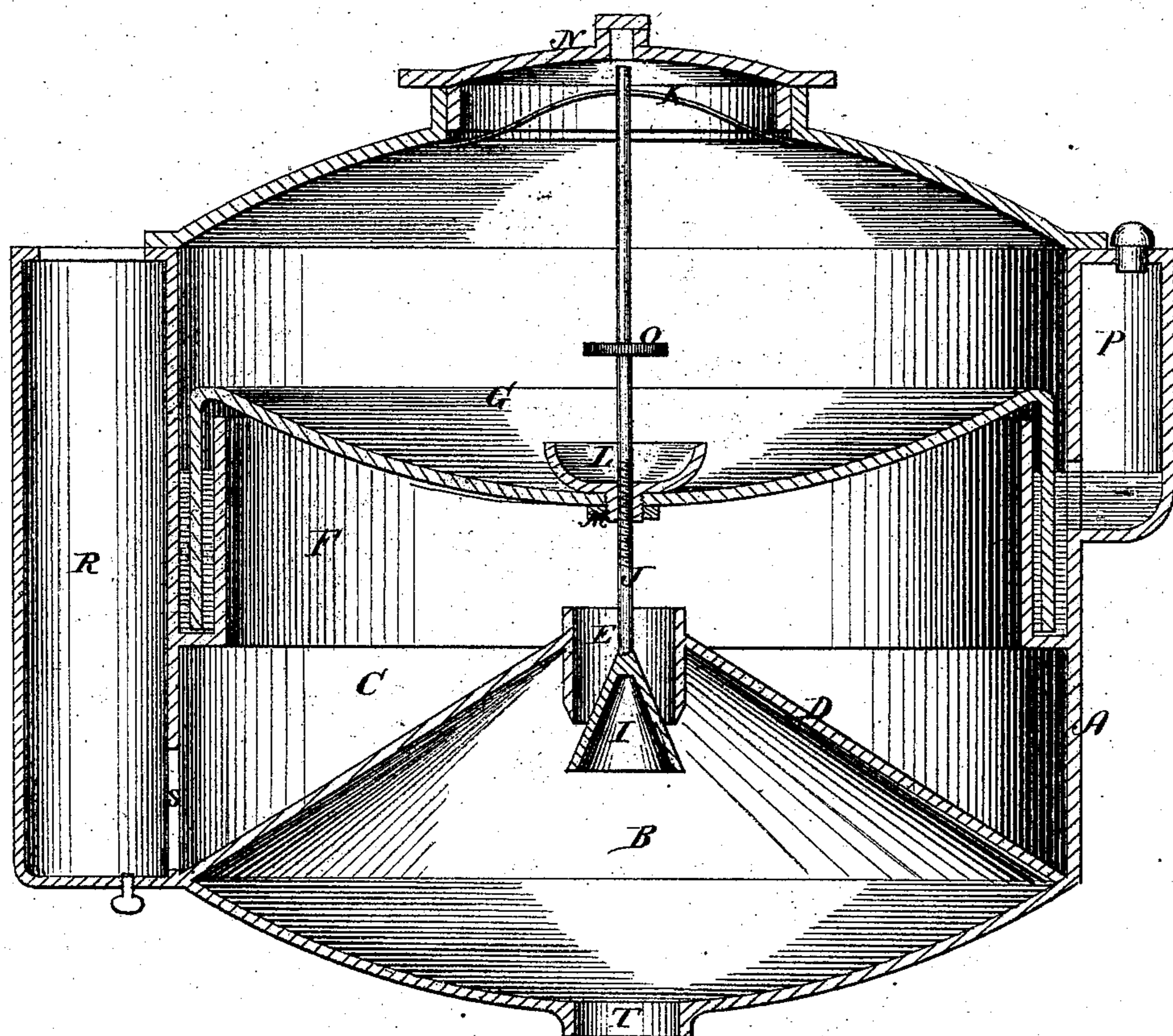


# Charles C. Place.

## Gas Regulator.

116349

PATENTED JUN 27 1871



Witnesses.

