(No Model.)

J. W. PLIMPTON.

PISTON VALVE FOR STEAM ENGINES.

No. 246,634. Patented Sept. 6, 1881.

Fig. 1.

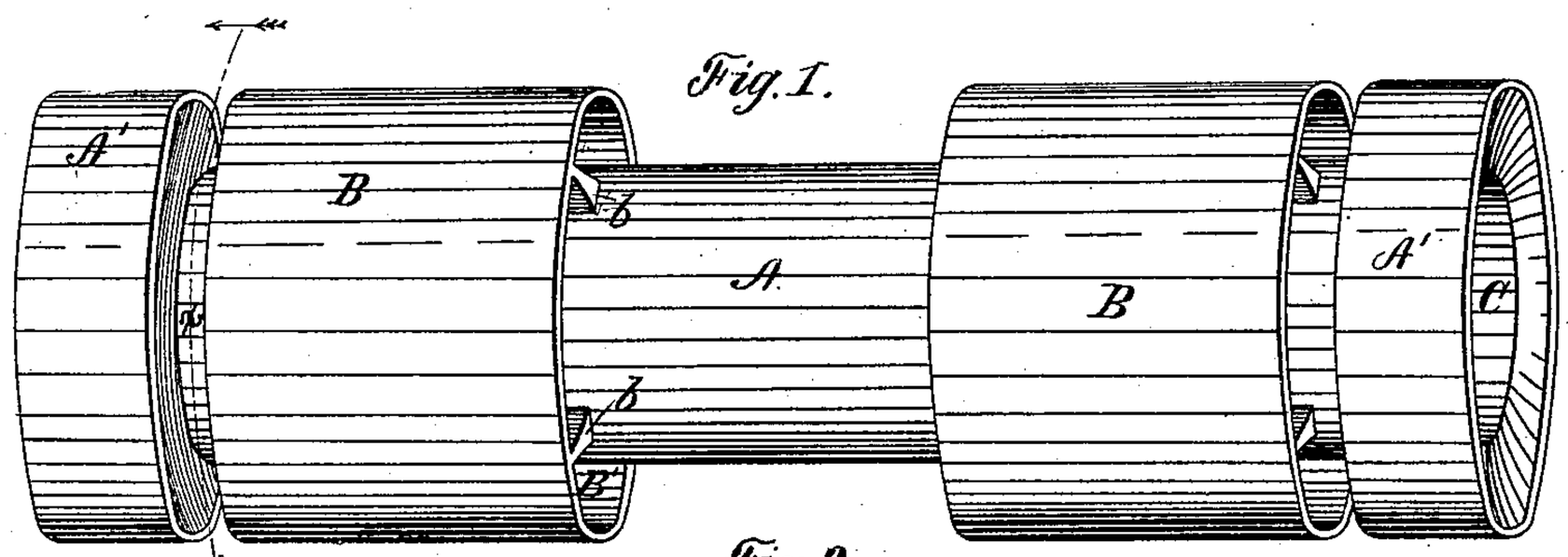


Fig. 2.

