S. W. BROWN.

Gas Regulator.

No. 13,210.

Patented July 10, 1855.

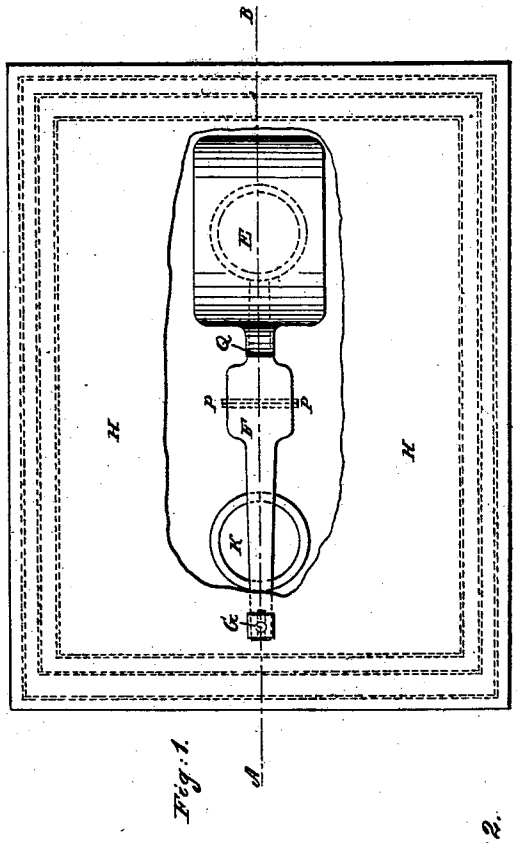

Fig. 1.

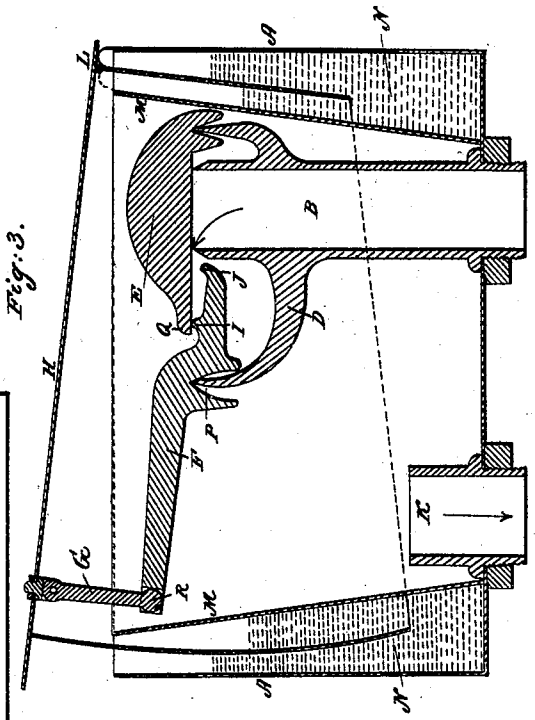

Fig. 3.

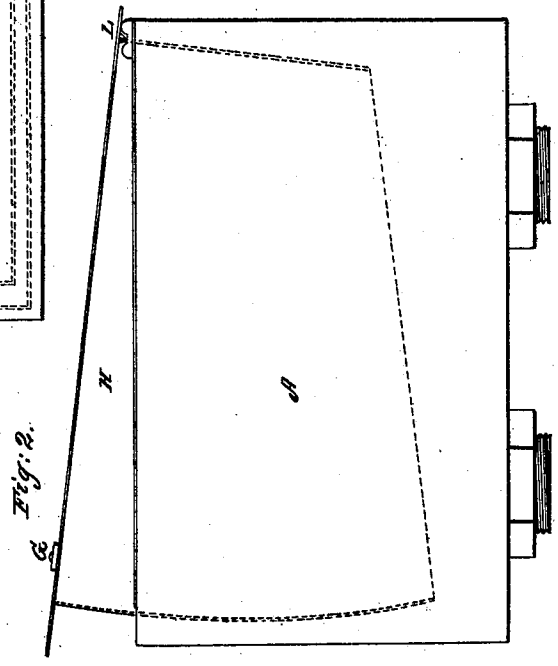

Fig. 2.

N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

SAMUEL W. BROWN, OF LOWELL, MASSACHUSETTS.

GAS-REGULATOR.

Specification of Letters Patent No. 13,210, dated July 10, 1855.

