M. B. Mason,

Steam-Engine Piston.

No. 57,823. Patented Sep. 4, 1866.

Fig: 1.

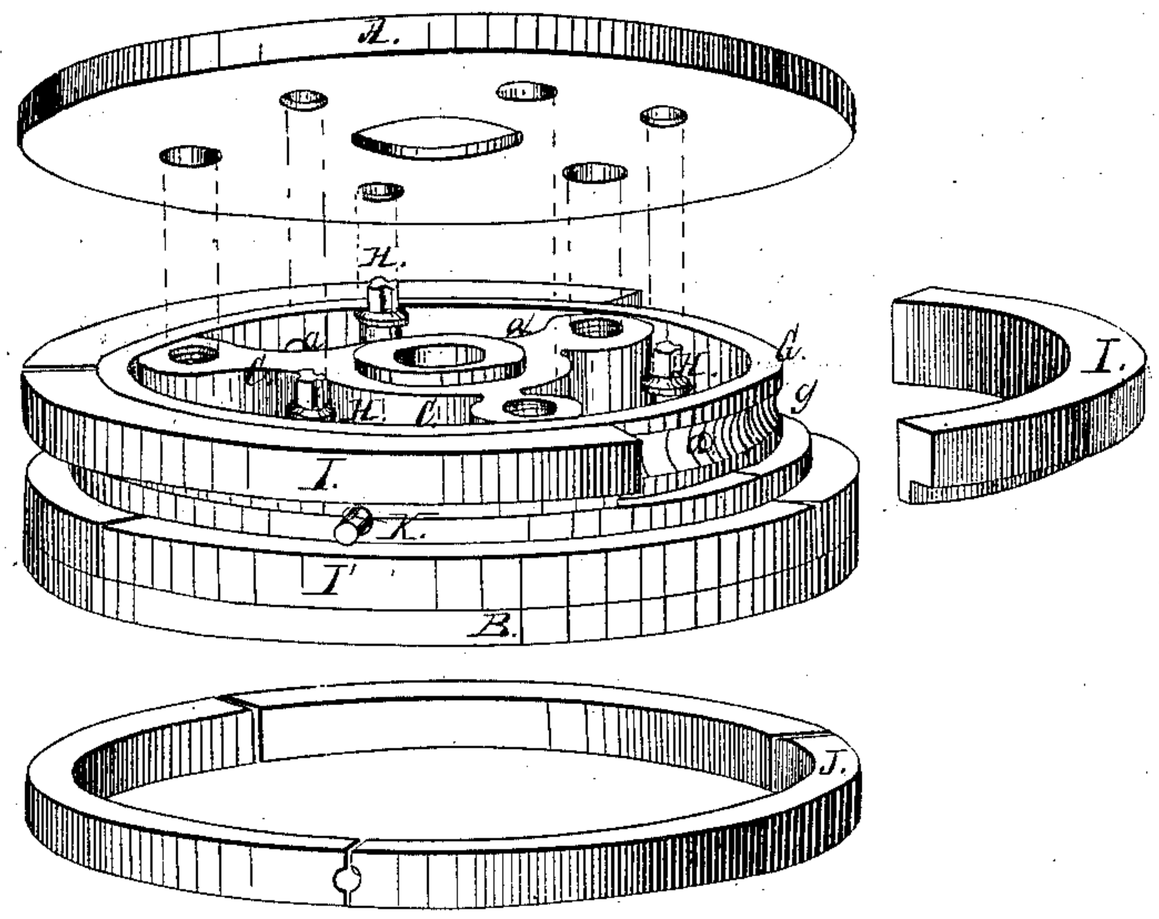


Fig: 2.

