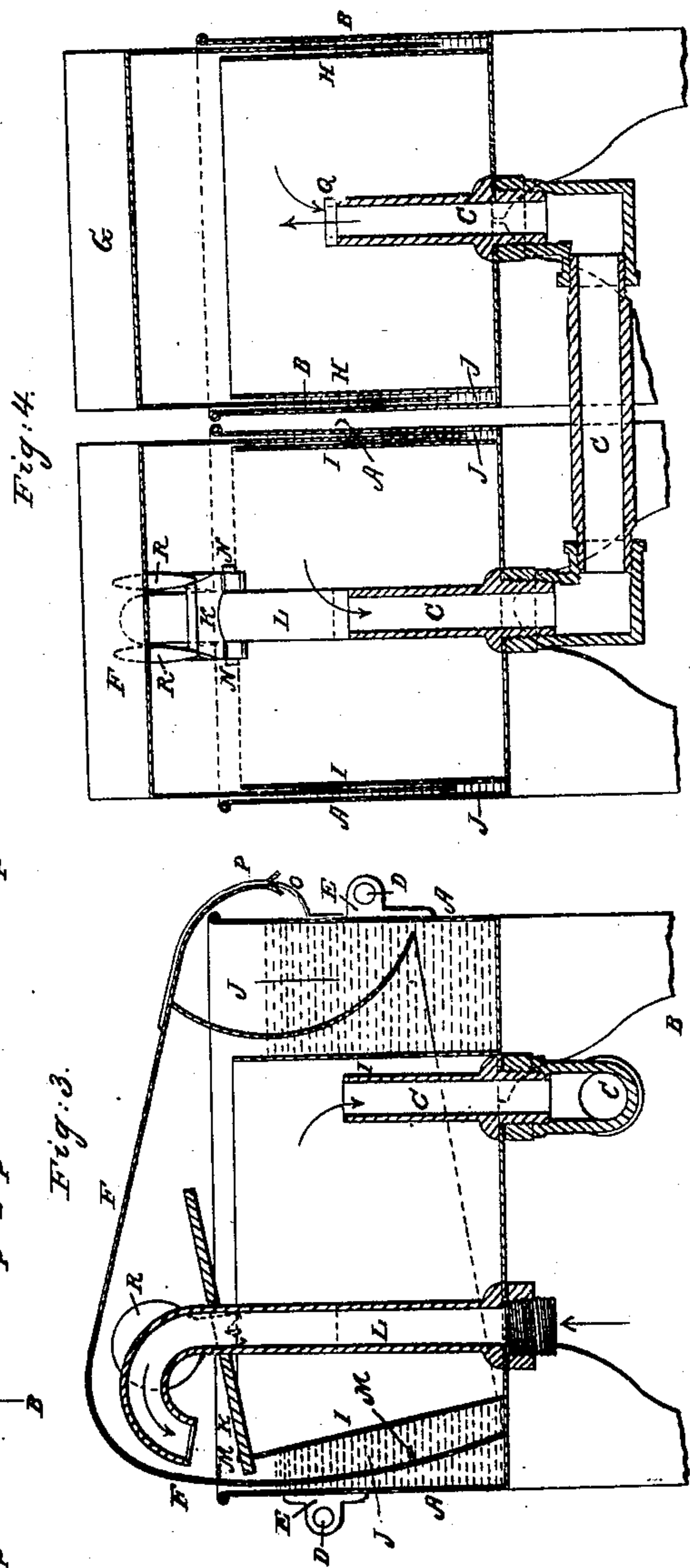
