(No Model.)

J. M. FOSTER.

Gas Regulator.

No. 238,375. Patented March 1, 1881.

Fig. 1.

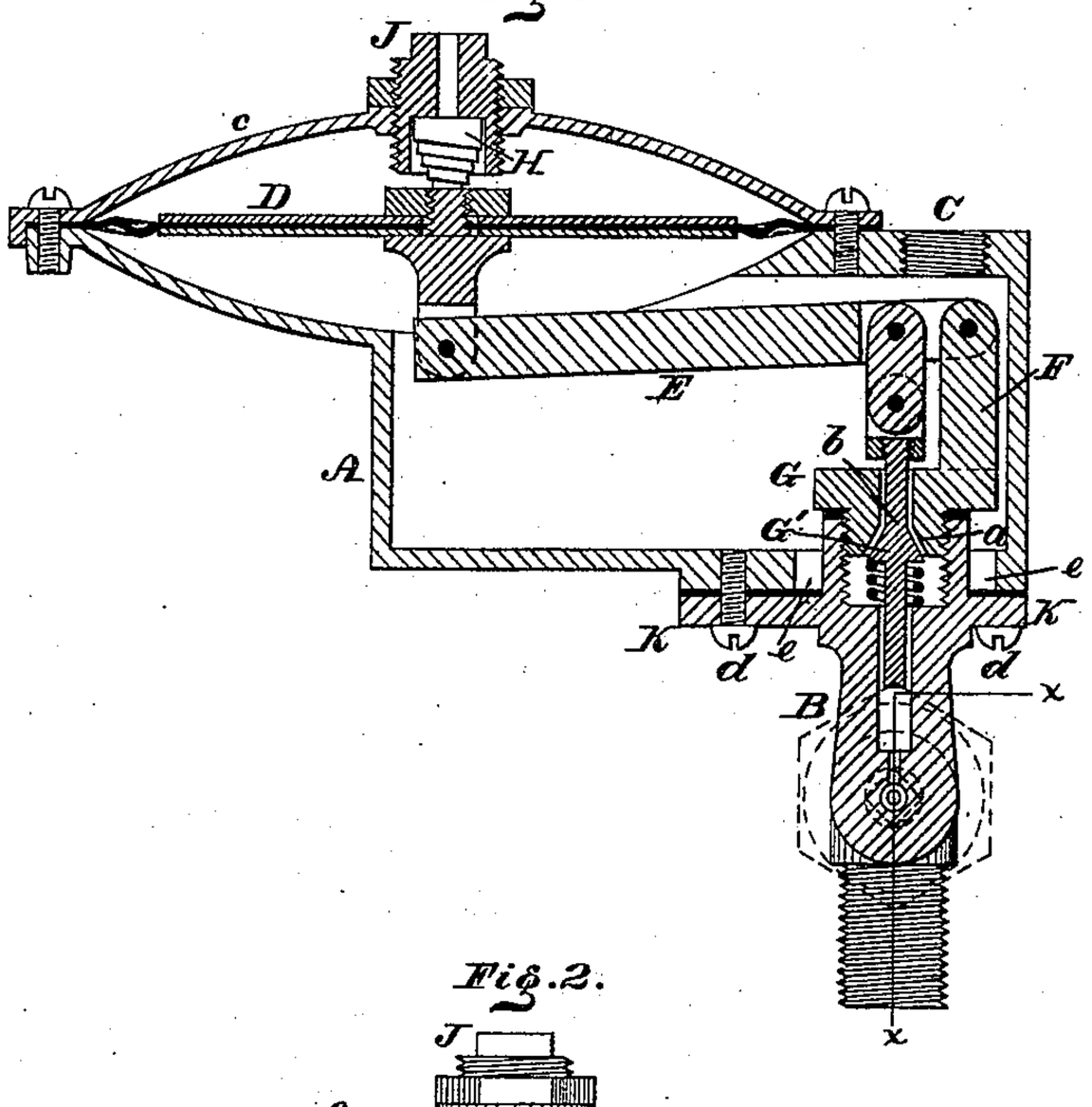
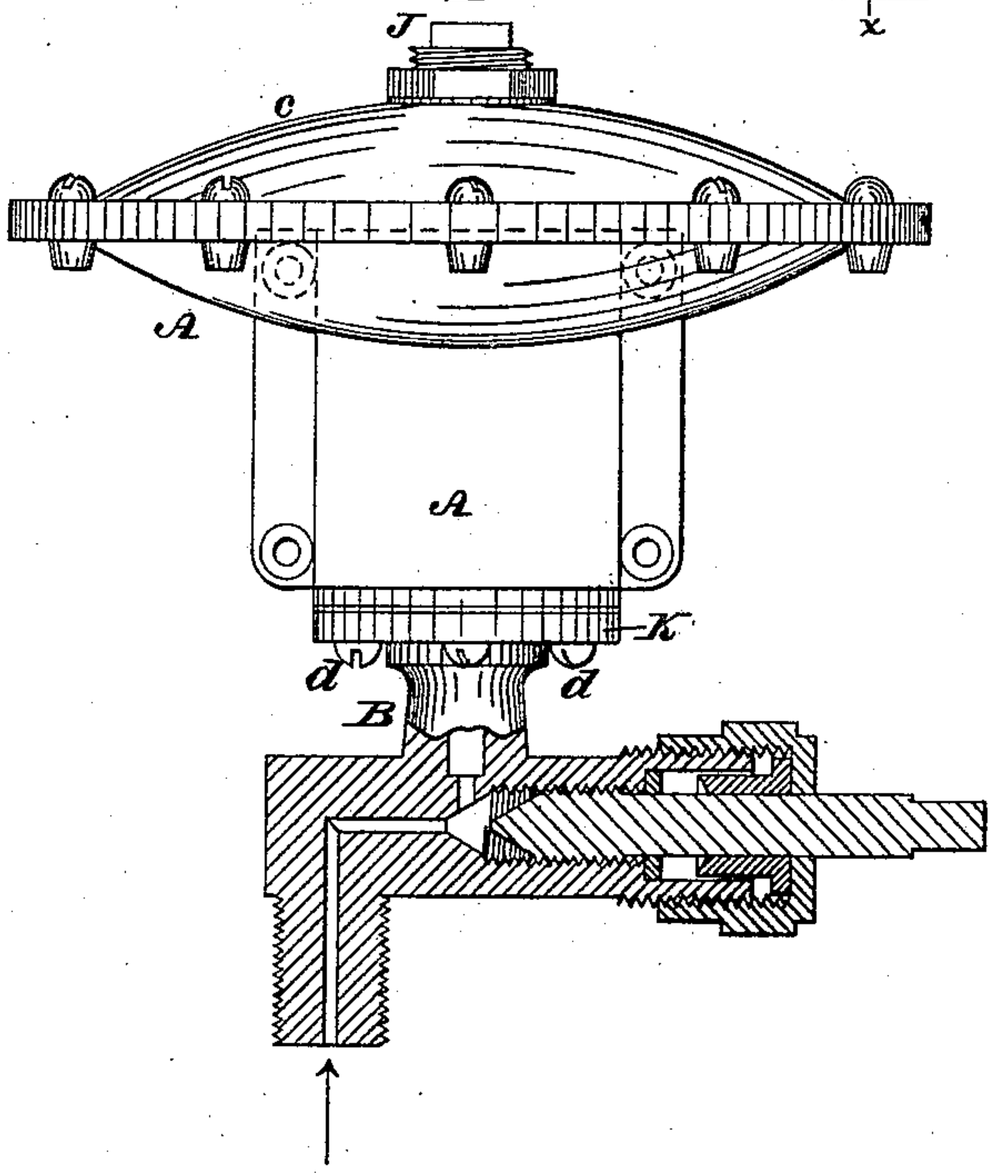


