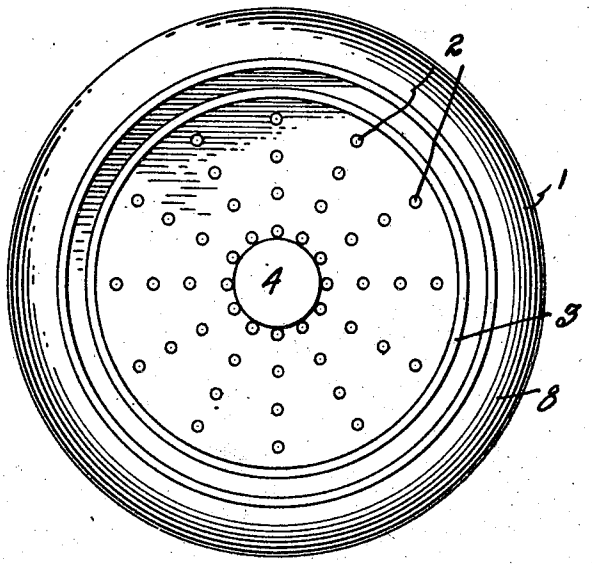
Oct. 4, 1927. 1,644,505

W. A. BECKETT

GAS BURNER

Filed Oct. 14, 1926

Fig. 1



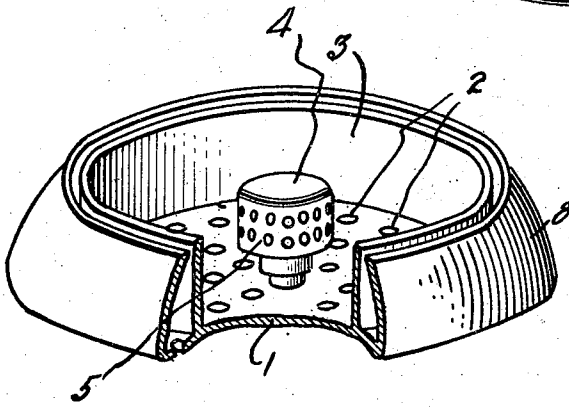


Fig. 2

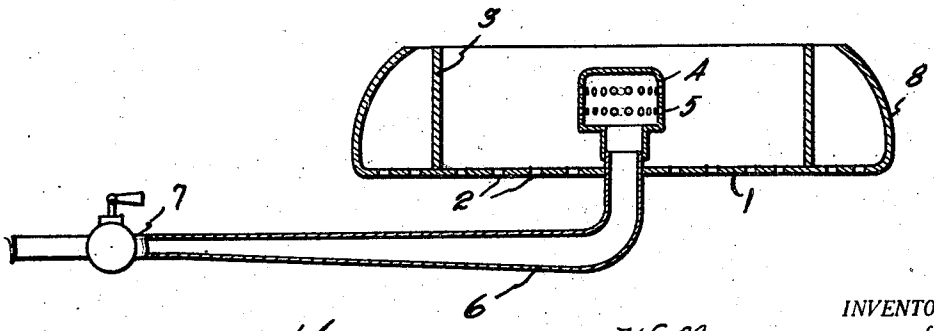


Fig. 3

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GAS BURNER.

Application filed October 14, 1926, Serial No. 141,539, and in Canada March 29, 1926.

My invention relates to means for economically burning gas, particularly natural gas. The object is to provide a gas burner which may be cheaply constructed and which will confine and direct the heat produced by the burning gas to the points where it will be most efficient in conveying heat units produced by the burning gas to the object to be heated.

A further object is to produce a high degree of heat at the burner openings through which the gas flows, with a view to burning substances which may be deposited about or in the gas delivery openings, thus keeping these openings clean and effective for the delivery of gas.

The invention consists in the construction and combinations hereinafter described and illustrated in the accompanying drawings, and as specifically set forth in the appended claims.

In the annexed drawings:

Figure 1 is a top plan view of a burner constructed in accordance with my invention.

Fig. 2 is a perspective view thereof partly broken away.

Fig. 3 is a vertical cross-section through the burner and gas delivery pipe.

Referring to the drawings in detail, the burner comprises a base plate 1 provided with a plurality of apertures 2 and a cylindrical wall or deflecting member 3, forming a combustion chamber. A central opening is provided in the base plate for the passage of a pipe 6, through which the gas, either natural or artificial, flows from a suitable source of supply. The pipe 6 is provided with a valve 7 for controlling the supply of gas, with which is associated suitable air inlet means adapted to supply the gas with the proper proportion of air and mix the same together. The end of the pipe 6 within the combustion chamber is provided with a burner tip 4, having a closed top and apertures 5 in its side walls. The cylindrical wall-member 3 is concentrically placed with respect to the burner tip and is located at a distance therefrom such that the frame of the burning gases will impinge thereon.

