R. M. POTTER.

Gas Regulator.

No. 132,103. Patented Oct. 8, 1872.

Fig: 1.

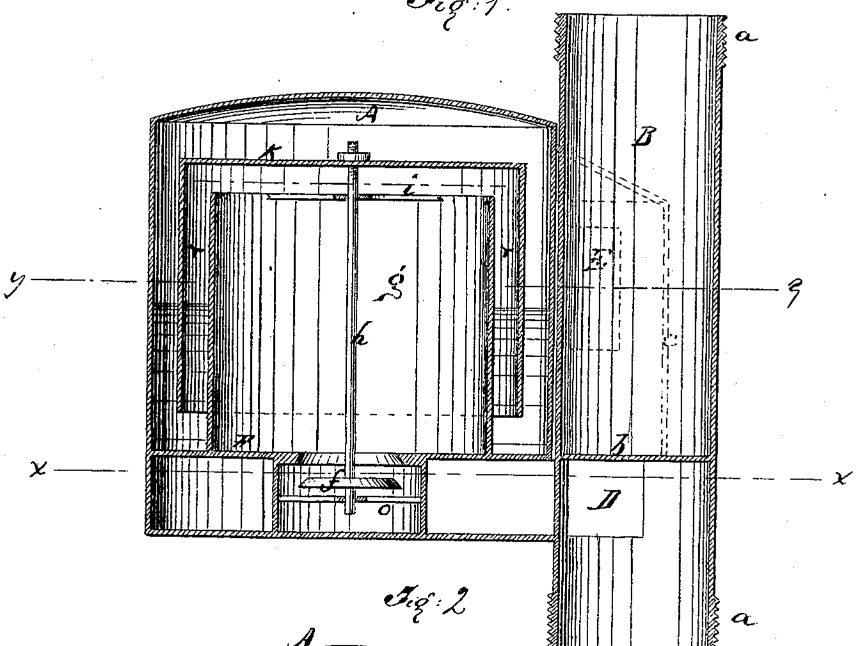


Fig: 2.

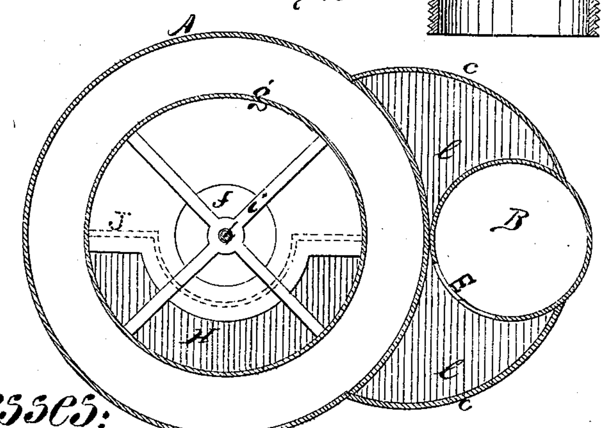
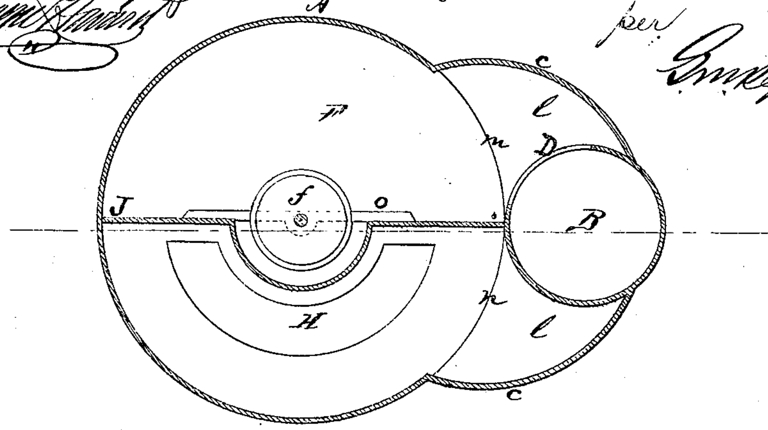


Fig: 3



Witnesses:

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AM. PHOTO-LITHOGRAPHIC CO. N.Y. (OSBORNE'S PROCESS.)

UNITED STATES PATENT OFFICE.

ROBERT M. POTTER, OF JERSEY CITY, NEW JERSEY, ASSIGNOR TO JEROME B. ZERBE, OF NEW YORK, N. Y.

