

D. DALE.

PACKING FOR BALANCED PISTON VALVES.

No. 178,604.

Patented June 13, 1876.

Fig. 1.

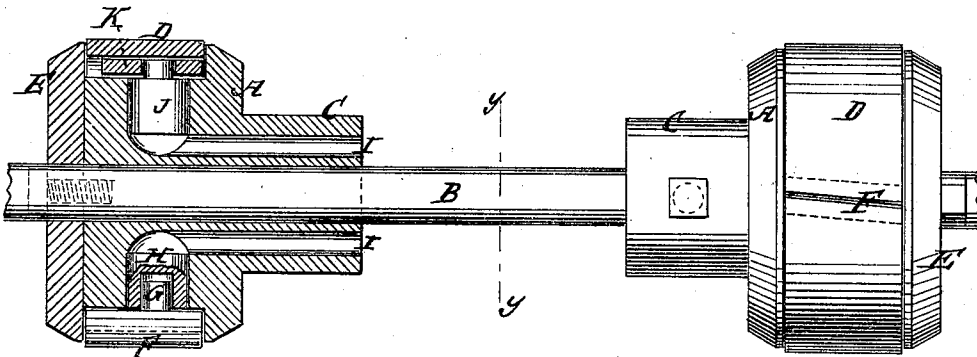


Fig. 2.

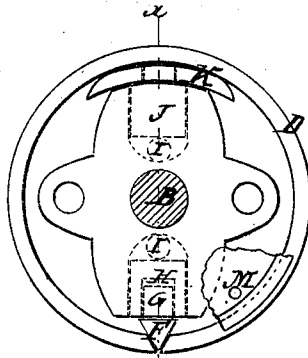
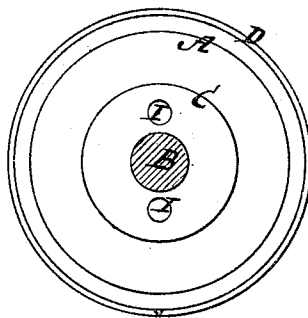


Fig. 3.



WITNESSES:

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DAVID DALE, OF MILLERSTOWN, PENNSYLVANIA.

IMPROVEMENT IN PACKINGS FOR BALANCED PISTON-VALVES.

Specification forming part of Letters Patent No. **178,604**, dated June 13, 1876; application filed April 25, 1876.

To all whom it may concern :

Be it known that I, DAVID DALE, of Millerstown, in the county of Butler and State of Pennsylvania, have invented a new and Improved Balanced Piston-Valve, of which the following is a specification :

My invention relates to the employment of steam for pressing out the packings of the piston, also to the arrangement of the pistons and followers relatively to the live-steam chamber. The first part, consists of a contrivance of radial plugs in the pistons, on which steam is caused to act to push out the packing-ring, one of the said plugs acting by a wedge between the ends of the ring to expand it, and another, or more if desired, acting by a stiff spring, which bears at its ends on the packing-ring and distributes the pressure upon two points.

Figure 1 is a longitudinal sectional elevation of one of the heads, taken on line *x x* of Fig. 2, and side elevation of the other. Fig. 2 is an end elevation of one of the pistons with the follower removed; and Fig. 3 is a transverse section of the shaft, taken on line *y y*, Fig. 1.

A represents the piston-heads, which are fitted on the rod B, and have a hub, C, on the steam side. D is the packing-ring, and E the follower. At the side of the piston where the ends of the packing-ring meet is a wedge, F, for expanding the ring by pressure behind it. This wedge has a stud, G, on the back, entering a socket in the plug H, which bears at its outer end against the back of the wedge. The socket is a little larger than the stud, to allow the wedge freedom to adjust itself to the space

between the ends of the ring. Steam is let in against the inner end of the plug by the inlet-passage I from the live-steam space. On the opposite side is a plug, J, similarly pressed out by steam let in behind it by another inlet, I. This plug bears against a spring, K, which, at its ends, bears against the packing-ring, to assist the wedge in tightening the packing, and to distribute the pressure. Two or three of these plugs J may be employed in case it may be desired to distribute the pressure still more. M is a small hole through the follower for the escape of any steam that may leak past the packing to the inside.

The hub C is to strengthen the connection of the piston with the rod and stiffen the latter, the same being located on the steam side, which enables the follower to be located on the outside for greater convenience, and to avoid the leaking of steam through the bolt-holes.

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

1. The combination of the wedge F and plug H with the packing D and the piston, the latter having an inlet-passage, I, to the plug for live steam, substantially as specified.
2. The combination of the spring K and plug J with the packing-ring D, piston A, and the plug H and wedge F, substantially as specified.

DAVID DALE.

Witnesses:

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