

No. 660,580.

Patented Oct. 30, 1900.

T. J. LITTLE, JR.  
ATMOSPHERIC BURNER.  
(Application filed Jan. 6, 1900.)

(No Model.)

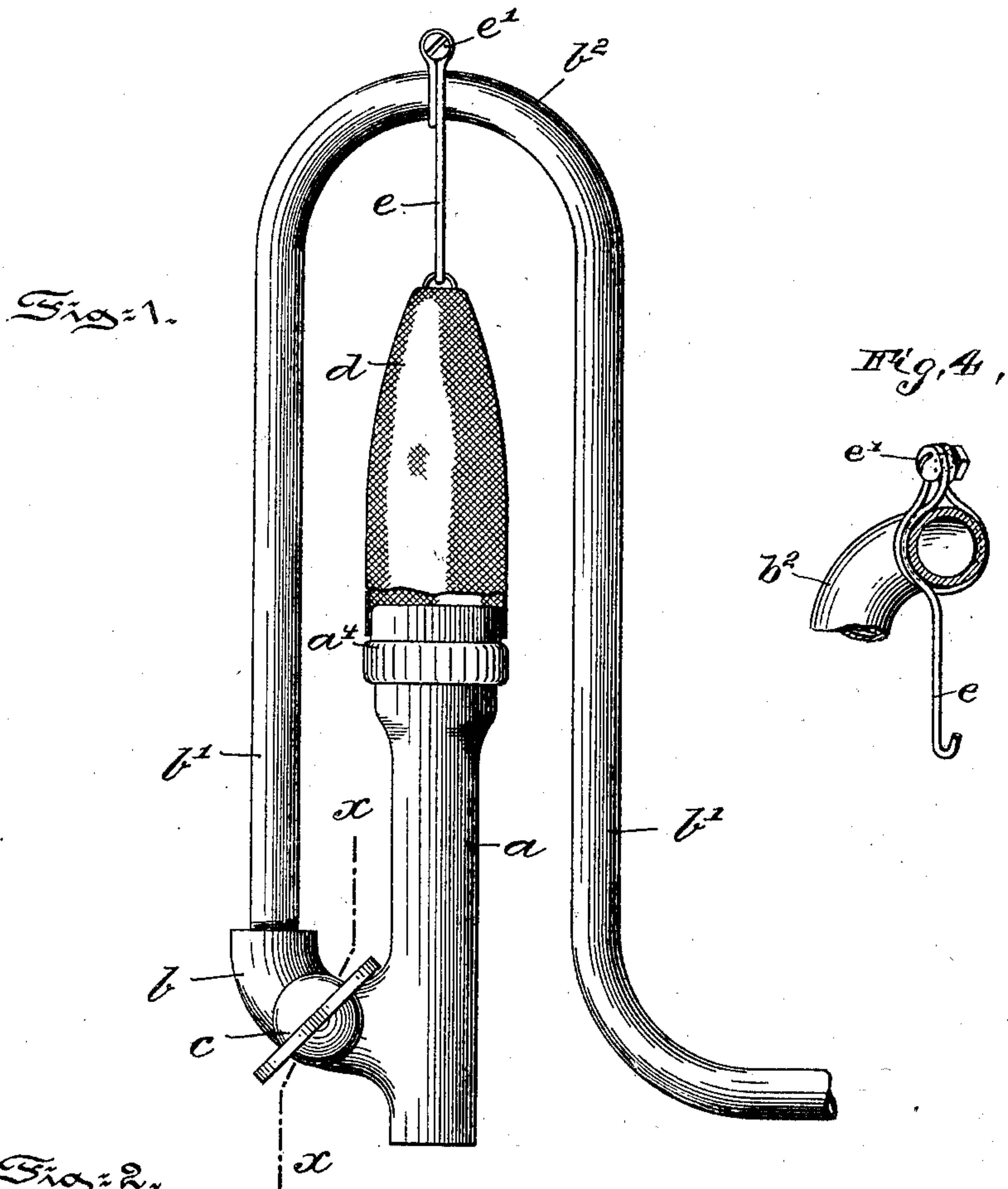


Fig. 2.

