

May 5, 1925.

J. P. REINECKE

GAS BURNER

Filed July 18, 1924

1,536,631

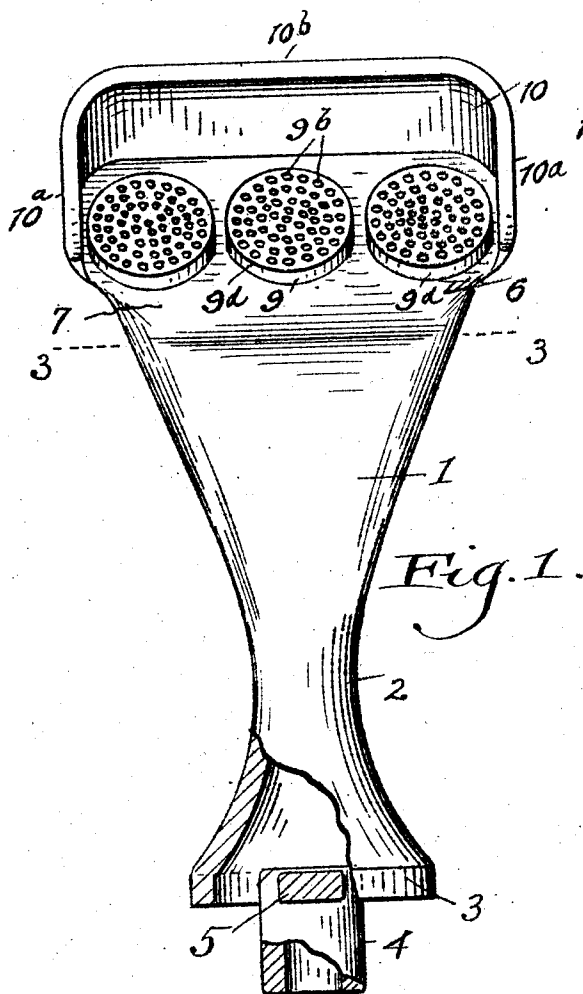


Fig. 1.

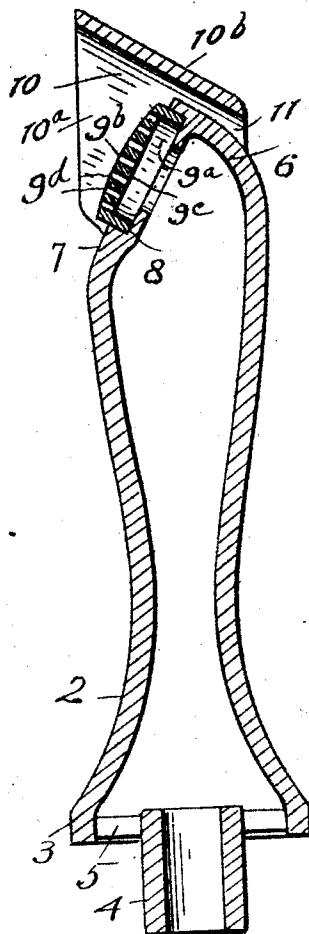


Fig. 2.

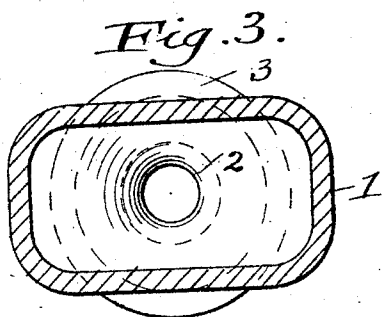


Fig. 3.

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UNITED STATES PATENT OFFICE.

JOHN P. REINECKE, OF LORAIN, OHIO, ASSIGNOR TO THE HOFFMAN HEATER COMPANY, OF LORAIN, OHIO, A CORPORATION OF OHIO.

GAS BURNER.

Application filed July 18, 1924. Serial No. 726,818.

To all whom it may concern:

Be it known that I, JOHN P. REINECKE, a citizen of the United States, residing at Lorain, in the county of Lorain and State of Ohio, have invented a certain new and useful Improvement in Gas Burners, of which the following is a full, clear, and exact description.

This invention relates to gas burners, and has for its object to provide a burner so constructed that it will not back fire or blow out.

Further objects are to provide a construction in which means are provided for protecting the gas ports of a burner from moisture due to condensation and to provide means for admitting air to the burner immediately adjacent the gas outlet ports to obtain better combustion and a hotter flame.

With the above and other objects in view the invention may be said to comprise the burner as illustrated in the accompanying drawings hereinafter described and particularly set forth in the appended claims, together with such variations and modifications thereof as will be apparent to one skilled in the art to which the invention appertains.

