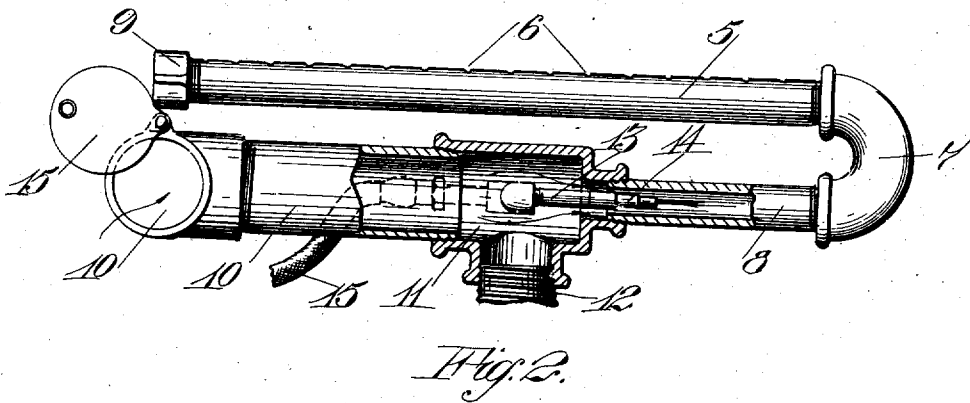
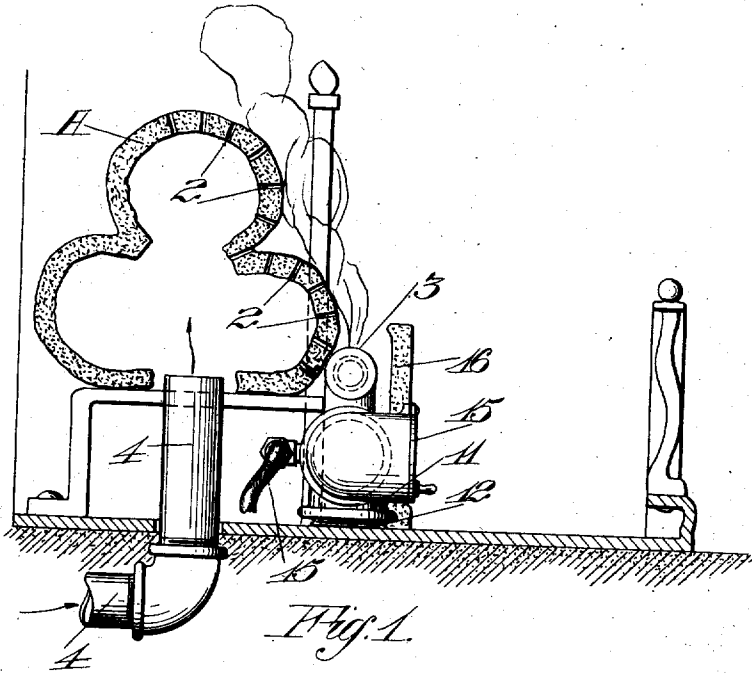


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GAS BURNER AND GRATE.  
APPLICATION FILED JAN. 31, 1910.

972,775.

Patented Oct. 11, 1910.



Witnesses:  
Max Casberg  
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his attorney

# UNITED STATES PATENT OFFICE.

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## GAS BURNER AND GRATE.

972,775.

Specification of Letters Patent. Patented Oct. 11, 1910.

Application filed January 31, 1910. Serial No. 541,008.

*To all whom it may concern:*

Be it known that I, WILLIAM C. McGEORGE, citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented new and useful Improvements in Gas Burners and Grates, of which the following is a specification.

This invention relates to improvements in gas grates and burners therefor.

One object of this invention is to provide a gas burner in which the gas is provided with nearly or quite all of the oxygen it requires for combustion within the burner, thereby producing a flame of intense heat.

A particular object is to provide a gas log, or rather a gas grate, in conjunction with my burner, which is simple in construction and quickly and easily installed, and economical of operation, which gives forth a maximum of heat and does not draw the oxygen from the room for combustion, but rather delivers fresh heated air to the room.

