D. L. F. CHASE.

Governor.

No. 162,219. Patented April 20, 1875.

Fig. 1.

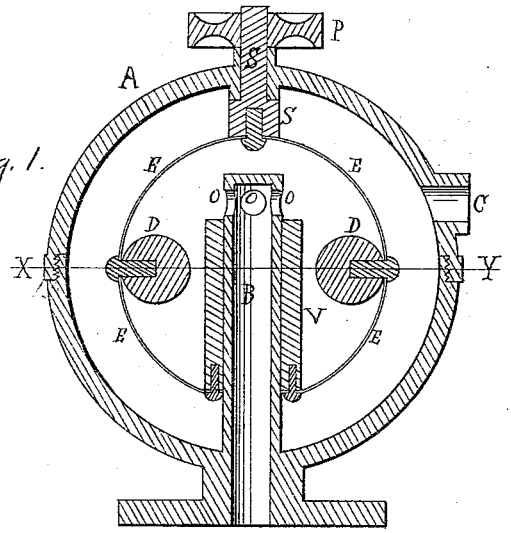
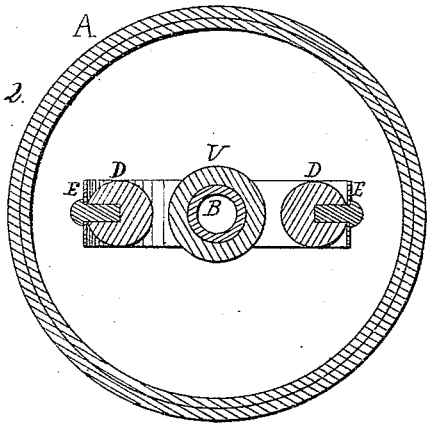


Fig. 2.



Witnesses.
Lewson E. Chase
F. L. Bailey.

Inventor.
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UNITED STATES PATENT OFFICE.

DANIEL L. F. CHASE, OF SOMERVILLE, ASSIGNOR OF ONE-HALF HIS RIGHT TO LEWSON E. CHASE, OF WATERTOWN, MASSACHUSETTS.

IMPROVEMENT IN GOVERNORS.

Specification forming part of Letters Patent No. **162,219**, dated April 20, 1875; application filed April 1, 1875.

To all whom it may concern:

Be it known that I, DANIEL L. F. CHASE, of Somerville, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Steam-Governors; and I hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and the letters of reference marked thereon.

The object of my invention is to increase the sensitiveness of the steam-governor by dispensing with steam-packed valve-stems, and thus avoiding the friction consequent on the use thereof, and also avoiding the following difficulty: In the centrifugal governor, as commonly constructed, with valve-stem and stuffing-box, the valve-stem is pressed outward from the stuffing-box by a force proportional to the area of its section, and to the pressure of steam in the boiler, and as such pressure varies, a variable force is exerted on the stem, which partially neutralizes the centrifugal action of the balls or weights.

The nature of my invention consists in inclosing the centrifugal mechanism of the governor, as well as the valve, in one and the same steam chamber or case.

Figure 1 of the drawings is a vertical section through the middle of the machine. Fig. 2 is a horizontal section on the line *x y*.

The case A is of a spherical or other suitable form, and has an inlet steam-passage at C. A stationary tube, B, projects upward from the bottom of the case, within the same, the hollow of the tube being continued through the base-flange of the machine. The tube B is closed at the top, but has holes O O O through its sides, these holes being the valve-ports of the governor. The steam, then, entering the case at C, passes through the ports O, and thence out through the tube B. S is the driving-shaft, driven by the pulley P. To the lower end of the shaft S is fixed a flexible ring, E E E E, of steel or other elastic metal, and to the sides of said ring are attached balls or weights D D. The lower part of the ring is attached to a sleeve or valve, V, which slides on the tube B. The valve V, when in its lowest position, leaves the ports O open, but when moved upward on the tube it covers and closes the same.

The ring E and the balls D D revolve in connection with the shaft S, and when the balls fly outward by centrifugal force the ring becomes elliptical, its vertical diameter being shortened, and consequently the valve V is drawn upward by the ring, so as to close the ports either partially or entirely, according to the varying speed.

Instead of the elastic ring described, rigid arms, corresponding to the four parts E E E E of the ring, might be used, the same being suitably jointed to the shaft, balls, and valve. In that case the balls might be drawn back by gravity or springs, or both.

The particular form of valve described is not essential, as various forms of balanced valves in common use would serve the same purpose.

I claim no novelty in the form of valves or valve-ports.

I claim—

The combination of the case A, the shaft S, the spring E E E E, the balls D D, the valve V, and the tube B, with its ports O, the whole being arranged substantially as described, and for the purposes explained.

DANIEL L. F. CHASE.

Witnesses:

LEWSON E. CHASE,

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