(No Model.)

P. ARMINGTON.

PISTON VALVE.

No. 332,632. Patented Dec. 15, 1885.

Fig. 1.

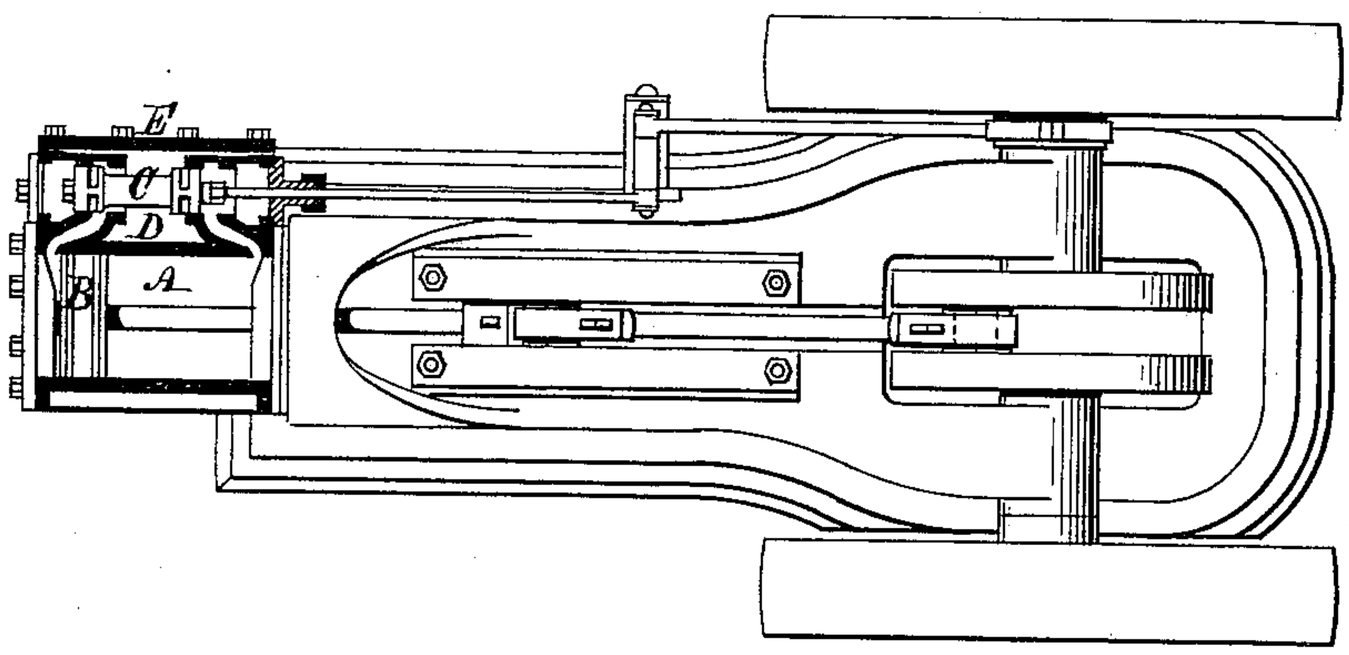
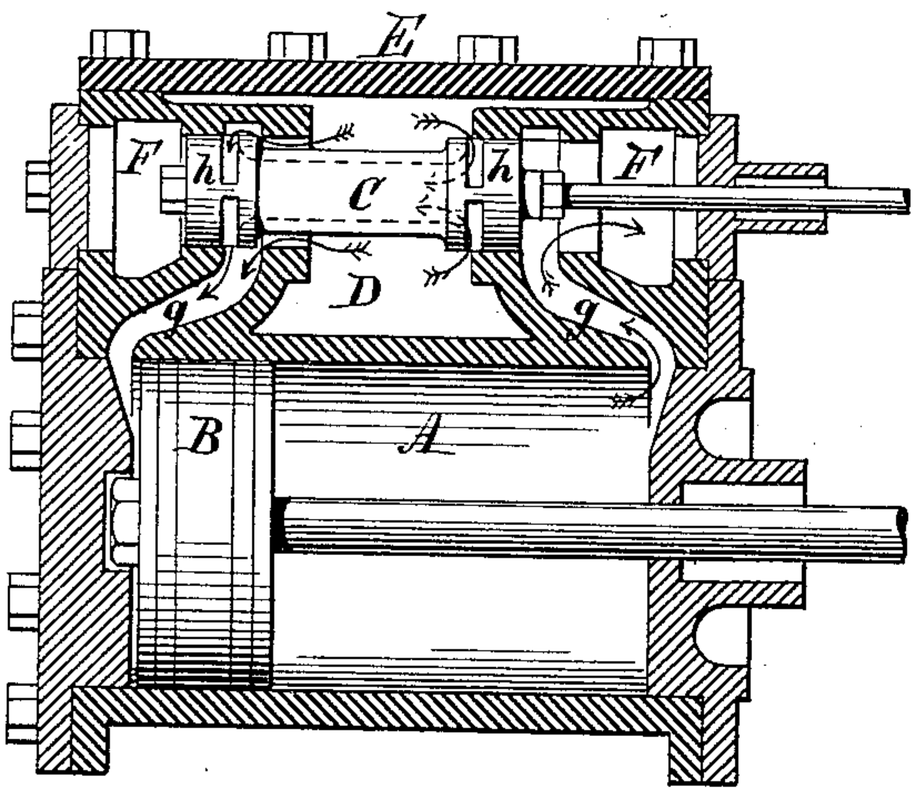