The invention consists of the parts and the construction and combination of parts hereinafter more fully described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is an end elevation and section showing the invention as applied. Fig. 2 is a front view of the burner with parts broken away.

In the drawings, A represents a log, preferably such as is made of fire clay coated with asbestos fiber on the outer surface, and of any desired form of pile or artistic configuration. The construction of this log and its manner of heating and feeding air are important considerations. The log is hollow and is provided with a number of orifices 2, suitably disposed above the burner 3 so that fresh air taken into the log from any suitable source of supply will, after being heated, be delivered into the room above the flame, and without being used for purposes of combustion.

A common complaint against gas logs generally, is that they consume the oxygen in the air in the room, and so impoverish the air that it is unfit to breathe, frequently causing headache and inconvenience to the occupants. By using a special type of burner 3, which I shall shortly describe, whereby perfect combustion of the gas takes place at the burner, and by supplying a

constant flow of fresh air into and through the log, and discharging it out through the openings 2, I heat the room by hot air received from the outside, rather than by the direct or reflected heat of the burner flame. In other words, this log constitutes, in fact, a hot air furnace.

The air to be heated in the log is drawn into the log through pipe 4 from any suitable point outside the room. This pipe may extend in the basement or it may extend outside the building. As the log becomes heated up, a strong draft will be induced through the pipe 4 and log, and a series of streams of hot air will be thrown out into the room through the discharge outlets 2. The burner 3 is arranged in front of and beneath and parallel with the log and in close proximity thereto. This burner comprises a tube provided with a large number of small perforations 6, and connects at one end by an elbow 7, to a mixing tube 8, the opposite end of the burner tube being closed by a cap 9.

The mixing tube 8 connects with an enlarged air-tube 10, the outer end of which is open to the atmosphere. The connection between the air tube and the mixing tube consists of a T-fitting 11, the stem of which may be threaded upon a fixed standard 12, which supports the burner and holds it in position.

A nipple 13, having a suitable gas tip 14 on its outer end, extends through the T and projects a short distance into the mixing tube 8, and is connected with a flexible tube or hose 15 leading to any suitable source of gas supply.

In operation, gas being admitted to the mixing tube 8 through the nipple 13 and tip 14, it mingles with the air therein, which enters through the open end of the pipe 10. This combustible mixture flows then through the connection 7 into the burner tube 5 and passes out through the perforations 6. On being ignited, the flames of the burning gases pass upward in a number of jets around the face of the asbestos-coated log A, as shown in Fig. 1.

The air tube 10 and its inlet are so proportioned in size in relation to the mixing tube 8 and the flow of gas through the tip 14, as to permit of the proper mixture, which in most cases, and by practice, proves to be about seven parts air to one part gas.

The object is to secure perfect combustion at the burner so that none of the air issuing from the holes 2 in the log is used for combustion, but the log will act as a regenerator or hot air furnace to deliver fresh hot air to the room. If desired, a damper valve 15 may be placed over the mouth of the air-tube 10 to regulate the admission of air to the burner necessary for complete combustion.

In front of the burner there is arranged a hedge or wall 16, which acts both to cut off the view of the burner from the room and to deflect the heat and flame against the log.

Having thus described my invention, what I claim and desire to secure by Letters-Patent, is:

1. The combination with a hollow member into which fresh air is admitted, said member having perforations for the discharge of the air, a burner comprising a

perforated tube disposed lengthwise of said member, said tube being closed at one end and connected at the other end with a mixing chamber, and said tube having perforations discharging across the path of the heated fresh air being delivered from the said hollow member.

2. The combination of a hollow member, a fresh air pipe leading to the interior thereof, said member having perforations for the discharge of the air, and a burner positioned proximate to the hollow member and exterior thereto and adapted to discharge across the path of the heated fresh air being delivered from said hollow member.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

WILLIAM C. McGEORGE.

Witnesses:

I. M. IRWIN,  
A. SKORUP.