E. J. MEREDITH.
Gas-Regulator

No. 203,285. Patented May 7, 1878.

Fig. 1.

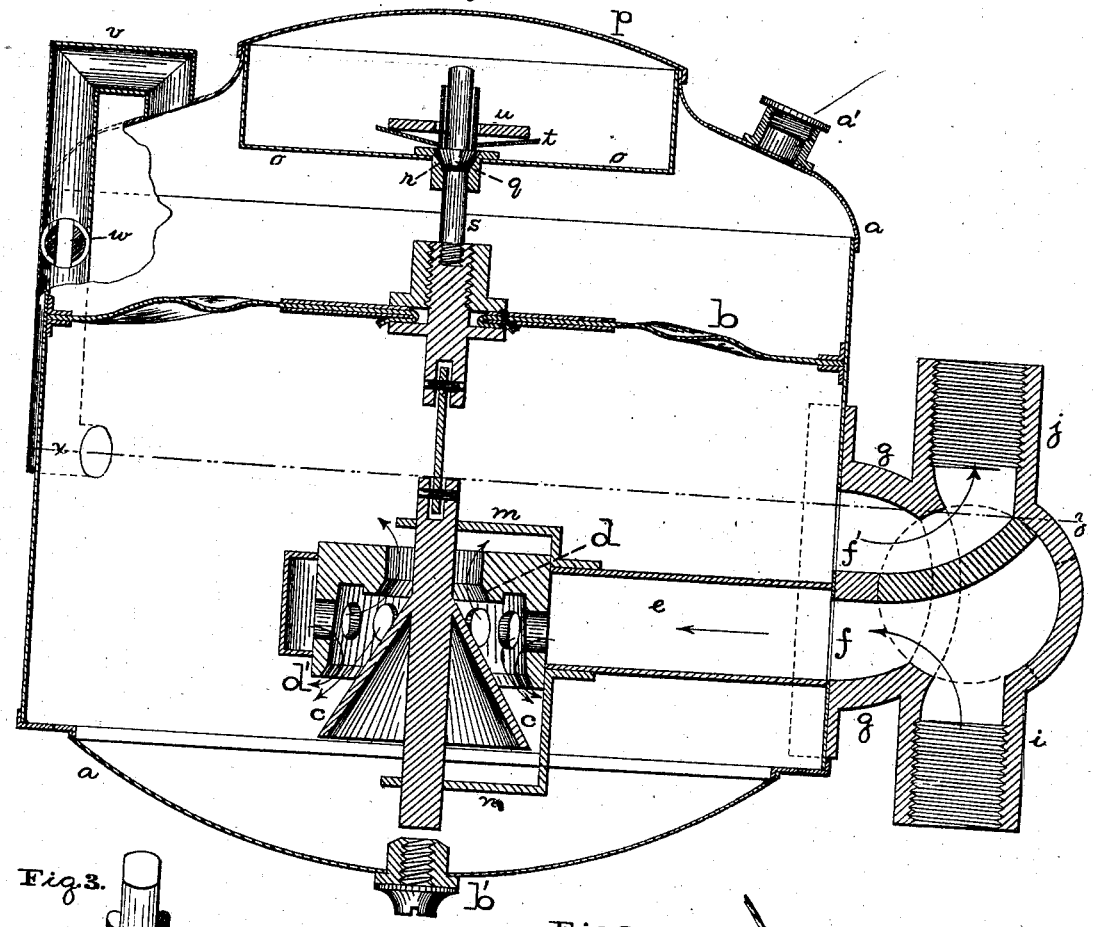


Fig. 3.

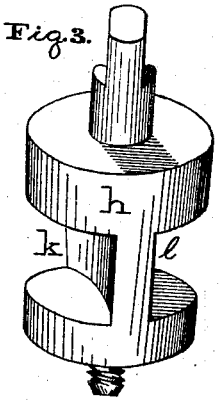
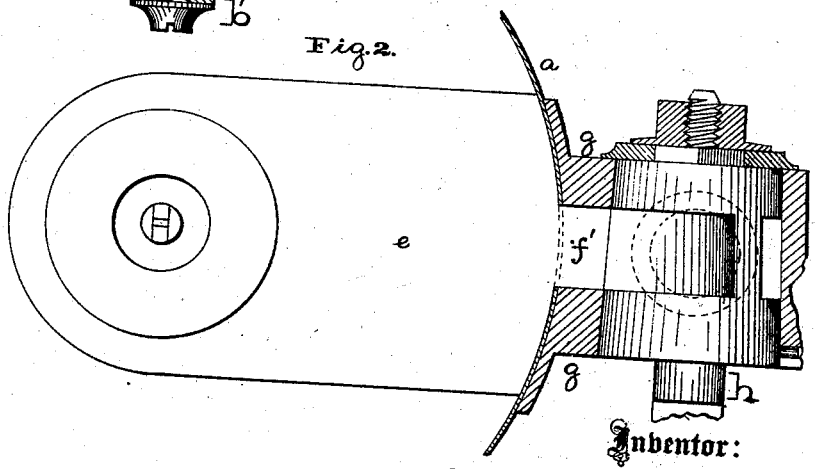


Fig. 2.



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EDMUND J. MEREDITH, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN GAS-REGULATORS.