Fig. 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

PARDON ARMINGTON, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR TO THE ARMINGTON & SIMS ENGINE COMPANY, OF SAME PLACE.

PISTON-VALVE.

SPECIFICATION forming part of Letters Patent No. 332,632, dated December 15, 1885.

Application filed January 2, 1883. Serial No. 80,610. (No model.) Patented in England August 16, 1882, No. 3,914; in Italy September 4, 1882; in Sweden October 11, 1882; in Austria October 13, 1882, No. 28,161; in France November 14, 1882, No. 150,660; in Germany December 30, 1882, No. 22,828 and No. 23,636; in Spain February 3, 1883; in Norway April 24, 1883, and in Russia June 20, 1884, No. 4,747.

To all whom it may concern:

Be it known that I, PARDON ARMINGTON, of the city and county of Providence, and State of Rhode Island, have invented a certain new and useful Improvement in Piston-Valves; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

This invention has reference to an improvement on my previous invention, as set forth in Patent No. 244,160, granted to me July 12, 1881, for an improvement in "valves for steam-engines;" and it consists in the peculiar and novel construction of the valve and valve-chest, whereby the live steam surrounds the valve and is supplied to the cylinder from the center, while the exhaust escapes at the end of the valve, as will be more fully set forth hereinafter.

Figure 1 is a top view of the steam-engine, showing the cylinder and valve-chest in section. Fig. 2 is an enlarged sectional view of the engine-cylinder and valve-chest.

In the drawings, A is the engine-cylinder; B, the piston; C, the cylindrical tubular valve; D, the valve-chest, and E the cover of the same. F F are the exhaust-ports; *g g*, the passages communicating with the ends of the cylinder. The valve C is of the same construction as the valve shown and described in the previous patent herein referred to. The central portion is of less diameter than the two ends. A passage is formed in the central portion longitudinal to the axis of the valve, which communicates with the annular openings *h h*.

The valve-case differs from the case in the former patent, in that the central portion is removed and the ends are constructed to form the exhaust-ports. By this change of construction the live steam at all times surrounds the valve, and the exhaust-steam passes by the end of the valve only. The temperature of the valve is thereby maintained uniform, which was not the case in valves constructed as shown in the former patent, in which, while the live steam was passing through the interior of the valve, the exhaust-steam surrounded the valve, and by the difference in temperature condensed the live steam and affected the working of the valve.

Another valuable advantage gained by this construction is that by removing the cover E the valve and its ports can be clearly seen, the valve can be accurately adjusted with the greatest nicety, so as to produce the best result. This is of the highest possible importance and greatly facilitates the setting of the valve, the operation of which can be carefully watched when the balance-wheel is turned.

When properly adjusted, the cover E is secured, and the engine can be started up without any further adjustment.

The flow of the steam through the valve, as well as around the same, as also the exhaust, is indicated by arrows in Fig. 2.

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

1. In a steam-engine, the combination, with the valve C, constructed substantially as described, of two valve-cases constructed to receive the two ends of the valve, and provided with port-openings and exhaust-passages, said exhaust-passages being located in alignment with the ends of the valve, and the latter being at all times exposed to the live steam, as described and shown.

2. The combination, with a tubular valve having annular openings near each end, constructed to admit steam from the steam-chest to the cylinder at both ends of such valve simultaneously, of a valve-case constructed to receive the ends of the valve, but open in the center, and the cover E, the whole constructed to expose the valve to view and facilitate the adjustment of the same, as described.

3. The combination, with a steam-engine cylinder, of a cylindrical valve constructed to control the admission and exhaust of the steam at both ends of the cylinder when the center of the valve is exposed to the live steam only, and open to view for adjustment by the removal of the cover E of the valve-chest, as described.

In witness whereof I have hereunto set my hand.

PARDON ARMINGTON.

Witnesses:
J. A. MILLER, Jr.,
M. F. BLIGH.