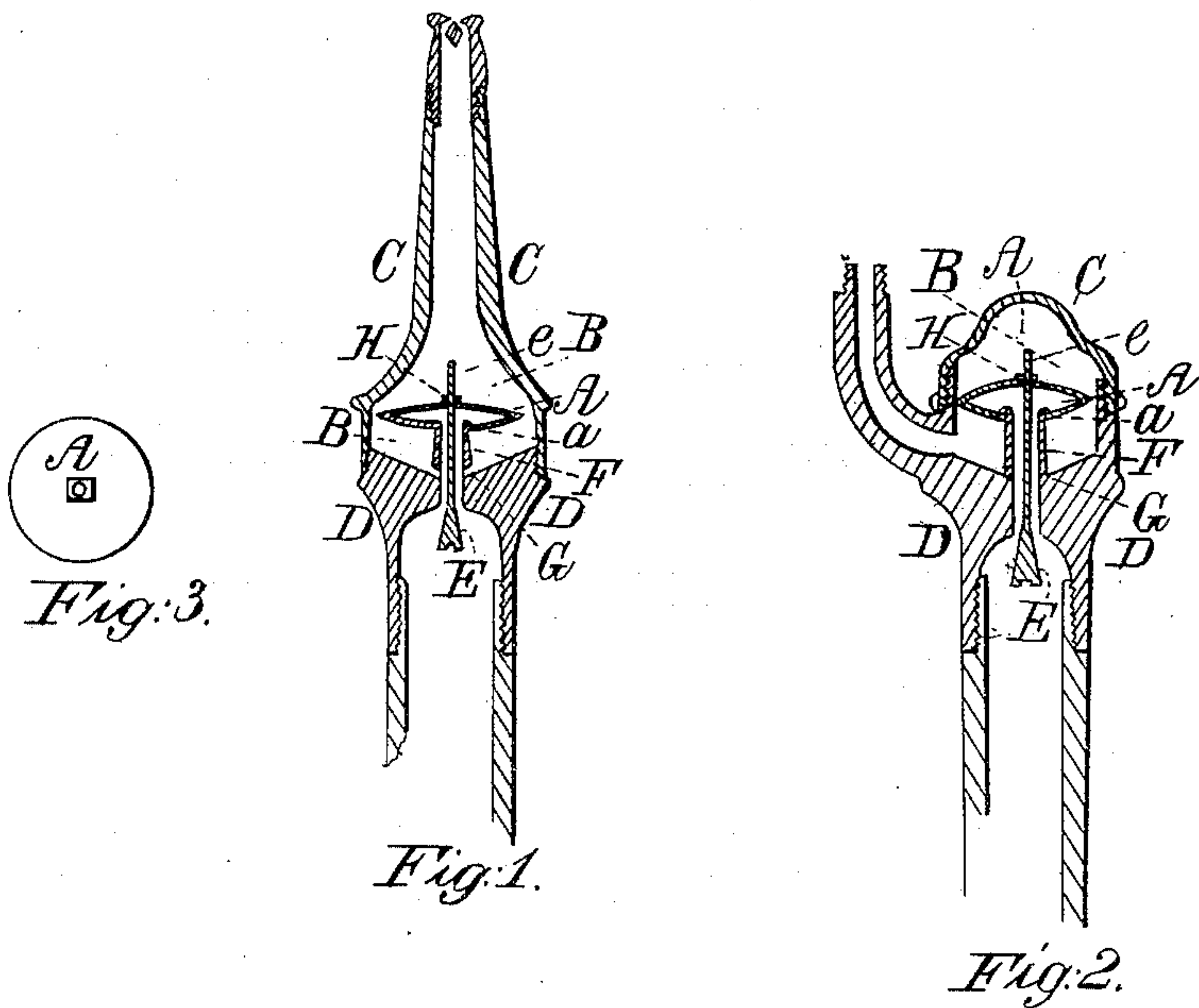


F. H. BROWN.

Gas Regulator.

No. 36,940.

Patented Nov. 18, 1862.



Witnesses  
Howard Strong  
J. W. Brown

Inventor  
Franklin H. Brown

# UNITED STATES PATENT OFFICE.

FRANKLIN H. BROWN, OF CHICAGO, ILLINOIS.

## IMPROVED GAS-REGULATOR.

Specification forming part of Letters Patent No. 36,940, dated November 18, 1862.

*To all whom it may concern:*

Be it known that I, FRANKLIN H. BROWN, of Chicago, in the county of Cook and State of Illinois, have invented new and valuable Improvements in the Mode of Regulating the Pressure of Gas; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my machine is to regulate gas-pressure by gas-pressure unassisted by atmospheric pressure. It is calculated when applied to the gas-pipes to cause the flow of gas at the point of consumption to remain steadily at any given rate to which the machine is adjusted. The machine is composed of an outer shell, of metal or other material, screwed together near the middle, as shown in the accompanying drawings, making a top and bottom, which form the gas-chamber within, also a bellows and cone-valve which are operated exclusively by gas-pressure. The position of the bellows is in the interior of the gas-chamber, being attached to the tube by a flange, and in this manner held in its position. The interior of the bellows at first receives the full pressure of the gas from the pipes below, causing it to expand upward, and closing the cone-valve in the same proportion, and thereby reducing the pressure above the valve and holding it to a uniform pressure. The gas in the chamber surrounding the bellows is admitted through the holes in the tube, communicating with the interior of the bellows and tube above the cone-valve. It is admitted into a larger space, and being free from the unchecked pressure below the valve it becomes less dense, and acts as a counter-pressure upon the lifting apparatus, as the atmospheric pressure has been made to do in other gas-regulators.

Figure 1 represents a vertical section of the regulator as applied to the burner. Fig. 2 represents a vertical section of the regulator applied at any convenient place on the gas-pipe from the burner to the meter. Fig. 3 represents a top view of the bivalve bellows.

F is a tube attached to the bottom part of the regulator and passing vertically through to the gas-chamber. (See drawings.)

*a* is a double flange cast or turned upon the top of tube F. It is there in order that the bivalve bellows A may be drawn over it, and by it held in its position.

The bivalve bellows A is made of two circular pieces of rubber or other flexible material cemented at the edges or molded of rubber or other material. I attach it to the top of the tube F by drawing it over the flange *a*.

E is a cone-shaped valve, which is attached to the upper part of bellows A by a rod, *e*, passing through the bellows A vertically at the center and held in its place by a nut, H, at the top of the bellows A.

B is the gas-chamber, in the midst of which the bellows is made to operate, expanding upward or contracting according to a greater or less degree of gas-pressure. If the degree of pressure be great, the bellows A expands upward, elevating with it the rod *e* and cone-valve E, lessening the space for the gas to enter in like proportion always dropping as the pressure of gas becomes less, thereby enlarging the space for the admission of gas into the tube F.

G represents two small holes in tube F at the bottom of the gas chamber B for supplying the gas-chamber and the pipes beyond with gas. I make the bottom of the gas-chamber slope toward its center, allowing the condensations or other impurities of the gas to flow back through the holes G and tube F into the pipes below and on to their proper destination.

I claim as my invention and desire to secure by Letters Patent—

1. The bivalve bellows A, made, constructed and operated as and for the purposes set forth.
2. Tube F, in combination with flange *a* and bellows A, constructed and arranged as and for the purposes specified.

FRANKLIN H. BROWN.

Witnesses:

HOWARD STRONG,  
T. B. BROWN.