

J. ADAMS.
Gas-Regulators.

No. 150,502.

Patented May 5, 1874.

Fig. 1.

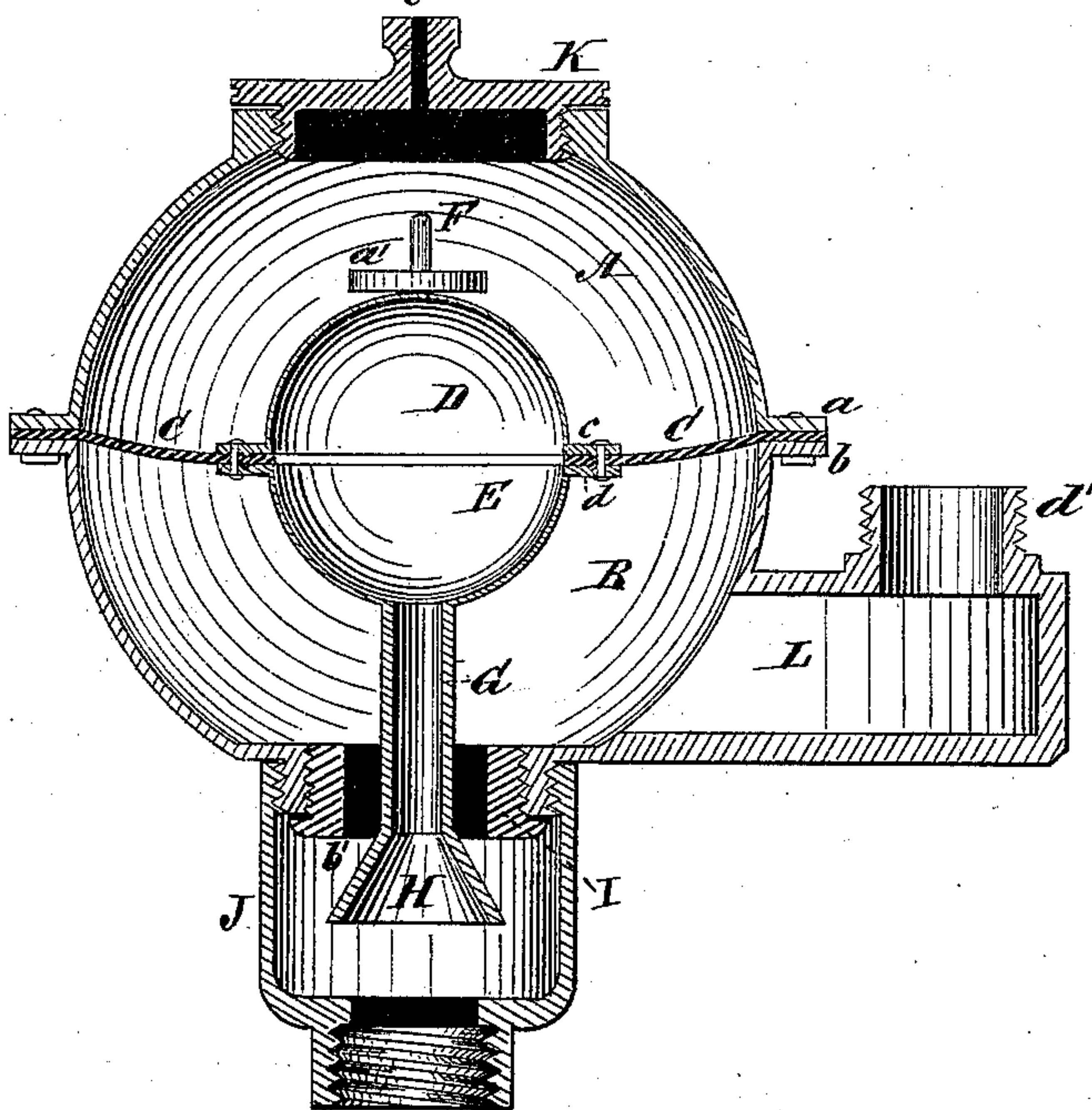


Fig. 3.

