Aug. 14, 1923. 1,464,909

W. M. KIMBERLIN

GAS BURNER

Filed June 29, 1922

FIG. 1.

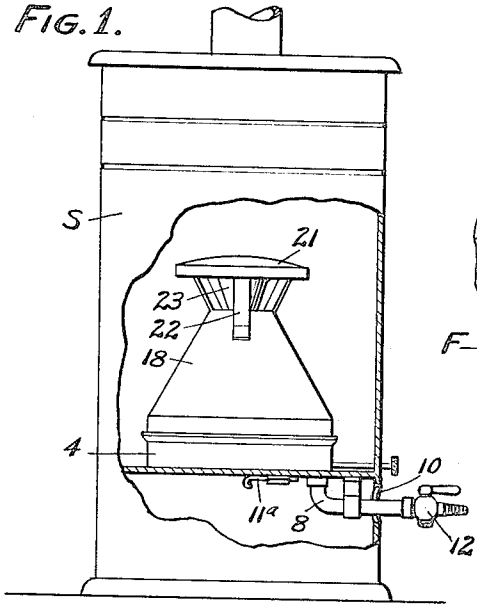
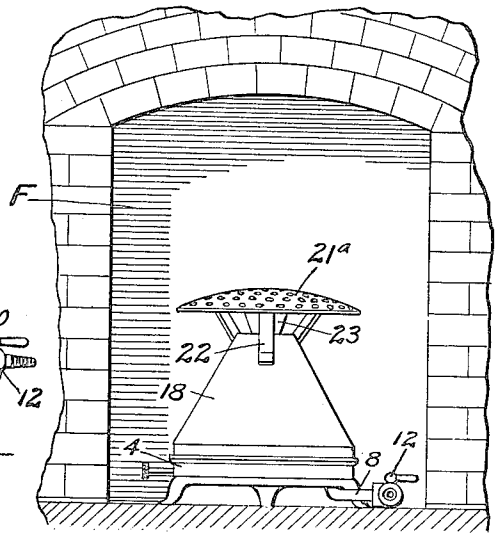


FIG. 4.



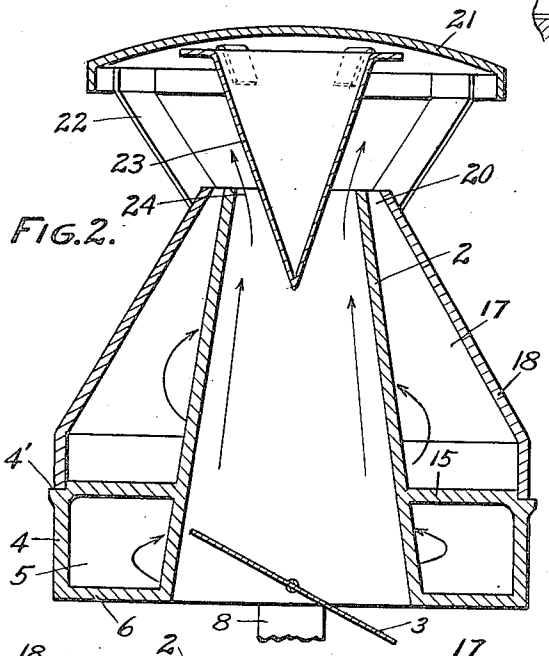


FIG. 2.

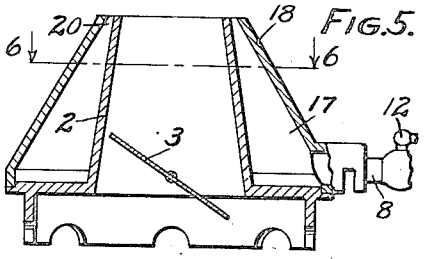


FIG. 5.

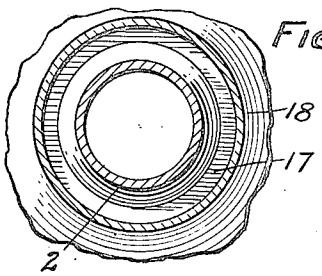


FIG. 6.

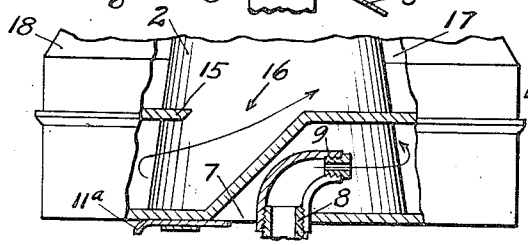


FIG. 3.

INVENTOR
WINFIELD M. KIMBERLIN
BY Hazard and Miller
ATT'YS.

Patented Aug. 14, 1923. 1,464,909

UNITED STATES PATENT OFFICE.

WINFIELD M. KIMBERLIN, OF LOS ANGELES, CALIFORNIA.

GAS BURNER.

Application filed June 29, 1922. Serial No. 571,655.

