

(No Model.)

M. J. AMICK.
GAS REGULATOR.

No. 572,044.

Patented Nov. 24, 1896.

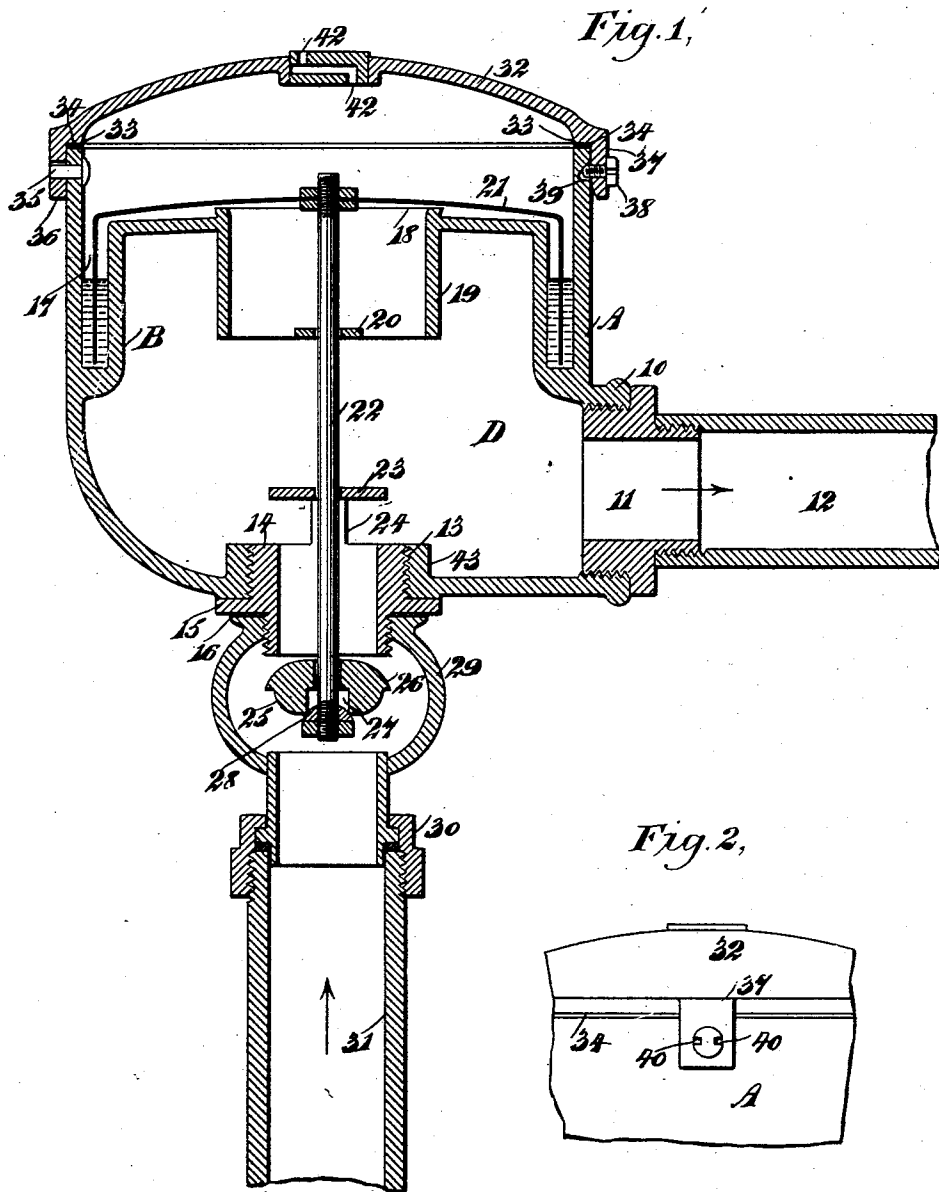


Fig. 3.



WITNESSES:

Edward Thorpe
Frederick

INVENTOR

M. J. Amick

BY

Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

MYRON J. AMICK, OF NEW YORK, N. Y.

GAS-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 572,044, dated November 24, 1896.

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To all whom it may concern:-

Be it known that I, MYRON J. AMICK, of New York city, in the county and State of New York, have invented a new and Improved Gas-Regulator, of which the following is a full, clear, and exact description.

My invention relates to that class of regulators used to regulate the pressure and flow of illuminating-gas through the supply-pipes of buildings.