Fig. 2.



Witnesses:

A. P. Grant,

W. F. Kircher

Inventor:

John M. Foster,

by John A. Wiedersheim,

ATTORNEY.

UNITED STATES PATENT OFFICE.

JOHN M. FOSTER, OF PHILADELPHIA, PENNSYLVANIA.

GAS-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 238,375, dated March 1, 1881.

Application filed October 23, 1880. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. FOSTER, a citizen of the United States, residing in the city and county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in High-Pressure Gas-Regulators, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a central vertical section of the regulator embodying my invention. Fig. 2 is a side elevation thereof, partly sectional.

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

This invention relates to gas-regulators; and it consists in the construction and combinations of parts hereinafter set forth.

Referring to the drawings, A represents a casing or walls of the high-pressure gas-chamber; B, the gas-inlet pipe or plug, and C the gas-exit.

D represents the flexible diaphragm, to the center of one face of which is pivoted a lever, E, whose other end is mounted on an arm, F, rising from a block, G, which is screwed to the upper end of the plug B, and has a bore the base *a* of which forms the seat of the valve G′, whose stem *b* is connected to the lever E. Bearing against the face of the diaphragm D, opposite to the lever E and the cap *c* of the casing A, at the center thereof, is a volute spring H, the center of the cap having a screw-plug, J, as a bearing for the spring.

It will be seen that when the gas entering the casing A increases in pressure, and exerts such pressure on the diaphragm, the spring resists such action gently and uniformly with the increase of the pressure, and when the pressure decreases the spring exerts its power on the diaphragm likewise gently and uniformly with the decrease in the pressure, whereby in either case there is no abruptness in the motions of the diaphragm, and thus the regularity of flow of gas to the place of service is maintained.

The pipe or plug B has a flange, K, which abuts against the lower wall of the casing A, and is connected thereto by screws *d* passed through said wall and flange, thus firmly securing the pipe or plug B to the casing.

It will be noticed that the contiguous faces of the flange K and casing A are unthreaded and flat, and the upper portion of the plug B, which enters the opening *e* of the casing A, has its bore threaded for engagement of the block G, which has the valve-seat *a*, guides the stem *b*, and supports the arm F, to which the lever E is hung or pivoted. When the lever E, connected arm F, block G, and suspended valve G′ are located within the casing A the plug B is introduced into the opening *e* and fitted and screwed to the block G, this operation being conveniently accomplished. Packing is introduced between the flange K and wall of the casing, and when the screws *d* are applied and tightened the joint between the flange and casing is reliably closed and the parts firmly connected. This provision also admits of making the opening *e* of greater diameter than that of the top of the plug B, whereby access is readily had to the interior of the casing when the screws *d* are loosened and the plug is unscrewed from the block G.

The power or tension of the spring H may be regulated by the screw-plug J, against which abuts, or to which is connected, one end of said spring.

The upper part of volute spring H is set into a recess of the lower part of plug J, so as to be braced thereby.

I am aware that it is not new in gas-regulators to employ a spring wound around the valve-stems for resisting the upward motion of said valve. I am also aware that it is not new in gas-regulators to employ a plug and block arranged similarly to the parts marked B and G in the drawings; therefore I do not broadly claim either of the constructions stated.

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

1. In a high-pressure gas-regulator, the block G, in combination with the plug B, having a flange, K, extending under and fastened against the bottom of casing A, substantially as and for the purpose set forth.

2. The diaphragm D and volute spring H, in combination with the screw-plug J, recessed to receive and brace the upper part of said volute spring, substantially as and for the purpose set forth.

J. M. FOSTER.

Witnesses:

JOHN A. WIEDERSHEIM,

F. COOPER.