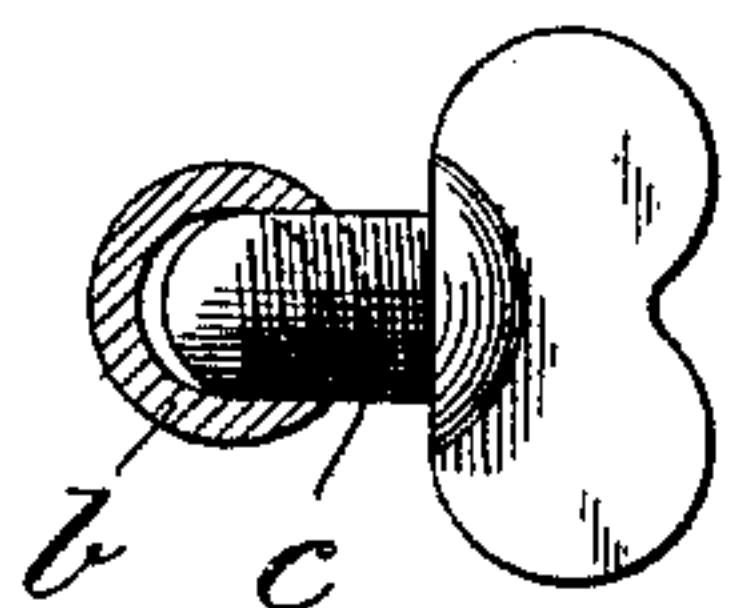
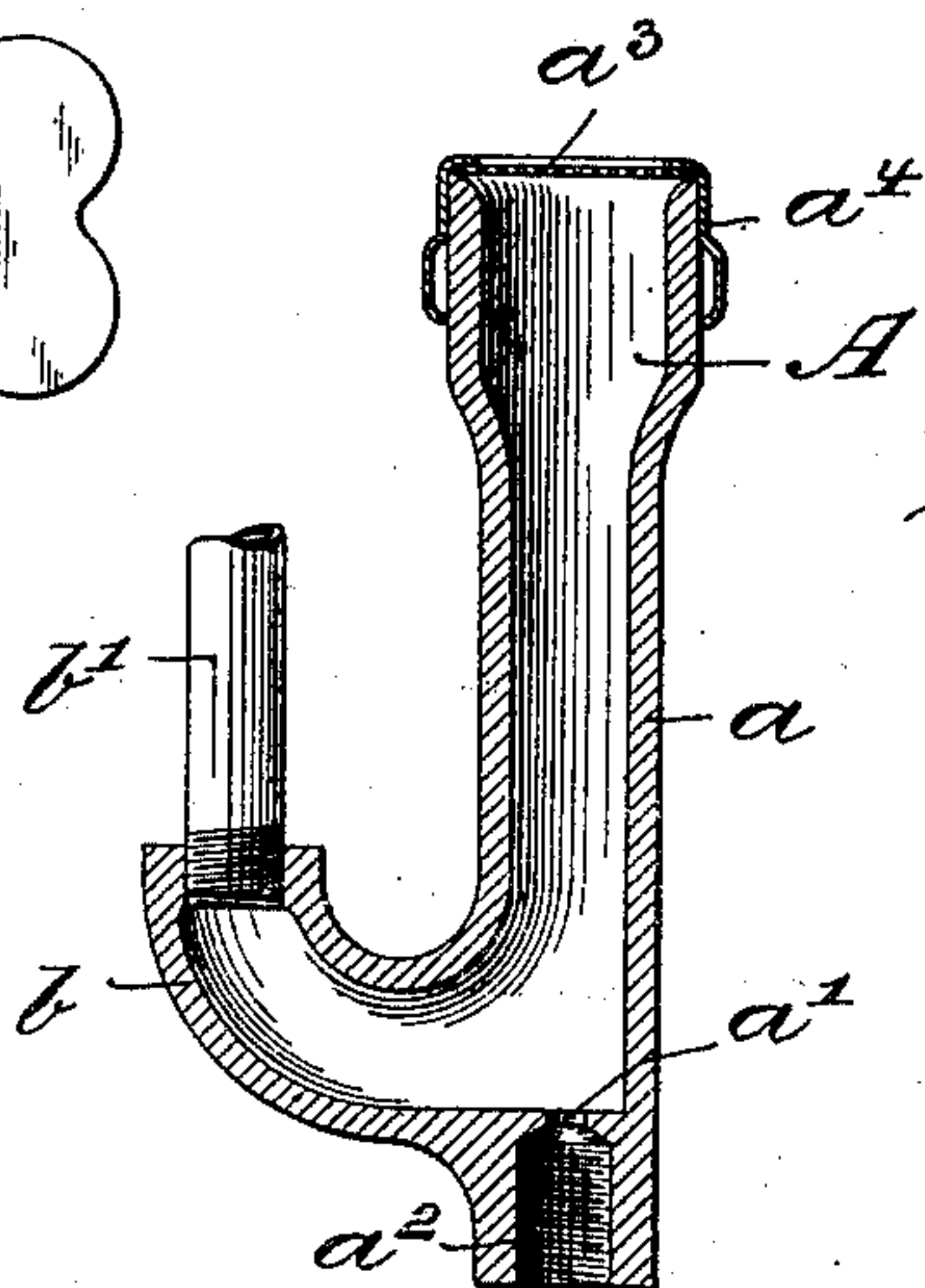


Fig. 3.