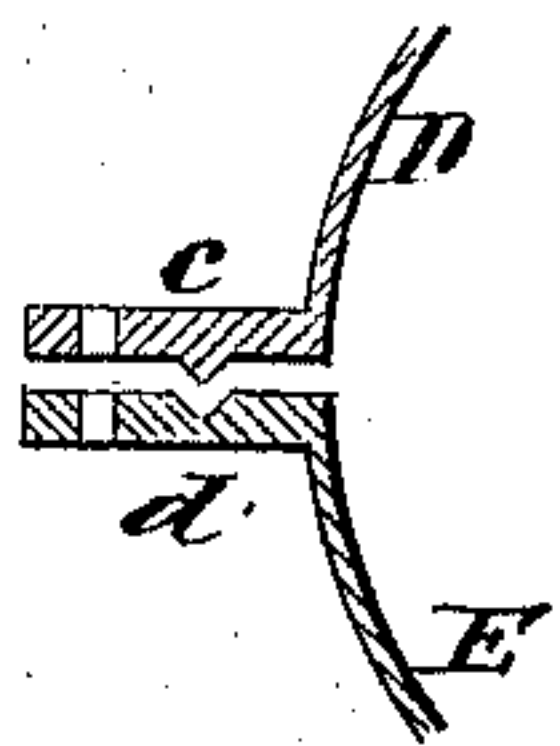
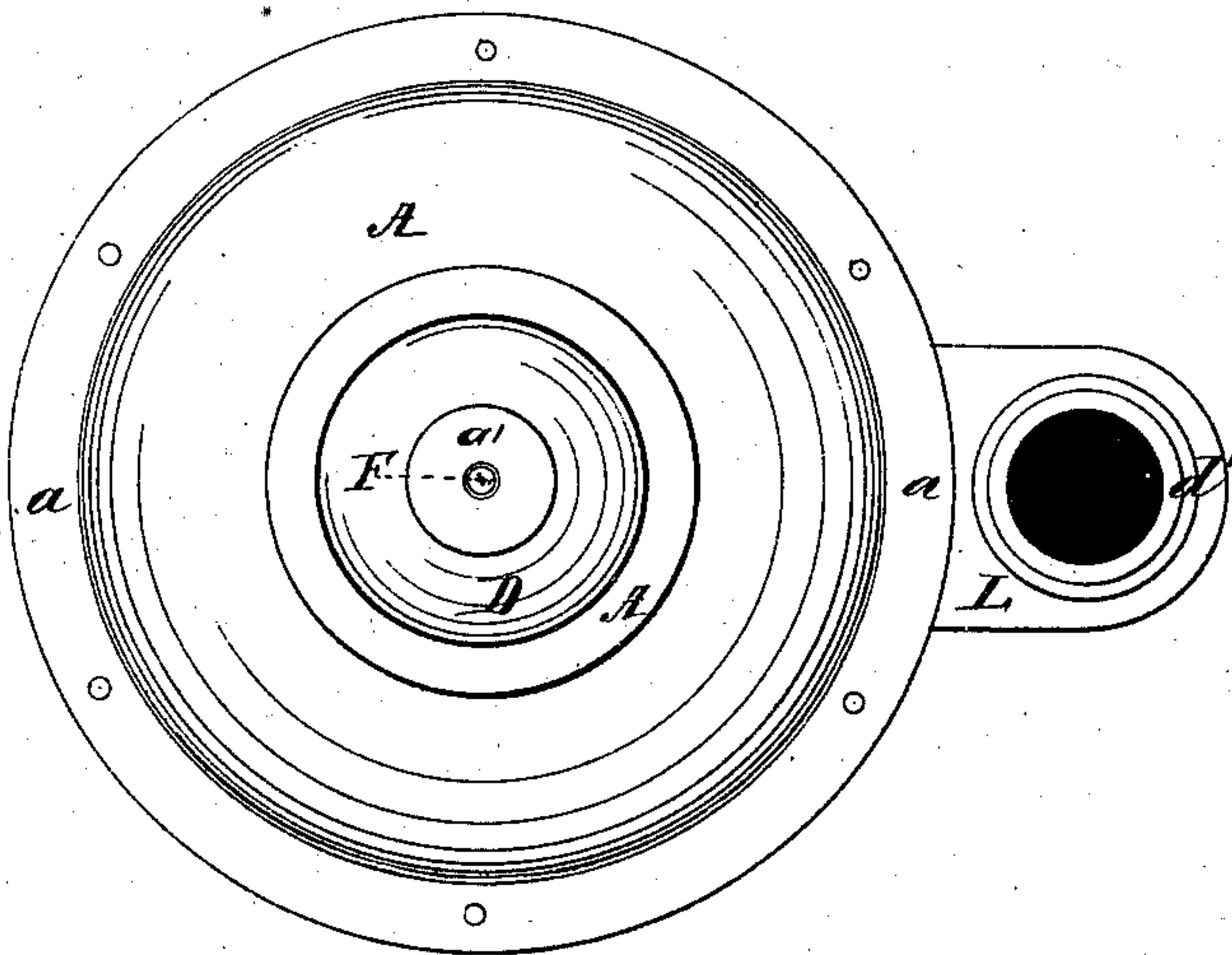


Fig. 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

REISSUED

JOSEPH ADAMS, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR TO HIMSELF AND WILLIAM STICKNEY, OF SAME PLACE.