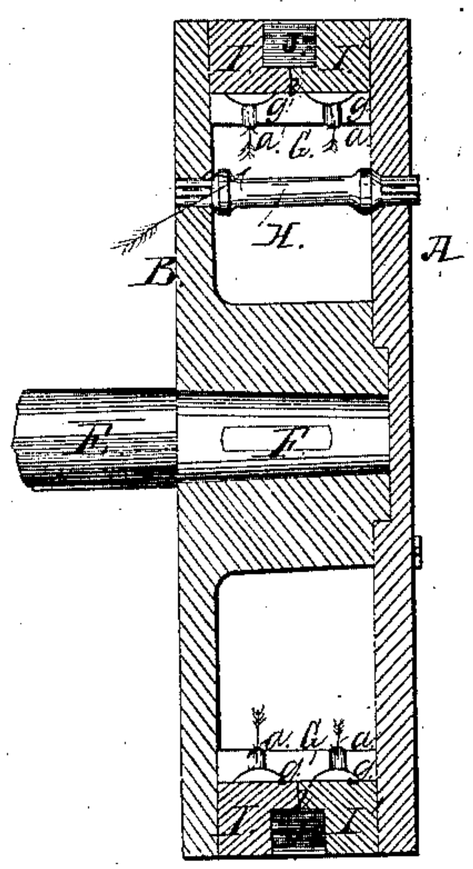
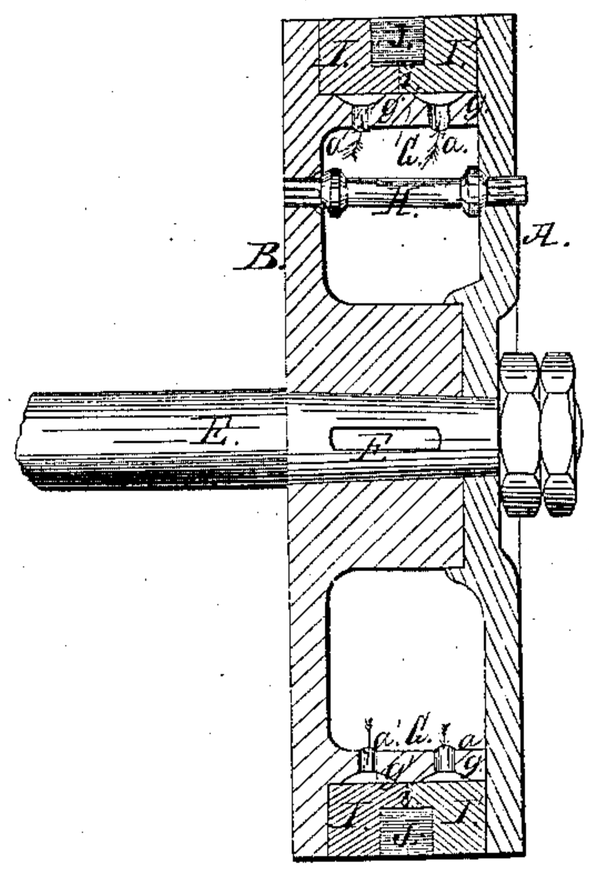


Fig: 3.



Witnesses:

Hank Millward

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Inventor:

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UNITED STATES PATENT OFFICE.

MATTHEW B. MASON, OF AURORA, INDIANA, ASSIGNOR TO HIMSELF AND GEORGE W. HARRIS.

IMPROVEMENT IN PISTONS FOR STEAM-CYLINDERS.

Specification forming part of Letters Patent No. **57,823,** dated September 4, 1866.

To all whom it may concern:

Be it known that I, MATTHEW B. MASON, of Aurora, Dearbon county, Indiana, have invented certain new and useful Improvements in Steam-Packed Piston-Heads; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

My invention consists in peculiar devices for the introduction of steam to the interior of the piston head, in order to expand the packing-rings by steam-pressure; and it further consists in a novel construction of the packing-rings, whereby they are so held together as to prevent twisting on the head, and are adapted to expand equally the entire width of the piston-face.

Figure 1 represents in detail perspective views of a piston-head embodying my invention. Fig. 2 is an axial section of the same head. Fig. 3 is an axial section showing a modification of my improvement.

A is the follower; B, the piston-head proper; C, the spider, bored for connecting-screws; E, the rod, and F the tightening-key.

G is a solid ring, made to tightly embrace the spider C. It is grooved on its periphery *g g'*, the grooves having communication with the interior of the head through any number of perforations *a*.

The piston-head proper, B, and follower A are suitably pierced and chamfered inside to form seats for the double-headed valves H. The two bearing-faces of each double-headed valve are slightly nearer together than the distance between the seats, to enable the valves to have a slight longitudinal motion, changing automatically to admit steam on the pressure side of the piston, and by the same motion closing on the exhaust.

The valve-stems are grooved at the ends to form steam-passages. The required pressure is thus retained within the piston-head at all times to serve the purpose of packing the piston-rings, and at the same time to prevent all escape by the exhaust.

I I' J are the packing-rings, cut as shown at *i*, and kept in place on the piston-head by means of projecting pin K. The rings I I' have the represented L shape in transverse section to extend in the interior together the entire width of the ring G, and channeled from the exterior to contain the middle ring, J.

It will thus be seen that the steam admitted at perforations *a a'* acts to force the rings I I' J out together the entire width of packing-face at all times, and that the rings are so connected together that, if the piston were allowed to extend nearly two-thirds the width of packing-face past the ports of the cylinder, none of the rings could escape.

In Fig. 3 my improvements are modified by casting the ring G in one piece with the piston-head and dispensing with the spider C. This is the preferred form for new pistons.

The number of valves and size of grooves should be so arranged as to secure the requisite steam-pressure within the head.

I claim herein as new and of my invention—

1. The arrangement of the L-shaped packing-rings I I' and middle ring, J, as described, and for the purpose specified.

2. The grooved and perforated ring G, constructed as and for the purpose specified.

3. The double-headed valves H, constructed and arranged substantially as described, and for the purpose specified.

In testimony of which invention I hereunto set my hand.

MATTHEW B. MASON.

Witnesses:

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