Witnesses:  
Henry C. Cording.  
Richard C. Maffell

Inventor:  
Thomas J. Little, Jr.,  
By J. W. Allen  
Attorney.



# UNITED STATES PATENT OFFICE.

THOMAS J. LITTLE, JR., OF PHILADELPHIA, PENNSYLVANIA,

## ATMOSPHERIC BURNER.

SPECIFICATION forming part of Letters Patent No. 660,580, dated October 30, 1900.

Application filed January 6, 1900 serial No. 611. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS J. LITTLE, JR., a citizen of the United States, residing at the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Atmospheric Burners, of which the following is a specification.

My invention has relation to a burner in which a controllable quantity of air under pressure is presented and mixed with an illuminating-gas anterior-to its ignition and in which the gas is more thoroughly mixed with air, and the illuminating effect of the gas burned in the presence of a surrounding incandescing mantle is appreciably improved, with economy as to the quantity of gas used in the production of the derived appreciably-increased illumination therefrom, and in such connection my invention relates to the particular construction or arrangement of the burner for the said purposes.

The nature and scope of my present invention will be more fully understood from the following description, taken in connection with the accompanying drawings, forming part hereof, in which—

Figure 1 is an elevational view of an atmospheric burner embodying the particular features of my present invention. Fig. 2 is a view, partly in elevation and partly in section, on the line  $xx$  of Fig. 1 of the air-controlling valve-key for the burner-casting. Fig. 3 is a vertical central sectional view of the burner-casting, showing the internal arrangement thereof and the gas and air inlets to the expanding or mixing chamber of the device; and Fig. 4 is a perspective view of the mantle-suspending hook connected with the arch of the air-supply tubing of the burner.

Referring to the drawings,  $a$  represents the J-shaped burner-casting, provided with a narrow gas-inlet  $a'$ , leading from the threaded internal projection  $a^2$  for fitting the gas supply or pipe.

$b$  is the air-inlet in the curved or crooked portion of the casting and provided with a tubing  $b'$ , formed into a loop  $b^2$ , and surrounding the burner proper and leading therefrom to a suitable source of air-supply under pressure. (Not shown.)

In the curved or crooked lower portion of the J-shaped casting, in one wall of the same, is provided a threaded air-check valve-key  $c$ , as illustrated in Figs. 1 and 2 of the drawings, to control the quantitative supply and heating in the passage of the air through the tubing  $b'$  into the interior of the lower portion of the J-shaped casting in respect to gas mixing therewith and to insure a more thorough admixture of the one with the other before reaching the expanding or mixing chamber A of the casting  $a$  and prior to the ignition of the illuminating-gas beyond said chamber A at the end of the Bunsen or other type of burner  $a^3$ , having a removable perforated surrounding cap  $a^4$ . Through the volume of air in respect to the quantity of gas introduced into the expanding or mixing chamber A being controlled through the key  $c$  a far more perfect mixture and superior quality of gas properly mixed with air is insured in the said chamber and for ignition in the presence of the suspended incandescing mantle  $d$  (illustrated in Fig. 1) and with thereby, as practice has demonstrated, a very appreciable increase in the illuminating effect derived therefrom. The mantle  $d$  is suspended from a hook  $e$ , formed or bent one or more times around the arched portion of the tubing  $b'$  and fastened and held in a fixed position in connection with said tubing by means of a threaded jam-nut  $e'$ , as clearly illustrated in Fig. 4 of the drawings.

By forming the burner-casting in substantially J shape and utilizing the crooked or curved portion as the air-inlet the tubing  $b'$  may be readily attached to or removed from the casting without the use of elbows or joints, and when attached to the casting the tubing  $b'$  is firmly supported thereby. This is advantageous for the reason that the tubing  $b'$  forms the support for the fragile mantle  $d$ . The formation of a curved or crooked air-inlet  $b$  is also advantageous in that the key or valve  $c$  for regulating the flow of air may be located on the casting proper and not upon the tubing  $b'$ , which is less firm than the casting.

Having thus described the nature and object of my invention, what I claim as new, and desire to secure by Letters Patent, is—

An atmospheric burner, comprising a substantially J-shaped casting having a crooked

or curved portion forming the inlet for air  
and a straight portion forming the inlet for  
gas, said straight portion having at its up-  
per end an expanding portion, a tubing con-  
5 nected to and projecting upward from the  
crooked or curved portion and arching over  
the upper end of the straight portion of the  
casting, a mantle adapted to be supported by  
the arched portion of said tubing and a valve  
10 or key located on the crooked or curved por-

tion of the casting and adapted to control the  
air-inlet, substantially as and for the pur-  
poses described.

In testimony whereof I have hereunto set  
my signature in the presence of two subscrib- 15  
ing witnesses.

THOS. J. LITTLE, JR.

Witnesses:

J. WALTER DOUGLASS,  
RICHARD C. MAXWELL.