The object of the invention is to construct such a device in a simple, compact, durable, and economic manner and to provide a valve controlling the gas supply and capable of seating itself perfectly even when the regulator is considerably out of plumb and to provide a valve of the character just described which will be in a sense a double valve, the main valve having lateral movement upon its stem and adapted to be seated against the wall of the inlet-opening of the regulator, the second valve seating itself against the main valve to prevent the passage of gas through the main valve, since the main valve of necessity will be more or less loosely mounted on its stem.

Another object of this invention is to construct a gas-regulator having a mercury seal and to so construct the body of the casing of the said regulator that while air may be admitted into its interior in suitable quantities the regulator may be placed upon its side without danger of the mercury leaking therefrom, and by the introduction of a plug into the air-opening of the regulator the said regulator may be seated upon its top without spilling the mercury.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a longitudinal vertical section through the regulator and its connections with the gas-supply and house-service pipes. Fig. 2 is a front elevation of a portion of the body or casing of the regulator, and Fig. 3 is a plan view of a key especially adapted for unlocking the cover from the body of the regulator.

In carrying out the invention the body or casing A of the regulator is made of cast metal, and the said body may be given any desired shape, being preferably circular in horizontal section. The body or casing is provided in one of its sides with an outlet-opening 10, in which a nipple 11 is usually secured, the nipple being adapted for attachment to the house-pipe 12. The inlet-opening 13 of the regulator is made, preferably, in the central portion of the bottom thereof, and a nipple 14 is secured in this opening, extending beyond the mouth of said opening, and the said nipple is ordinarily provided with a flange 15 or its equivalent adapted to receive a suitable gasket 16, and the portion of the nipple below the said flange 15 is given by preference an exterior left-hand thread.

A dome B is formed within the upper portion of the casing, the sides of the dome being separated from the inner face of the casing proper by a space 17 of desired width. The dome is provided with an opening 18 in the top, and this opening is surrounded by a downwardly-extending collar 19, which is open at the top and bottom, and a cross-bar 20 is located in the lower central portion of said collar. The top of the dome B is some distance below the top edge of the body or casing A, and the space between the casing and dome constitutes a chamber adapted for the reception of mercury. A float 21, shaped in a suitable manner to extend over the top of the dome and down into the mercury-chamber 17, is placed over the said dome and therefore practically closes the upper end of the central opening in said dome. This float at its central portion is attached in any suitable or approved manner to the upper end of a valve-stem 22, and the said stem is carried downward loosely through an opening made in the cross-bar 20 and likewise through an opening made in a cap or a cross-bar 23, supported by lugs 24 a suitable distance above the top of the inlet-nipple 14.

The cap or cross-bar 23 and the upper cross-bar 20 constitute guides for the valve-stem. The valve-stem is carried downward and through and beyond the nipple 14 at the inlet of the casing or body, and a valve 25 is loosely mounted on the lower end of the valve-stem, having a spherical upper face 26, and

the aforesaid valve is provided with a recess 27 in its bottom surface.

A second or auxiliary valve 28 is securely fastened on the lower end of the said valve-stem, and the upper surface of this auxiliary valve is likewise preferably spherical in shape, and it is adapted to be seated at the recessed portion of the main valve 25. Under this construction of valve it is evident that the regulator may be placed considerably out of plumb, and when the pressure of gas in the main chamber D of the regulator is sufficient to raise the float 21 high enough to carry the main valve 25 to its seat the said valve will accommodate itself to the seat and will effect a perfect closure of the inlet-opening, especially since the lower or auxiliary valve 28 will carry the main valve upward and will close the recess 27 in its bottom, preventing the gas from entering the main chamber D through the opening between the main valve and its stem. The auxiliary valve 28 acts in the capacity of a follower, compelling the main valve to travel upward with the float.

The valve 25 is located in a valve-chamber, the casing or casting 29, in which this chamber is formed, being screwed upon the left-hand threaded portion of the nipple at the inlet of the regulator, while at the lower portion of the said casing or casting 29 of the valve-chamber a nut 30 is swiveled, provided with an interior right-hand thread for engagement with the correspondingly-threaded surface of the gas-supply pipe 31, to which the regulator is to be secured. Under this swivel connection between the regulator and the gas-supply pipe it is evident that the regulator may first be placed in the desired position and the connection then made with the supply-pipe without interfering with the set position of the regulator. Preferably the dome B and its collar 19 are cast integral with the body or casing A, thus materially lessening the cost of construction. A cap or cover 32 is provided for the said casing, and a smooth lower peripheral face 33 is given to the said cap or cover for engagement with a gasket 34, placed upon the top of the body or casing, so that a mercury-tight and practically an air-tight seal may be made at this point. This tight connection between the body and cover of the regulator is made and maintained preferably by projecting a stud 35 outward from the rear face of the body of the regulator, for example, the said stud being adapted to enter an opening in a lip 36, projected downward from the cover. At the front face of the cover a corresponding lip 37 is made, provided with a screw 38, and this screw is made to enter a recess 39, made in the outer face of the body of the regulator, the upper wall of the recess being inclined, so that when the screw is carried its full distance inward it will have traveled down the inclined surface of the recess, binding the cover tightly upon the body, and in order that the screw 38 shall

