J. H. POWERS.

Gas Regulator.

No. 18,103.

Patented Sept. 1, 1857.

Fig. 1.

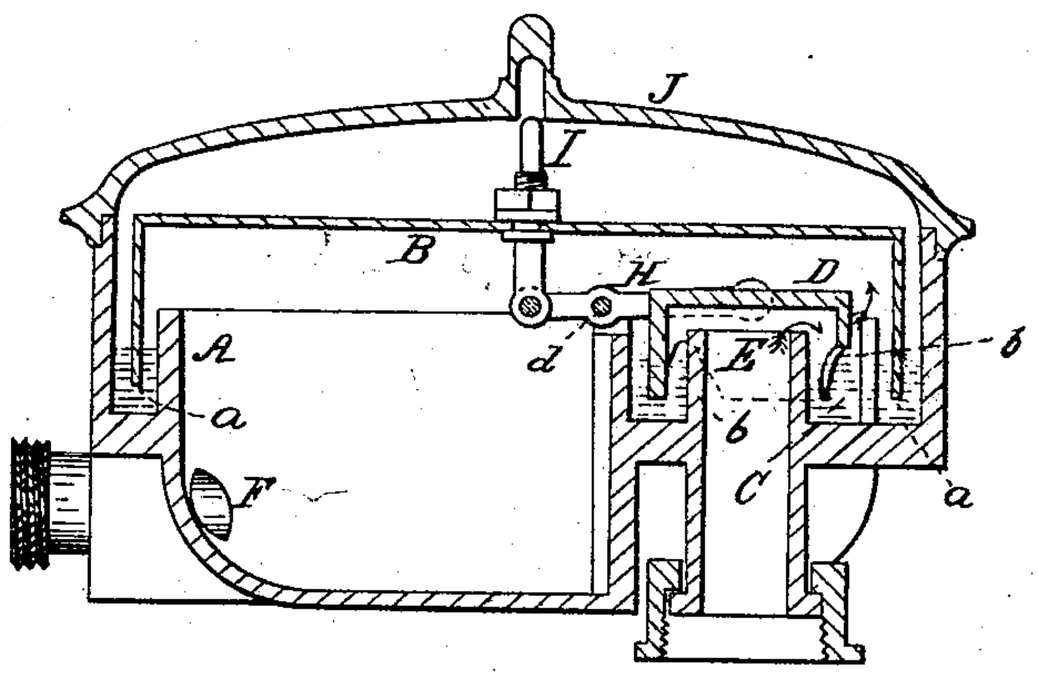


Fig. 3.

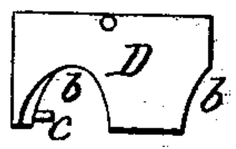
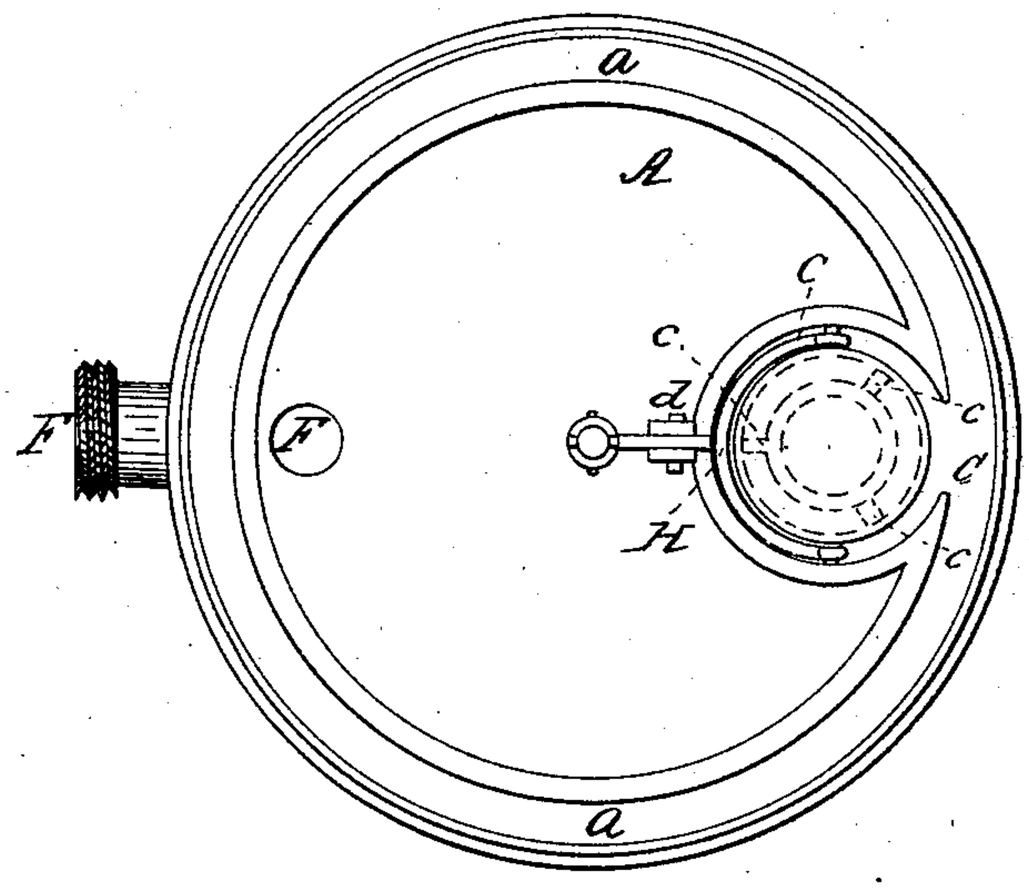