Reference should be had to the accompanying drawings forming a part of this specification in which Fig. 1 is a burner partially broken away at its lower end to show the mixing portion in section; Fig. 2 is a vertical transverse section through the burner; Fig. 3 is a horizontal section taken on line 3—3 of Fig. 1.

Referring to the accompanying drawings, the burner consists of a tubular body 1 which flares outwardly toward its upper end from a restricted portion 2 adjacent the lower end thereof, the lower end of the body being flared outwardly to provide an enlarged mixer portion 3 into which projects the gas inlet 4 which is of smaller diameter and is connected to the enlarged lower end portion of the burner by a spider 5 so that an annular air inlet is provided around the gas inlet tube 4. Above the restricted portion 2 the body 1 is flared laterally to an elongated head portion 6, the head portion 6 being closed by an inclined front portion 7 in which the burner ports are located. The inclined face portion 7 is provided with a row of openings which are counterbored to provide inner retaining shoulders or

flanges 8, the burner inserts 9 being fitted in the openings and seated upon the shoulders 8. The inserts 9 are cup-shaped having an inwardly extending annular flange and a perforated top portion through which the gas is fed to the flame. The outer face 9^b of the insert 9 is preferably convex and the inner face 9^a thereof is preferably flat so that the small ports 9^d are of varying lengths, those at the center being longer than those adjacent the edges of the insert. This form of insert has been found to be very efficient in protecting the flame against being blown off and extinguished by the gas emerging from the burner at high pressure. The longer outlet ports adjacent the center of the insert have a tendency to retard the flow of gas so that the flame cannot readily be extinguished. As a further protection against back firing to the mixer the opening defined by the shoulders or flanges 8 are of such diameter that the cross sectional area thereof is substantially equal to the combined cross sectional area of the openings in the inserts seated upon the flanges 8, maintaining a more uniform pressure at the outlet ports so that the flame will not flash back through ports into mixing chamber 13.

In order to protect the burner ports from moisture due to condensation, an integral guard flange 10 is formed on the head and extends along the sides and over the top of the head. The end portions 10^a of the flange extend down past the opposite ends of the row of burner inserts 9 and the top portion 10^b of the flange is inclined upwardly and extends forwardly from the body of the burner a sufficient distance to overlie all of the burner inserts and to shed any drippings which would otherwise fall upon the inserts. The portion 10^b of the flange is also spaced outwardly from the head to provide a slot 11 along the top of the head through which air may pass directly to the flame adjacent the burner inserts to supply at the point most effective the oxygen required for combustion, the air current serving also to protect the guard flange against excessive heating.

Having described my invention, I claim:

1. A gas burner comprising a hollow body having a mixer portion and a head portion provided with perforated burner portions and a deflecting member carried by the head and projecting therefrom adjacent the

burner portion, said deflecting member being spaced from the head to provide an air passage to the burner.

2. A gas burner comprising a hollow body 5 having a mixer portion and a head portion, said head portion having at one side thereof an inclined closure portion provided with openings having perforated burner inserts, and a forwardly projecting guard member 10 projecting forwardly from the upper edge of said head portion, said guard member being spaced from said head portion to provide a slot for admission of air along the upper edges of the burner inserts.

3. A gas burner adapted to be used in a 15 vertical position comprising a body having a mixer portion and a head portion, the head portion being provided with a face having openings therethrough for the exit of gas 20 and a forwardly projecting inclined guard member which overlies the opening, said guard being spaced from the body of the head to provide a slot along the upper edge of the head for admission of air to the 25 burner.

4. A gas burner adapted to be used in up- 30 right position comprising a hollow body having a mixer portion and a head portion, the head portion being provided on one side with an inclined face provided with open- 35 ings therethrough for the exit of gas, said head having an integral flange extending along the ends and upper edge of said inclined face and projecting inwardly from said face, the portion of the flange along

the upper edge of the head being spaced therefrom to provide a slot to permit entry of air to the burner.

5. A gas burner adapted to be used in up- 40 right position comprising a hollow body having a mixer portion at its lower end and a transversely elongated head portion, the head portion having an inner inclined face provided with a row of openings, perforated 45 burner inserts in said openings, said head having an inwardly projecting integral flange overlying said inserts and adapted to protect the same from condensation drip- 50 pings, said flange being spaced from the head along the upper edge thereof to provide a slot for entrance of air along the upper side of said row of burner tips.

6. A gas burner adapted to be used in up- 55 right position comprising a hollow body having a mixer portion at its lower end, and a transversely elongated head portion, the head portion having an inner inclined face, provided with small openings substantially 60 throughout the length thereof for escape of gas, said head having an inwardly projecting integral flange overlying said inserts and adapted to protect the same from conden- 65 sation drippings, said flange being spaced from the head along the upper edge thereof to provide a slot for entrance of air along the upper side of the openings.

In testimony whereof, I hereunto affix my signature.

JOHN P. REINECKE.