not be removed by an ordinary screw-driver, as shown in Fig. 2, the head of the screw is provided with slots 40, at diametrically opposite sides of the head, to receive the bifurcated end of a key 41.

Air in suitable quantities is admitted into the mercury-chamber through the medium of an interrupted or zigzag channel 42, made in the top, the outer and inner ends of the channel being out of coincidence and they are vertically disposed, the body of the channel connecting the ends being ordinarily horizontal. Under this construction of an air-opening the float cannot be tampered with, and when the regulator is to be stood upon its top the outer end of the air-opening is closed by a plug or other suitable means and the mercury cannot then escape.

In the event that any mercury should be carried into the main chamber D through the collar 19 it will strike the cap 23 and will be thrown off to the sides of this chamber and held at that point by a collar 43, which surrounds the inlet-opening of the regulator, as shown in Fig. 1.

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

1. In a gas-regulator, the combination with a casing, and a dome integral therewith, of a cover fitting on said casing provided with opposite overhanging lips, said casing near its upper edge being provided with a hole or opening and a diametrically-opposed recess in the outer surface of its opposite side, said recess having an inclined upper wall, a stud arranged to be inserted through said hole or opening and also through a corresponding opening in one of said lips, a screw in the opposite lip adapted to engage the inclined wall of the said recess, whereby every turn of said screw binds said cover more firmly on said casing, and a gasket interposed between said cover and said casing, as and for the purpose set forth.

2. In a gas-regulator, the combination with a casing, of a cover provided with an air vent or opening whose outer and inner ends are vertically disposed and out of coincidence with each other and diametrically opposite overhanging lips, one of said lips having an opening to receive a stud projecting from said casing, the opposing lip being provided with an inwardly-projecting screw and said casing with a recess to receive the inner end thereof, the upper wall of said recess being inclined, as and for the purpose set forth.

3. A gas-regulator, comprising a body or casing provided with outlet and inlet openings, a dome formed within the upper portion of said casing having its sides extending upward near the sides of said casing to form a chamber for the reception of mercury, thence inwardly, and finally downwardly to form a collar, said collar being open at the top and bottom, a float arranged to be received in said mercury-chamber, a stem attached there-

to, a bar extending across the lower portion of said collar having an opening adapted to receive and act as a guide for the upper part of said stem, said casing having a collar surrounding the inlet-opening, a nipple secured in said opening flush with the inner end of said collar and provided with upwardly-projecting lugs, a cap supported by said lugs, adapted to protect said inlet-openings and serve as a guide for the valve-stem, a valve-chamber secured to said nipple outside of said casing arranged to receive the lower end of said valve-stem projected through said cap and nipple, and valves on said stem in said chamber, as and for the purpose set forth.

4. In a gas-regulator, the combination with a casing having inlet and outlet openings and an inwardly-extending collar in its lower portion surrounding said inlet-opening, a float, and a valve-stem on said float and provided with valves, one of said valves being secured to the end of said stem and the other loosely mounted thereon, of a dome cast integral with said casing having its sides spaced from the

sides thereof, whereby a mercury-chamber is formed arranged to receive the lower portion of said float, said dome having an opening in its upper face and a downwardly-extending collar open at the top and bottom surrounding said opening, a bar extending across the lower surface of said collar having an opening therein to receive and guide the upper part of said valve-stem, a nipple secured in said inlet-opening provided with upwardly-projecting lugs and a circular cap supported by said lugs extending on a horizontal plane beyond the inner surface of said nipple and having a central opening to receive the lower part of said valve-stem, the lower surface of the nipple serving as a seat for said valves and said cap serving as a guide for said stem and a shield for said inlet-opening, as and for the purpose set forth.

MYRON J. AMICK.

Witnesses:

J. FRED. ACKER,
A. A. HOPKINS.