

(No Model.)

C. L. HOLDEN.
GAS BURNER.

No. 461,435.

Patented Oct. 20, 1891.

FIG. 1.

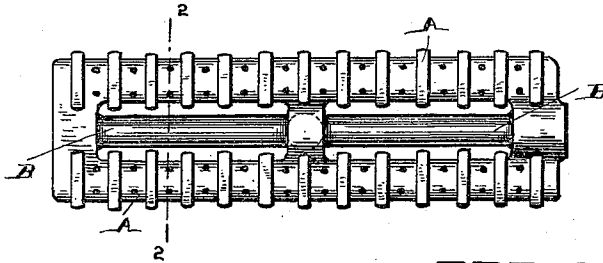


FIG. 2.

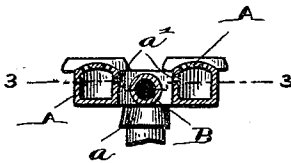


FIG. 3.

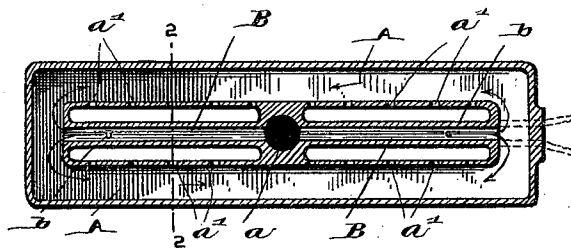


FIG. 4.

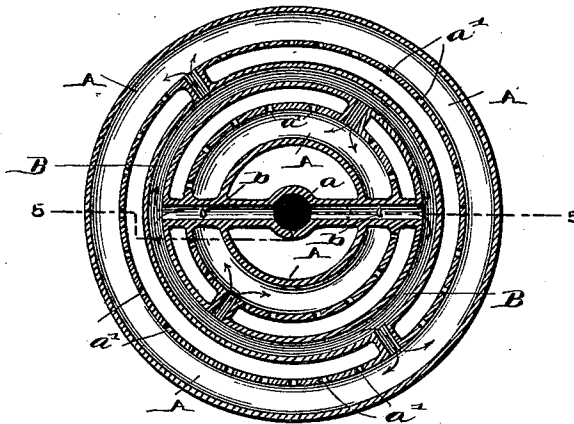
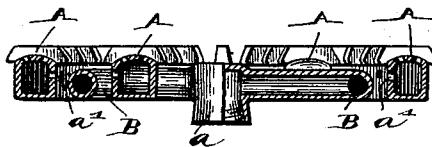


FIG. 5.



WITNESSES:

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UNITED STATES PATENT OFFICE.

CHARLES L. HOLDEN, OF INDIANAPOLIS, INDIANA.

GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 461,435, dated October 20, 1891.

Application filed December 30, 1890. Serial No. 376,242. (No model.)

To all whom it may concern:

Be it known that I, CHARLES L. HOLDEN, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Gas-Burners, of which the following is a specification.

The object of my said invention is to provide an improved construction of burner for use in feeding gas to a fire of that character which embodies a superheating-chamber so arranged in connection with the burner that the fire therefrom will itself keep said chamber heated to a high degree, whereby the gas in passing through said chamber to said burner is superheated, and the benefits derived from superheating-gas before combustion are secured by a very simple and inexpensive device.

Referring to the accompanying drawings, which are made a part hereof and on which similar letters of reference indicate similar parts, Figure 1 is a top or plan view of a burner embodying my said invention; Fig. 2, a cross-section on the dotted line 2 2; Fig. 3, a horizontal section on the dotted line 3 3; Fig. 4, a horizontal section showing my invention as applied to a round burner, and Fig. 5 a cross-section of the same on the dotted line 5 5.

In said drawings, the portions marked A represent the burner proper, and B the superheating-chamber.

The burner A, as illustrated in Fig. 1, is in itself of a common form, consisting of a hollow casting having two parallel hollow sides connected by hollow ends. The form of burner shown in Fig. 4 is also in itself of a common construction, consisting of hollow circular castings connected with the gas-supply pipe. Both burners are provided with perforations, through which the gas may escape, as is common. These two forms of burners are illustrated as showing the manner of applying my invention to different styles of well-known burners.

The superheating-chamber B, as shown, is a pipe or hollow casting arranged between the two parallel sides of the burner and communicating at each end with the hollow ends of said burner, while the cross-bar in the center having the inlet-orifice *a* is formed in

piece therewith, the orifice communicating directly with said chamber. Obstructing devices *b* may also be formed in this chamber to retard the flow of gas when necessary to secure the proper degree of heat before reaching the burner. A row of holes *a'* is formed in the inner sides of the parallel sides of the burner adjacent to said chamber, the flames from which in operation come directly in contact with the exterior of said pipe or chamber and maintain a very high degree of heat therein. The superheating-chamber is formed in the same plane or substantially the same plane with the sides of the burner, and an open space of sufficient width to permit free circulation is left between said sides and said superheating-chamber. The holes *a'* are cast in the sides below the plane of the perforations in order to bring the heat to direct contact with said superheating-chamber. By reason of the open space around said superheating-chamber the air is permitted to circulate freely and mingle with the escaping gas from the burner and much of it be consumed. Said chamber is also prevented from being burned out with that rapidity which would otherwise result.

It will be understood that the number of chambers of the burner may be multiplied, and a burner thus provided of the width or size desired for the use for which it is intended. It will also be understood that the gas may be introduced into the chamber through the end of the burner, as indicated by dotted lines in Fig. 3, instead of in its center, when it is more convenient to do so.

In operation the gas is conducted into the superheating chamber or pipe B through the inlet at its center or end (according to the arrangement used) with which the supply-pipe is connected, and then passes through the length of said chamber into the hollow perforated chambers, from which it escapes and is ignited, the flames from the row of holes *a'* adjacent to the pipe operating to rapidly heat it and superheat the gas which is passing through it into the burner proper, thus securing the result desired.

While this burner is designed especially for use in burning natural gas, it will be understood, of course, that it may be used in burning other kinds of gas when desired.

I am aware that retorts for vaporizing hydrocarbons have been arranged in close proximity to burners which supply a portion of the gas thus produced to feed the fire for
5 maintaining the heat required in said retorts; but I do not know of any such apparatus capable of accomplishing the object of my invention, which is not to produce gas from hydrocarbon, but consists in the construction
10 and arrangement of the burner, whereby the gas fed thereto passes through a chamber heated by the flames therefrom before reaching the perforated chambers of said burner, thus securing the superheating of said gas
15 before it is used as a fuel and the consequent well-known advantages, as herein particularly described and claimed.

Having thus fully described my said invention, what I claim as new, and desire to secure
20 by Letters Patent, is—

A gas-burner consisting of hollow perforated chambers and an imperforate hollow chamber interposed between said perforated chambers and communicating therewith, being located in substantially the same plane
25 with said perforated chambers with an open space between them, a series of holes formed in the inner sides of each of the chambers of said burner substantially in line with said
30 imperforate chamber, and a gas-inlet to said imperforate chamber, all substantially as described, and for the purposes set forth.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 27th day of December, A. D. 1890.

CHARLES L. HOLDEN.

Witnesses:

E. W. BRADFORD,
FRANK W. WOOD.