

J. R. HALL.
GAS-REGULATOR.

No. 177,634

Patented May 23, 1876.

Fig. 1.

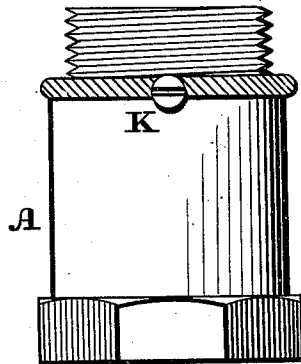


Fig. 2.

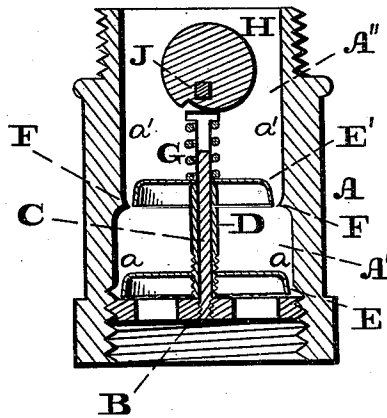
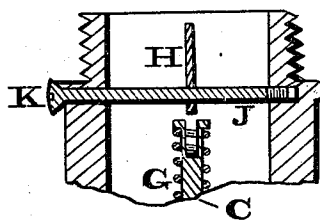


Fig. 3.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN R. HALL, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN GAS-REGULATORS.

Specification forming part of Letters Patent No. **177,634**, dated May 23, 1876; application filed April 22, 1876.

To all whom it may concern:

Be it known that I, JOHN R. HALL, of the city and county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in Gas-Regulators; and I do hereby declare the following to be a clear and exact description of the nature thereof, sufficient to enable others skilled in the art to which my invention appertains to fully understand, make, and use the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a side elevation of the regulator embodying my invention. Fig. 2 is a central vertical section thereof. Fig. 3 is a central vertical section of a portion at right angles to Fig. 2.

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

My invention has for its object the regulation or control of the flow of gas, whereby the light will be uniform and steady, and brilliant, without glare.

The invention consists of a shell having two chambers, each chamber being of a uniform diameter to near the point of junction of the two chambers, at which point each chamber converges toward the center, the uniformity of the diameter of each chamber preventing irregular expansion of the gas, and consequently insuring a steady light. It also consists of two or more valves having a common motion, which are adjustable relatively to each other, and to the seats with which they operate. It also consists in adjusting the tension of the spring of the valve or valves by means adapted to be operated outside of the shell.

Referring to the drawings, A represents the shell of the regulator, and it is formed into two chambers, A' A". Within the lower chamber A', at or near the bottom thereof, there is screwed or otherwise secured a valve-seat, B, from which rises a stem, C, on which is fitted a sliding collar, D, to whose upper and lower ends are secured valves E E', the stem C being adjustably fitted to the valve-seat, and the lower valve E being adjustably fitted to the collar D. Each chamber is of uniform diameter, as at *a a'*, to near the point of junction of the two chambers, at which point they converge or extend inwardly, as at F, so as to

form what may be termed the seat of the upper valve E'.

On the stem C there is placed a spring, G, which is fitted between the upper valve E and a shoulder or stop on the stem, and the upper end of said stem is bifurcated for the reception of a cam or eccentric, H, whose face is adapted to come in contact with the spring G, whereby, by properly rotating the cam, the amount of compression of the spring may be increased or decreased, for regulating the tension of said spring, and consequently regulating the play of the valve or valves.

The cam H is fitted to a shaft, J, which is journaled in the walls of the upper chamber A", and its head K is on the outside of the shell, whereby the cam may be rotated, and the valve or valves adjusted from the outside.

The gas, under ordinary pressure, enters the chamber A' through the small space between the valve E and seat B, and reaches the chamber A" through the small space between the valve E' and seat F. Should the pressure increase the valves act as a check thereto, but they yield gradually, whereby the gas will not leave the chambers with a rush and affect the light.

The spring G may be adjusted relatively to the predetermined pressure of the gas by properly screwing the stem C, or by properly rotating the lower valve on the collar, so as to raise or lower the upper valve. The space to be allowed between the two valves, or between the valves and their seats, may be regulated by rotating the collar D or the lower valve E, whereby the valves may be separated to a greater or less extent.

When the adjustment of the parts is complete, and the regulator is attached to the service-pipe, further adjustment, occasioned by subsequent change in the pressure of the gas, may be accomplished from the outside of the shell by means of the cam H, the head K of which is readily accessible. By turning the head, and consequently rotating the cam, the face of the latter will cause greater or less compression of the spring G, thus increasing or decreasing the power thereof, and correspondingly controlling the valve or valves.

Instead of the cam or eccentric H, I may use a worm and worm-wheel, rack and pinion,

wedge-shaped bar, or other device, in order to control the spring G; but in either case the operation is to be from the outside.

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

1. The chambers A' A'', each of uniform diameter throughout, in combination with the adjustable valves E E', located at the bottoms of said chambers, respectively, substantially as shown and described.

2. The chambers A' A'', each of uniform diameter throughout, in combination with the valve-seats B F and adjustable valves E E', arranged and operating substantially as described.

3. The valves E E', connected together to have common motions, and adjustable relatively to each other and to their seats, substantially as and for the purpose set forth.

4. The valves E E', in combination with the screw-collar D, substantially as and for the purpose set forth.

5. The valve or valves, in combination with the spring G, which is adjustable from the outside of the shell, substantially as and for the purpose set forth.

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