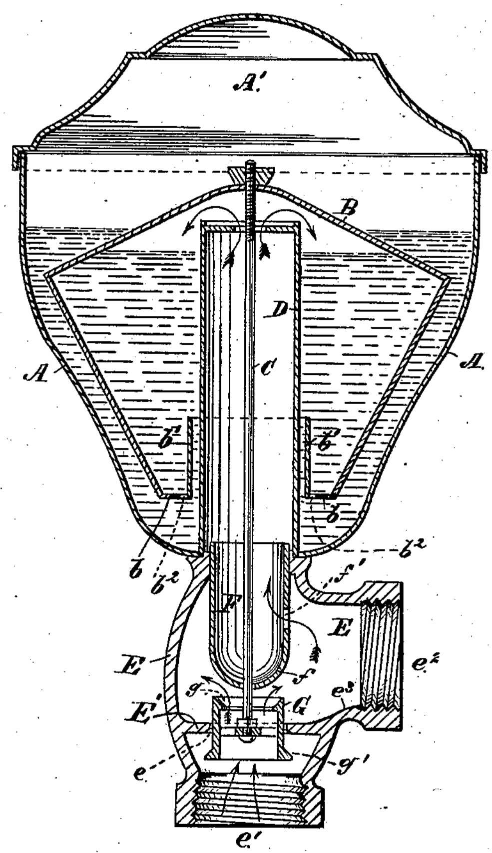
(No Model.)

N. SLEEMAN.

PRESSURE REGULATOR.

No. 260,129. Patented June 27, 1882.



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NATHANIEL SLEEMAN, OF BIRMINGHAM, CONNECTICUT.

PRESSURE-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 260,129, dated June 27, 1882.

Application filed March 18, 1882. (No model.)

To all whom it may concern:

Be it known that I, NATHANIEL SLEEMAN, of Birmingham, New Haven county, State of Connecticut, have invented certain new and useful Improvements in Gas-Pressure Regulators, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, forming part of this specification.

My invention relates to improvements in the gas-pressure regulator for which Letters Patent of the United States were granted to me September 23, 1879, No. 219,990; and my invention consists in the combinations of devices hereinafter shown and described.

In the single figure of the drawing is shown a vertical central sectional view of an apparatus embodying my invention.

A is the case or shell of the apparatus, preferably metallic and approaching the conical in form. B is the float, which is inclosed in the shell, as shown, and which corresponds concentrically in form to the form of the shell. The float B, at the center of its crown, is fixedly attached to the stem or rod C, and this stem or rod extends downward centrally through the tube D, which extends upwardly centrally of the shell and float from and through the bottom of the said shell, being wholly open at its top, where it opens into the float and has the cross-piece *h*, which supports the rod or stem C. At the bottom of the shell, and around the tube D at that point, is attached the valve-casing E, substantially as shown.

Within the tube D, and preferably forming part of it, and at its lower end and reaching down into the valve-casing, is the extension or tube F, the lower extremity of which is closed by being drawn inward, as shown at *f*, to constitute the exteriorly rounded or pointed end. Communication is had between the tube D F and the globe-valve through an opening, *f'*, in the wall of F. The rod or stem C extends through this pointed or rounded end of F, and carries on its extremity the annular or ring valve G, which works in the diaphragm E' of the globe. The upper face of G is beveled or rounded inwardly at *g* to fit against the exterior face of the end of F, and thus constitutes a valve-seat on the top of the valve G above the diaphragm E'. The valve G has exteriorly at its lower edge the flaring or beveled wing *g'*, which fits against the correspondingly-beveled rim *e* of the valve-opening in the diaphragm, thus constituting a valve-seat at the lower edge of the valve below the diaphragm. The valve is thus a double valve. The gas-inlet is below the diaphragm, at *e'*, and the gas-outlet is at e^2 on the other or upper side of the diaphragm. The shell has a lid or cover, H'.

These devices, substantially as described, are shown in my Letters Patent hitherto referred to, and their operation is therein fully set forth. I do not therefore intend to claim them herein, and for a more full explanation of their operation than is obvious from the description herein given reference is made to said patent.

I will now proceed to describe the improvements which I have made, and which are the subject-matter of this application for Letters Patent.

At the lower rim or edge of the float B, the lower portion or body of which is downwardly-tapering or conical, as shown, I form the inwardly-turned annular flange or bottom plate, *b*, which extends from said lower rim of B to near the face of the tube D, and at the edge of the bottom plate, adjacent to said tube D, I form the upwardly-turned annular flange *b'*, which is thus concentric with said tube D, as shown. In the bottom plate, *b*, I form the small aperture b^2, as shown.

By means of these described devices, when the gas-pressure is increased through the inlet *e'*, and is consequently felt in the float B, and tends to elevate the float in the liquid contained in the apparatus, and thus to more or less close the valve G, it is evident that the liquid in the float will be displaced therefrom and escape into the chamber of the shell through the apertures b^2, and through the passage between the wall of the flange *b'* and the exterior of the tube D, and will therefore move from the float into the shell with less violence and suddenness than when the entire space between the lower rim of the float and the exterior of tube D is an open communication between the float and the shell. Also, when the gas-pressure is diminished, and the tendency of the float is consequently to descend and open

more or less the valve G, the return of the liquid into and its rise within the float from the chamber of the shell will be in like manner less violent and sudden than when the entire bottom of the float is an open space. It is evident, therefore, that these described devices will secure a more steady and uniform movement of the float in the liquid under the variation of gas-pressure, and that when any sudden or considerable change in the pressure occurs the tendency of the float to jump or oscillate in the liquid and thus cause a flickering or irregularity of the flame at the gas-burner will be obviated.

The diaphragm E′ of the valve-casing E is placed in my improved apparatus below the line of the outlet e^2, and the interior face of the globe at e^3 is turned or cut to form an inclined surface leading downward from the lower edge of said outlet to the central orifice in the diaphragm. By this means any condensation of moisture in the pipe leading from e^2 will flow down said incline and drip through said orifice and pass out through the opening e'.

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

1. In a gas-pressure regulator, the combination of the shell A and the float B, having at its lower rim the inwardly-turned bottom plate, b, with the perforations b^2 and upwardly-extending annular flange b', together with the tube D, the stem or rod C, the annular double valve G, and the diaphragm E′ of the globe E, all substantially as described, and for the purpose specified.

2. In a gas-pressure regulator, the combination of the shell A, float B, tube D, stem or rod C, annular double valve G, and the globe E, having inlet e', outlet e^2, and diaphragm E′, with the central orifice, e, and the surface e^3, inclined as described, all as and for the purpose specified.

Witness my hand this 16th day of March, A. D. 1882.

NATHANIEL SLEEMAN.

In presence of—

P. B. VERMILYA,

A. G. N. VERMILYA.