To all whom it may concern:

Be it known that I, SAMUEL W. BROWN, of Lowell, in the county of Middlesex and Commonwealth of Massachusetts, have invented a novel and useful Gas-Regulator which is Operated with a Lever which Directs an Increased Power to Operate the Regulating-Valve; and I hereby declare that the following is a lucid, clear, and exact description of its construction and use when taken in connection with the accompanying drawings and letters of reference marked thereon.

In referring to the drawings, Figure 1, denotes a plan or top view; Fig. 2, a side elevation of the same; Fig. 3, a longitudinal and vertical section on line A, B, Fig. 1.

The nature of my invention consists of a gas regulator for regulating burners, hereafter described in which the top or float is moved by the pressure of the gas within it, so as to open or close the induction pipe when in operation, to regulate evenly the pressure of the gas to the burners. The opening and closing of the induction pipe being effected by the regulating cap-valve and lever to operate it with any desired power to open the cap valve when the gas tar accumulates on it and causes it to stick or adhere to the induction tube, the longest arm of the operating lever being connected to and operated by the top or float, this float being operated by the pressure of the gas within it.

To enable others skilled in the art to which my invention appertains, to make, construct and carry out the same I will describe it as follows:

I construct a stationary metal case seen at A, A, in which is formed a secondary inner metallic case seen at M, leaving a space between it and the case A, for the liquid packing seen at N. To the main case A, I fit the metal top or movable float seen at H, which has its hinges or operating joints at L. To the regulator I attach the metal induction tube B through which the gas passes to the regulator, the top of the pipe B is formed nearly to an edge, on which is fitted a heavy regulating valve cap seen at E, which has its turning point at O, on the top of the arm C. On the opposite side of the pipe B from the arm C is formed the arm D with its operating edge seen at P which sustains and constitutes the fulcrum for the lever F. To the out end of this lever I attach the lower end of the connecting rod G, as seen at R, the upper end of it being connected to the movable top H.

It is well known that gas tar is certain to accumulate on gas regulator valves and cause them to stick to the tubes on which they operate. To effectually overcome this difficulty in my regulator I form a projection as seen at I, on the lever F very near to its fulcrum. This projection I is so shaped that it will first come in contact with the long arm or projection Q of the regulating valve cap E, to raise and open it with sufficient force to overcome the sticking of the gas tar, when the top H is depressing by the exhausting of the gas which is passing to the burners and perfectly regulating one or more lights.

To regulate a large number of lights the projection J on the lever F, comes in contact with the under surface of the regulating valve cap E, much nearer to its fulcrum than the projections I, which causes the valve E to rise and open much farther by the same movement of the float H, than by the projections I, which will be seen to readily accomplish after the valve is first started from the tube B, and sticking of the gas tar. This increased movement or opening and closing of the valve E is necessary to give the regulator the desired sensibility to regulate nicely one or more burners.

The eduction pipe through which the gas travels from the regulator to the burners is seen at K, and the liquid packing at N, it being shown in the drawing in its position when the regulator is working under a pressure equal to a column of water six tenths of an inch high as will be seen by the liquid packing, this being the pressure into and through the eduction tube K, to the burners, the pressure into and through the induction pipe B of course being greater than a column of water six tenths of an inch high.

One great improvement in my regulator consists in its having but two points of bearing seen at L, these being made knife edged, or nearly so, that little or no friction is created in these bearing points, the less friction the more sensitive, delicate and perfect will be the working of my regulator.

To operate my gas regulator, we will suppose the top of it as seen at H, to be nearly at its highest position, and the tube B, to be nearly closed by the regulating valve E, the regulator of course being nearly fileld with

gas. Then light one or more burners leading from the tube K. This will gradually exhaust the gas from the interior of the regulator causing the top to settle downward carrying with it the connecting rod G which operates the lever F, so as to open the valve E with increased power, until the projection J is raised so as to come in contact with the valve cap E which will open or raise it according to the number of lights, and pressure of the gas, and so on which will produce an even regular light or series of lights, which can be made any desired intensity by means of the weight which may be placed on the top or float H.

What I claim as my invention is—

The within described lever F, and valve E, and the knife edged guides or points of support P, O, and L L, for sustaining and guiding the lever F, and valve E, and the float H, which are so arranged and operated by the pressure of gas within the float H as to apply great force to open the regulating valve E to overcome the sticking, or adhesion, of this valve to the top of the induction tube B by the gas tar, and then to continue to open or close it in proportion to the number of lights which are being regulated, and the pressure of the gas through the induction tube B so as to regulate the burners nicely and evenly, essentially in the manner and for the purposes set forth.

SAM'L W. BROWN.

Witnesses:

O. NICHOLS,

E. W. SCOTT.