S. S. INGALLS.

Gas-Regulator.

No. 163,014. Patented May 11, 1875.

FIG. III.

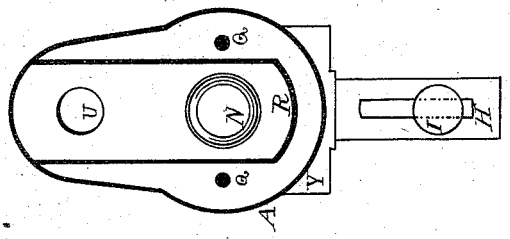


FIG. II.

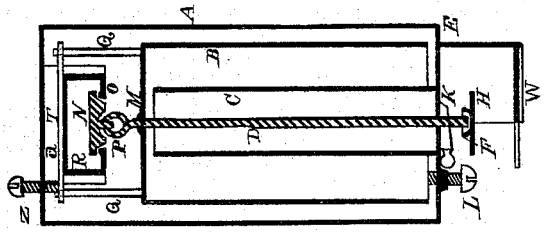
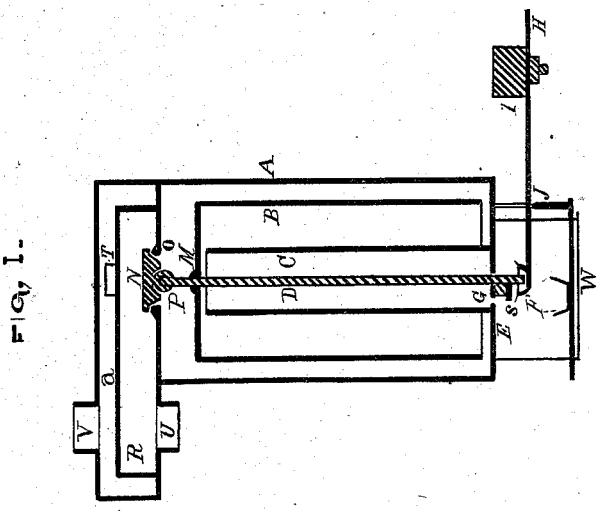


FIG. I.



WITNESSES

G. L. Chapin

Otto Adix

INVENTOR

Samuel S. Ingalls

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

UNITED STATES PATENT OFFICE.

SAMUEL S. INGALLS, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN GAS-REGULATORS.

Specification forming part of Letters Patent No. **163,014**, dated May 11, 1875; application filed March 11, 1875.

To all whom it may concern:

Be it known that I, SAMUEL S. INGALLS, of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Gas-Regulators, of which the following is a specification:

The object of the present invention is to provide more substantial and convenient means for regulating the flow of gas from gas-meters to burners.

The nature of the present invention consists in a valve-rod extended through the bottom of the case, for the treble purpose of forming a bearing at the lowest extremity, providing means for balancing the inverted cup, and locking the valve on its seat to shut off the gas; and, further, in combination with these elements, upper guides for giving the cup an accurate vertical movement.

In gas-regulators a very delicate movement of the cup is required to insure an even flow of gas, and one bearing is found insufficient, inasmuch as any swerving of the cup causes a leverage on such bearing, and therefore prevents an even movement of the cup.

I am aware that inverted cups and valves in gas-regulators have been before used; I therefore limit myself to the claim annexed.

In the drawings, Figure 1 is a longitudinal section of my improvement in gas-regulators; Fig. 2, a vertical section taken transversely to Fig. 1; Fig. 3, a horizontal sectional view taken just above the valve.

A represents a cylinder, which, for a three-light meter, is made of about three inches in diameter, or about twice the size shown. For other meters of a greater number of burners, the regulator is to be made proportionately larger. To the bottom E of the cylinder A is attached a pipe, C, which serves to separate the valve-rod D from the fluid, and to admit air into the fluid-chamber, between A B and B and C. Inside of the cylinder A, and around the pipe C, and over the pipe, is placed a cylindrical cup, B, with a closed upper head, which is attached to the valve-rod D at M, and by means of said rod a lever, H, on fulcrum J, and an adjustable weight, I, is balanced, so as to give any desired pressure of gas. Water, glycerine, or water and glycerine, or other suitable fluid, being put in the cylinder A by means of a plug, Z, to about two-thirds full, is used with the mechanism named for accomplishing this purpose. R represents a gas-chamber, which receives its supply from a pipe, U, entering the fluid-chamber by means of a valve, N, which is connected to the valve-rod D by a link, P. The valve-seat is shown at O in the bottom of the chamber R, and is of any suitable construction. Gas, after passing through valve N, extends into an upper chamber, *a*, from whence it escapes through a pipe, V. A hole is formed at the bottom of pipe C for the escape of any fluid which, by accident or otherwise, may come in at the top of the pipe. A cup placed on the bottom part W is used to catch such escaping fluid or escaping gas.

To shut off the gas a key, K, is put under the bottom E, and above a pin, S, on the rod D, whereby the latter is drawn down, so as to shut the valve N.

To guide the inverted cup B in its vertical reciprocating movement, guide-rods Q Q are fastened to the top thereof, and slide in a bar, T, attached to the chamber R, the rod D guiding the lower end of the cup.

In practice the apparatus is attached to the meter by means of a pipe, U, and the service-pipe is attached to the pipe V. The pressure of gas is regulated by moving the weight I on the lever H.

I claim and desire to secure by Letters Patent—

The valve-rod D, extended through the bottom of the case, in combination with the cup B, upper guides Q Q, weighted lever H I, key K, and pin S, as and for the purpose set forth.

SAMUEL S. INGALLS.

Witnesses:

G. L. CHAPIN,

R. M. BUSH.