

May 14, 1940.

J. H. DENNIS ET AL

2,200,264

GAS BURNER

Filed Aug. 23, 1937

FIG. 1.

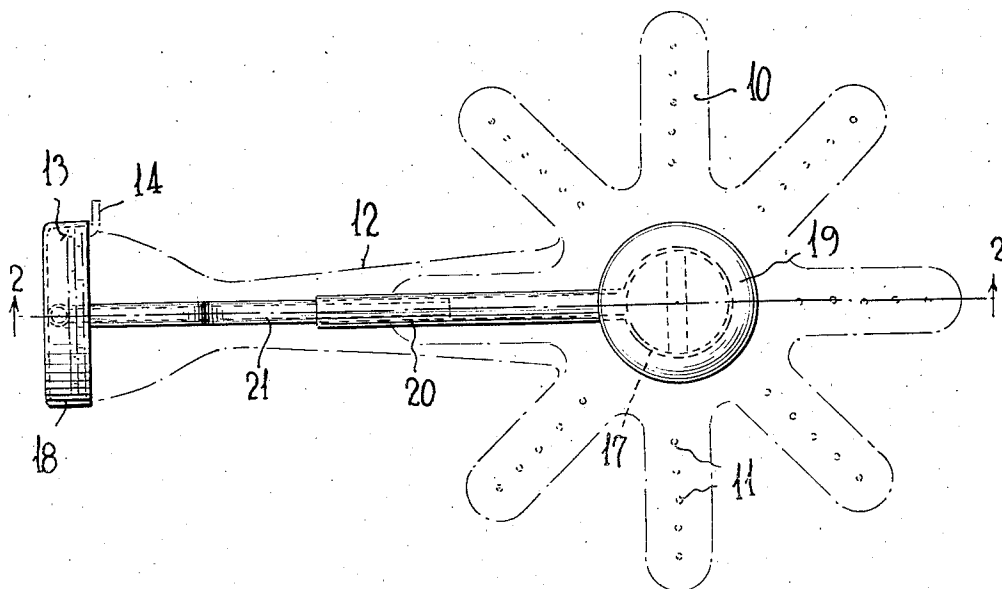
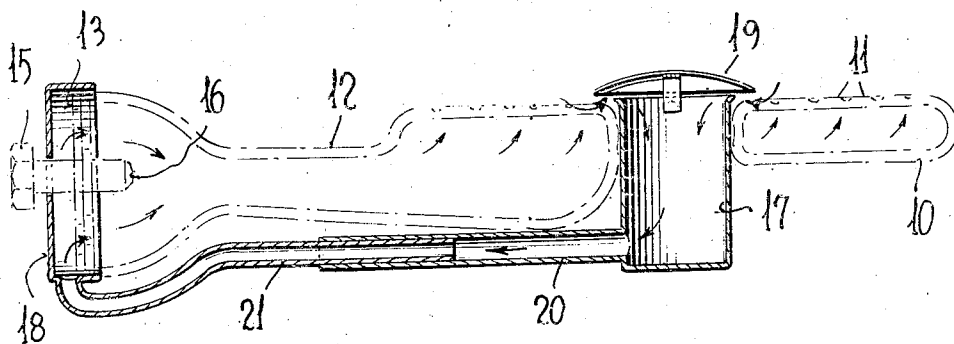


FIG. 2.



Inventors

John. H. Dennis and

James V. King

By

A. Ponack

Attorney

UNITED STATES PATENT OFFICE

2,200,264

GAS BURNER

John H. Dennis, West Islip, and James V. King,
Islip, N. Y.

Application August 23, 1937, Serial No. 160,534

3 Claims. (Cl. 158—99)

The present invention relates to improvements in gas burners. More particularly, the invention has especial relation to gas burners which include a burner head, a conduit or venturi for supplying an air-gas mixture to the burner head, and an air-inlet on said conduit, said inlet being provided with a regulable air shutter for controlling the supply of air.

If one were to examine the gas range burners of this type in the average home, large accumulations of dust would be apparent in the venturi and around the air shutter. Nor would such accumulations be absent in clean homes, since the cleaner the home, the more sweeping and dusting is done, so that dust collects in the aforementioned places.

Other gas burners, such as those used on water heaters are subject to the same defect, i. e. dust clogging of the air shutters. In addition, these burners tend to "pop" when the flame goes out, and this "popping" is highly objectionable to many users of these burners.

A primary object of the present invention is to obviate the above-enumerated defects. Briefly stated, this is effected by taking the air, which is fed to the burner through the air shutter, exclusively from a point adjacent the burner flame so that it is free from dust, the latter having been burnt out therefrom by the said flame before the air reaches the shutter. It has been found that this completely eliminates shutter clogging and, in burners of the water heater type, also eliminates "popping"; in addition, the air supplied to the burner is preheated so that more efficient combustion results.

