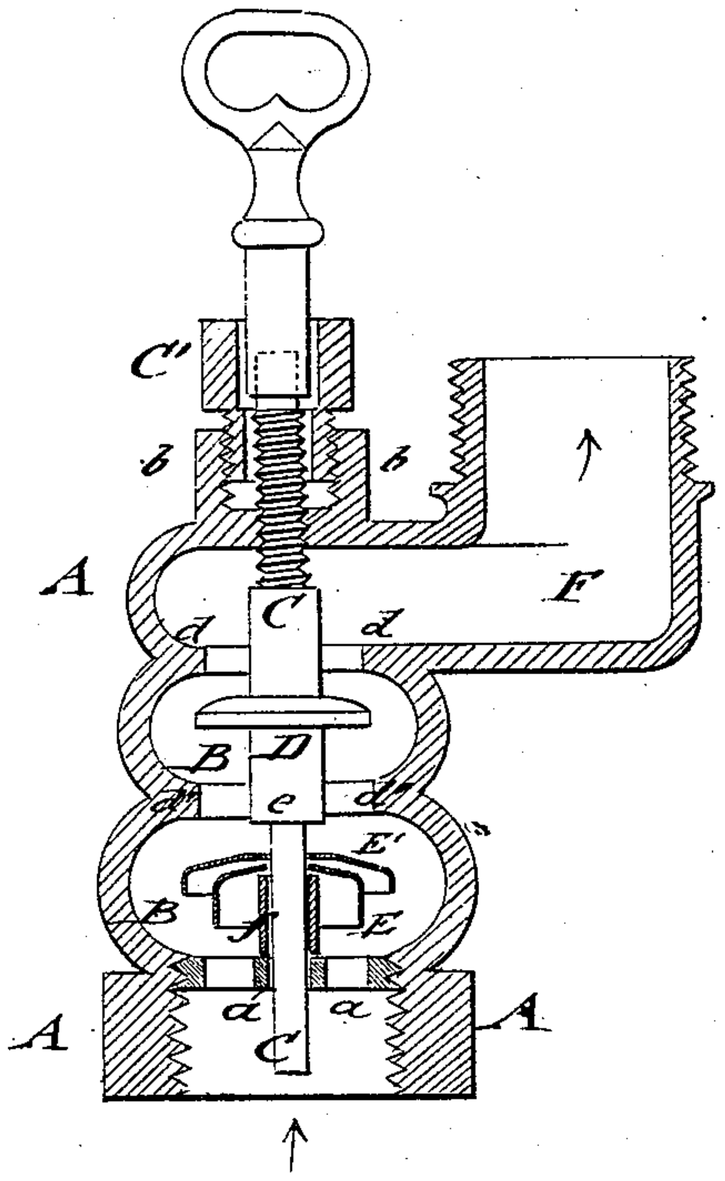
H. S. SERVOSS & G. MYERS.

GAS REGULATOR.

No. 181,729. Patented Aug. 29, 1876



WITNESSES:

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UNITED STATES PATENT OFFICE

HENRY S. SERVOSS AND GEORGE MYERS, OF NEW YORK, N. Y.

IMPROVEMENT IN GAS-REGULATORS.

Specification forming part of Letters Patent No. **181,729**, dated August 29, 1876; application filed August 17, 1876.

To all whom it may concern:

Be it known that we, HENRY S. SERVOSS and GEORGE MYERS, of the city, county, and State of New York, have invented a new and Improved Gas-Regulator, of which the following is a specification:

The accompanying drawing represents a vertical central section of our improved gas-regulator.

The object of our invention is to provide for public buildings and private dwellings an improved gas-regulator that may be readily adjusted by means of a key for any number of burners, so as to place the consumption of gas completely under the control of the consumer, while it also regulates the pressure of the gas in a very efficient manner, and gives a brilliant and steady light at a considerable saving of gas.

The invention consists of a regulator with two interior chambers, of which one serves to regulate the flow of gas, in connection with a fixed diaphragm, that is adjusted nearer to or farther from its seat by a screw-spindle and key from the outside, while the flow and pressure of the gas in the other chamber is regulated by cup-shaped valves, that slide on the recessed spindle, the upper valve being of larger diameter than the lower, but of a less height.

In the drawing, A represents the casing of brass or other suitable metal, provided with annular chambers B, of which one is arranged vertically above the other. A spindle, C, passes centrally through the casing A, being guided by a collar, *a*, at the lower part, and adjustable by its screw-threaded top end in the upper part, where it is suitably packed. The spindle C extends to the outside of the upper part of the regulator, and forms, with the packing, a hermetically-sealing joint by means of a nut, C′, turning into a threaded-top socket, *b*, of the casing. A suitable key, fitted to the upper end of the spindle serves to adjust the same vertically up or down, so as to bring a fixed disk-shaped or conical diaphragm, D, closer or farther from the seat *d*, formed by contraction of the upper chamber. The space between the diaphragm D and its seat is either contracted or enlarged, according as the diaphragm is raised or lowered by the key, and thereby the flow of gas either retarded or accelerated, as required. The regulator may, in this manner, be adjusted in proportion to the number of burners to be used, so as to prevent waste of gas by overpressure, and provide a complete control of the same. By bringing the diaphragm in contact with the seat, the same acts as a cut-off. The spindle C is made of less thickness in the lower chamber than in the upper, so as to form a shoulder, *e*, between which and a loose sleeve, *f*, seated on the lower guide-collar of the spindle, two cup-shaped valves, E E′, are placed, which rise and fall on the spindle, according to the varying pressure of the gas. The lower valve E is of smaller diameter, but of greater height, than the upper valve E′, the upper slightly-conical part of the lower valve and the upper partly-horizontal and partly-conical part of the upper valve being so arranged that the valves are not brought into contact, except at the points of connection with the spindle, thus avoiding any sticking of the valves, and preserving the independent sliding of the same along the stem.

The gas, passing in from the gasometer, impinges first on the lower deeper valve, then passes around the same so as to strike the upper wider valve, and around the latter through the space between the upper valve E′ and the contraction or seat *d′* of the lower chamber to the upper chamber, and over the diaphragm to the pipe-communicating elbow F, that extends at right angles from the casing. The separately and independently vibrating valves are very sensitive to the varying pressure of the gas, being consecutively exposed to the action of the same, and tending to regulate and equalize the same, so that an even, steady, and economical light is obtained, that is capable of producing the complete combustion of the carbon particles. The valves may also be arranged in the upper chamber, and the diaphragm in the lower, as desired, the working of the regulator being more or less the same. The play of the valves, regulating the pressure and supply of the gas, in conjunction with the diaphragm, that controls the quantity of the same, forms an economical, reliable, and efficient regulator.

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

1. An improved gas-regulator, consisting of

a casing with communicating chambers, one above the other, in connection with an adjustable diaphragm, affixed to the stem in one chamber, and with separately-vibrating cup-valves, sliding on the stem in the other chamber, to jointly control the supply and regulate the pressure of the gas, substantially in the manner and for the purpose set forth.

2. In a gas-regulator, the cup-shaped valves E E′, arranged to slide on the stem of the regulator, and constructed so that the lower valve is of smaller diameter, but of greater height, than the upper, to vibrate independently by the pressure of the gas, substantially as herein set forth.

3. The cup-shaped valve E, having a conical top part, in combination with the upper valve E′, having partly a horizontal, partly a conical, top part, forming contact only at point of connection with stem, to prevent sticking, for the purpose herein set forth, and in the manner described.

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