Also mounted on the base plate 1, spaced from the outside of the cylindrical wall member 3 and concentric therewith, is a marginal wall 8, which is preferably curved inwardly toward the upper edge. The upper edges of the cylindrical wall member 3 and the marginal wall 8 lie in the same horizontal plane, slightly above the upper end of the burner tip, and are adapted to support a vessel to be heated, such as a kitchen utensil.

Assuming that a vessel to be heated is resting on the burner, the following operation and results occur.

When the valve 7 is turned on, gas from the source of supply, mixed with a regulated volume of air, flows through pipe 6 to the burner tip by which it is directed laterally against the deflecting wall 3. When mixed with a proper volume of air it will burn with a blue flame which impinges against the deflecting wall 3. The heat developed by combustion greatly increases the volume of the gas, with a corresponding decrease in density, which causes it to rise, as is well understood. During combustion, an air current passes upwardly through the apertures 2 in the base plate. As the gas is directed laterally toward the deflecting wall 3, any part thereof which impinges thereon will necessarily have to change its direction of motion with a consequent lessening of its velocity, and an increase in pressure. Low velocity and high pressure are conditions most favorable for combustion; hence if any unburned gases strike the deflecting wall they will thereby be placed in a favorable condition for complete combustion with the oxygen in the upward draft of air through the apertures 2 in the base plate. The heat developed by combustion raises the deflecting wall 3 to a high temperature, which heats the air in the annular chamber between deflecting wall 3 and marginal wall 8, and causes an upward draft in this annular chamber by a current of fresh air passing upwardly through the apertures 2. Without the marginal wall 8, a great deal of heat would be lost by radiation laterally into the surrounding atmosphere. By employing this marginal wall member 8, the heat radiated laterally outwardly is taken up by an upward current of air and usefully applied to the vessel being heated. In addition, the ascending column of hot air thus formed tends to confine the heat produced in the combustion chamber to the underside of the vessel. By giving the marginal wall an upward inclination or an inward curve at the upper edge, this ascending column of air

is directed inwardly so as to spread over the entire under surface of the vessel, tending also to distribute the hot products of combustion developed in the combustion chamber over the entire underneath surface of the vessel. The burner disclosed also keeps the burner tip at a high temperature, by radiation and convection, from the hot wall 3, which consumes the deposits which ordinarily form about or in the gas delivery openings, thus preventing them from clogging up with solid substances. In my invention the flame of combustion is also protected from the lateral air currents which, in ordinary burners, carry useful heat away from the object being heated. Another advantage of the deflecting wall member 3 is that it is adapted to contact with the vessel being heated and heats the same by conduction, which is the most effective means of heat transfer.

Having fully described my invention and its mode of operation, what I claim is:

1. In a gas burner, a chamber open at its top and having perforated openings in the bottom through which air may be admitted, means for supplying gas to said chamber, a member spaced apart from said chamber and adapted to prevent heat escaping laterally from the chamber, and means admitting the air between said member and said chamber.

2. A gas burner comprising a hollow burner tip having a closed top and lateral perforations and adapted for connection with a gas supply pipe, a perforated base plate having a central opening for the passage of the gas supply pipe, and an upstanding cylindrical deflecting wall member, concentric with the burner tip and within the reach of the burner flame and having the lower edge connected with the base member and its upper free edge lying in a horizontal plane slightly above the top of the burner tip.

3. The combination specified in claim 2 with the addition of means for producing an ascending cylindrical column of air surrounding the cylindrical wall.

4. A gas burner comprising a hollow burner tip having a closed top and lateral perforations and adapted for connection with a gas supply pipe, a perforated base plate having a central opening for the passage of the gas supply pipe, and an upstanding cylindrical deflecting wall member, concentric with the burner tip and within the reach of the burner flame and having the lower edge connected with the base member and its upper free edge lying in a horizontal plane slightly above the top of the burner tip, and a marginal wall member concentric with the deflecting wall member and spaced therefrom, with its upper edge free and its lower edge connected with said base member.

5. A gas burner comprising a hollow burner tip having a closed top and lateral perforations and adapted for connection with a gas supply pipe, a perforated base plate having a central opening for the passage of the gas supply pipe, and an upstanding cylindrical deflecting wall member, concentric with the burner tip and within the reach of the burner flame and having the lower edge connected with the base member and its upper free edge lying in a horizontal plane slightly above the top of the burner tip, and a marginal wall member concentric with the deflecting wall member and spaced therefrom, with its upper edge curved inwardly and its lower edge connected with said base member.

Signed at the city of Detroit, county of Wayne, State of Michigan, this 5th day of October, 1926.

WILLIAM AUSTIN BECKETT.