J. W. CREMIN.

Gas Burner.

No. 98,744. Patented Jan. 11, 1870.

Fig. 1.

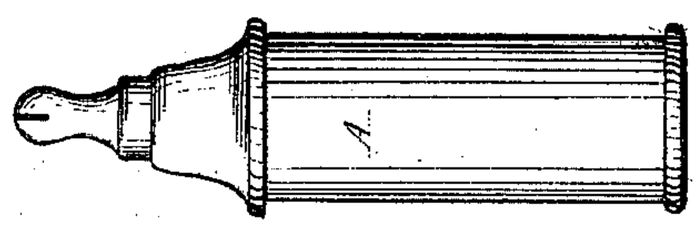


Fig. 6.

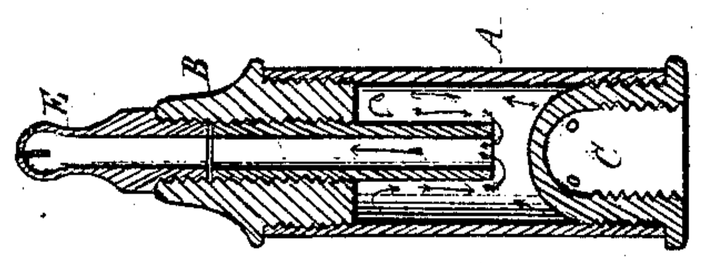


Fig. 4.

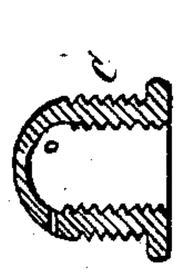


Fig. 5.

Fig. 3.

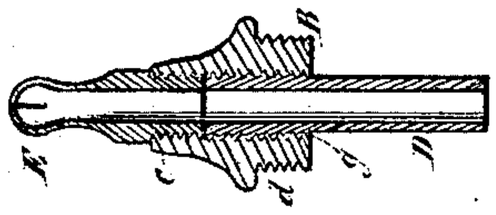
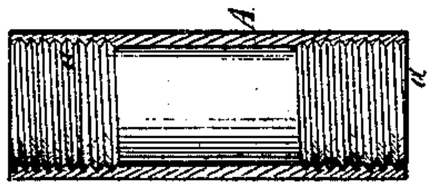


Fig. 2.



Witnesses:

Seraphim Case

R. A. Marsh

Inventor:

Joseph W. Cremin

United States Patent Office.

JOSEPH W. CREMIN, OF NEW YORK, N. Y.

Letters Patent No. 98,744, *dated January* 11, 1870.

IMPROVEMENT IN GAS-BURNERS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JOSEPH W. CREMIN, of the city, county, and State of New York, have invented a new, useful and improved Gas-Burner; and I do declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in a new and improved gas-burner, cylindrical in form, and tapering at the top, as shown.

In the annexed drawing—

Figure 1 is a plane view of the burner.

Figure 2 is a vertical section of the cylindrical body or heating-chamber.

Figure 3 is a vertical section of the top of the burner, which fits into the heating-chamber at *a*.

Figure 4 is a vertical section of the check-meter, which is placed internally at the lower end of the heating-chamber.

Figure 5 is an interior conducting copper tube, screw-threaded, and connected with fig. 3 at *g*, occupying a central position in the expansion-chamber, and descending nearly to the check-meter, as seen in fig. 6.

Figure 6 is a vertical section of the burner, with all its parts put together.

It is evident that the quantity of gas consumed in a burner depends on the pressure or the velocity with which it passes through the burner; hence, the advantage of the check-meter C, fig. 4, at the base, which arrests the flow of gas, before it enters the burner, and serves the triple function of connecting the expansion-chamber directly with the supply-pipe, and being a meter and a check at the same time.

Most, if not all the burners now in use have the orifice at the bottom larger than at the tip, and hence a large quantity of gas passes through wastefully, without giving any light, on account of the great pressure in the burner. Under these circumstances, there is no room for expansion; but, on the contrary, the gas is condensed. This is entirely overcome by my burner, as the aperture at the tip is larger than those at the bottom, which is a principal part of the great secret of making a good economical burner.

A, in the drawing, is the expansion or heating-chamber, internally screw-threaded at each end.

B is the removable top of the burner, in the bottom of which is screwed a copper tube, D, and in the top can be screwed any-sized tip.

C is a vertical section of a perforated cap or check-meter, screw-threaded internally and externally, which serves the triple function before described.

D is the interior, conducting, copper tube, upon which the tip rests, when both are screwed into the cap B.

The tip E heats the copper tube, and this aids in superheating the gas in the expansion-chamber.

The gas enters from the supply-pipe, through the perforations in the check-meter, into and up the heating-chamber, thence down and up through the concentric copper tube.

The advantage of the heating-chamber is apparent.

It is well known that there is no limit to the expansion of the gases, and hence the necessity of room for the expansion in a heated chamber.

The surplus gas in the chamber aids in producing a steady flame, by supplying any momentary deficiency in the fluctuation of the gas in the supply-pipes.

The capacity of the burner is considerable, and yet it casts no perceptible shadow.

The use and advantages of the top part, fig. 3, are apparent. It also serves the triple function of connecting with the expansion-chamber at *d*, the interior tube at *g*, and the tip at *c*.

The advantages of the tip are as follows:

It may be made of several substances, viz, silver, iron, brass, lava, soapstone, &c., and of any size, and can be easily replaced. It must be borne in mind that the orifice in the same must, in every instance, be larger than the holes in the check-meter.

Photometric tests have been made in New York city with this burner, and the results obtained under five-tenths pressure are, that my burner gives a luminosity of nine candles from three feet of gas, while the ordinary bat-wings and fish-tails give only the light of five candles from the same quantity of gas under the same pressure. Other burners, and Ray's, patented in 1858, gave only the light of six and two-tenths candles from two and seven-tenths feet of gas under the same pressure, which is owing principally to their great interior obstruction.

My burner is simple in its construction, and is made of five parts; but it is evident that it can be constructed of fewer pieces; for instance, A and B might be in one piece, and other parts might be united also.

The construction of my burner not being so complicated as others, it is easily cleaned, and one burner can be used for a large or small light, as desired, simply by increasing or diminishing the perforations in the check-meter, and changing the tip to a larger or smaller one, to correspond.

I believe I have thus shown the nature of my invention, so as to enable others to make and use the same; therefore,

What I claim, and desire to secure by Letters Patent of the United States, is—

The combination of the heating-chamber A, cap B, conducting-tube D, check-meter C, substantially as described.

JOSEPH W. CREMIN.

Witnesses:

SERAPHINE MASE,

R. H. MARSH.