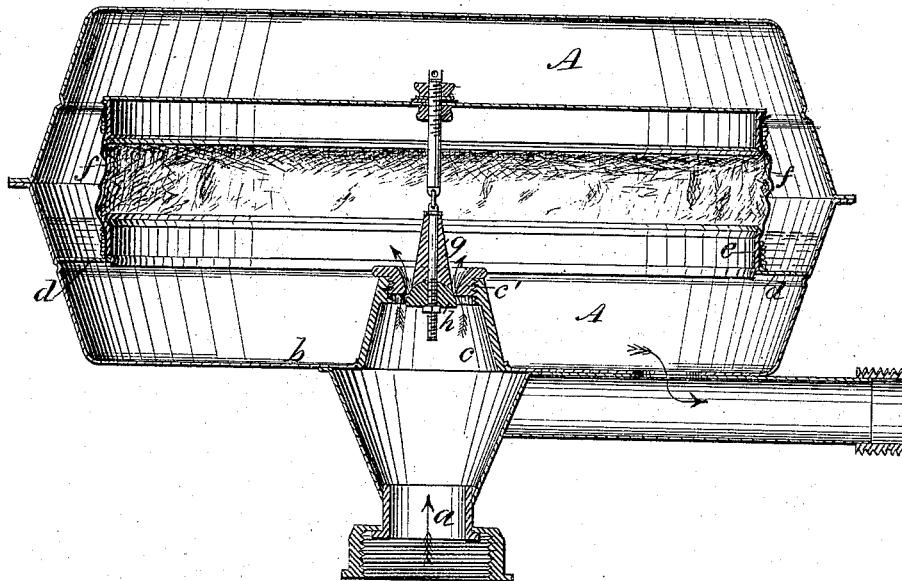


E. J. BAKER.
GAS REGULATOR.

No. 182,052.

Patented Sept. 12, 1876.



Witnesses
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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN GAS-REGULATORS.

Specification forming part of Letters Patent No. **182,052**, dated September 12, 1876; application filed July 21, 1876.

To all whom it may concern:

Be it known that I, EDWARD J. BAKER, of Baltimore, in the county of Baltimore and State of Maryland, have invented a new and useful Improvement in Gas-Regulators; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which my invention is represented by a sectional view.

This invention relates to gas-regulators, in which the valve which controls the supply of gas to the burner is operated by means of a flexible diaphragm. It consists, first, in a method of applying oil to lubricate the diaphragm; and, second, in a peculiar construction of the valve connected therewith.

In gas-regulators of this class the diaphragm is liable to become dry and hard, and consequently lose in flexibility. The result of this is that the diaphragm operates imperfectly and with less readiness and accuracy, and, further, is liable to crack and become wholly useless.

I have shown my invention as applied to a circular case. (Represented in the drawing, and marked A.) The gas-inlet pipe *a* enters underneath at the center, and passes up through the bottom *b*, terminating in a short conical tube, *c*, which supports the valve-seat *c'*, screwed therein, and through this the gas is admitted into the chamber.

This construction does not differ essentially from that in ordinary use.

I also place in the upper chamber a horizontal flange for the support of the diaphragm, which flange is marked in the drawing *d*; but to this horizontal flange I have affixed a vertically-arranged annular flange or ring, *e*, which, with the side of the case and the horizontal flange, forms an annular reservoir, which I make tight and suitable to hold any fluid lubricator. To the vertical flange *e* I attach the ordinary diaphragm, of leather or any equivalent material adapted to the purpose. The diaphragm, marked *f*, is connected in any well-known way to the flange within the annular reservoir, so as to bring the lower edge of the diaphragm within the oil. This annular space I fill with suitable lubricating mate-

rial, so that the lower edge of the leather shall be immersed therein, as aforesaid. This, by means of capillary attraction, serves to keep the leather constantly lubricated, and prevents the ill effects resulting from drying and cracking. The flange or ring *e* should be made sufficiently high to hold the oil in proper quantity, and care should be taken to have the edge of the leather immersed therein. By this constant lubrication the diaphragm is kept flexible, works always promptly and accurately, and is more certain to keep the spindle of the valve in proper vertical position. Care should also be taken not to fill the annular reservoir higher than the flange or ring *e*; but if the diaphragm should carry up any excess of oil, which might ooze through the leather, such excess would be caught by the ring *e* on the inside, and returned to the reservoir.

The second part of my invention relates to the construction of the valve. It is well known that this valve should be made conical in shape, in order to give a properly-regulated annular space around the valve; but if the valve be conical throughout, and the valve-seat circular, any variation of the valve from a vertical line, or proper position in respect to its seat, will cause it to fit imperfectly, since only a section of the cone, at right angles to its end, will be perfectly circular. It is therefore necessary, in order that the valve may close perfectly tight, to have the lower part of the valve, which comes into immediate contact with the seat, globular in form. With such a construction the valve, when seated, will fit closely on every side, since the contour of the globe is everywhere the same.

In the construction of this form of valve, however, it is difficult to make it in one piece with any accuracy of fitting. I have, therefore, constructed it in two parts. The upper or conical part is represented in the drawing at *g*. The under side is hollowed, to fit snugly upon the globular part *h*. This, which is fitted centrally on the same spindle or stem, is made perfectly spherical in shape, in that part which may come in contact with the seat. The parts are put together as shown in the figure, and held by a nut on the lower end of the spindle. This spherical part can easily be

made separately and with perfect accuracy, and a great saving in construction is thus effected.

The valve may be hung from the diaphragm in the ordinary way.

Having thus described my invention, what I claim as new is—

1. In a gas-regulator having a diaphragm substantially such as described, the oil-reservoir, in combination with said diaphragm, which is attached within the wall of the reservoir, so as to be within reach of the oil, substantially as described.

2. The method of lubricating the diaphragm of a gas-regulator by keeping the edge thereof in contact with oil, whereby the oil may be carried to any part through capillary attraction, as set forth.

3. A valve for gas-regulators, made of conical and globular parts, made separate, and fitted to each other and to the valve-seat, as and for the purpose set forth.

EDWARD J. BAKER.

Witnesses:

THOS. TANSLEY,
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