

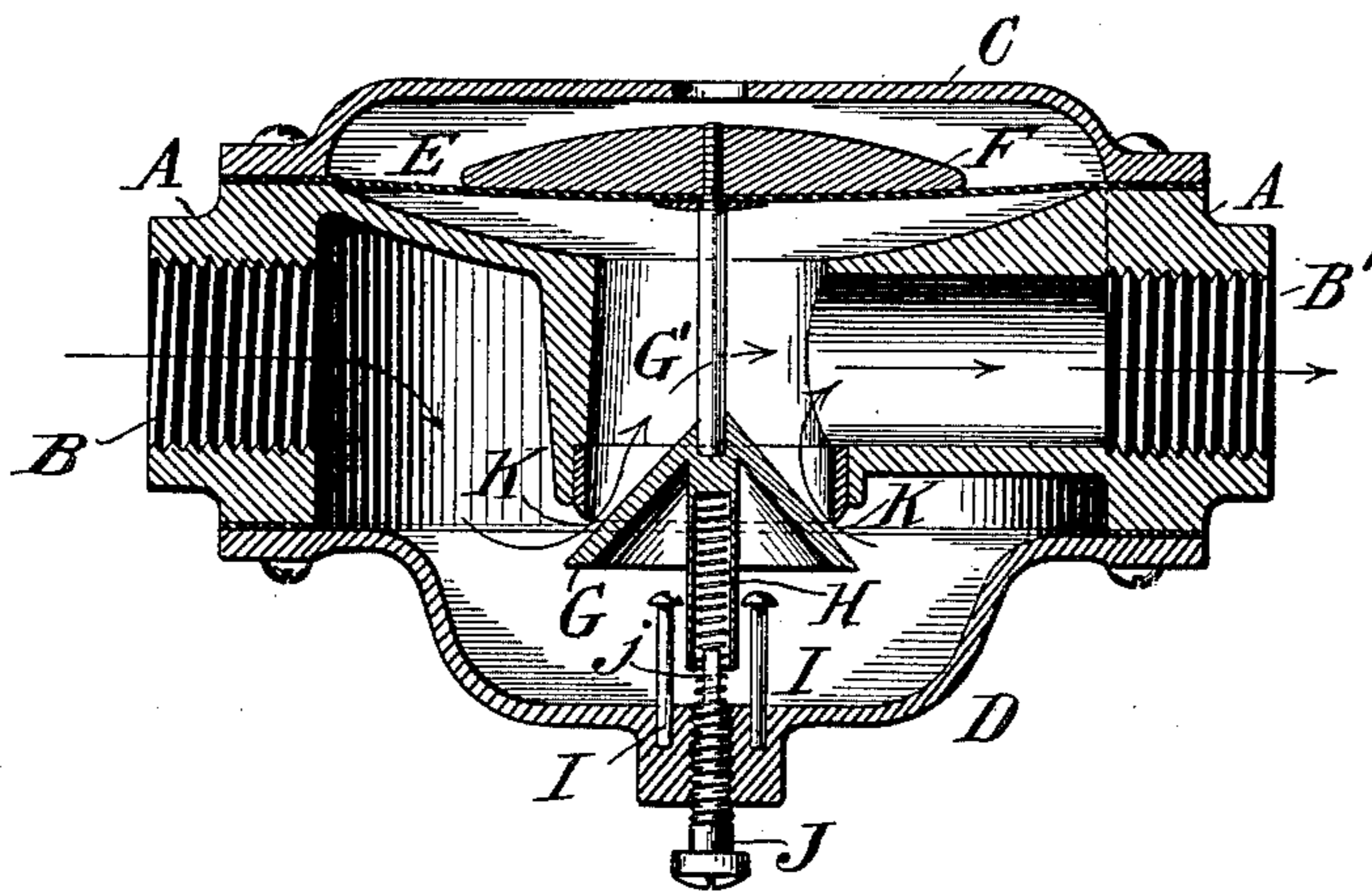
No. 713,856.

Patented Nov. 18, 1902.

M. D. COMPTON.  
GAS REGULATOR.

(Application filed Mar. 27, 1902.)

(No Model.)



Witnesses  
Edward Douglass  
O. M. Carbutt

Inventor  
M. D. Compton  
By his Attorney  
Albert Stearns

# UNITED STATES PATENT OFFICE.

MELVIN D. COMPTON, OF EAST ORANGE, NEW JERSEY.

## GAS-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 713,856, dated November 18, 1902.

Application filed March 27, 1902. Serial No. 100,225. (No model.)

*To all whom it may concern:*

Be it known that I, MELVIN D. COMPTON, a citizen of the United States, and a resident of East Orange, in the county of Essex and State  
5 of New Jersey, have invented certain new and useful Improvements in Gas-Regulators, of which the following is a specification.

