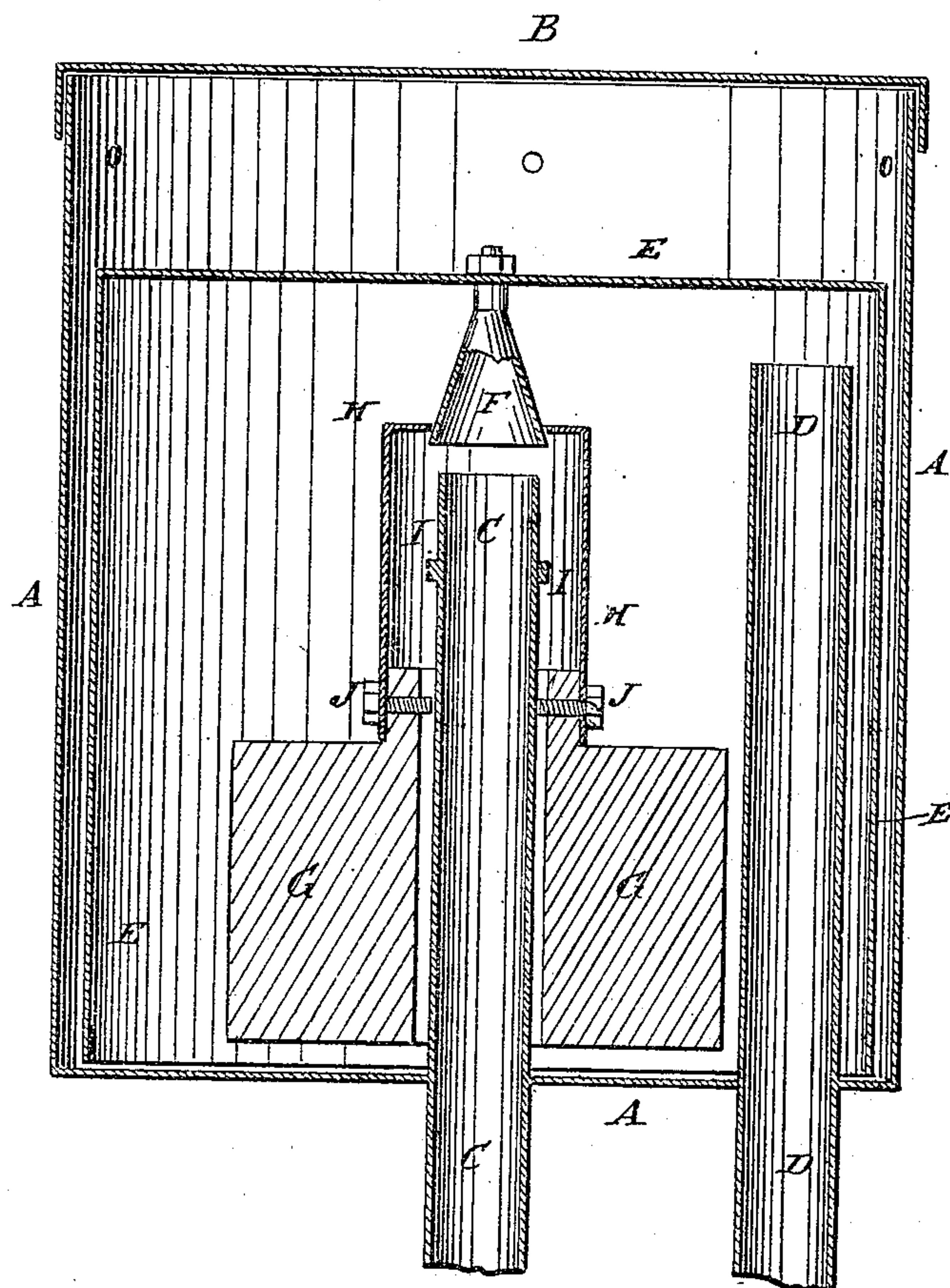


(Model.)

