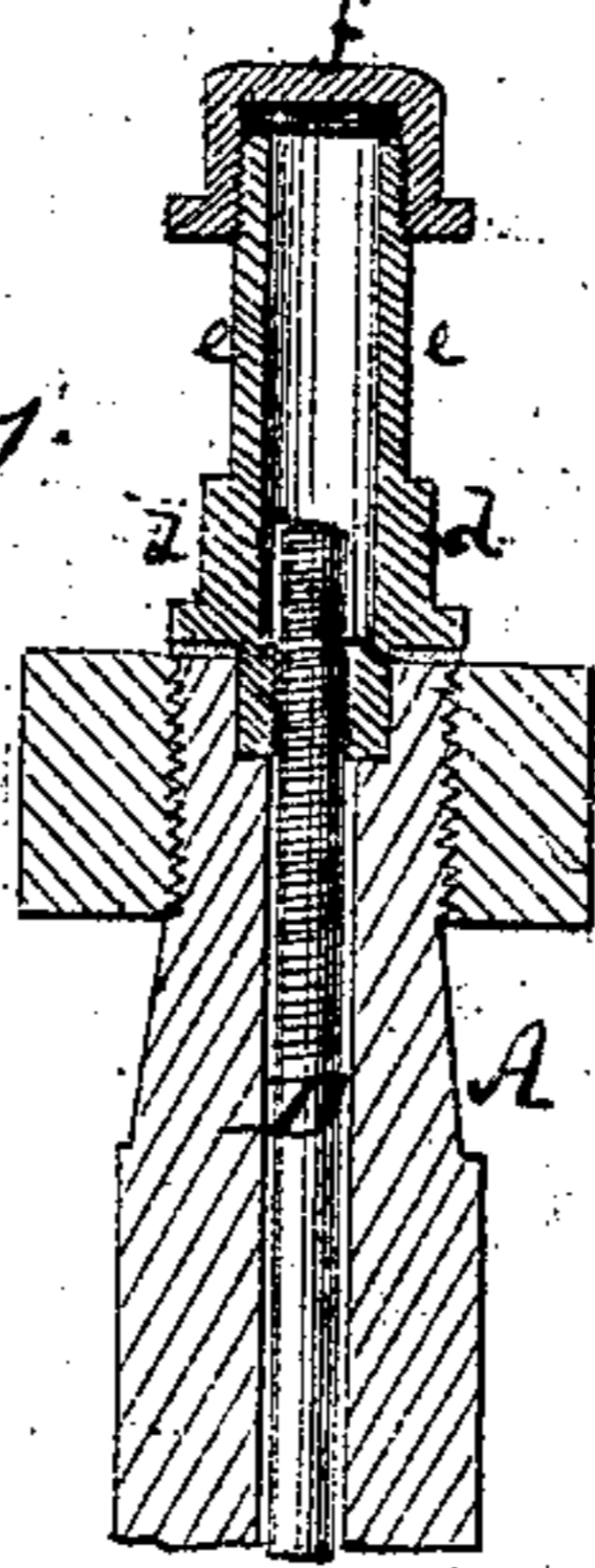


Fig. 1.



