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1,497,591

C. M. ROBERT

GAS BURNER

Filed April 3, 1923

FIG. 1.

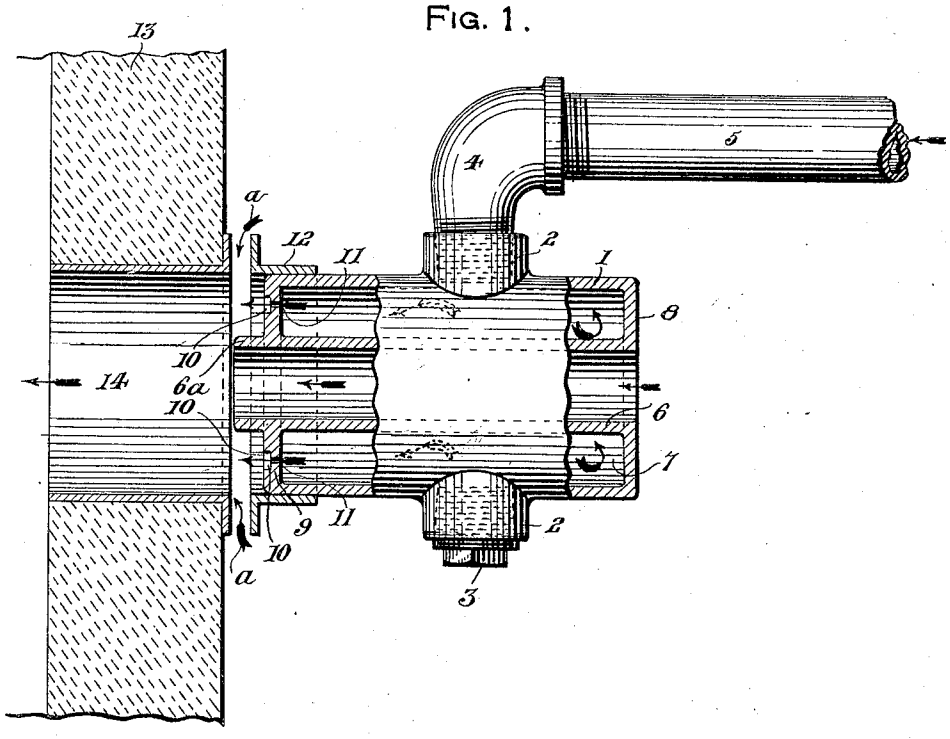


FIG. 2.

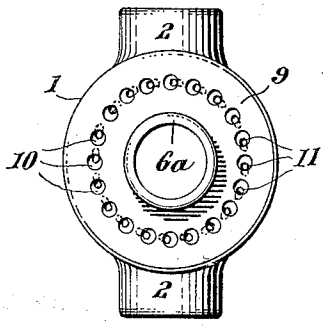
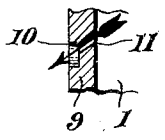


FIG. 3.



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UNITED STATES PATENT OFFICE.

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GAS BURNER.

Application filed April 3, 1923. Serial No. 629,668.

To all whom it may concern:

Be it known that I, CHARLES M. ROBERT, a citizen of the United States of America, residing at Los Angeles, in the county of Los Angeles and State of California, have invented certain new and useful Improvements in Gas Burners, of which the following is a specification.

This invention relates to certain new and useful improvements in gas burners, and particularly to that type designed for the burning of natural gas and adapted for use in connection with any type of furnace or steam boiler.

The primary object of the invention resides in the provision of a gas burner, especially designed for burning natural gas, the burner head being provided with a circular series of gas outlet nozzles or openings arranged at angles to cause a whirling action with a centrally positioned air passage to aid combustion.

A further object of the invention is to provide in a gas burner of the type above described, the provision of a collar that is slidably mounted upon the burner head to control the amount of additional air for combustion that passes through the burner hole in a furnace or steam boiler wall.

A further object of the invention is to provide a natural gas burner adapted to be mounted exteriorly of a fire-box utilizing the stack velocity for drawing air therethrough for combustion, the exterior mounting preventing overheating and back flashing.