My invention relates to gas-regulators, more especially to the class known as "pressure-regulators."  
10

The object of the invention is to furnish a compact, efficient, and cheap device for regulating the gas-pressure—one that occupies small space and whose accurately-controlled  
15 regulating mechanism is easily accessible.

To this end I have invented the device shown in the drawing hereto attached, in which a vertical cross-section is shown, the regulator being circular in shape.

20 Referring to the drawing, A is the body of the device, provided with a screw-furnished gas-inlet B and a screw-furnished outlet B'.

C is the cover; D, the bottom, represented as attached by screws.

25 E is a flexible diaphragm, on the upper side of which is placed a predetermined weight F.

G is a cone-shaped valve controlling the aperture K, leading into the chamber G'.

30 H is a spiral spring fitting into a cylinder formed integral with the valve G. The tension of the spring H is controlled by the screw J, having a reduced end portion j, so as to form on the screw J a shoulder against which the spiral spring H abuts. I denotes guides,  
35 here represented as pins for controlling the vertical movements of the valve G.

The operation is as follows: The flexibility of the diaphragm E and the weight F is so proportioned that with a given pressure of  
40 gas and without the spring H acting the opening K of the valve-seat is a maximum. The gas then enters at B, follows the course of the arrows through the aperture K, the chamber G', and out through B'. It is evident that any variation of the gas above what  
45 the diaphragm E is loaded for will act upon the under side of the diaphragm, raise it, and thus control the aperture K, checking the flow of gas until the momentarily too great  
50 pressure ceases. In order to make my adjustment, however, more delicate and assure control within any desired limits, I have pro-

vided my conical valve, as shown, with a hollow-cylinder attachment, into which fits the spiral spring H. I now turn the screw J to  
55 act upon the spring, thereby relieving a portion of the weight on the loaded diaphragm E, when it is evident that a slighter variation of pressure will control the diaphragm E and with it the attached valve G, and this can be  
60 brought to any degree of delicacy required.

By loading my diaphragm with a predetermined weight I accomplish two objects—first, I obviate the necessity of removing the top C to add to or take away weight,  
65 thereby enabling me to attach permanently my device in places where the top might not be conveniently accessible, and, second, I am enabled by means of my screw-controlled upwardly-acting spring, which is easily ac-  
70 cessible to the screw-driver, to much more accurately gage the weighted diaphragm, and consequently the valve-aperture K.

Having thus fully described and illustrated my invention, what I claim is—  
75

1. In a gas-regulator, a casing having inlet and outlet ports therein, a downwardly-facing valve-seat between said ports, a conical valve coöperating with said seat for controlling the passage between said ports, a diaphragm  
80 above the valve-seat, a fixed weight on said diaphragm acting to normally maintain said valve in its depressed open position, a hollow cylindrical extension on the under side of said valve, a coil-spring within said extension, and an adjusting-screw in the bottom of the casing, said screw being reduced at its upper end to form a shoulder on which the lower end of the spring rests, substantially as and  
85 for the purpose specified.

2. In a gas-regulator, a casing having inlet and outlet ports therein, a diaphragm in said casing, a valve pendent from and connected thereto for controlling the passage between said ports, a fixed weight on said diaphragm  
95 for normally maintaining said valve in its open position, a spring within the casing acting upon the under side of said valve in opposition to said weight, and means outside the casing for adjusting the tension of said spring.  
100

3. In a gas-regulator, a casing having inlet and outlet ports therein, a diaphragm in said casing, a valve pendent from and connected thereto for controlling the passage between

said ports, a fixed weight acting upon the upper side of said valve for normally maintaining the same in its open position, an adjustable spring acting on the under side thereof  
5 in opposition to said weight, and a guide for said valve in its movements toward and away from its seat.

4. In a gas-regulator, a casing having inlet and outlet ports therein, a diaphragm in said  
10 casing, a valve connected thereto for controlling the passage between said ports, a fixed weight acting upon said valve for normally maintaining the same in its open position, an adjustable spring acting thereon in opposi-  
15 tion to said weight, a cylindrical extension on said valve, and guide-pins on said casing within which said extension moves.

5. In a gas-regulator, a casing having inlet and outlet ports therein, a downwardly-fac-

ing valve-seat between said ports, a conical  
20 valve cooperating with said seat for controlling the passage between said ports, a diaphragm above said ports from which said valve is suspended, a fixed weight on said  
25 diaphragm acting to normally maintain said valve in its depressed open position, a hollow cylindrical extension on said valve depending from the center thereof, a coil-spring within  
30 said extension, and an adjusting-screw in said casing acting upon the lower end of said spring, as and for the purpose set forth.

Signed at New York, in the county of New York and State of New York, this 26th day of March, A. D. 1902.

MELVIN D. COMPTON.

Witnesses:

E. M. PERINE,  
A. STETSON.