IMPROVEMENT IN GAS-REGULATORS.

Specification forming part of Letters Patent No. **132,103**, dated October 8, 1872.

To all whom it may concern:

Be it known that I, ROBERT M. POTTER, of Jersey City, in the county of Hudson and State of New Jersey, have invented a new and Improved Gas-Regulator; and that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing and to the letters of reference marked thereon making a part of this specification.

This invention is in the nature of an improvement in gas-regulators; and the invention consists in a regulator for regulating the supply of gas to the burners, so constructed as to be compact, simple, and with but few joints liable to leakage.

In the accompanying sheet of drawing, Figure 1 represents a longitudinal section of my regulator; Fig. 2, a transverse section of same taken in the line *y y;* and Fig. 3, a transverse section taken in line *x x.*

Similar letters of reference indicate like parts in the several figures.

A is a metallic cylinder of any desired size, the top and bottom of which are tightly closed. On one side of this cylinder is firmly secured a pipe, B, the ends of which project above and below the top and bottom of the cylinder A, and are provided with suitable coupling screw-threads *a a.* The pipe B has tightly fitted within it, near its lower end, a metallic plate or diaphragm, *b*, (see Fig. 1,) and into said pipe are formed two openings, D and E, the opening D being immediately below the plate or diaphragm *b*, and on one side of the line of attachment of the pipe B to the cylinder A, and the other of said openings E being on the other side of said line of attachment, and above said plate or diaphragm *b*. From the sides of the pipe B to the sides of the cylinder A extend two curved plates, *c c*, closed at the top and bottom, the inner sides of which form pockets *l l* between the cylinder A and pipe B. Into the cylinder A, and near its lower end, and about in the same plane as the plate or diaphragm *b* in the pipe B, is fitted a diaphragm, F, into the center of which is fitted a valve, *f*. Said diaphragm has also an opening, H, formed therein, and a partition or division, J, extending diametrically across said diaphragm, dividing the space below the diaphragm into two equal parts, the valve *f* opening into one and the opening H into the other. Within the cylinder A, and resting and secured onto the diaphragm F, is fitted a second cylinder, *g*, the upper end of which is open, and which is of less diameter and height than the cylinder A. Passing up through this cylinder *g* is a valve-stem, *h*, the lower end of which is secured to and passes through the valve *f* into a guide, *o*, and the upper end passes through a guide, *i*, secured to the upper end of the cylinder *g*. Fitting over the cylinder *g* is an inverted cylinder, *k*, the upper end of which is closed and the lower end open, the upper end of the valve-stem *h* passing through said closed upper end, to which it is secured by a nut. The space *r* between the sides of the cylinders A and *g* is filled with glycerine or any other suitable fluid, into which the lower and open end of the cylinder *k* enters, and by means of which said lower and open end is sealed or made gas-tight.

The regulator being constructed substantially as above described, the lower end of the pipe B is screwed to the outlet-pipe of a gas meter or carbureter, and to the upper end of said pipe is screwed the pipe leading to the building through which the gas is conducted for consumption.

The regulator being now in position, its operation is as follows: The gas passes from the meter into the pipe B; through the opening D, through a suitable passage, *m*, in the cylinder A, and under the diaphragm F, through the valve *f*, into the cylinder *g;* through the opening H in the diaphragm F, and opening *n* in the cylinder A, into the pocket *l;* and through the opening E of the pipe B; and thence through said pipe to the building and chandeliers.

When the pressure of gas is greatest—as, for instance, when but few burners are lighted—the gas entering into the cylinder *g* in the manner just described presses against the under side of the closed top of the cylinder *k*, forcing it upward, and closing, more or less, the valve *f* and the aperture into said cylinder, and, when the pressure of gas is lessened by lighting additional burners, the valve *f* opens by gravity, and admits a greater volume of gas. This alternate opening and closing of the valve *f* as the pressure is increased or de-

creased, prevents the gas blowing through the burners, and effects not only a saving thereby, but tends to produce a steady light.

It will be observed that a regulator, constructed substantially as above described, will, to a great extent, be free from leaks, since it has but few pipes and it is extremely compact.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

A gas-regulator, having a pipe provided with openings D and E, in combination with pockets *l l*, openings *m* and *n* in the main cylinder, and partition J, and opening H, and diaphragm F.

ROBERT M. POTTER.

Witnesses:
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