J. L. VANCE.

GAS BURNER.

APPLICATION FILED MAR. 30, 1920.

1,385,509. **Patented July 26, 1921.**

Fig. 1

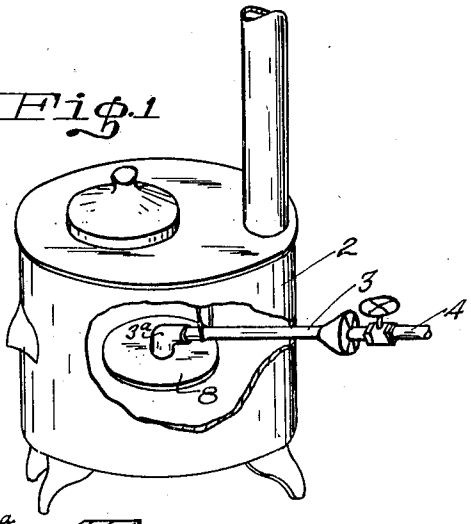
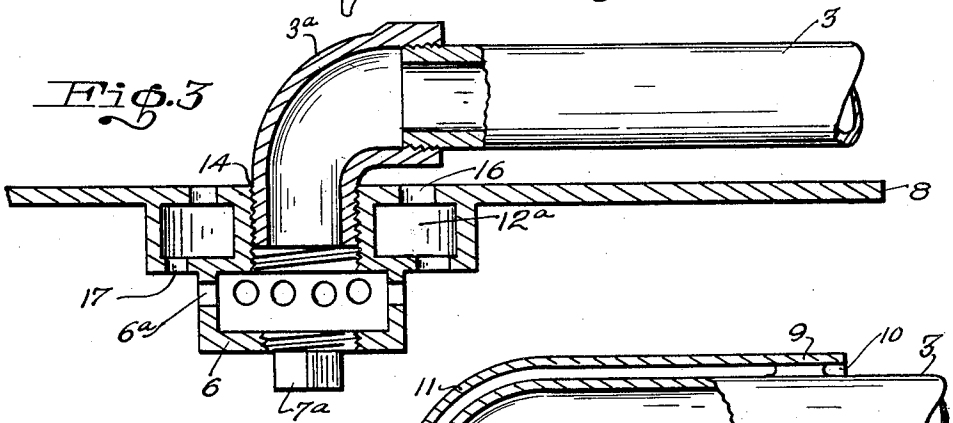


Fig. 3



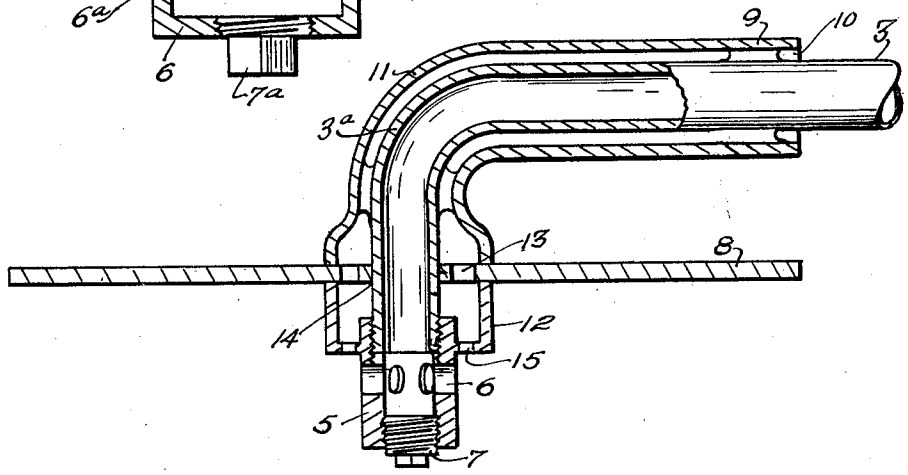


Fig. 2

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UNITED STATES PATENT OFFICE.

JESSE LYLE VANCE, OF POMONA, CALIFORNIA.

GAS-BURNER.

1,385,509. Specification of Letters Patent. Patented July 26, 1921.

Application filed March 30, 1920. Serial No. 369,913.

To all whom it may concern:

Be it known that I, JESSE LYLE VANCE, a citizen of the United States, residing at Pomona, 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 gas burners and has for its object to provide an improvement in gas burners to facilitate the combustion of a gaseous fuel as utilized in heating stoves and furnaces, and consists of the construction and details, an embodiment of which is illustrated in the accompanying drawings and described and claimed herein.

Figure 1 is a perspective of a small heating stove partly broken away to show the installed burner.

Fig. 2 is a detail central sectional view of the burner.

Fig. 3 shows a modified form.

The burner constituting the present invention is especially designed to be used in the combustion of gas, either of natural source or manufactured, and it is desirable to provide a burner of this type that is simple, inexpensive, and readily installed as in a sheet iron stove 2 into which the gas is conducted through a suitable mixture feed pipe 3 extending from a valved supply pipe 4. The mixture pipe 3 is provided with an elbow 3^a on which there is threaded a nipple or tip 5 having a series of radially disposed gas outlets 6, the outer end of the nipple 5 being closed as by a plug 7 that can be removed if necessary to facilitate the cleaning of the burner.

