J. RICHARDS.

Piston-Packing.

No. 167,023. Patented Aug. 24, 1875.

FIG. 1

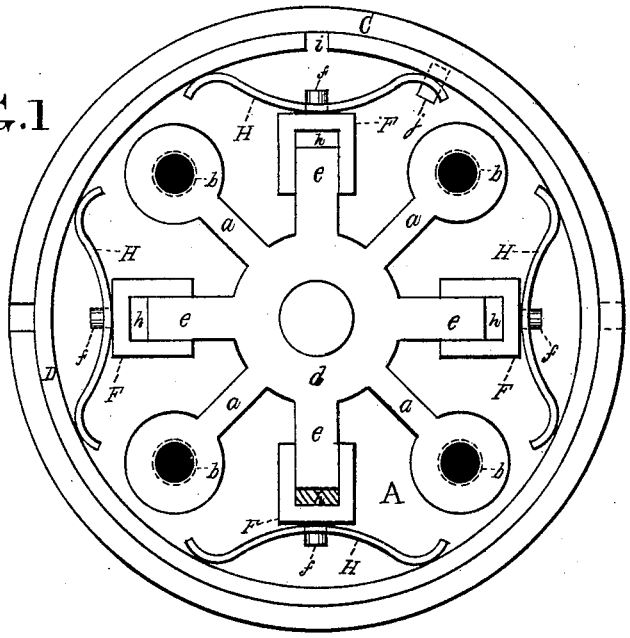


FIG. 4

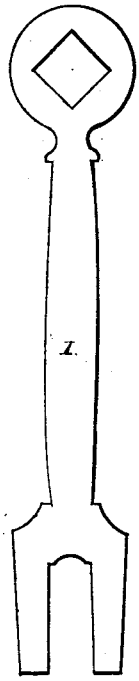


FIG. 3

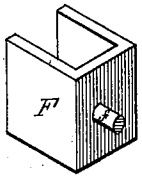
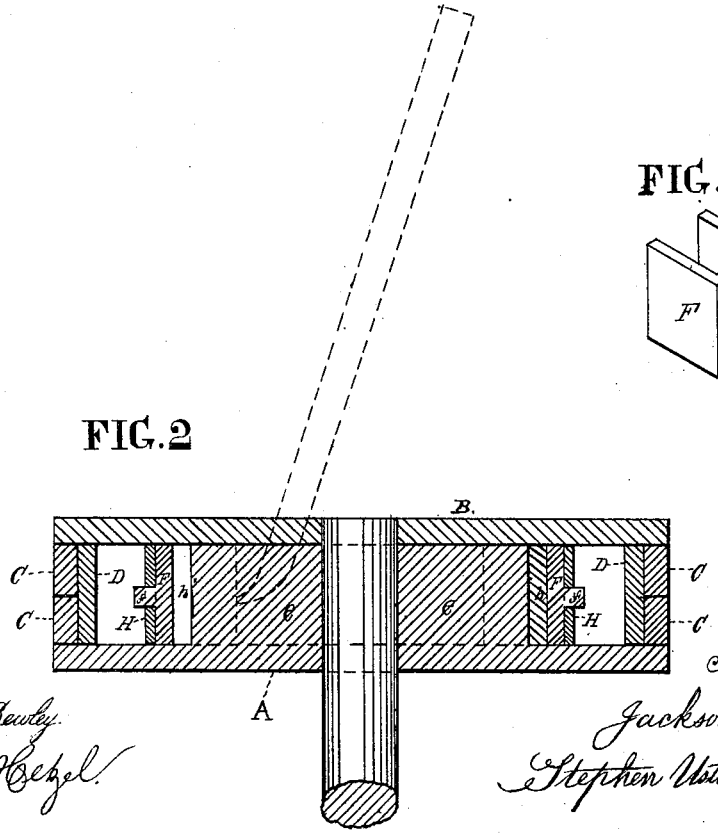


FIG. 2



Witnesses

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UNITED STATES PATENT OFFICE.

