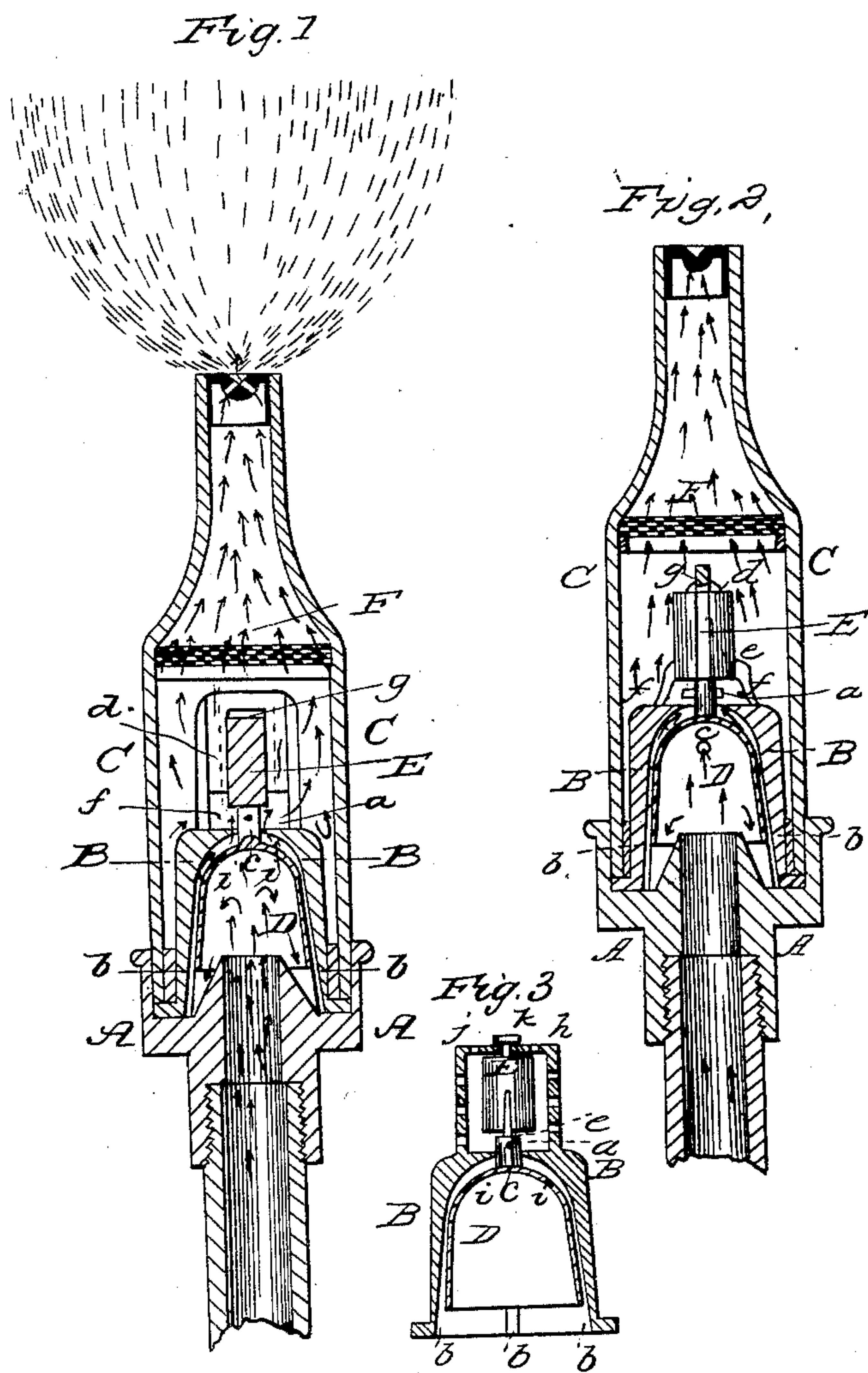


G. W. THOMPSON.  
Regulator for Gas Burners.

No. 28,113.

Patented May 1, 1860.



Witnesses:  
B. J. Gould  
C. W. Livingston

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# UNITED STATES PATENT OFFICE.

GEO. W. THOMPSON, OF NEW YORK, N. Y.

## GAS-BURNER.

Specification of Letters Patent No. 28,113, dated May 1, 1860.

*To all whom it may concern:*

Be it known that I, G. W. THOMPSON, of the city, county, and State of New York, have invented a new and Improved Regulator for Gas-Burners; 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, forming part of this specification, in which—

Figures 1 and 2, are vertical sections at right angles to each other of a gas burner fitted with my improved regulator. Fig. 3, is a vertical section exhibiting a modification of the regulator.

