G. S. LACEY.
Gas-Regulators.

No. 207,187. Patented Aug. 20, 1878.

Fig. 1.

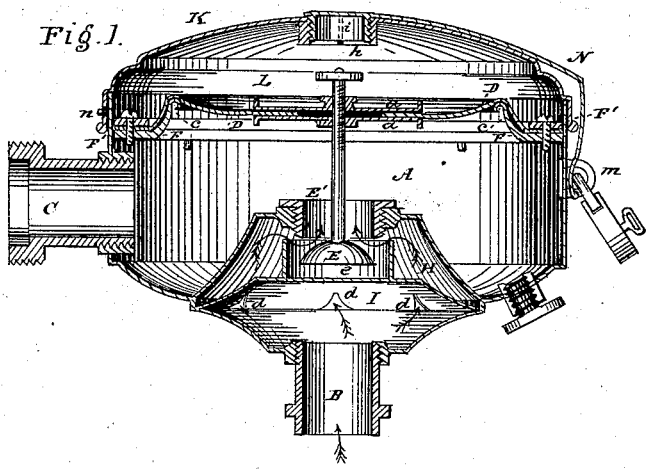
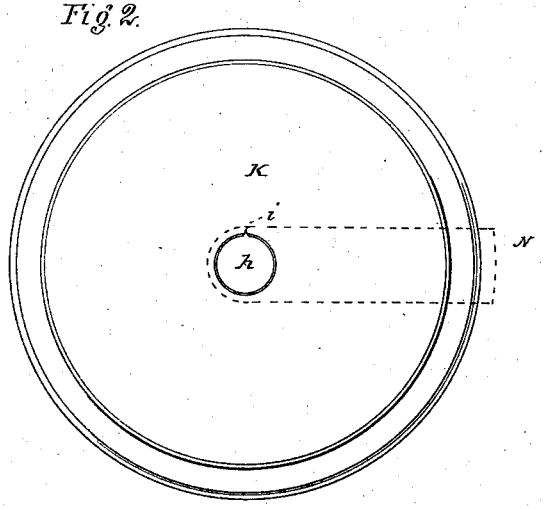


Fig. 2.



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UNITED STATES PATENT OFFICE.

GRIFFIN S. LACEY, OF NEW YORK, N. Y.

IMPROVEMENT IN GAS-REGULATORS.

Specification forming part of Letters Patent No. **207,187**, dated August 20, 1878; application filed June 17, 1878.

To all whom it may concern:

Be it known that I, GRIFFIN S. LACEY, of the city of New York, in the county and State of New York, have invented certain new and useful Improvements in Gas-Regulators; and I hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing, making a part of this specification.

My invention relates to improvements in gas-regulators or apparatus for regulating the supply of gas under varying pressures and equalizing the pressure and supply at the burners in which a flexible diaphragm is used; and the several objects of my invention are, first, to prevent the accumulation of bituminous or other deposits upon the upper surface of the flexible diaphragm; secondly, to provide improved means for preventing the gas striking the valve on its entrance into the apparatus and for adjusting the valve; and, thirdly, to provide improved means for covering the usual vent-hole and fastening down the lid or cover.

The invention consists in the improved constructions and arrangements of the parts, as hereinafter particularly set forth and described, by means of which the several objects above mentioned are attained and carried out in practice.

In the accompanying drawing, Figure 1 represents a vertical section of my improved gas-regulator, taken through its center, and Fig. 2 a plan view of the same.

Similar letters of reference indicate the same parts in both figures.

A is the gas-chamber or main body of the apparatus; B, the gas-inlet, which is usually attached to the gas-meter by any suitable connection; C, the outlet from whence the gas passes from the instrument to the supply-pipes and thence to the burners. D is the ordinary flexible diaphragm, clamped at its center between the plates *a a* in the usual manner; E, the valve, and the E′ the valve-seat, all of which said parts may be of ordinary form and construction.

For the purpose of preventing deposits lodging upon the upper surface of the diaphragm, I employ the following devices: F is a ring, secured horizontally to the inner surface of the gas-chamber, between which said ring and the ring F′, which is parallel therewith, the outer edge of the diaphragm is clamped. Heretofore the edge of the diaphragm has usually been clamped between two plain rings, and the deposits have gradually accumulated upon the surface of the diaphragm around the inner edge of the upper ring, thereby weighting the diaphragm and preventing its free action. To obviate this I form upon the inner edge of the lower ring, F, a flange, *e*, projecting upward therefrom and beyond the inner edge of the ring F′, so that the diaphragm rests upon this flange, and a recess is formed between the same and the inner edge of the said ring F′, into which recess the deposits are received as they are formed, thus freeing the main and operative portion of the diaphragm from the same and insuring its uniform action for an indefinite length of time.

The second part of my invention relates to an improvement in the construction of the valve-chamber and its adjuncts, for the purpose of preventing the gas striking the valve on its passage through the instrument. H represents the valve-chamber located in the lower part of the instrument, immediately over the inlet B. Within this valve-chamber is a canopy or bonnet, I, provided with openings *d* on its sides, through which the gas passes on its way to the valve, and upon its top or cover is secured a short tube, *e*, the upper edge of which is nearly on a level with the lower edge of the valve-seat. The gas, on entering the inlet B, passes through the openings *d* and over the top of the tube *e*, as indicated by the arrows, and is thus diverted from the upper surface of the valve, and does not strike the same nor affect its action. The valve-stem is provided with a screw-thread at its upper end, working in a screw-nut, *f*, secured to the plates *a a*, so that the valve may be raised or lowered, as circumstances may require.

The third part of my invention relates to improved means for covering the usual vent-hole and fastening down the lid. K is the lid or cover inclosing the upper chamber, L, in the center of which lid is a cylindrical opening, *h*, provided with screw-threads, on the side of which the vent-hole *i* is formed. N is a strap or plate, made a little wider than the opening

h, so that when in position it covers the vent-hole *i*. At one end of this strap N are screw-threads, which fit into those in the opening *h*, and at its other end is an opening, which fits over a ring or catch, *m*, secured to the main body of the instrument at one side thereof, while at its other side is a pin, *n*, which fits into a perforation on the rim of the lid L, so that when the latter is fitted to the said pin and the strap screwed down close to the cover or lid L, and its outer end passed over the ring or catch *m*, the lid is held down firmly in position and the vent-hole is closed; and by revolving the outer end of the strap or plate so as to unscrew the same the vent-hole is gradually opened.

Having thus described my improvements, what I consider to be novel in the same, and claim as my invention, is—

1. The combination, in a gas-regulator, of an adjustable valve, E, a flexible diaphragm, D, and the clamping-rings F F′, the said ring F being provided with an upwardly and inwardly extending flange, *c*, to form a recess around the inner edge of the ring F′, as and for the purpose set forth.

2. The combination of the valve-chamber H, bonnet I, tube *e*, valve-seat E′, and adjustable valve E, as herein shown and described.

3. The strap or plate N, provided with screw-threads at one end thereof and with an opening at its outer end to fit over the ring or catch *m*, in combination with the lid K, provided with the opening *h* and vent-hole *i*, as and for the purposes set forth.

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