J. ADAMS.

Gas-Regulator.

No. 167,488. Patented Sept. 7, 1875.

Fig. 1.

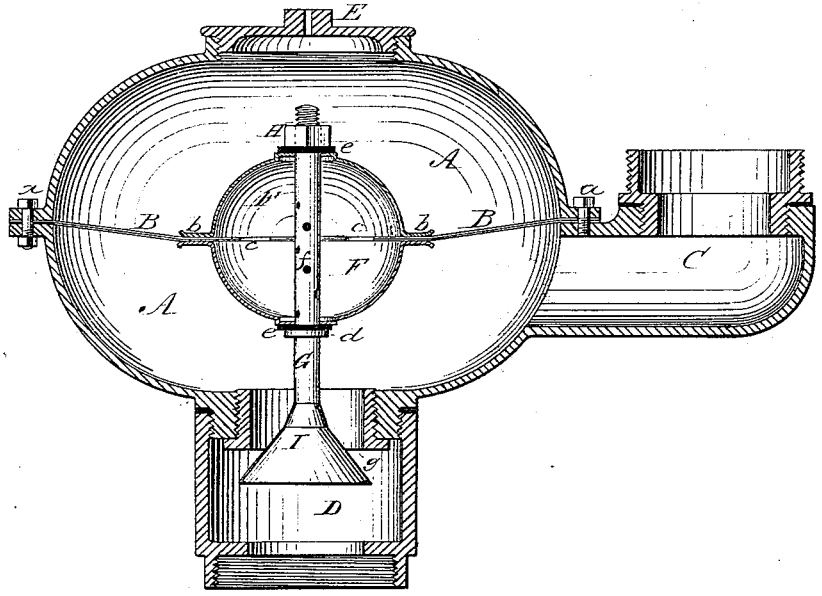


Fig. 2.

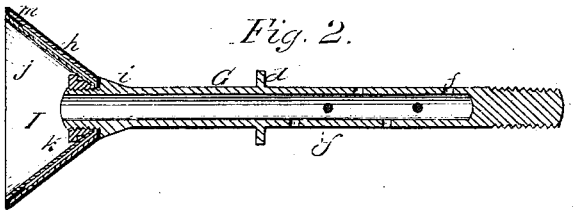
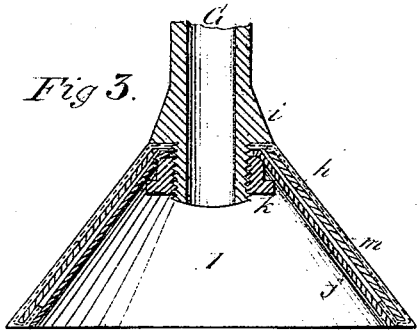


Fig 3.



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UNITED STATES PATENT OFFICE.

JOSEPH ADAMS, OF WASHINGTON, DISTRICT OF COLUMBIA.

IMPROVEMENT IN GAS-REGULATORS.

Specification forming part of Letters Patent No. **167,488**, dated September 7, 1875; application filed April 27, 1875.

To all whom it may concern:

Be it known that I, JOSEPH ADAMS, of Washington city, 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 sectional elevation; Fig. 2, a longitudinal section of the valve and stem; Fig. 3, a sectional detail of the valve.

This invention relates to certain improvements upon the gas-regulator for which Letters Patent No. 150,502 were granted May 5, 1874; and it consists in the peculiar construction of the valve of the regulator, and also in the peculiar construction and arrangement of the valve-stem, in combination with the two hemispheres of the balloon.

In the drawing, A represents the outer casing of the regulator made in two pieces, and fastened together by rivets or screws *a*, and containing between its edges the flexible diaphragm B. C is the discharge from the regulator connecting with the gas-pipes of the building, and D is the valve-chamber which communicates with the meter. E is a screw-cap in the top of the regulator, having a perforation that opens communication from the space above the diaphragm with the air. F is the balloon, which is made of two hemispheres of thin metal, having flanges *b b*, that clamp the diaphragm, which latter, instead of being of an annular shape, is made a continuous surface, perforated at *c* to allow the circulation of gas in the balloon. Instead of fastening the flanges of the balloon with rivets, and allowing the valve-stem G to be attached only to the lower hemisphere of the balloon, I make the said valve-stem separate from the hemisphere, place upon it a flange, *d*, and extend it entirely through the balloon, and fasten the said hemisphere by a nut, H, which fits upon the screw-threaded extremity of the stem, the hemispheres being provided with elastic washers or packings *e e*, which, when the nut is screwed up tightly, prevent the leakage of gas from the balloon. I is the valve, having its hollow stem G perforated with holes *f*, which open into the balloon, and admit the passage of gas therethrough to impart buoyancy to the same. *g* is the valve-seat, which is contained within the lower hemisphere of the casing, and is adjustable so as to regulate the size of the opening *g* for high or low pressure of gas. The valve I consists of a funnel-shaped piece, *h*, which is placed upon the lower end of the stem G, having a shoulder, *i*, to receive it. Upon the outside of this piece *h* is a covering, *m*, of leather or other elastic material, which is held at one end between the apex of the piece *h* and the shoulder *i*, and at the other by an inner funnel-shaped piece, *j*, which is held tightly to the stem G and the piece *h* by a nut, *k*. By means of this arrangement the valve is readily constructed and is made thorough in its fitting and operation.

The operation of the governor is as follows: The valve being adjusted to the particular elevation or pressure of the locality by weights upon the projecting end of the stem, and the adjustable valve-seat, the balloon, valve-stem, and diaphragm are in a state of sensitive equilibrium. Now, if the pressure is increased the diaphragm, balloon, and valve are raised, and the inlet being correspondingly closed the increased flow of gas is checked. If the pressure is diminished, the valve and its co-acting parts are depressed, the inlet correspondingly enlarged, and the flow increased.

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

1. The combination, with the valve-stem, having shoulders *i*, of the pieces *h* and *j*, the flexible covering *m*, and the nut *k*, substantially as and for the purpose described.

2. The hollow stem G, having perforation *f* and a flange, *d*, in combination with the nut H, and the two hemispheres of the balloon, substantially as and for the purpose specified.

The above specification of my invention signed by me this 27th day of April, 1875.

JOSEPH ADAMS.

Witnesses:

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