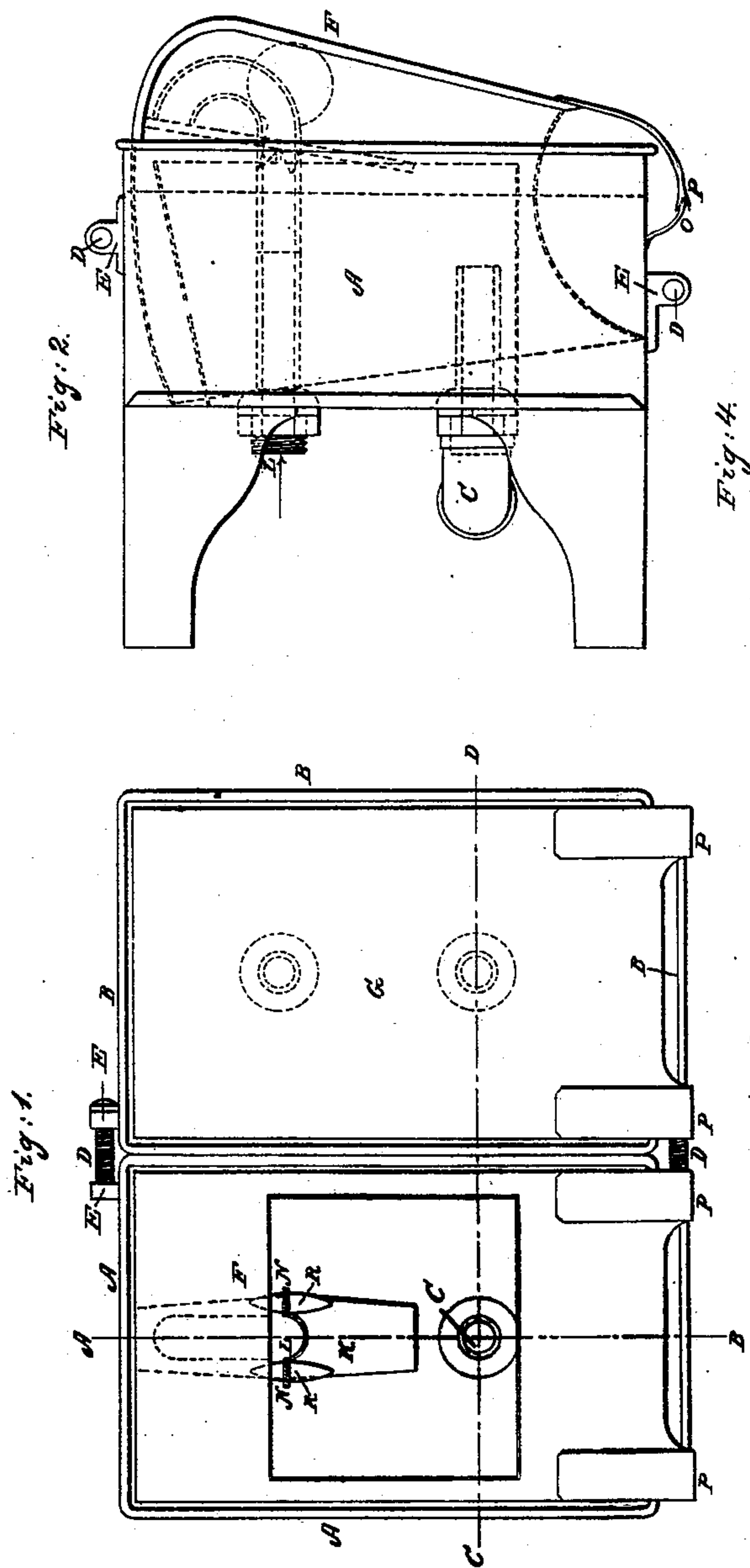