Mounted about the elbow 3^a of the fuel pipe there is a disk or deflector 8 of suitable proportions for spreading the flame of combustion of the burning gases issuing from the burner tip 6. For the purpose of facilitating the combustion of the gases and supplying additional oxygen to the combustible mixture that passes through the pipe 3, the latter is partially inclosed by an air inlet pipe 9 opening at its outer end at 10. This pipe has an elbow 11 on its lower end, the inner end of which latter is enlarged and bears upon the central portion of plate 8 immediately above a collar 12 that is formed on or attached to the upper portion of tip 6.

The deflecting plate 8 has openings 13 of sufficient size to permit air to pass downwardly through said plate into the chamber within collar 12 and out through a series of apertures 15 in the bottom of said collar so that air will be distributed generally under the lower surface of the deflecting plate 8; this air being drawn into and through the air supply pipe 9 while combustion is maintained at the burner tip 6 so that additional oxygen and fresh air is supplied to facilitate the complete combustion of the gas. In this manner the deflecting plate is kept clean on its lower surface and the heated products of combustion will be generally distributed by the plate outwardly from the burner tip as the heated gases pass from below and around the annular edge of the plate.

In Fig. 3 a modified arrangement of the parts is shown in which the deflecting plate 8 is provided with a series of air inlet apertures 16 surrounding its central perforation 14 into which latter there is threaded, in this case, the elbow 3^a of the fuel pipe 3. There is attached to or formed upon one face of the deflecting plate an air jacket or box 12^a into which air may be drawn through the apertures 16, the lower portion of the air jacket or box being provided with outlet apertures 17 arranged just above the gas outlet apertures 6^a in the tip 6 of the burner.

The lower end of the burner tip 6 of Fig. 3 is provided with a removable plug 7^a designed to be inserted in the threaded opening 14 of the plate 8 in which case the elbow 3^a of the fuel pipe 3 could be attached to the lower end of the burner tip 6, in other words the position of the fuel feed pipe 3 could be reversed so that it would extend in under the deflecting plate 8.

From the above it will be seen that in the form of the device illustrated in Fig. 2 a secondary supply of air is drawn into the combustion chamber to facilitate combustion of fuel at the burner tip, and in the form shown in Fig. 3 the air is drawn into the air jacket directly through and from above the deflecting plate 8; in both cases the secondary supply of air being discharged in close proximity to the burner tip outlets.

It is understood that various changes may be made without departing from the spirit of my invention as claimed.

I claim:

1. A gas burner comprising a mixture feed pipe having a downwardly extended elbow portion with a burner tip mounted on its lower end for the radial distribution of

the fuel, a deflecting plate mounted upon the down-turned portion of the fuel pipe and above the burner tip thereof and means for taking additional air downwardly through said plate immediately adjacent to said elbow and delivering said additional air downwardly into the horizontal zone of combustion of said burner tip.

2. A gas burner comprising a mixture feed pipe having a downwardly extended elbow portion with a burner tip mounted on its lower end for the radial distribution of the fuel, a deflecting plate mounted upon the down-turned portion of the fuel pipe and above the burner tip thereof, and means for supplying additional fresh air to facilitate combustion at the burner tip and discharging said additional air in jet form downwardly immediately adjacent to the jet opening of the burner tip.

3. A gas burner comprising a fuel mixture supply pipe having a downwardly extending discharge portion, a burner tip mounted on the lower end of said discharge portion, an auxiliary air distributer mounted upon the down-turned portion of the feed pipe and above the outlets of the burner tip, a deflecting plate mounted above the air distributer, and an air supply jacket surrounding the fuel mixture supply pipe and attached to the air distributer so that air to facilitate combustion will be drawn into and through said jacket by the combustion of fuel beneath the deflecting plate.

4. A gas burner comprising a mixture feed pipe having an elbow portion with a perforated distributing tip for the radial distribution of the fuel; a deflecting plate mounted above the distributing tip and means for delivering air in jet form downwardly through said deflecting plate immediately adjacent and at right angles to the jets of fuel issuing from the perforations in said distributing tip.

5. A gas burner comprising a fuel mixture or supply pipe; a burner tip arranged at the discharge end of the fuel supply pipe and provided with horizontally disposed radially arranged jet openings, a deflector plate arranged above the openings in the burner tip, and an air jacket surrounding the fuel feed pipe and having outlet apertures to discharge a secondary supply of air immediately adjacent and at right angles to the fuel outlet openings of the tip.

6. A gas burner comprising a fuel mixture or supply pipe; a burner tip arranged at the discharge end of the fuel supply pipe and provided with horizontally disposed radially arranged jet openings, a deflector plate arranged above the openings in the burner tip, an air jacket surrounding the fuel feed pipe and having outlet apertures to discharge a secondary supply of air immediately adjacent and at right angles to the fuel outlet openings of the tip, and said deflecting plate having a series of openings for admitting air into the air jacket and which last mentioned openings are disposed at right angles to the openings in the burner tip.

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

JESSE LYLE VANCE.