

EDWARD SULLIVAN.
Piston Head for Steam Engines.

No. 119,247.

Patented Sep. 26, 1871.

Fig. 1.

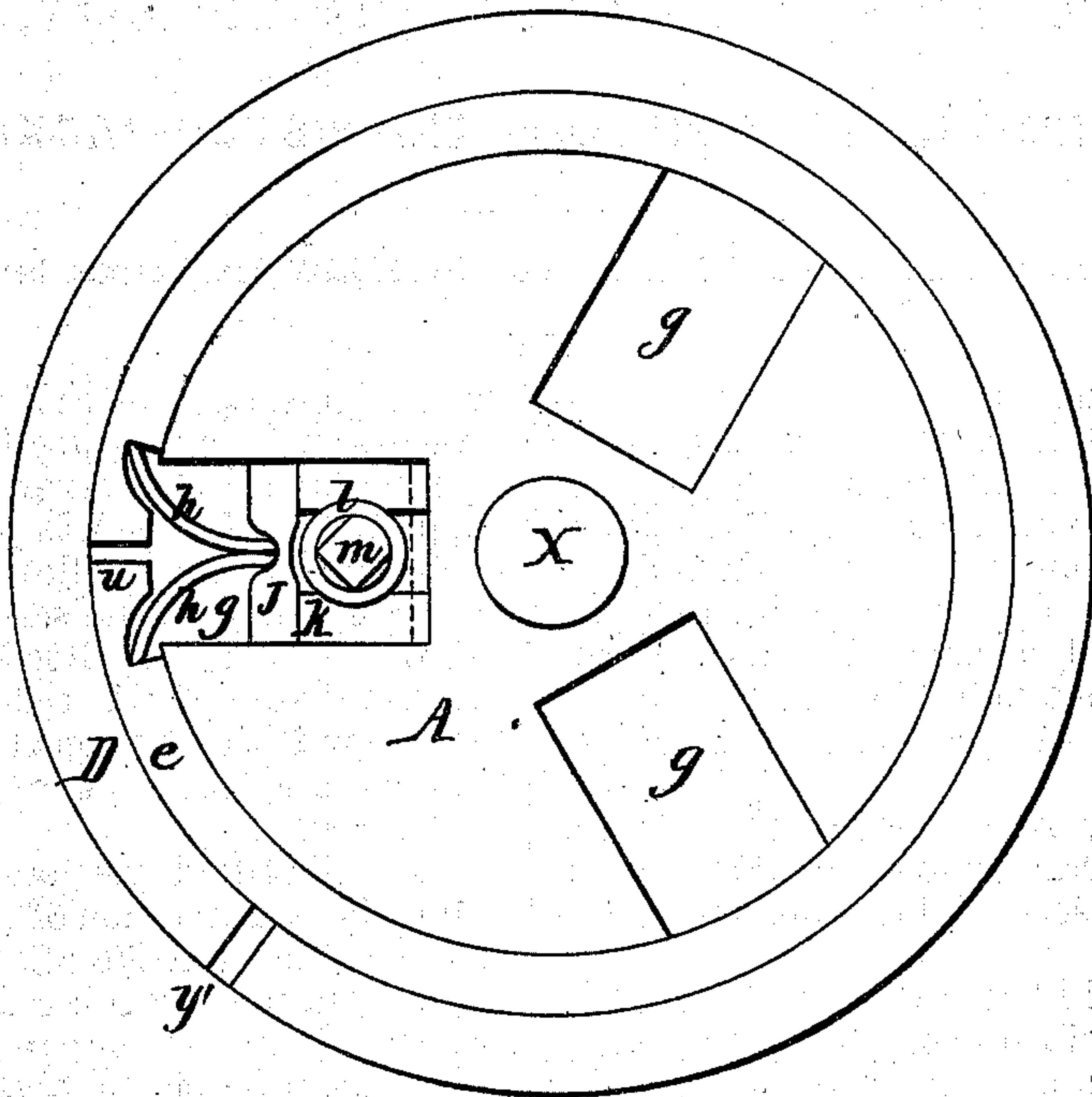
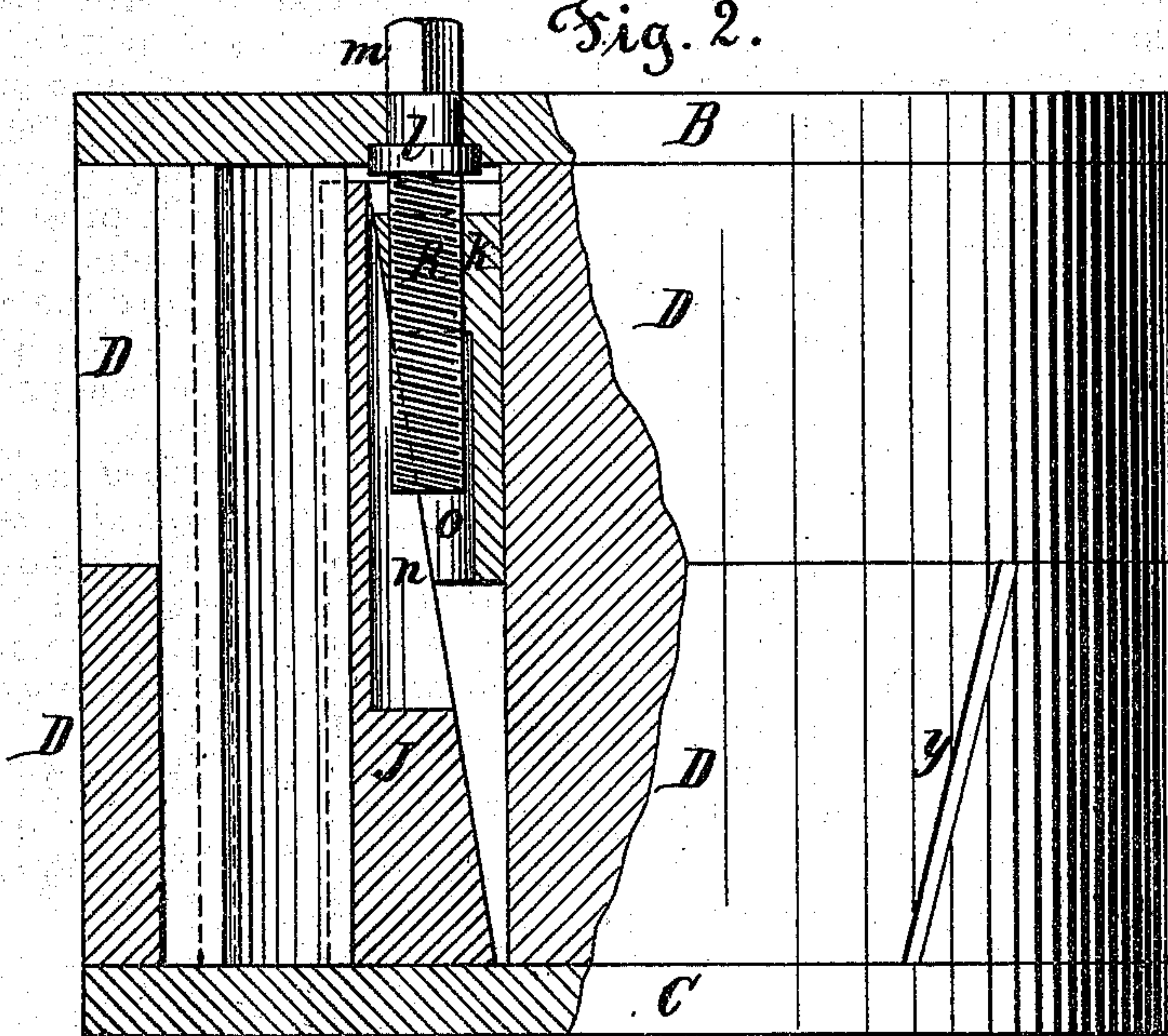


