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ACETYLENE-GAS BURNER.

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To all whom it may concern:

Be it known that I, WILLIAM J. FRISBIE, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Acetylene-Gas Burners, of which the following is a specification.

My invention relates to gas burners, more especially to burners for burning acetylene gas for cooking or heating purposes. Considerable difficulty has been experienced heretofore in getting acetylene gas to burn in a simple burner structure with a uniform, steady and sootless blue flame. The structures which have heretofore been used for burning acetylene gas for heating purposes have been more or less complicated in endeavoring to obtain such uniform blue flame.

The object of my invention is to produce a simple, inexpensive burner, devoid of all complicated structure, which will burn acetylene gas with a uniform, steady, and clean blue flame and produce the volume of heat required for cooking or heating purposes. I accomplish this by feeding the gas tangentially into a circular gas chamber together with air in sufficient quantity, in which circular chamber the gas and air may circulate to become thoroughly intermingled and from which chamber the mixture may flow to burner openings to be burned with a blue clean flame.

My improved construction and arrangement is incorporated in the burner structure shown on the accompanying drawing in which—Fig. 1 is a side elevational view partly in section, and

Fig. 2 is a sectional view on plane 2—2 Fig. 1.

The body 10 of the burner shown is annular and of circular cross sections and has the circular or annular gas chamber 11 to which extends tangentially the gas inlet passageway 12. The end of the inlet passageway is surrounded by the threaded flange 13 extending from the burner body and receiving the tube 14 which at its outer end receives the plug or fitting 15 having the passageway 16 and having the neck 17 for receiving a gas hose 18. In the inner end of the passageway 16 is seated the gas tip 19 having the orifice 20, and adjacent the tip the tube 14 has the air inlets 21 whose area is made adjustable by means of the sleeve 22 having the openings 23, the amount of air flowing in depending upon the degree of overlap of the openings 21 and 23. The acetylene gas is projected under pressure through the tube 14 and tangentially through inlet 12 into the gas chamber 11, air being entrained through the air holes 21 by the gas. The air and gas mix to a degree in the tube 14, but the more intimate mixture takes place in the chamber 11 in which the gas and air may circulate to become intimately mixed to produce an efficient burning mixture which is distributed upwardly through the burner holes 24 in the top wall of the burner body where it will burn with a clean, blue, uniform and steady flame. The tangential inlet 12 accurately directs the incoming gas and air to its circular path through the chamber 11, there being no abrupt or violent deflection or stopping of the gas and air, the unfinished inner walls of the chamber affording just sufficient resistance to the flow to cause the gas and air to become thoroughly mixed before leaving the outlet 24. There is not a chance for stagnation as in prior structures and the gas will burn clean and free from spattering or explosion. The proper proportion of gas and air can be readily adjusted for by turning the sleeve 22.

The housing 25 for the burner body is preferably of sheet metal and, as shown, is cylindrical, its bottom being open and the holes 26 being provided in its side for the circulation of air around the burner body, the tube 22 entering at one side of the housing as clearly shown. The sheet metal frame carries on its top the grid frame 27 for supporting cooking utensils. The burner body 10 is rigidly supported concentrically in the frame 25 by screws 28 passing through the walls of the frame and into threaded lugs 29 extending radially from the body 10.

The burner structure described is very simple, light and efficient. The burner body is a simple casing devoid of intricate parts, the circulatory chamber 11 on account of its tangential inlet, accomplishing the final mixture of the gas and air and the proper directioning of the mixture through the outlet openings where it can then burn with
a steady, uniform, and clean blue flame to produce a large volume of heat.

Having described my invention, I claim as follows:

3. In a gas burner, the combination of a body having an annular gas chamber therein, an extension on said body providing a gas inlet passageway to said chamber, the outer and inner sides of said passageway being tangential respectively with the outer and inner sides of said chamber whereby gas will flow directly tangentially from said passageway into said chamber, and gas combustion outlets from said chamber.

In witness whereof, I hereunto subscribe my name this 3d day of February A. D., 1922.

WILLIAM J. FRISBIE.