PATENTED JUN 27 1871

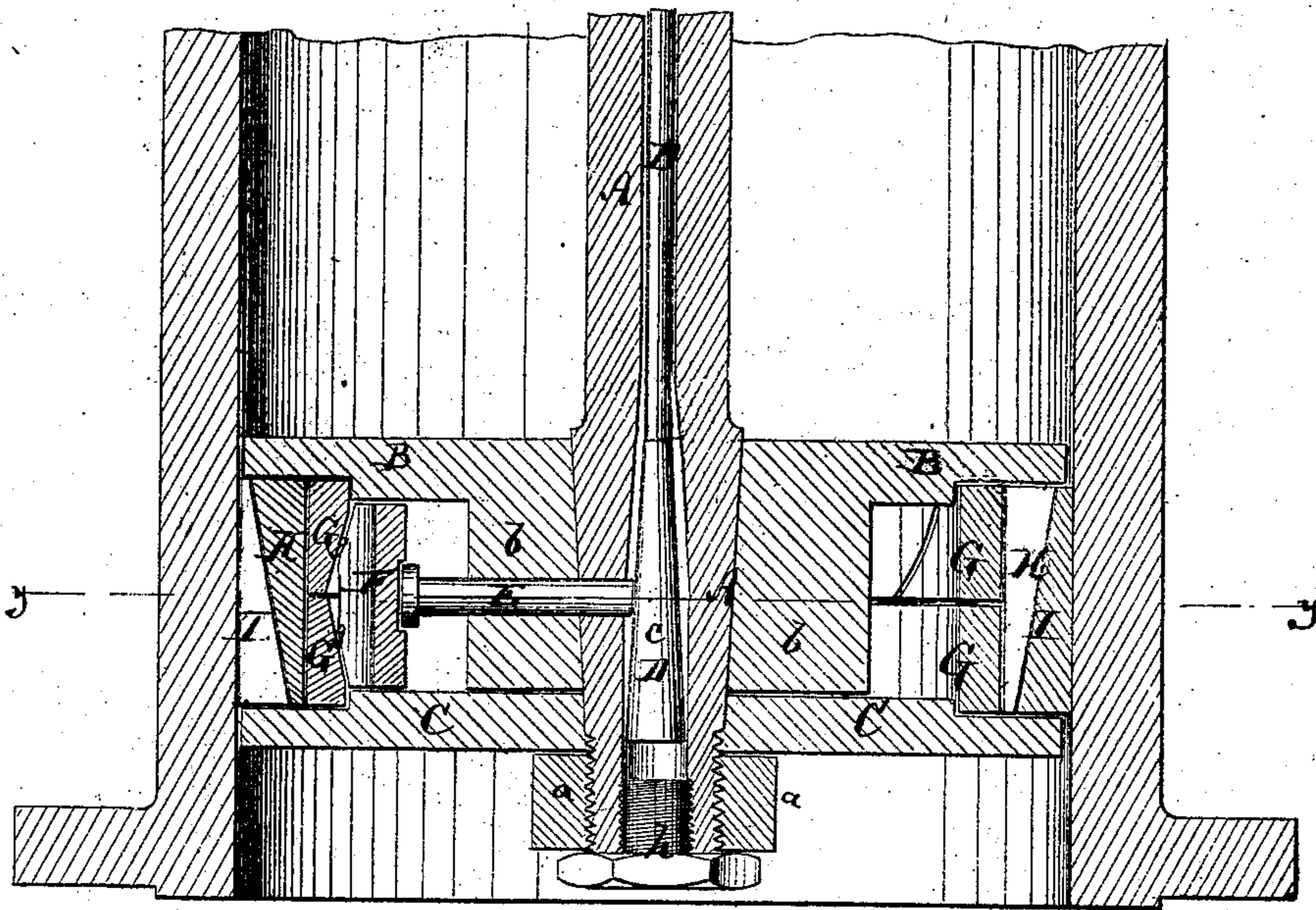


Fig. 2.

Fig. 4.