Fig. 2.



Witnesses.

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UNITED STATES PATENT OFFICE.

EDWARD SULLIVAN, OF MOUNT WASHINGTON, ASSIGNOR TO HIMSELF AND JOHN S. McMILLIN, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN PISTONS AND PISTON-PACKINGS.

Specification forming part of Letters Patent No. 119,247, dated September 26, 1871.

To all whom it may concern:

Be it known that I, EDWARD SULLIVAN, of Mount Washington, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Piston-Heads for Steam-Engines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon.

The nature of my invention consists in the combination and arrangement of the several parts hereinafter described for a piston-head of steam-engines.

To enable others skilled in the art to make and use my invention, I will proceed to describe more fully the construction and operation of the same.

In the accompanying drawing, which forms part of my specification, Figure 1 is an end view of the piston-head, representing the follower removed. Fig. 2 is a side view, representing a portion of the piston-head cut and broken away.

In the accompanying drawing similar letters have reference to similar parts.

A represents the body of the piston-head, which is provided with a series of chambers, *g*, and central opening, which is for securing the head on the piston-rod. B and C are the followers. Around the body A is placed an expansion-ring, *e*, open at *u*. Over the ring *e* is placed two rings, D, which are cut at *y* to allow them to expand. The openings *y* of rings D and opening *u* of ring *e* should be arranged with relation to each in about the position represented in Fig. 1, so as to prevent steam entering the chambers *g* of the body A. In the chambers *g* are arranged two arcs of a tube, which are fitted to recesses in the ring *e*, one on each side of the opening *u*, and in a groove in the outer face of

the wedge-shaped piece J, which is provided with a recess on its inner face for the operating-screw R, which is fitted in screw-threads in the wedge-shaped piece K, which is provided with a recess, O, for the purpose of allowing room for the travel of the screw R. The screw R is provided with a collar, *l*, which is fitted into a recess made in the inner side of the follower B. That part of the screw R which projects through the follower B is made square so as to adapt it to a key used for turning it.

As the skilled mechanic will readily understand the construction of the several parts of my improvement and the relation they bear to each other from the foregoing description and by reference to the accompanying drawing, I will, therefore, proceed to describe their operation. The piston-head is constructed as hereinbefore described and fitted to its cylinder, in the head of which is made an opening opposite to the end *m* of the screw R sufficiently large to admit a key for turning the screw R, which, if turned backward, will press the collar *l* against the follower B and force in the wedge-shaped piece K, which will force the wedge-shaped piece J against the arcs *h*, which will expand the ring *e* and thereby expand the packing-rings D to fit the bore of the cylinder.

Having thus described my improvement, what I claim as of my invention, is—

The combination and arrangement of the body A, provided with chambers *g*, the wedge-shaped pieces J K, arcs *h*, rings *e* and D, arranged and operating as herein described, and for the purpose set forth.

EDWARD SULLIVAN.

Witnesses:

JAMES J. JOHNSTON,
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