To all whom it may concern:

Be it known that I, WINFIELD M. KIMBERLIN, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Gas Burners, of which the following is a specification.

This invention relates to burners and more particularly to a type of burner capable of general service and use, and especially to a gas fuel burner.

It is an object of the present invention to provide a burner whereby gaseous fuel is thoroughly intermixed with air and is discharged in a substantially cylindrical flame, thereby producing a very large zone of combustion from which the heat may radiate generally. Another object of the invention is to provide a gas burner that is of simple, substantial, practicable and inexpensive form and which may be readily installed in stoves, ranges and any other places for efficient use.

Other objects will be made manifest in the following specification of an embodiment of the invention that is illustrated in the accompanying drawings, wherein:

Figure 1 is a side elevation of a form of stove with which the improved burner is combined; the stove being partially broken away.

Fig. 2 is a vertical central section through the preferred structure of the burner.

Fig. 3 is a side elevation of the lower portion of the burner indicating the initial mixing chamber thereof; the view being partly in section.

Fig. 4 is a side elevation of the burner as arranged in a fire place.

Fig. 5 is a vertical section of a simplified form of the burner.

Fig. 6 is a cross section on line 6—6 of Fig. 5.

The improved burner consists essentially of an inner conical air tube 2, open at the bottom and preferably provided with a damper 3 for controlling the inflow of air into the air tube 2. The lower portion of the tube is surrounded with an annular shell 4, providing a mixing chamber 5, the bottom 6 of which is provided with an inlet opening 7, in which is disposed a fuel pipe 8. This gas pipe is provided with a laterally turned nozzle 9, so that gaseous fuel is discharged horizontally into the mixing chamber 5. The gas pipe 8 is disposed in an air opening 10 which is provided with air inlet valve 11^a, so that when the gas valve 12 in the gas pipe is opened, air and gas will be drawn into the mixing chamber 5.

The top wall 15 of the mixing chamber is provided with an outlet port 16 leading into a conical mixing chamber 17 formed within a conical bonnet 18 surrounding the air tube 2 and converging close to the upper discharge end thereof. The bonnet 18 may rest upon a seat 4′ formed on the shell 4.

The mouths of the bonnet 18 and the air tube 2 terminate flush with each other and provide a narrow annular discharge mouth 20 through which the gas mixture passes upwardly from the burner.

There is arranged, preferably, above the burner outlet 20 a hood or deflector 21, which may be supported upon bracket arms 22, extending upwardly from the bonnet 18.

Another feature of the invention consists of a spreader in the form of an inverted cone 23, the upper end of which lies under the hood 21, while the point of the spreader projects down into the air pipe 2 and forms at the mouth of the same an annular air passage way 24. This combination of spreader with the bonnet 18 provides two upwardly rising, cylindrical streams of gas and air which are thoroughly intermixed as they issue from the burner mouths, and therefore provide for effectual and efficient combustion.

The burner is shown as arranged, in Fig. 1, in a suitable heating stove S, while in Fig. 4 the burner is arranged in a fire place F. Different types of hoods may be utilized according to the requirements and use of the burner, and as shown in Fig. 4, the hood consists of a perforated plate 21^a. This provides for the discharge of some of the gaseous mixture through the hood 21 and enables a general zone of combustion over the area above the hood.

In some cases the gas and air mixture may be led directly into the mixing chamber 17 as is shown in Fig. 5. In this case the mixing occurs in the chamber 17 between the bonnet 18 and the air tube 2; the mixing chamber 5 being omitted.

From the above it will be seen that I have provided a burner of simple and inexpensive form and one that is capable of being utilized within any suitable stove, range or other structure, or it may be used in the open without a surrounding fire chamber.

Various modifications may be resorted to within the scope of the claims.

What is claimed is:

1. A gaseous fuel burner consisting of an upwardly convergent air tube having a damper at its inlet, an upwardly convergent bonnet surrounding the said air tube and terminating even therewith and forming a narrow cylindrical fuel outlet around the outlet of the air tube, an annular mixing chamber provided at the bottom of the hood and connecting with the space within the hood and a dispersing means extending down into the air tube to divert air into the cylindrical column of fuel passing from the fuel chambers.

2. A gaseous fuel burner comprising a central air tube, a bonnet surrounding said tube and forming an upper mixing chamber, said tube and said bonnet forming a narrow circular fuel outlet, and an initial mixing chamber arranged about the lower end of the tube and providing for the circuitous movement of fuel mixture before it is discharged into the upper mixing chamber.

3. A gaseous fuel burner comprising a central air tube, a bonnet surrounding said tube and forming an upper mixing chamber, said tube and said bonnet forming a narrow outlet device, an initial mixing chamber arranged about the lower end of the tube and provided for circuitous movement of fuel mixture before it is discharged into the upper mixing chamber, and a controlling device for regulating the mixture of air and fuel passing into the lower mixing chamber.

In testimony whereof I have signed my name to this specification.

WINFIELD M. KIMBERLIN.