S. W. BROWN.
Gas Regulator.

No. 12,943.

Patented May 29, 1855.



UNITED STATES PATENT OFFICE.

SAMUEL W. BROWN, OF LOWELL, MASSACHUSETTS.

GAS-REGULATOR.

Specification of Letters Patent No. 12,943, dated May 29, 1855.

To all whom it may concern:

Be it known that I, SAMUEL W. BROWN, of Lowell, in the county of Middlesex and State of Massachusetts, have invented a new and useful Gas-Regulator; and I hereby declare that the following specification and accompanying drawings constitute a full, exact, and lucid description of the construction and use of the same, reference being had to the figures and letters of reference on the said drawings, in which—

Figure 1, denotes a plan; Fig. 2, a side elevation; Fig. 3, a vertical section at A, B; Fig. 4, a vertical section at C, D.

The nature of my invention consists of a gas regulator, for regulating any number of gas lights, and so constructed that the top will rise or swing upward when the tip valve is opened, by operation or moving of the top of the regulator, and a quantity of gas is introduced through the induction pipe into the regulator, which raises this movable top as well as supply the burners which are attached to the induction pipe or tube until the tip valve is closed, by the projections on the inside of the top part of the regulator and as the yielding or movable top descends by exhausting the gas by the burners, it again opens the tip valve and allows another quantity of gas to be introduced, and soon, which keeps up a regular supply and pressure through the burners using as packing, a composition of oil and water or other liquid on which oil will float, this oil effectually preventing the liquid from evaporating thereby constituting a perpetual packing or seal, and with great economy as the oil is the only necessary expense in this packing, all as hereafter described.

To enable persons skilled in the art to make construct and use my gas regulator, I will describe the same as follows, in connection with the accompanying drawings.

I construct two vessels of tin as seen at A, A, and B, B, and connect them together by the metal tube C, and the two screws D, D, passing through the metallic ears E, E. To each of the vessels A, A, and B, B, I properly fit a movable top made of tin as seen at F, F, and G, G, so as to freely move up and down and be guided by the hinges P, and O, between the outside cases A, A, and B, B, and the inner cases H, H, and I, I. The space between these cases seen at J, I fill with packing composed of sperm oil and water or other liquid or fluid on which oil

will float. This oil may be one-fourth of an inch deep (more or less if desired) on the surface of the liquid on which it floats, and is designed to effectually prevent any evaporation of the water or other liquid, as the case may be. Thus a very cheap effectual and constant packing is obtained for my regulator.

At L, can be seen the metallic induction tube through which the gas passes into the regulator, the top part of this tube being curved as seen in the drawing for the purpose of the effectual working of the metallic tip valve seen at K which is connected to the tube L, by means of the trunnions or fulcrums N, which are firmly connected to the tube L, and are so shaped as to sustain this tip valve and to allow it to be opened by the upper projection M, which is attached to and forms part of the movable top F, and which projection M, comes in contact with the tip valve K, during the descending of the top F.

It will be seen that the operation of the said valve is such as to tip itself from the end of the induction pipe after it has been moved far enough by the projection M, to carry the balance of the weight seen at R, which constitutes a part of the valve M, forward of the fulcrums N, by which means the valve K, is tipped down until the forward end of it is stopped by the upper edge of the inner partition I. This fully opens the induction pipe through which the gas passes, so as to cause the regulator to be filled or inflated, and by which the top F, is elevated until the lower projection M, is brought in contact with the forward end of the tip valve, and carrying it in conjunction with the weight on the top of this valve, to close it and thus remain until the gas is sufficiently exhausted from the interior of the regulator so as to allow the top F, and upper projection M, to again open the tip valve and so on.

I attach the vessel B, B, to the vessel A, A, for the purpose of effectually overcoming any imperfection in the pressure of gas in the burners by the slight force that is necessary to operate the tip valve by the projections M, M, this imperfection actually amounting to less than a 4/1000 part, and that only about $\frac{1}{4}$ part of the time.

It will be understood that the within described tip valve can be effectually applied to gas regulators of any desired shape or form.

The gas after passing into the first vessel A, A, then passes through the conducting pipe C, as the arrow points, and into the vessel B, B, and from thence it is conducted
5 to the burners through the orifice or tube Q. By this second vessel B, B, the most perfect result is attained for regulating gas.

It will be understood that any desired pressure of gas can be attained by weighting
10 the tops of the regulator, more or less as the case may require.

The operation of my gas regulator consists only in lighting any number of burners attached to it and which it may be designed
15 to regulate, and by the self operation of the regulator and tip valve as will be readily understood by reading the above description of the construction. The quantity and pressure of gas is perfectly regulated providing
20 the outside varying pressure supersedes the

inner, and regular pressure from the interior of the regulator to the burners.

Having thus described the construction and operation of my gas regulator, what I claim as my invention and desire to secure
25 by Letters Patent is—

1. The tip valve K in combination with the movable top or float F of the regulator, for operating the tip valve by means of the projections M, M, or otherwise essentially in
30 the manner and for the purposes set forth.

2. I claim the use and application of oil and water, or other liquid on which oil will float for the packing required in my gas regulator, essentially in the manner and for the
35 purposes fully set forth in my specification.

SAMUEL W. BROWN.

Witnesses:

E. W. SCOTT,

G. W. F. BAKER.