JACKSON RICHARDS, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN PISTON-PACKINGS.

Specification forming part of Letters Patent No. **167,023**, dated August 24, 1875; application filed August 2, 1875.

To all whom it may concern:

Be it known that I, JACKSON RICHARDS, of the city and county of Philadelphia, in the State of Pennsylvania, have invented an Improvement in Piston-Packing, of which the following is a specification:

My invention relates to the combination of clips with radial arms or lugs of the piston-flange, and with springs for setting out the packing-rings, in such a manner that the clips which have parallel jaws that fit against parallel sides of the arms or lugs are adjustable thereon inward or outward from the center of the flange, whereby to take in fillings of suitable thickness between the ends of the arms or lugs, and the inner sides of said clips, for setting out the packing-rings.

This forcing outward of the clips against the springs, for the insertion of the filling, is effected by means of a lever having a slotted end, whereby to straddle the arms or lugs to press against the inner ends of the clips.

By the combination above described, the adjustment being of a positive character, the derangement of the packing is guarded against. Whereas, when the rings are set out by means of set-screws frequent jarring often loosens the nuts, and sometimes strips the threads of the screws, and thus deranges the packing.

The invention also relates to the connection of one end of one or more of the springs to the inner packing-ring, and the middle of the spring to the contiguous clip to prevent the ring being turned around, and thus prevent an end of the spring being caught in the slot between the ends of the ring, and thereby slacken the packing, and also to prevent the slot being brought into contact with a slot of the outer ring, which would cause leakage of the steam.

In the accompanying drawings, Figure 1 is an end view of my improved piston with the cap-plate removed. Fig. 2 is a cross-section of the same, at the line *x x* of Fig. 1, with the cap-plate in place. Fig. 3 is a perspective view of one of the adjustable clips F. Fig. 4 is a side view of the slotted lever.

Like letters of reference in all the figures indicate the same parts.

A is the flange of the piston, and B the follower. C C are the outside packing-rings, and D the inner ring, constructed in the usual manner. E is the spider permanently connected with the flange A, and having arms *a a a a* with screw-holes *b*, in the usual manner, to receive screws for the confinement of the follower B. Projecting from the hub *d* are radial arms *e e e e*, which receive the clips F F F F, one of which is shown in detail in Fig. 3.

The clips are provided with steady-pins *f*, which connect with corresponding holes in the middle of the springs H, to hold them in position. The arms *e* are of such length as to leave an opening between their ends and the clips F, respectively, for the insertion of a filling, *h*, whereby the packing-rings may be accurately adjusted, there being always on hand a number of fillings of various thicknesses for the proper adjustment of the springs.

The adjustment is very easily and expeditiously effected by using the lever I, for forcing the clips outward for the reception of fillings of suitable thickness between the clips and the ends of the arms *e*. The lever is placed in the position represented by dotted lines in Fig. 2.

To prevent the inner packing-ring D, being turned around out of its proper position, and an end of a spring slipping into the slot *i*, between the ends of the ring, and thus slacken the packing, or said slot being brought opposite a slot of the outer springs C C, I connect one end of one or more of the springs H, by means of a pin, *j*, which projects from the ring, and has an easy fit in a corresponding hole of the spring.

Ordinary pistons may be easily altered in adaptation to my invention, by riveting or otherwise fastening arms *e* to the flange A, for the reception of the clips F. The arms *e* need only be long enough to support the clips F, and hence in large pistons lugs of the proper length are sufficient, spaces be-

ing left between them and the hub of the flange.

I claim as my invention—

1. The combination of the clips F, fillings *h*, and springs H, with the arms or lugs *e*, and packing-rings C C and D, for setting out the packing, substantially as set forth.

2. The combination of a spring, H, with the inner packing-ring D, having a pin, *j*, and a clip, F, having a steady-pin, *f*, whereby to prevent the turning around of said ring D, substantially as set forth.

JACKSON RICHARDS.

Witnesses:

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