D. SHIVE.

GOVERNOR VALVE.

No. 176,204. Patented April 18, 1876.

Fig. 1.

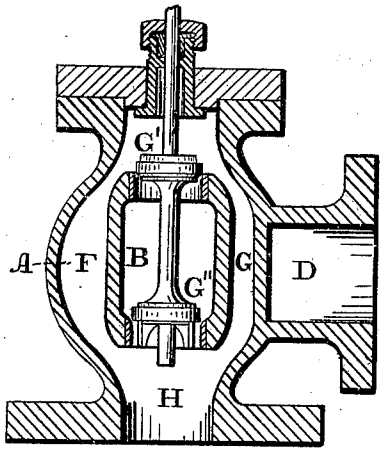


Fig. 5.

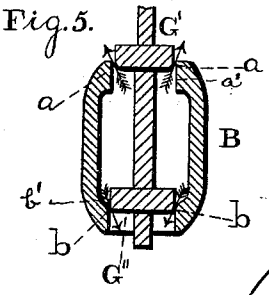


Fig. 2.

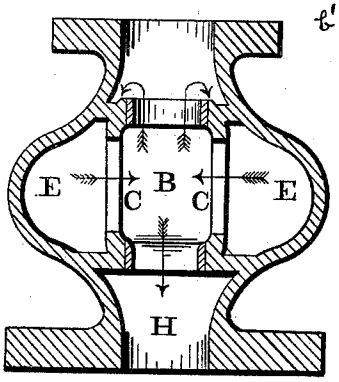


Fig. 3.

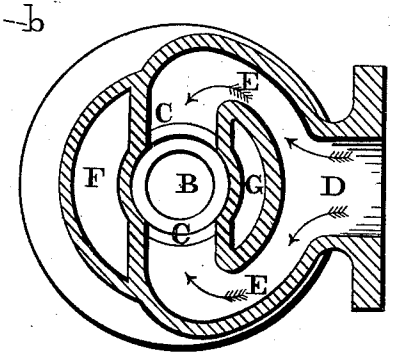
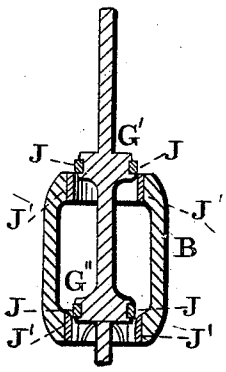


Fig. 4.



Witnesses:
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UNITED STATES PATENT OFFICE.

DAVID SHIVE, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE SHIVE GOVERNOR COMPANY.

IMPROVEMENT IN GOVERNOR-VALVES.

Specification forming part of Letters Patent No. **176,204**, dated April 18, 1876; application filed April 13, 1875.

To all whom it may concern:

Be it known that I, DAVID SHIVE, of the city and county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Valves; and I do hereby declare the following to be a clear and exact description of the nature thereof, sufficient to enable others skilled in the art to which my invention appertains to fully understand, make, and use the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a central vertical section of the device embodying my invention. Fig. 2 is a transverse section thereof. Fig. 3 is a horizontal section thereof. Figs. 4 and 5 are vertical sections of detached parts.

Similar letters of reference indicate corresponding parts in the several figures.

My invention consists in the shell or casing having an inner chamber in which the valve is fitted, and an outer chamber surrounding the same, and a divided or double passage leading from the inlet aperture to the inner chamber through the ports in the sides of the latter, between the two pistons or disks of the valve, whereby steam is prevented from pressing the valve to one side. It also consists in rounding, chamfering, or cutting away the inner edge of one of the pistons or disks of the valve, and the inner edge of the seat of the other piston, so that I prevent the unbalanced pressure that would otherwise occur at the moment when the pistons pass the edges of the seats.

Referring to the drawings, A represents the shell or outer chamber, within which is located a shell or chamber, B, which is open at top and bottom, and has side ports C, which are opposite to each other, the openings forming seats for the valve pistons or heads G′ G″. D represents the inlet, from which extends a passage, E, which is divided or forked, and communicates with the inner chamber B by means of the ports C C. Between the inner and outer chambers there are passages, F G, which are at opposite sides, and communicate with the inner chamber B by means of the openings at the top and bottom thereof. The inner chamber communicates with the central portion of the outer chamber and the outlet H through the top and bottom openings, through which work the pistons or heads of the valve, and these pistons are so disposed that the top and bottom openings of the inner chamber are both equally open at the same time. As the steam is admitted at the inlet D it is directed to the inner chamber B by the divided passage E, and enters said chamber through the ports C. The steam leaves the chamber B through the top and bottom openings thereof, when the valve is open, and the portion thereof from the top opening reaches the outlet in a divided column by the passages F G, on opposite sides of the inner chamber. By these means the pressure of the valve to one side is prevented, and the valve works without friction, its sensitiveness being preserved. It is well known that if the edges of the pistons and apertures or seats therefor are left square, then the moment the pistons pass out or into the apertures there is a slight amount of unbalanced pressure. To prevent this, the inner edge *a* of one piston, G′, and the inner edge *b* of the opening or seat of the other piston, G″, are rounded, chamfered, or cut away, as more clearly shown in Fig. 5, the face *a′* of the seat of the piston G′ being right lined, as is also the face *b′* of the piston G″. It is evident that by this construction the steam, at the moment stated, rushes between the pistons and seats in lines obliquely to the axis of the valve, instead of at right angles thereto, thus insuring the equilibrium of the valve. Heretofore the valve and seats made of cast metal have been destroyed by the corroding influence of matters in the water from which the steam is produced. To overcome this defect, I apply to the pistons and the seats steel rings or bands J J′, which are durable and not affected by corrosion, or are able to withstand the same, so that there is a preservation of shape of parts and increase in the length of service of the valve.

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

1. The outer chamber and an inner cham-

ber, in combination with a divided or double passage leading to the inner chamber, substantially as set forth.

2. The inner chamber B, open at top and bottom, and having side ports C, in combination with the outer shell A, the divided passage E, and the passages F G, substantially as and for the purpose set forth.

3. The upper piston G′, with a rounded edge, *a*, and its seat with a right-lined face, *a′*, in combination with the lower piston G″, having a right lined face, *b′*, and its seat with a rounded edge *b*, substantially as and for the purpose set forth.

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