Similar letters of reference indicate corresponding parts in the several figures.

My improved regulator consists of a combination of a valve an independent weight or its equivalent and a stop, the whole applied, arranged and operating within a burner substantially as herein described to produce a uniform or nearly uniform issue of gas from the burner, and consequently a uniform or nearly uniform light under all variations of pressure in the main or in the pipe which supplies the burner.

A, Figs. 1 and 2, represents the socket of the burner by which it is attached to the pipe which supplies it, made in the form of a cup for the valve box B, to rest in, and having the body C, of the burner fitted to it, and secured in such manner as to secure the valve box B, in place. The valve box B, is of the form of an inverted cup having the sides of its interior tapered upward slightly, in a conical form and terminating in a dome like form at the top in the center of which there is an opening *a*, which is the only means of egress for the gas to the top of the burner. The said box has also grooves *b*, *b*, running up the sides of its interior for the passage of the gas between it and the valve said grooves tapering upward. D, is the valve also of an inverted cup form having its exterior of a shape corresponding with the shape of the interior of the box B, and having a short stem *c*, which passes through the opening *a*. This stem has inserted transversely through it a small pin *e*, which is intended to rest upon the top of the box B, and keep the valve suspended therefrom when there is a very slight pressure of gas or when the gas is shut off from the burner.

E, is the weight represented in Figs. 1

and 2, as formed with grooves to slide up and down in fixed vertical guides *d*, *d*, which are attached to the top of the valve box, and as provided with feet *f*, *f*, to rest upon the top of the valve box and support it thereon in such a manner that when the valve is suspended by its pin *e*, the top of its stem *c*, may be at a considerable distance from the said weight, which is therefore to a certain extent independent of the valve. The guides *d*, *d*, are united at the top by a cross piece *g*, which serves as a stop to prevent the ascent of the weight beyond a point at which the valve, having the top of its stem in contact with the weight, will remain out of contact with the top of the box, the said stop thereby preventing the shutting off of the gas by any excessive pressure below the valve. F, is a distributor consisting of a diaphragm of wire gauze or other reticulated or perforated material fitted to the body of the burner above the weight E. This distributor constitutes no part of my invention.

The regulator constructed as shown in Fig. 2, operates as follows: The gas entering the burner through the socket A, passes into the valve under the edges of the valve between it and the interior of the box, over the top of the valve and through the orifice *a*, in the head of the box and from thence to the tip. At the lowest pressure the valve is suspended by its pin *e*, from the top of the box. As the pressure increases the gas raises the valve and so causes the contraction of the passage between the valve and the sides and head of the box, and when the pressure reaches a certain point the top of the stem of the valve comes in contact with the weight E, which being light is soon raised by an additional increase of pressure the contraction of the passage still continuing till the weight comes in contact with the stop *g*. The rise of the weight to this point only occurs in case of an excessive pressure and the valve is then very nearly up to the head of the box. The stop is merely to prevent the valve closing the opening *a* and shutting off the gas entirely. As the pressure diminishes the valve descends and gives a greater area of passage for the gas.

The sides of the exterior of the valve and interior of the box may be cylindrical but in such case the passages *b*, *b*, will require to have more taper than when the sides of the valve and box are conical.



It will be observed by an examination of Fig. 1, of the drawing that there are two very small orifices *i*, *i*, in the head of the valve. These are however of comparatively little importance and may be dispensed with, by a careful construction and arrangement of the weight and stop. They serve simply to insure a supply of gas in case of the valve not immediately falling on the reduction of the pressure.

The modification of the regulator shown in Fig. 3, only differs from the construction shown in Figs. 1, and 2, in the manner of applying the weight E, which in this case instead of being grooved to work in vertical guides like *d*, *d*, is provided with a stem *j*, at the top to work in a hole in a bridge piece *h*, such stem having a head *k*, which performs the function of the feet *f*, *f*, represented in Figs. 1 and 2 by suspending the weight from the bridge piece *h*, till it is raised by the valve. The bridge piece constitutes a stop which acts like the stop *g*, to

stop the ascent of the weight and valve beyond a certain point.

It is obvious that a spring may be applied instead of the weight E, to operate in an equivalent manner, a suitable stop being applied to prevent the ascent of the valve beyond a desirable point.

I do not confine myself to the construction of the valve as herein described and I do not claim the use of a valve working in a box with upwardly diminishing passages, but

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

The regulator composed of a valve D, an independent weight E, or its equivalent and a stop *g*, or *h*, the whole applied to a burner and operating substantially as herein described.

GEO. W. THOMPSON.

Witnesses:

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M. M. LIVINGSTON.