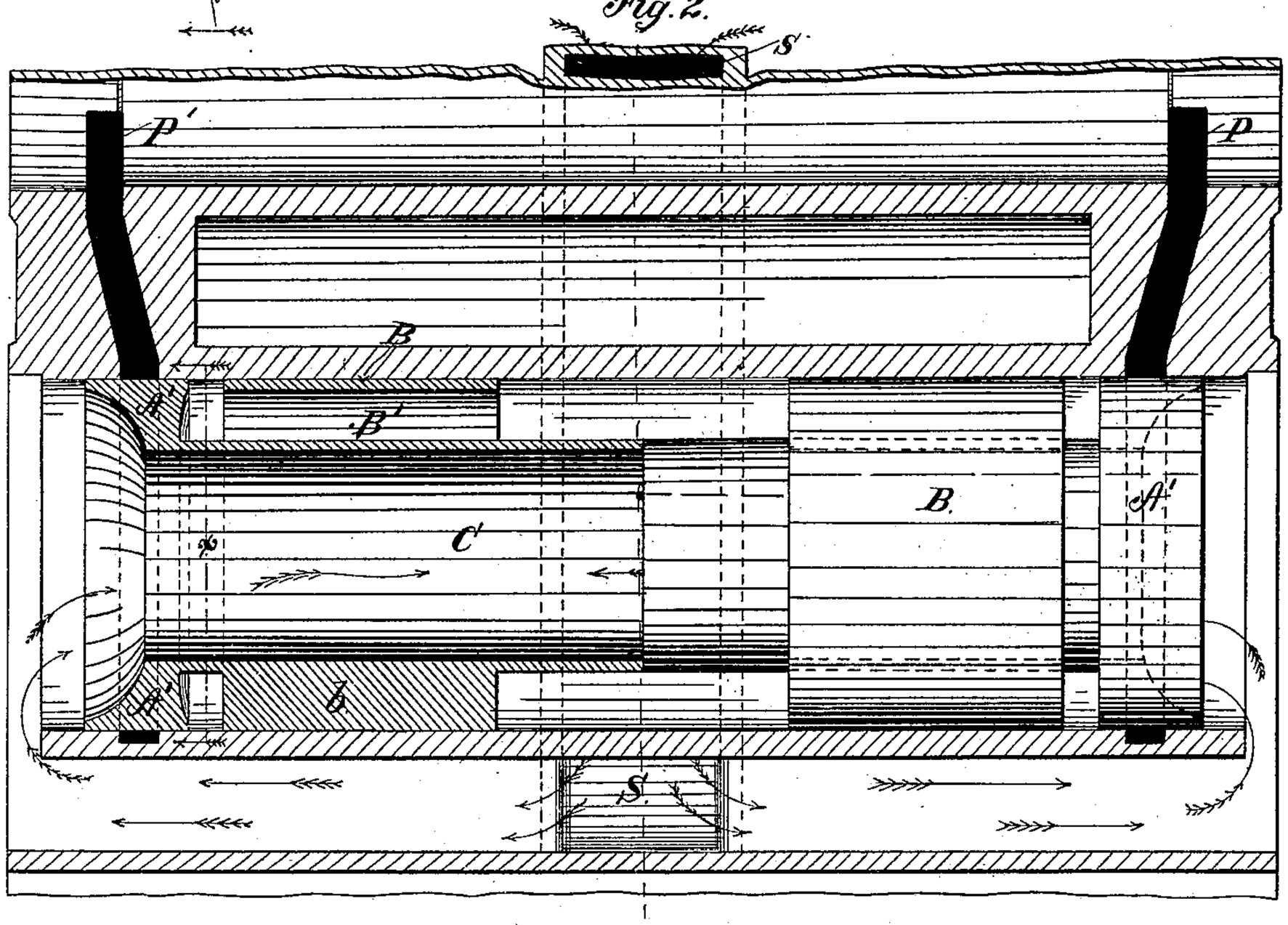


Fig. 3.

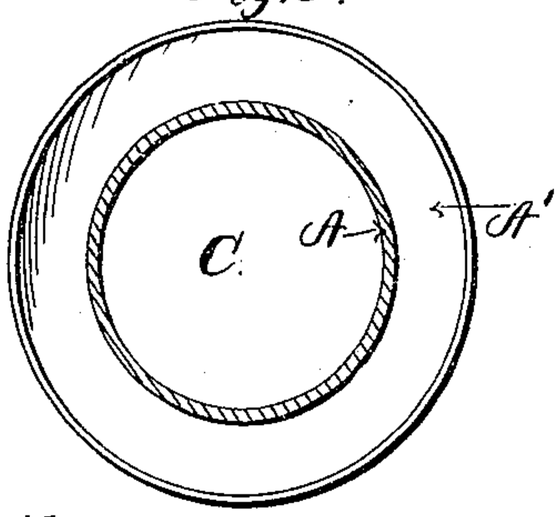
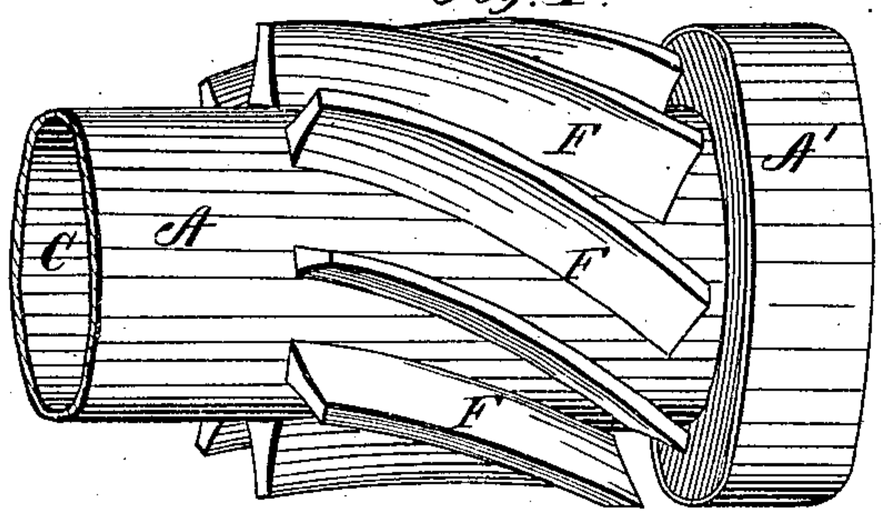


Fig. 4.