Specification forming part of Letters Patent No. **203,285**, dated May 7, 1878; application filed April 4, 1878.

To all whom it may concern:

Be it known that I, EDMUND J. MEREDITH, of Philadelphia, Pennsylvania, have invented an Improvement in Gas-Regulators, of which the following is a specification:

One object of my invention is to construct the regulator with a by-pass, whereby, in case of any irregularity in the flow of gas at the burners, (and it becomes necessary to find out whether the fault is in the meter or the regulator,) the gas can be at once completely shut off from the regulator without removing or displacing the regulator, and without extinguishing the lights, by requiring the gas to pass on directly from the meter to the burners.

Another object is to prevent the accidental escape of gas from the regulator into the cellar or other apartment where the regulator is situated, in case the leather diaphragm rots or wears out, or becomes leaky from any cause, which object I accomplish by means of a partition or plate containing a self-acting valve in the space between said diaphragm and the top or loose lid of the regulator.

Another object is to prevent flickering of the lights by doing away with all liability of the regulating-valve to shake or flutter in its seat, which object I effect by admitting the gas into the body of the regulator through a channel which forms the seat of said valve.

Another object is to provide simple means for oiling the diaphragm.

In the drawings, Figure 1 represents a vertical section of the regulator, through the middle thereof; Fig. 2, a sectional plan of the same on the line *x y* on Fig. 1, omitting the bracket *m;* Fig. 3, a perspective view of the plug.

a is the shell or case. *b* is a leather diaphragm of the ordinary construction. *c* is the regulating-valve, which is suspended by a jointed or flexible rod from the diaphragm *b*, as shown, and which has a double seat, *d d'*, which forms a portion of the box or close channel *e*, which projects from one side into the body of the regulator, as shown in Fig. 1.

The channel *e* communicates, through the apertures *f f'*, Fig. 1, with the by-pass, the body *g* of which forms the seat of the recessed plug *h*, Fig. 3, and is provided with the tubular projections *i* and *j* by which the regulator is attached to the gas-pipe between the meter and the burners.

A concave recess, *k*, and an opposite convex recess, *l*, Fig. 3, are formed in the plug *h*.

m and *n*, Fig. 1, are brackets, to guide the stem of the regulating-valve *c*.

o, Fig. 1, is a partition, (preferably made in the cup form shown,) inserted in the space above the leather diaphragm *b* and the top or loose cap *p* of the regulator.

q, Fig. 1, is a small cone-valve, having its seat *r* in said partition *o*. This valve *q* is attached to the diaphragm *b* by a stem, *s*, as shown.

t is a detachable plate, attached to a tube which is applied to the upper end of the stem *s*. The plate *t* is for supporting a weight, *u*, for loading the diaphragm *b*, as required.

v is a pipe, (controlled by a valve, *w*,) for conducting the gas into the space above the diaphragm *b*, thus equalizing the pressure on both sides thereof and allowing the diaphragm to be depressed in the middle by its own weight, when it is desired to oil the diaphragm, the oil being dropped in through a screw-cap-covered aperture, *a'*, located anywhere in the top.

b' is the drip-screw.

In Fig. 1, the regulator is shown as in action, the gas flowing through the aperture *f* of the by-pass *g* into the close channel *e*, passing therefrom out around the regulating-valve *c*, upward and downward into the space below the diaphragm *b*, as shown by arrows, thereby so equalizing the pressure on said valve that it is freed from all liability to flutter. The gas passes out from the regulator through the aperture *f'* and the tubular projection *j* of the by-pass into the pipe leading to the burners, as shown by arrows.

The plug *h* of the by-pass is of novel construction. It differs from what is termed a "three-way cock," and it does the work of three single-way cocks. When the plug *h* is turned so that the partition between the concave and convex recesses *k* and *l* occupies the position shown by dotted lines in Fig. 1, communication between the by-pass and the regulator is shut off, and the gas passes directly through the by-pass to the burners.

When the leather diaphragm *b* rots or wears out, or becomes leaky from any cause, the gas

is kept from escaping at the top of the regulator by the partition *o* and the valve *q*, said valve being at once closed by the weight of the diaphragm and the suspended valve *c*.

The channel *e* and the double-seated cone-valve *c* may be dispensed with, and, in place of said channel and valve, there may be substituted a plain metallic tight partition, having a valve-seat, with the ordinary cone regulating-valve in the center of it, this valve being connected with the small cone-valve *q* by the flexible rod-connection above described. The said metallic partition is to be located horizontally at a point between the apertures *f* and *f'*, which communicate with the by-pass.

I claim—

1. In a gas-regulator provided with a partition, the by-pass consisting of the body *g*, having the apertures *f f'*, and the recessed plug *h*, constructed and operated substantially as set forth.

2. The combination of the gas-regulator, having the channel *e*, with the by-pass, consisting of the body *g*, provided with the apertures *f* and *f'*, and the recessed plug *h*, constructed and operating substantially as set forth.

3. The combination of the partition *s*, small cone-valve *q*, leather diaphragm *b*, and a regulating-valve, whether inserted in the channel *e* or in a partition located horizontally below the leather diaphragm between the apertures *f* and *f'*, all constructed and operating in the manner and for the purpose substantially as set forth.

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