J. VARON.

DEVICE FOR ADJUSTING PISTON PACKING.

No. 195,546. Patented Sept. 25, 1877.

Fig. 1.

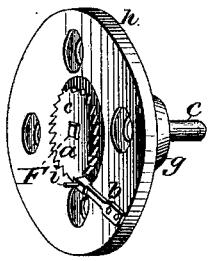


Fig. 2.

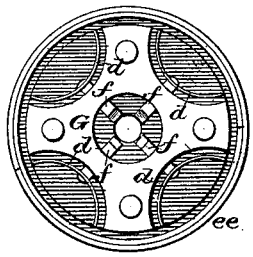


Fig. 3.

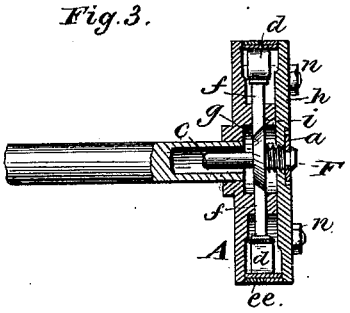
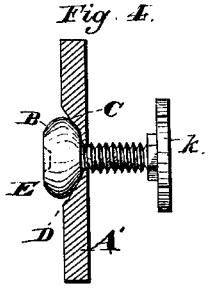


Fig. 4.



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IMPROVEMENT IN DEVICES FOR ADJUSTING PISTON-PACKING.

Specification forming part of Letters Patent No. **195,546**, dated September 25, 1877; application filed June 5, 1877.

To all whom it may concern:

Be it known that I, JOSEPH VARON, of Union City, in the county of Randolph and State of Indiana, have invented a new and useful Improvement in Adjusting Spring-Packing in Steam-Engines; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification.

The object of my invention is to provide steam-engines with adjustable piston-packing and means whereby the piston-packing may be readily adjusted without removing the cylinder-head; and to that end my invention consists, first, in a cylinder-head provided with a wrench permanently attached thereto, the head of said wrench being located within the cylinder, and adapted to engage with an adjusting-nut on the face of the piston, whereby the piston-packing may be readily adjusted by means of the wrench and without the necessity of removing the cylinder-head for such purpose.

My invention further consists in the combination, with a perforated cylinder-head the inner side of which is provided with a conical or inclined valve-seat, of a wrench the shank of which extends through the cylinder-head, while that portion of the wrench-head adjacent to the inner face of the cylinder-head is made tapering or conical to serve as a valve, and snugly fit the conical valve-seat in the cylinder-head, whereby the wrench serves as a permanent piston-packing adjuster, and also serves as a valve to prevent the escape of steam from the steam-cylinder.

My invention further consists in the several details of construction and combinations of parts, as will more fully appear from the following description and claims.

In the accompanying drawings, Figure 1 is a view, in perspective, of a piston provided with means for adjusting the piston-packing. Fig. 2 is a plan view of said piston with the follower removed. Fig. 3 is a vertical section of the piston and a portion of the piston-rod, and Fig. 4 shows the adjusting-wrench attached to the cylinder-head.

A is the piston, and the same is provided with the ordinary metallic packing-rings *e e*, which are arranged relatively to each other to break joints, to prevent the passage of steam from one end of the steam-cylinder to the other.

G is a spider of ordinary form, and formed with openings *i* for the passage of the radially-arranged adjusting-bars *f*, the outer ends of each of which engage with elliptic or other springs, *d*, which latter bear upon the inner side of the inner metallic packing-ring *e*. The inner ends of the bars *f* rest in contact with the periphery of cone *g*, and are radially adjusted by said cone in the following manner: *c* is a rod, the inner end of which is located within a cylindrical recess formed in the piston-rod, and is supported and guided in said recess. The outer end of rod *c* is screw-threaded to fit corresponding screw-threads formed in follower *h*. Upon rod *c* the cone *g* is rigidly secured. As said rod is turned it is moved longitudinally, and hence operates to impart a radial movement to bars *f* through the medium of cone *g*, and thus expand the metallic packing *e e*. The outer end F of rod *c* is of an angular form, and projects sufficiently beyond the face of follower *h* to allow of the attachment of a wrench to said angular end. Follower *h* is countersunk about the rod *c*, and a ratchet, *a*, secured to said rod. Said ratchet is provided against back movement by means of pawl *b*, which engages therewith.

From the foregoing it will be obvious that by the application of a wrench to the projecting end F of rod *c* the metallic packing *e e* may be expanded, and retained in such expanded condition by means of the ratchet *a* and pawl *b*.

A′ represents the cylinder-head, which is centrally perforated, and provided on its inner face with a conical valve-seat, C. The screw-threaded shank of a wrench extends through said cylinder-head, and the wrench-head B is formed with its rear portion D of conical form, to serve as a valve and prevent the escape of steam from the cylinder. Head B is constructed with a socket, E, corresponding in form to the angular end F of rod *c*. Movement is imparted to the wrench through the hand-wheel K.

The operation of the device is as follows: When it becomes necessary to set out or expand the metallic packing-rings *e e*, the piston is moved as far as is possible toward the cylinder-head A′. The wrench located in said cylinder-head is then turned inwardly until the socket E engages with the rod *c*. The wrench is then turned, and, as heretofore stated, it operates to expand the packing-rings, which are retained in such expanded condition by means of the ratchet *a* and pawl *b*. When the rings have been sufficiently set out to form a steam-tight joint the piston is moved away from cylinder-head A′, thus disengaging the wrench-head from rod *c*, when said wrench-head is turned back singly against the conical valve-seat in the cylinder-head, and operates as a valve to prevent the escape of steam from the cylinder.

Steam-engines provided with my improvement are adapted to have the piston-packing readily adjusted without the necessity of removing the cylinder-head, and hence much time and expense are saved.

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

1. A cylinder-head provided with a wrench passing through it, in the manner and for the purposes set forth.

2. The combination, with a perforated cylinder-head provided with a conical valve-seat, of a wrench-head a portion of which is tapering or conical in form, and arranged to seat within the conical recess in the cylinder-head, substantially as described.

3. The combination, with a piston the packing of which is adapted to be expanded by means of an angular-ended bolt passing through the follower, of a wrench the shank of which extends through the cylinder-head, substantially as set forth.

4. The combination of the follower *h*, rod *c*, cone *g*, ratchet *a*, pawl *b*, bars *f*, springs *d*, and packing-rings *e e*, substantially as set forth.

JOSEPH VARON.

Witnesses:
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JOHN MCCONNELL.