IMPROVEMENT IN GAS-REGULATORS.

Specification forming part of Letters Patent No. 150,502, dated May 5, 1874; application filed April 21, 1874.

To all whom it may concern:

Be it known that I, JOSEPH ADAMS, of Washington city, in the District of Columbia, have invented a new and Improved Gas-Regulator; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, forming a part of this specification, in which—

Figure 1 is a vertical central section of gas-regulator; Fig. 2, top view of same; Fig. 3, section of flanges of balloon hemispheres.

This invention relates to that class of gas-regulators in which the pressure of the gas acts upon a flexible diaphragm, to which is attached a valve that opens or closes as the gas is turned on or off from the burner, or as the pressure varies from the street-mains; and it consists in a new and improved arrangement, in which the valve is made more sensitive to the pressure of the gas by means of a balloon-like arrangement of thin metal in the diaphragm that opens down through the valve; and, being constantly filled with gas, counteracts by its buoyancy the weight of the valve, and hence makes the diaphragm as connected with the valve more sensitive to the pressure of the gas.

In the drawing, A B represent two hollow cases of metal, having flanges *a b*, which are fastened together by screws or bolts. In between these two flanges is fastened, with a gas-tight joint, the outer edge of a flexible annular diaphragm, C, to be made of leather or other suitable material. The inner edge of said diaphragm is fastened by rivets between the flanges *c d* of the thin metallic hemispheres D E, that form the balloon, one of the flanges *c d* having a rim or ledge to insure a gas-tight joint. Upon the top of hemisphere D is a short rod or stem, F, upon which the weights *a' a'' a'''*, of different sizes, are placed to adapt the governor to the variations of pressure for different elevations. The hemisphere E opens, through a pipe, G, to the supply of gas from the meter below, said pipe G terminating in a funnel-shaped valve, H, that plays in the valve-seat I. This valve-seat is

attached to the bottom of case B, and is made of non-corrosive metal, leather, or such other material as may be desirable. This valve-seat is also adjustable, and may be lowered to reduce the orifice *b'* around the valve, and by this means adapt the governor to a low pressure of gas. J is a chamber in which the valve plays, and connects case B with the outlet-pipe from the meter. K is a movable plate which is screwed into the opening in the top of the hemisphere A, and has in its center an aperture, *c'*, for the admission of atmospheric air to counteract the pressure of the gas upon the diaphragm. L is a conduit for the gas, and *d'* the connection for the service-pipe.

The operation of this governor is as follows: Adjust the valve H to the particular elevation or pressure of the locality by the weights *a' a'' a'''* upon the stem F, and now, as the valve, pipe, and diaphragm are in a state of suspension by reason of the buoyancy of the balloon, the pressure of the gas on one side being neutralized by the atmospheric air and weight on the other, the diaphragm is particularly sensitive to an increased or diminished pressure of gas.

If the pressure is increased, the diaphragm C, balloon D E, and valve H are raised, and the orifice *b'* proportionally closed, thereby checking the increased flow of gas.

If the pressure is diminished, the diaphragm, balloon, and valve are depressed by the air-pressure and weights, the orifice *b'* opened, and the flow increased.

For very low pressures of gas the weights *a' a'' a'''* may be taken entirely off, and the valve-seat lowered, or both, as required.

By this delicate arrangement the flow of gas through the burners is made uniform and independent of the pressure from the main, and also of the number of burners employed at a time.

Having thus described my invention, what I claim as new is—

1. The balloon consisting of the thin metallic hemispheres D and E, with flanges *c d*, and the pipe G, opening through the funnel-shaped valve H, in combination with the

diaphragm C, as and for the purpose specified.

2. The adjustable valve seat I, in combination with the valve H, pipe G, balloon A B, and diaphragm C, as and for the purpose specified.

3. The stem F, with weights a' a'' a''' , in

combination with the balloon D E, diaphragm C, pipe G, and valve H, as and for the purpose set forth.

JOSEPH ADAMS.

Witnesses:

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