

P. L. KREUTER.
PISTON PACKING.

No. 35,378.

Patented May 27, 1862.

Fig 1.

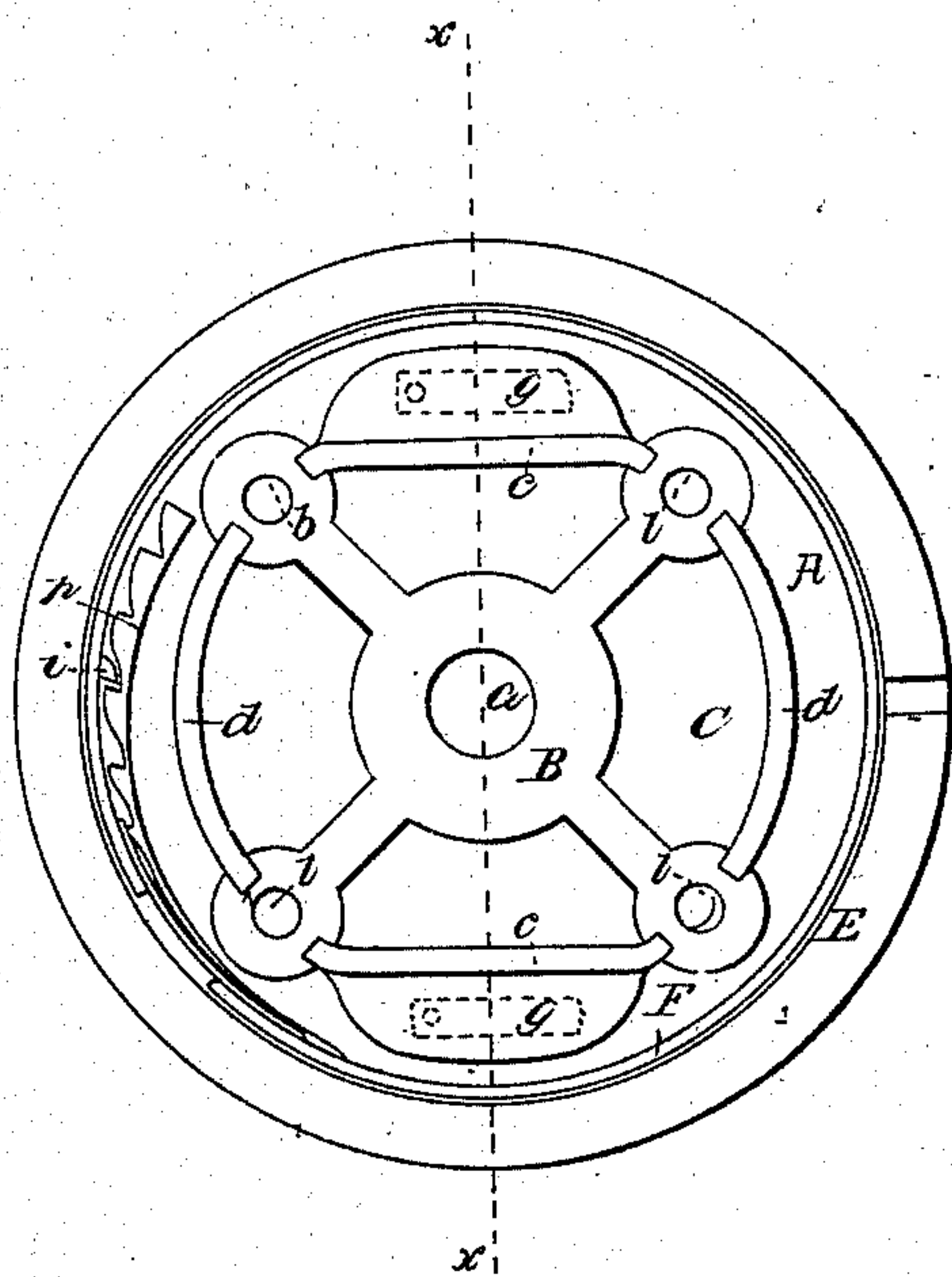


Fig 2.