Fig. 2.



UNITED STATES PATENT OFFICE.

JOHN H. POWERS, OF NEWARK, NEW JERSEY.

GAS-REGULATOR.

Specification of Letters Patent No. 18,103, dated September 1, 1857.

To all whom it may concern:

Be it known that I, JOHN H. POWERS, of Newark, in the county of Essex and State of New Jersey, have invented a new and useful Improvement in Gas-Regulators; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a central vertical section of a regulator constructed according to my invention. Fig. 2 is a plan of the same with the cover and the inverted cup removed. Fig. 3 is a side view of the valve, detached.

Similar letters of reference indicate the same parts in all the figures.

This invention relates to that description of regulator the opening of whose valve is controlled by the pressure of the gas on an inverted cup floating in a basin of quicksilver.

It consists in the employment in regulators of that description, of a regulating valve of the form of an inverted cup having apertures in its sides, and dipping into quicksilver in a basin provided for it, so that the quicksilver constitutes the valve seat; said valve being applied to the inlet passage of the regulator and so connected with the inverted cup by a lever, and the arrangement of the inlet and outlet passages being such that as the street pressure or the number of burners in use varies, the valve is caused to dip more or less deeply into the quicksilver and more or less submerge its apertures, and thus regulate the amount of opening of the valve to supply the gas at all times at uniform pressure to the burners.

To enable others to make and use my invention, I will proceed to describe its construction and operation.

A, is a cylindrical box, having around its interior, the annular basin *a*, *a*, containing the quicksilver, in which floats the inverted cup B.

C, is a circular basin, which for the sake of convenience is made to communicate with the annular basin *a*, *a*, to be filled with quicksilver, at the same time, the said basin C, constituting the seat of the regulating valve, and being, together with the valve, covered by the cup B. The regulating valve D, as has been before mentioned, is of the form of an inverted cup with openings in its sides.

b, *b*, are the openings, of which there may be any desired number and of any desired form, but it is preferable to make them widest at the bottom and graudally narrower toward the top, as shown in Fig. 3, said openings being partly submerged in the quicksilver in the basin C.

E, is the inlet, the mouth of which stands up above the surface of the quicksilver in the center of the basin C, and is covered by the valve.

F, is the outlet, communicating with the chamber A, of the regulator that is surrounded by the basin *a*, *a*, and covered by the inverted cup B. The interior of the valve D, is made larger than the mouth of the inlet E, to leave room between their sides for the passage of the gas, but small pins *c*, *c*, are attached to the interior of the sides of the valve, to work against the exterior of the inlet to keep the valve concentric to the inlet.

H, is a forked lever of the first order, working on a fixed fulcrum *d*, and connected at its forked end with the valve and at its other end with the center of the inverted cup.

I, is a guide pin attached to the center of the inverted cup and working in a guide in the cover J.

The operation is as follows: The gas entering at E, escapes through the unsubmerged portions of the openings *b*, of the valve, into the chamber A, and thence to the outlet F. When the street pressure is low or the number of burners in use or amount of opening thereof great, the pressure in the chamber A, and under the cup B, is consequently but little, the cup occupies a low position, and by its connection with the valve D, viz, the lever H, holds up the valve with its openings *b*, *b*, but little submerged and allows a free supply of gas; but if the pressure in the chamber A, and under the cup B, is increased by an increased street pressure or by shutting off or turning down some of the burners, the cup B is raised and the valve depressed, thereby causing the apertures *b*, *b*, to be more deeply submerged in the quicksilver, and the supply of gas diminished.

I do not claim the connection of the valve with the inverted pressure of cup by means of a lever. But

What I claim as my invention and desire to secure by Letters Patent, is,

The arrangement of the inverted cup shaped valve D and its seat of quicksilver and the lever H which connects the said valve with the pressure cup all within the pressure cup substantially as herein described.

J. H. POWERS.

Witnesses:
W. TUSCH,
I. W. COOMBS.