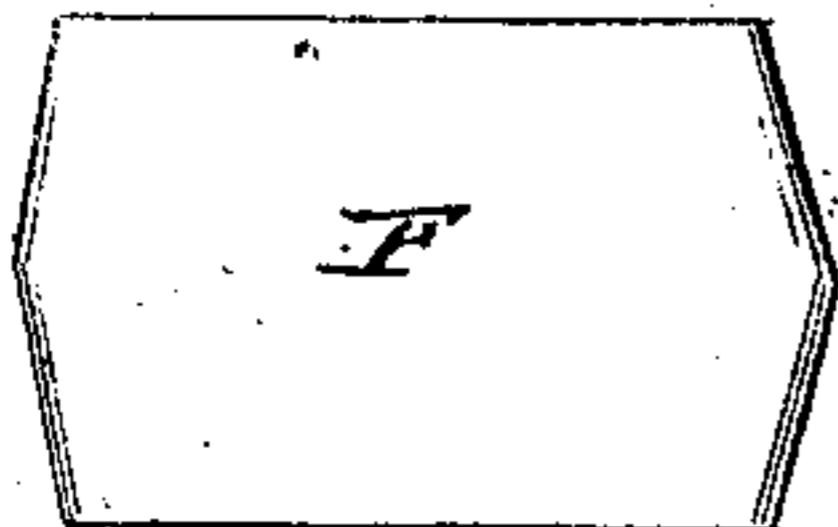
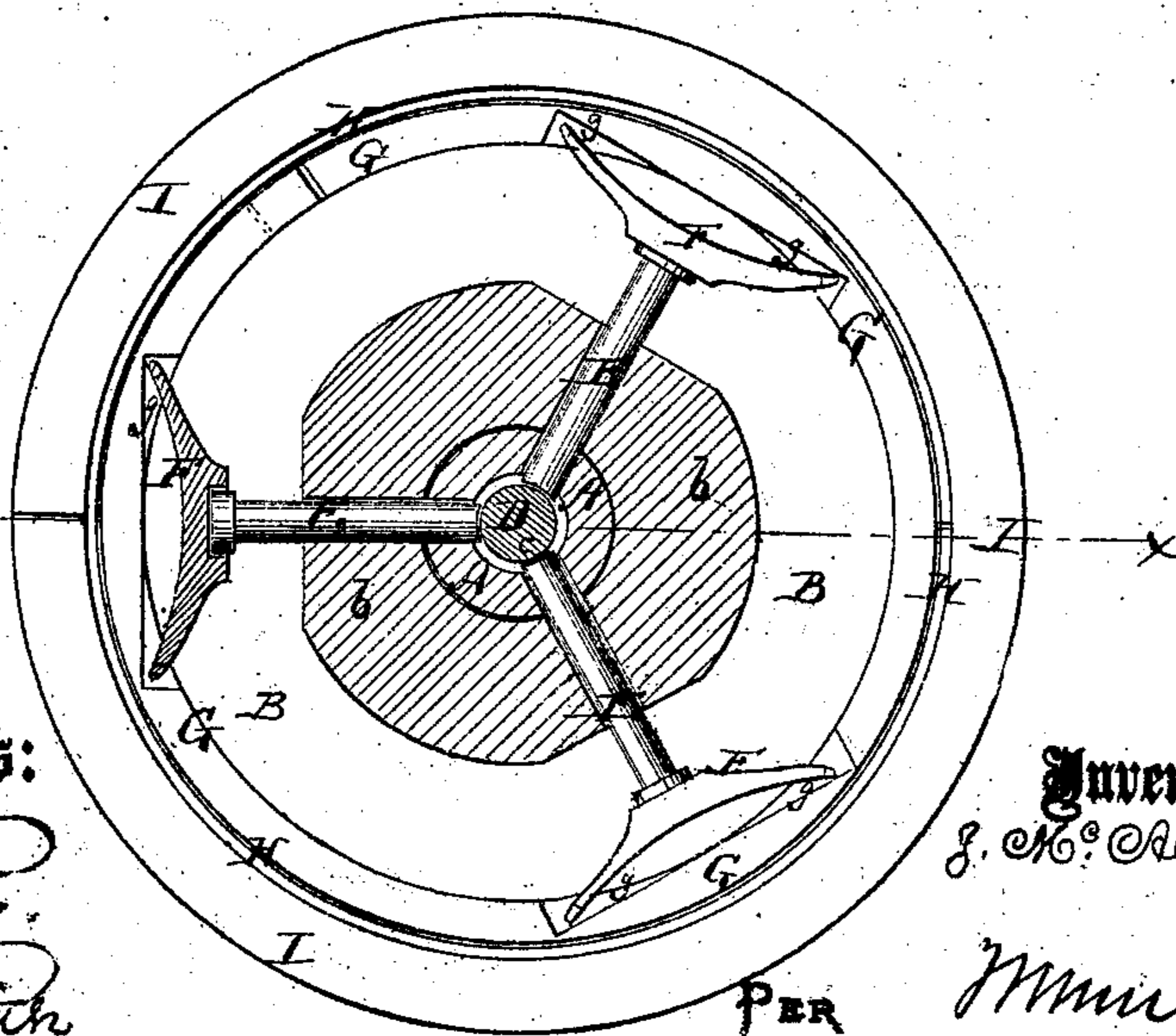
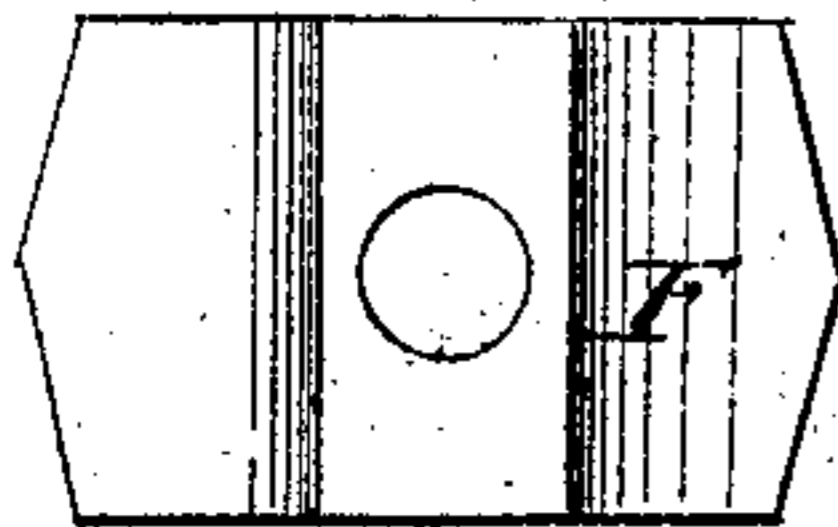