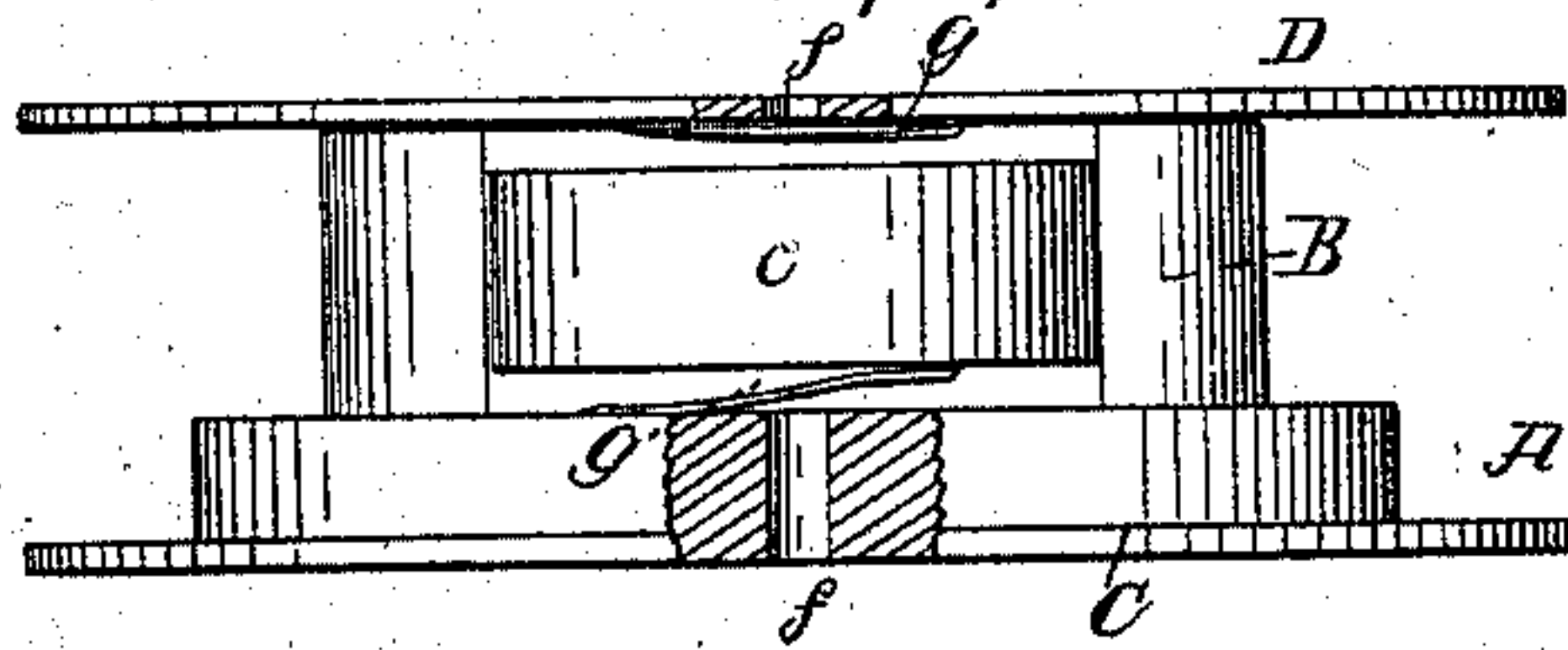
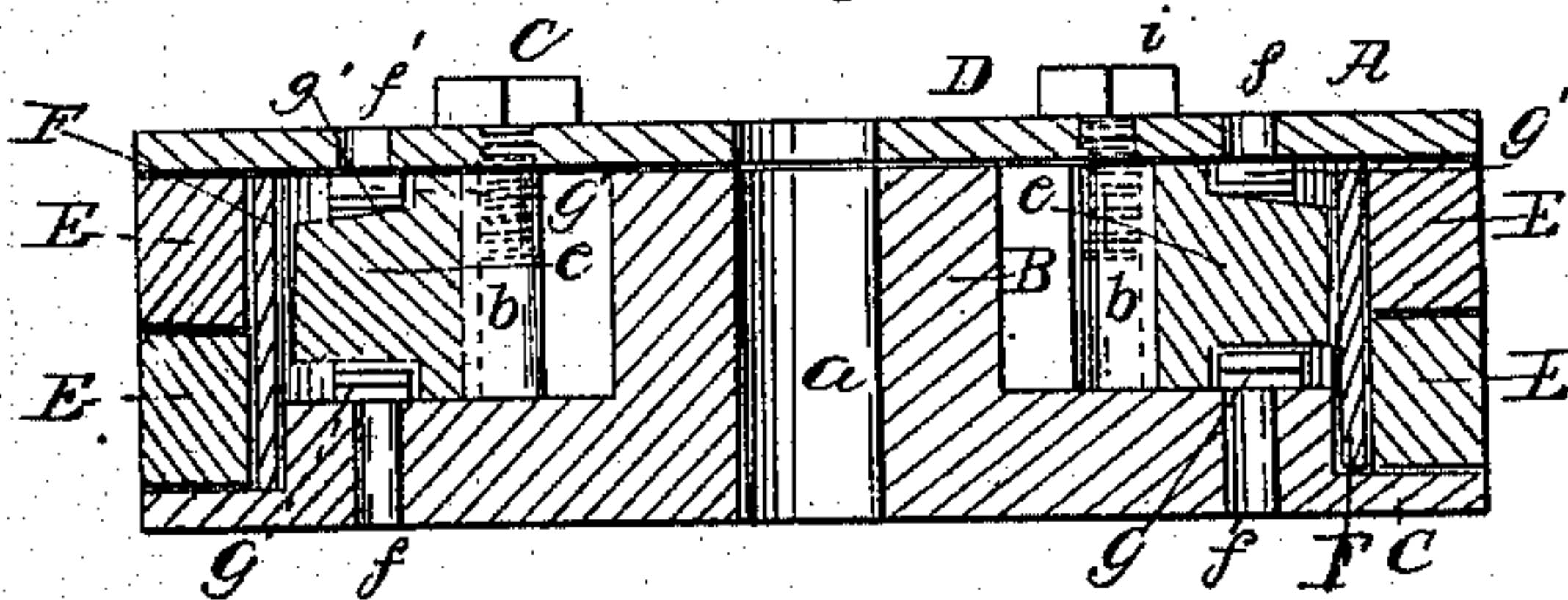