R. F. HATFIELD.  
GAS PRESSURE REGULATOR.

No. 251,436.

Patented Dec. 27, 1881.



WITNESSES:

*Ernest Nida*  
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# UNITED STATES PATENT OFFICE.

ROBERT F. HATFIELD, OF NEW YORK, N. Y.

## GAS-PRESSURE REGULATOR.

SPECIFICATION forming part of Letters Patent No. 251,436, dated December 27, 1881.

Application filed May 23, 1881. (Model.)

*To all whom it may concern:*

Be it known that I, ROBERT F. HATFIELD, of the city, county, and State of New York, have invented a new and useful Improvement in Gas-Pressure Regulators, of which the following is a specification.

The drawing is a sectional side elevation of my improvement.

The object of this invention is to prevent the escape of gas from gas-pressure regulators.

The invention consists in the combination, with the outer case, the inner case, the suspended cone, and the inlet pipe, of the float and the cylinder attached to the float, and having an aperture in its top to receive the cone and fit upon the lower part of said cone, whereby the inflow of gas will be prevented by the descent of the said float, as will be hereinafter fully described.

A represents the outer case of a gas-pressure regulator, the top of which is closed by a cover, B.

C is the pipe through which the gas enters the regulator, and D is the pipe through which the gas passes out of the regulator. The pipes C D pass in through holes in the bottom of the case A, and are secured water-tight to the said bottom.

E is the inner case of the regulator, which is made similar in shape to the outer case, A, but with an open bottom and a gas-tight top. The case E is made smaller than the case A, so as to leave a space between the walls of the said cases A E. From the center of the top of the inner case, E, and directly over the open upper end of the inlet-pipe C, is suspended a cone, F, against which the gas from the said pipe C strikes. With this construction, as the gas enters the case E it raises the said case E against the pressure of the atmosphere, and is put under pressure by the gravity of the said case E. The pressure of the case E upon the gas can be increased and decreased as required by placing weights upon and removing them from the top of the said case E. The gas is prevented from escaping around the lower edge of the case E by keeping the lower part of the case A supplied with water or other suitable liquid. With this construction, should the water in the case A get low or become exhausted by evaporation or otherwise, the gas will pass around the lower edge of the case E into the case A, and thus escape. To guard against this I place a float,

G, of suitable material, around the pipe C and attach to its top a hollow cylinder, H, the top of which rises above the top of the pipe C. In the top of the cylinder H is formed an aperture a little smaller than the lower or larger part of the cone F, as shown in the drawing. The upward movement of the float G and cylinder H is limited by a collar, I, or other stop attached to or formed upon the inlet-pipe C, and against which screws J, attached to the neck of the float G, strike. The downward movement of the float G is limited by the top of the cylinder H coming in contact with the lower part of the cone F, which thus acts as a valve to prevent the passage of the gas into the case E, the aperture in the top of the cylinder H being so formed as to fit snugly upon the lower part of the cone F. With this construction, when there is a proper quantity of water in the regulator the float rises and the gas in the pipe C enters the regulator through the space between the inner edge of the top of the cylinder H and the cone F, leaving the regulator to operate freely and in the ordinary manner. As the water lowers in the regulator the float G descends until the top of the cylinder H comes in contact with the cone F and stops the inflow of gas. The weight of the float G, being thrown upon the case E, draws it downward until its edge rests upon the bottom of the outer case, A, the float G being so arranged that the edge of the case E will come in contact with the bottom of the case A, while the said float is suspended free from the said bottom. With this construction no gas can enter the regulator unless the said regulator contains a suitable supply of water or other liquid, so that the escape of gas from the regulator is effectually prevented.

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

In a gas-pressure regulator, the combination, with the inner case, E, the suspended cone F, the cylinder H, and the inlet-pipe C, of the float G, substantially as herein shown and described, whereby the inflow of gas is stopped by the descent of the said float, as set forth.

ROBERT F. HATFIELD.

Witnesses:

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