J. C. SCHOOLEY.
Gas Regulators.

No. 196,255. Patented Oct. 16, 1877.

Fig. I.

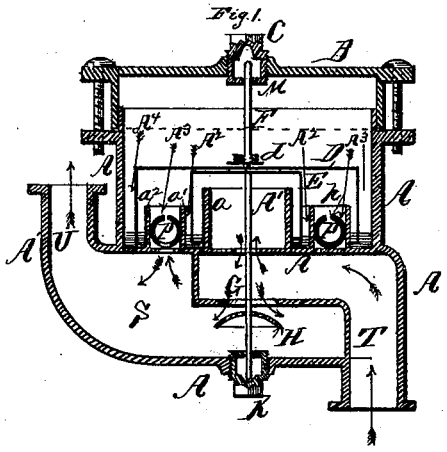


Fig. II.

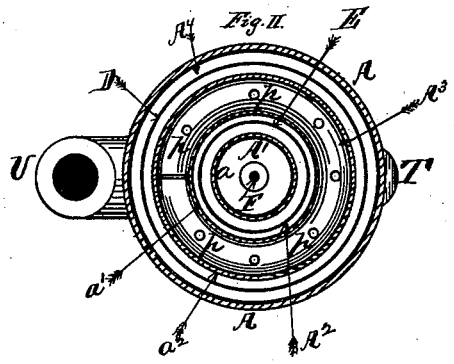


Fig. III.

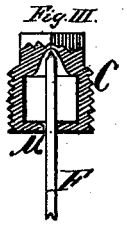
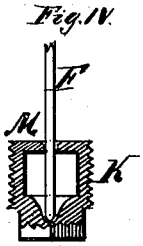


Fig. IV.



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UNITED STATES PATENT OFFICE.

JOHN C. SCHOOLEY, OF NEW YORK, N. Y., ASSIGNOR TO JEREMIAH W. CURTIS, OF SAME PLACE.

IMPROVEMENT IN GAS-REGULATORS.

Specification forming part of Letters Patent No. **196,255**, dated October 16, 1877; application filed September 1, 1877.

To all whom it may concern:

Be it known that I, JOHN C. SCHOOLEY, of the city, county, and State of New York, have invented a new and useful Improvement in Gas-Regulators, of which the following is the specification:

This invention relates to an improvement in those regulators in which the regulating-valve is operated by the pressure gas under a small and a large inverted cup, both attached directly to the valve-rod, the bottom edges of the said cups being immersed in mercury contained in annular grooves.

The nature of the invention consists in providing a distributed discharge of the incoming gas under the inverted cup, so as to equalize the pressure on all sides of the same, and thereby obviate a twisting or tipping movement of the cup, and a consequent considerable increase of friction and loss of efficiency.

The invention also relates to various improvements in the details of the regulator, as will be hereinafter more fully described.

The invention will be readily understood by reference to the accompanying drawings, of which—

Figure 1 is a central sectional elevation of the improved regulator; Fig. 2, a sectional plan of the same, with the outside cover and the inverted cups removed; and Fig. 3, a sectional detail of the top hollow plug, guide-plate, and valve-rod. Fig. 4 is a sectional detail of the bottom hollow plug, guide-plate, and valve-rod.

The outer case A of the regulator may be of cast-iron or any other suitable metal, and it will be closed at its top end by a cap, B, held in place by suitable screws. A hollow plug, C, is screwed centrally into the top plate B.

Upwardly-projecting walls *a*, a^1, and a^2 attached to the bottom of case A, divide its interior into a central chamber, A^1, and concentric chambers or annular grooves A^2, A^3, and A^4.

A large inverted cup, D, has its bottom edge placed in the annular groove A^4, and a smaller inverted cup, E, is placed below the cup D, which has its bottom edge placed in the annular groove A^2.

The grooves A^2 and A^4 are filled, or partly filled, with mercury, into which the lower edges of the cups D and E are submerged, so as to seal those places against the passage of gas, while permitting the said cups free liberty to rise and fall vertically.

The valve-rod F passes vertically through the center of A, D, and E, and extends up into the hollow cap or plug C, and also down through the valve H, and into the hollow cap or plug K, guide-plate M attached to the bottom of plug C, and a similar plate, L, attached to the inner end of plug K, serving to guide the said valve-rod easily within its proper place.

The valve H has its seat G on the diaphragm, which forms the top of the discharge-chamber S, from which said chamber the outlet U leads to the house-pipes.

The inlet-chamber T is connected with one end of the conduit-pipe P, which is coiled around in annular form in the annular groove A^3, and the top side of the said pipe P has numerous perforations *p* distributed throughout its entire length, so as to discharge the incoming gas uniformly under all sides of the cup D simultaneously, thereby causing it to lift evenly and avoid undue or unequal friction by tipping on the valve-rod, or by tipping the valve-rod on its bearings.

The valve-rod is attached to the cups D and E by means of the hollow nut *d*.

The operations of the regulator while in use, being commonly known, need not be particularly described herein.

Having described my invention, I claim—

1. The combination of the hollow plug C, permanent guide-plate M, cap B, and valve-rod F, substantially as and for the purpose set forth.

2. The combination of the perforated conduit P with the inverted cup D, substantially as and for the purpose set forth.

3. The case A, hollow plug K, with its guide-plate L, and the valve-rod F, combined and arranged as and for the purpose set forth.

4. The annular perforated conduit P, the inverted cups D and E, the valve-rod F, and the guide-plates M and L, combined and arranged as and for the purpose set forth.

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Witnesses:

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