A further object of the present invention is to provide means which is readily adaptable to existing forms and types of burners of the character described for effecting the procedure described in the preceding paragraph. According to preferred forms of the invention, this means consists essentially of an inlet sleeve arranged adjacent the burner head or therearound, a cap or the like for excluding air from the shutter other than the dust-free air coming from the said sleeve, and a tube connecting said inlet sleeve and cap. The said tube may encompass the venturi of the burner or may be arranged adjacent thereto at one side thereof. For easy adjustment and to facilitate attachment and removal of the means, the tube may preferably be multi-part in character.

Further objects and advantages of the present invention will be apparent to those skilled in the art to which the invention pertains from the fol-

lowing detailed description of exemplary preferred embodiments. It is to be understood that this detailed disclosure is intended to be illustrative rather than limitative in character, and that numerous changes in shape, size, materials, etc., may be resorted to without departing from the spirit and scope of the invention as hereinafter claimed.

The description which follows will be better understood by reference to the accompanying drawing.

On the said drawing,

Fig. 1 is a top plan view of one form of the present invention, shown as applied to one common type of gas burner; and

Fig. 2 is a cross sectional view of the form of invention illustrated in Fig. 1, the section being taken along line 2—2 of Fig. 1.

Referring first to the modification of the invention illustrated in Figs. 1 and 2 of the drawing, the broken lines represent a first common type of gas burner, such as is conventionally embodied in gas cookers, gas stoves and the like, the said burner comprising the usual burner head 10 provided with burner ports 11. The usual conduit 12 extends backwardly from the head 10 to the front of the stove or the like where it is conventionally provided with a regulable air shutter 13. Adjustment of the latter may be effected by means of the projecting lug 14. The fuel gas is supplied to the burner in usual manner through a conventional fitting 15 provided with a gas orifice 16 at its innermost end.

In accordance with the present invention, the aforescribed conventional relationship of parts is augmented or supplemented by the new fitting of the invention whereby, in effect, the burner becomes "air-conditioned."

The said new fitting is shown in full lines in Figs. 1 and 2 of the drawing and consists essentially of a multi-part air tube terminating at one end in an upwardly-opening sleeve member 17 which extends into the central opening usually provided in the burner head 10, and at the other end in a shutter cap 18, hereinafter described in further detail.

Sleeve member 17 is capped in spaced relationship to its upper open end with a drip cap 19 which eliminates any possibility of water or the like boiling over from utensils on the burner head and entering and possibly clogging the air tube. The space between drip cap 19 and the top of sleeve 17 also provides the inlet opening for air to the burner.

The air tube proper preferably is made up of

a plurality of conduit portions 20 and 21 arranged telescopingly as shown more particularly in Fig. 1, the fit between the portions being such as to provide a tight slip joint, whereby removal and/or adjustment of the fitting is appreciably facilitated. The air tube 20, 21 preferably is positioned in relatively close juxtaposition to the conduit leading to the burner head.

The shutter cap 18, which is an essential element of the device since substantial quantities of dust usually collect in and about the air shutter 13, is preferably integral with part 21 of the air tube proper and is arranged to fit over the shutter housing by a slip joint. Projecting lug 14 enables adjustment of the shutter to be effected notwithstanding the presence of cap 18.

In operation, it will be evident from an inspection of the drawing, that air (the course of which is indicated by the arrows in Fig. 2) will be taken into the device adjacent the flame, i. e., at the sleeve 17 at the center of the burner head 10. The result is, first, that the air which enters 17 is clean and free from dust, the latter having been burnt out by the flame of the burner, and secondly, that the intaken air is preheated. This preheating is continued as the air passes through tube 20, 21 to and through the air shutter and, after being commingled with gas from orifice 16, continues through the burner conduit to the head 10. Dust clogging of the air shutter 13 is thus effectively prevented, and the preheating of the air produces a notable increase in the efficiency of the burner.

Having described the invention, what is claimed and desired to protect by Letters Patent is:

1. An attachment for a gas burner including a burner head and a conduit for conveying a gas-air mixture to said burner head, the latter being

arranged at one end of said conduit, said conduit being provided with an air inlet at its other end and with a regulable air shutter at said inlet, said attachment comprising a stationary upwardly-opening sleeve member associated with said burner head with its upper end positioned adjacent the burner flame, a tube extending from the lower end of said sleeve member along and in juxtaposition to said conduit to a point beyond said air inlet and shutter, and means extending from said tube over said inlet and shutter for sealing said inlet against access to air other than air from said tube and for deflecting air from said tube to said air inlet.

2. An attachment for a burner of the character described including a burner head and a conduit for conveying a gas-air mixture to said burner head, the latter being arranged at one end of said conduit, said conduit being provided at its other end with an inlet for supplying air for said mixture and with means for regulating said air supply, said attachment comprising a stationary upwardly-opening substantially cylindrical sleeve extending through said burner head with its upper end positioned adjacent the burner flame, a tube communicating with and extending from the lower end of said sleeve along and in close adjacency to said conduit, and a cap arranged over said inlet, said cap being connected to said tube and deflecting air from said tube toward and through said inlet while preventing ingress to said inlet of any other air.

3. The construction defined in claim 1, said tube comprising telescopingly arranged relatively movable parts whereby the attachment is readily adjusted, mounted or dismounted.

JOHN H. DENNIS.
JAMES V. KING.