*J. H. Smith,*

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Attys.

# UNITED STATES PATENT OFFICE.

CHARLES C. PLACE, OF BOSTON, MASSACHUSETTS.

## IMPROVEMENT IN GAS-REGULATORS.

Specification forming part of Letters Patent No. 116,349, dated June 27, 1871.

*To all whom it may concern:*

Be it known that I, CHARLES C. PLACE, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Gas-Regulators, of which the following is a specification:

The drawing represents a sectional elevation of my invention.

This invention relates to that class of gas-regulators which employs an inverted cup floating in an annular reservoir containing any suitable liquid, said cup or vessel having an adjustable valve-rod passing through its center and operating the same in such manner as to shut off the flow of gas when the pressure becomes too great, and vice versa; and it consists mainly of a method of weighing said vessel in such manner as to cause the same to be influenced by any desired amount of pressure by the use of a cup located at the center thereof, said cup containing mercury, through which passes the valve-rod, the joint between the same and the vessel being rendered gas-tight by means of the mercurial weight.

The details of construction and method of operation will be more fully described hereinafter.

In the drawing, A represents the casing of the regulator, which is divided into compartments B C. The compartment B is separated from compartment C by the conical partition D, at the apex of which is a tube, E, which connects the two compartments. The lower end of said tube is provided with a knife-edge. F represents an annular reservoir around the walls of compartment C, which reservoir is filled with glycerine, in which rests the inverted vessel G, which is provided with concave top and divides the compartment C into two portions. I represents a conical valve attached to stem or rod J, which passes through the center of vessel G, and from thence to the upper portion of casing A, where it is held in place by a guide, K, through which the upper end projects. L represents a cup which is located on the center of vessel G, passing through the same, and being secured at the lower side by a nut, M. The rod J passes through the cup L, and is provided with a screw-thread which engages with a corresponding thread on the orifice

through the bottom of cup L. The top of casing A is provided with a movable cap, N. O represents a thumb-wheel or disk on the rod J, whereby the same is turned. P represents a reservoir at one side of casing A, communicating with the annular reservoir F. R is a compartment on the opposite side of casing A, communicating, through orifice S, with the lower portion of compartment C.

Gas is admitted through the port or orifice T into the compartment B, from whence it passes through tube E into the lower portion of compartment C. The cup L is loaded with mercury to the desired amount of pressure, and as the gas accumulates below vessel G and the pressure of the same exceeds the amount for which the cup L is weighted, the vessel G is raised until the valve I closes the lower end of tube E and checks the flow of gas. From the compartment C the gas flows to the burner through orifice S and compartment R. The mercury in cup L, besides being a weight for vessel G, also constitutes a gas-tight joint for the rod J at the point where it passes through the bottom of said cup. The valve I may be adjusted with reference to the bottom of tube E by turning the rod J in such manner as to raise or depress the same. The glycerine filling the reservoir F constitutes a tube or packing which is perfectly gas-tight, and presents a great advantage over mercury, which has been previously used in this connection, inasmuch as there is no contraction or expansion, which, in the use of mercury, is liable to produce waste of mercury or leakage of gas.

The vessel G, cup L, and valve I are of glass, the surfaces of which are coated with quicksilver, which prevents the impurities in the gas from being deposited thereon. The knife-edge of tube E, on account of the small amount of surface to come in contact with valve I, also prevents gumming. The guide K serves an important use in preventing lateral displacement of rod J and vessel G, thereby insuring the perfect action of the same. The concave top of vessel G, in connection with the conical partition D, causes a more even pressure of gas on the vessel G, and consequently a better regulation of the same.

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

1. The cup L with its mercury filling acting as a weight and gas-tight joint, substantially as described.

2. The cup L, as described, in combination with vessel G and rod J, as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES C. PLACE.

Witnesses:

CARROLL D. WRIGHT,  
C. F. BROWN.