Witnesses

W. R. Edelen.

P. C. Hydrick

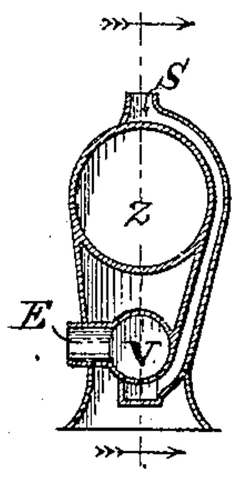


Fig. 5.

Inventor.

James W. Plimpton

per Hallock & Wallick

Attys

UNITED STATES PATENT OFFICE.

JAMES W. PLIMPTON, OF OIL CITY, PENNSYLVANIA, ASSIGNOR TO M. GEARY, OF SAME PLACE.

PISTON-VALVE FOR STEAM-ENGINES.

SPECIFICATION forming part of Letters Patent No. 246,634, dated September 6, 1881.

Application filed May 6, 1881. (No model.)

To all whom it may concern:

Be it known that I, JAMES W. PLIMPTON, a citizen of the United States, a resident of Oil City, Venango county, Pennsylvania, have invented a new and useful Improvement in Piston-Valves 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 drawings and the letters or figures of reference marked thereon.

My invention relates to the steam-valves of steam-engines; and it consists in providing new and useful improvements on what are known as "piston-valves," which improvements are hereinafter fully described and pointed out.

My device is shown in the accompanying drawings, as follows:

Figure 1 is a perspective view of a piston-valve embodying my invention. Fig. 2 shows the said valve, half in section and half in elevation, together with its steam-chest and a fragment of the cylinder. Fig. 3 is a vertical transverse section of the valve on the line *x*, Fig. 2, looking as the arrows point. Fig. 4 is a perspective view of half a valve constructed in an alternative manner. Fig. 5 is a transverse vertical section through the cylinder and valve-chest in the middle of the same, on a reduced scale, to show the relative position of parts, the line *z* being the line of section upon which Fig. 2 is taken, looking in the direction of the arrows.

The parts shown are as follows, reference being had to the drawings and letters of reference.

P P′ are the ordinary ports of the piston-chamber.

S is the steam-supply passage to the valve-chamber V.

E is the exhaust-passage.

A is the body of the valve. It is cylindrical, and is shown to be hollow, C being the bore or cavity through the valve-body.

A′ A′ are enlargements on each end of the valve-body, forming bearings or faces of the valve, which alternately close and open the ports P P′ as the valve moves.

B B are auxiliary bearings formed on the body A, and serve to steady the movement of the valve and give greater wearing-surface. They are cylindrical shells of the same circumference as the bearings A′, and are supported from the body A by webs *b*, leaving a space, B′, between them and the body. (In Fig. 4 an alternative of this construction is shown. The fins F, which are arranged spirally upon the body, give an equivalent bearing and spaces for steam-passage.)

In the construction of steam chest and cylinder herein shown the steam passes from the supply pipe or passage S to both ends of the valve-chamber, as shown by the arrows. When the construction is thus it is not necessary that the valve be hollow, as shown, but the steam might be admitted at one end of the valve-chamber only, and in that case it would be necessary that the valve be hollow, as shown, so as to admit the steam freely to both ends of the cylinder. The steam is admitted to the piston-chamber as the valve moves from over the ports P P′, and it exhausts from these ports into the space between the face A′ and the shell B, thence through the space B′ between the shell and the body, and thence out at the exhaust-passage E. The valve would work equally well if the steam entered at the passage E and exhausted through the passage S, the passage of steam in that case being directly opposite to that above described.

I am aware that piston-valves have been heretofore made hollow with closed ends, and admitting the steam to the ports through the interior of the valve through openings cut in the shell of the valve at the proper point. Such a construction is not that shown by me, and I do not claim the same.

As before stated, my valve may or may not be hollow; but if hollow it may be wholly open throughout its length, as shown.

The stem by which the valve is moved is not shown, as its connection and operation is not to be limited to any precise construction, and forms no part of my invention.

What I claim as new is—

1. A piston slide-valve consisting of a body, A, having bearing-faces A′ and B larger than

said body, the said bearings B having steam-passages B′ between the same and the body, substantially as shown.

2. A piston slide-valve consisting of a body having bearing-faces at its ends larger than the body, and intermediate bearings and steam-passages upon the said body, substantially as shown.

3. A piston slide-valve consisting of a body, A, having a free opening, C, through the same, and bearing-faces A′ and B larger than the said body, the bearings B having steam-passages B′ between the same and the said body, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 16th day of April, 1881.

JAMES W. PLIMPTON.

Witnesses:
JNO. K. HALLOCK,
M. GEARY.