Fig. 5.



Witnesses:

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UNITED STATES PATENT OFFICE.

JAMES McALONAN, OF NEW YORK, N. Y.

IMPROVEMENT IN PISTON-PACKINGS.

Specification forming part of Letters Patent No. 116,336, dated June 27, 1871.

To all whom it may concern:

Be it known that I, JAMES McALONAN, of the city, county, and State of New York, have invented a new and Improved Piston-Packing; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1 represents a longitudinal central section of a piston provided with my improved packing, the plane of section being indicated by the line *x x*, Fig. 2. Fig. 2 is a transverse section of the same on the line *y y*, Fig. 1. Fig. 3 is a detail central section of one of the inner rings. Fig. 4 is an outer, and Fig. 5 an inner-face view of one of the expanding spring-plates.

Similar letters of reference indicate corresponding parts.

My invention consists in the improvements upon piston-packing, which are hereinafter fully described and subsequently pointed out in the claims.

A in the drawing represents a tubular piston-rod, of suitable length and diameter. To it are secured the heads or end plates B C of the piston, both of equal diameters. The end of the tube receiving the plates B C is made conical, as shown in Fig. 1, the central apertures of the plates being tapering to fit it, and a nut, *a*, screwing upon the extremity of the piston-rod, crowding them home. The plate B has a projecting central block or core, *b*, which reaches to the other plate C, so as to determine the distance between the same, besides forming a support for the expanding pins. Through the piston-rod is fitted a small bar, D, which carries a conical plug, *c*, in line with the core *b*. Through the core are fitted three or more transverse pins E E, which can be moved outwardly toward the periphery of the piston by pulling the bar D. The outer end of the bar D projects beyond the piston-rod, and receives a nut, *d*, whereby it can be longitudinally adjusted in the piston-rod. The nut *d* has a tubular extension, *e*, which is closed by a screw-cap, *f*. The pins E E extend with their outer ends against the expanding spring-plates F F. The ends of each spring-

plate F are V-shaped, or double inclined, as in Figs. 4 and 5, and fit into recesses which are provided in two split rings, G G, that are set one upon the other, between the plates B C. These recesses *g* in the rings G are cut slanting, as shown in Fig. 1, so that whenever the plates F are pushed outwardly by the pins E they will not only expand the rings G, but also crowd them against the plates B C to let the joints be absolutely tight. The rings G G are close within the outer piston-rings H and I. The latter are triangular in their cross-sections, and put together so that the long sides of the triangles come in contact, as is clearly shown in Fig. 1.

Whenever the piston leaks, the cap *f* is unscrewed and the nut *d* turned so as to pull the core *c*, and thereby expand the pins E. The pins crowd against the rings G so as to spread them, and with them the rings H I, until the outermost ring I fits the cylinder properly. The lengthwise extension of the two rings G G is shared by the rings H I, which slide in the inclined surface between them so as to crowd against the plates B C. As the pins E do not work steam-tight in the core *b*, the steam, if it enters the piston, will also pass into the tube A and betray an imperfect fit by its escape when the cap *f* is removed. The proper fit of the piston can thus always be ascertained without removing the cylinder-head, and connected by merely turning the nut *d*. A plug, *h*, is screwed into the inner end of the tube A to keep it closed, or an equivalent stop is applied.

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

1. The spring-plates F F, provided with double-inclined ends, whereby they crowd the rings G G apart while expanding them, as specified.

2. The double rings G G, provided with the inclined recesses *g*, to be moved apart while expanded, as set forth.

3. The nut *d*, provided with the tubular extension *e* and with the screw-cap *f*, to regulate the sliding bar D, substantially in the manner specified.

JAMES McALONAN.

Witnesses:

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