With the above and other objects in view as the nature of the invention is better understood, the same consists of the novel form, combination and arrangement of parts hereinafter more fully described, shown in the accompanying drawing and claimed.

In the drawing, wherein like reference characters designate corresponding parts throughout the several views,

Figure 1 is a side elevational view, partly in section of a natural gas burner constructed in accordance with the present invention, a part of a furnace wall and burner opening being shown in section,

Figure 2 is an end elevational view of the burner showing the angular disposition of the jet openings or burner nozzles, and

Figure 3 is a detail sectional view showing the angular formation of one of the burner nozzles or openings.

Referring more in detail to the accompanying drawing, there is illustrated a burner, especially designed for the burning of natural gas, the burner embodying a head of cylindrical formation having an outer wall 1 provided with diametrically opposite internally threaded bosses 2, one of which is closed by a plug 3, while the other one receives an elbow fitting 4 to which a supply pipe 5 for natural gas is connected. By providing the bosses 2 at opposite sides of the wall 1, different methods of mounting the burner head may be accomplished.

As shown more clearly in Fig. 1, a tubular wall 6 extends longitudinally of the burner head, forming an annular chamber 7, the outer end of which is closed by the end wall 8, while the forward end of the chamber 7 is closed by the end wall 9. The forward end of the tubular wall 6 extends beyond the forward end wall 9 as at 6^a. It will be noted that an unobstructed air passage is formed through the burner head by the provision of the tubular wall 6, the forward outlet end 6^a being positioned forwardly of the end wall 9 with which the burner nozzles or openings are associated.

The burner openings or nozzles are shown more clearly in Figs. 2 and 3, the same being formed in the end wall 9, the burner opening being arranged in a circular series as shown in Fig. 2, each burner opening embodying a cylindrical socket 10 formed in the outer face of the end wall 9 communicating with an opening 11 arranged substantially at a 45° angle and extending from the bottom wall of the socket 10 to the inner face of the end wall 9 as shown in Fig. 3. By providing burner openings of this formation, a substantially whirling jet is provided for the gas or flame to surround the air passage through the cylindrical wall 6 for proper mixture with the air being drawn through the tubular wall by the stack velocity, or otherwise.

Additional air for combustion travels in the course indicated by the arrows —*a*—, the quantity thereof being regulated by the collar 12 slidably mounted upon the forward end of the burner body 1 as shown in Fig. 1. The burner head is preferably mounted exteriorly of the furnace wall 13 and in line with the opening 14 in said wall.

From the above detail description of the device, it is believed that the construction and operation thereof will at once be ap-

parent, it being noted that air drawn through the central passageway afforded by the tubular wall 6 will mix with the gas discharged through the burner openings in the end wall 9 for perfect combustion, additional air for combustion travelling in the direction indicated by the arrows —*a*— and being controlled by the sliding collar 12. The stack velocity may be employed for drawing air through the burner head, or a fan blower may be associated therewith.

While there is herein shown and described the preferred embodiment of the present invention, it is nevertheless to be understood that minor changes may be made therein without departing from the spirit and scope of the invention as claimed.

What is claimed as new is:—

1. In a natural gas burner, the combination with a furnace wall having a burner opening therein, of a burner head supported exteriorly of the wall in line with the burner opening, said head being of cylindrical formation and having a central air passage, the wall of the air passage extending forwardly of the end of the burner head, a circular series of burner nozzles in the end of the burner head, said burner nozzles embodying sockets formed in the outer face of the end wall, and angularly disposed ports extending from the bottom walls of the sockets and through the inner face of the end wall.

2. In a natural gas burner, the combination with a furnace wall having a burner opening therein, of a burner head supported exteriorly of the wall in line with the burner opening, said head being of cylindrical formation and having a central air passage, the wall of the air passage extending forwardly of the end of the burner head, a circular series of burner nozzles in the end of the burner head, said burner nozzles embodying sockets formed in the outer face of the end wall, angularly disposed ports extending from the bottom walls of the sockets and through the inner face of the end wall, and a collar slidably mounted on the forward end of the burner for varying the lateral air passage between the forward end of the burner and the furnace wall.

In testimony whereof I affix my signature.

CHARLES M. ROBERT.