Fig 3.



Witnesses:
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UNITED STATES PATENT OFFICE.

P. L. KREUTER, OF BLOOMINGTON, ILLINOIS.

IMPROVED PISTON-PACKING.

Specification forming part of Letters Patent No. 35,378, dated May 27, 1862.

To all whom it may concern:

Be it known that I, P. L. KREUTER, of Bloomington, in the county of McLean and State of Illinois, have invented a new and Improved Piston-Packing; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a plan or top view of a piston constructed according to my invention, the follower having been removed to expose the interior. Fig. 2 is a detached sectional side elevation of the piston-head, spider-follower, and spring-valves through which the steam finds access to the interior of the piston. Fig. 3 is a transverse central section of the piston, taken in the plane indicated by the line *xx*, Fig. 1.

Similar letters of reference in the three figures indicate corresponding parts.

This invention consists in the arrangement of spring-valves and guides in combination with apertures in the piston-head and follower in such a manner that the apertures admitting the steam or other fluid from the cylinder into the piston are instantaneously closed on reversing the piston, and that the steam or other fluid can effectually be employed to produce a tight and reliable packing.

It consists, further, in the arrangement of an additional packing-ring on the inside of the ordinary main packing-rings of the cylinder, said additional packing-ring being provided with a toothed expansion-rack and with a spring-plate in such a manner that by the action of the steam or other fluid the inner packing-ring is expanded and the crevice between the outer or inner packing-rings is effectually closed, and by the spring-plate the steam or other fluid is prevented finding its way in between the inner and outer rings.

To enable those skilled in the art to make and use my invention, I will proceed to describe it.

The piston A consists of a spider, B, which rises from and is firmly attached to or cast with the piston-head C in the ordinary manner. A hole, *a*, in the center receives the piston-rod, and four holes, *b*, in the ends of the arms of the spider receive the screws *c*, which retain the follower D. Between the arms of the spider slides *d e* are inserted, and the slides *e* are provided with projections which cover the apertures *f f'* (see Figs. 2

and 3) in the piston-head C and follower D, and which form the guides for the spring-valves *g g*. One of these valves is attached to the follower and the other to the piston-head, and they serve to open and close the apertures *f f'*. The guides *e* prevent them opening any farther than required to admit the steam or other fluid, and they facilitate their closing down rapidly as soon as the motion of the piston is reversed.

The piston is rendered tight by packing-rings E, which are inserted between the piston-head and in the follower in the ordinary manner; and in order to prevent the escape of steam from the interior of the piston through the crevices of the outer packing-rings an additional packing-ring, F, is inserted, which bears close on the inside of the outer packing-rings, as clearly shown in Figs. 1 and 3 of the drawings. This additional inner packing-ring is provided on one end with a toothed rack, *h*, and on the other end with a tooth, *i*, so that when said ring is expanded the tooth catches between the teeth of the rack and prevents the ring collapsing. The crevice existing between the ends of the inner ring is covered by a plate, *j*, of thin sheet metal, so that when the steam or other fluid enters the piston said plate is firmly pressed on the inner surface of the inner ring, and the steam or other fluid is effectually prevented passing in between the inner and outer packing-rings. By this arrangement the steam or other fluid can be used with advantage for the purpose of keeping the piston tight, and the expensive springs and regulating-screws usually employed for this purpose can be dispensed with.

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

1. The arrangement of the spring-valves *g g'*, and guides *e*, in combination with the apertures *f f'* in the piston-head and follower, as and for the purpose shown and described.

2. The arrangement of the protecting-plate *j*, in combination with the packing-rings F and E, as and for the purpose set forth.

3. The toothed rack *h* and tooth *i* on the ends of the packing-ring F, as and for the purpose specified.

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Witnesses:

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