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GAS BURNER

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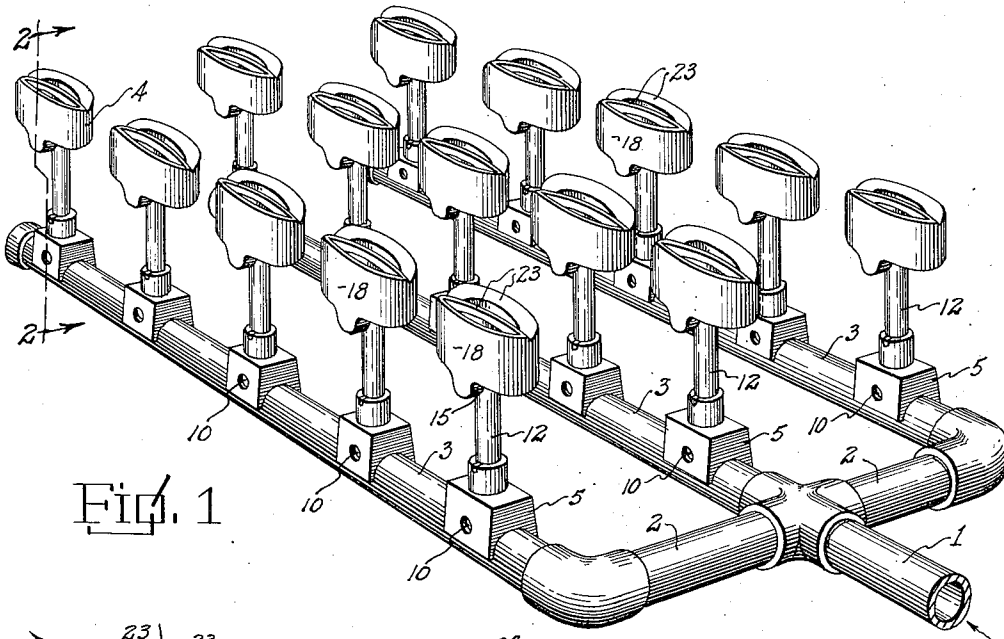


Fig. 1

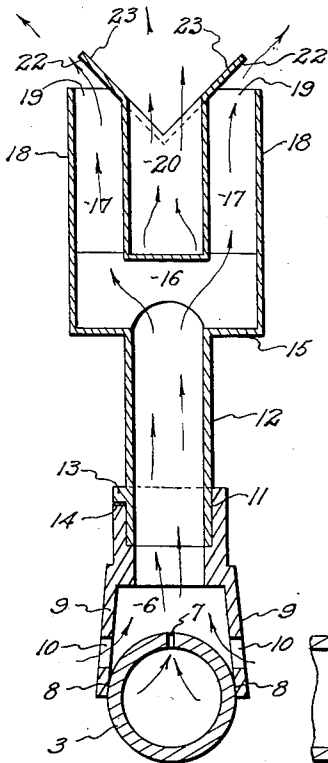


Fig. 2

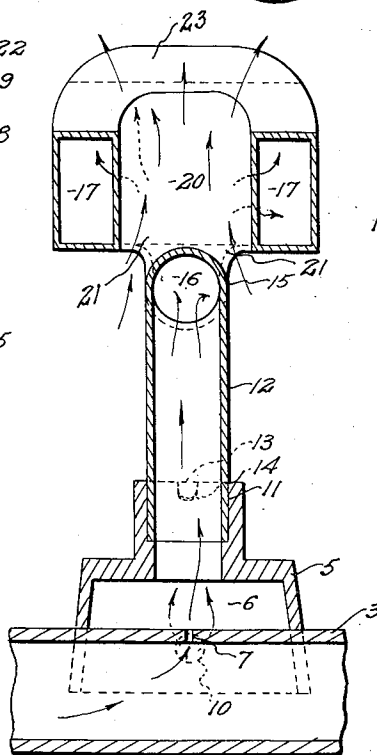


Fig. 3

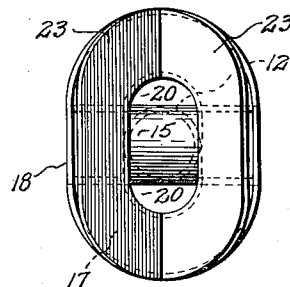


Fig. 4

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GAS BURNER

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5 Claims. (Cl. 158—116)

The invention relates to gas burners and particularly to gas burners for use in connection with boilers used in the oil fields, and has for its object to provide a burner comprising an intake pipe terminating in a plurality of spaced feed lines having a plurality of upwardly extending burner elements mounted thereon and through which gas passes to the combustion point.

A further object is to provide a gas burner comprising a chambered casing having an air mixing chamber therein and mounted on a feed line having a discharge pipe discharging upwardly through the mixing chamber towards the burner and air admission holes in opposite sides of the casing and through which air is sucked by the upwardly projected gas from the feed pipe.

A further object is to provide the feed line casing with an upwardly extending pipe into which the gas is projected and mixed with the air and a transversely disposed passage at the upper end of the upwardly extending pipe and discharging into an ovate chamber in an ovate shaped member above the transverse pipe to the point of combustion above the burner.

A further object is to provide a gas burner comprising an upwardly extending supply pipe terminating in a transverse pipe, an ovate chambered member connected to the ends of the transverse member and having an ovate chamber, into which gas is discharged and means whereby the gases from the ovate gas chamber will be discharged upwardly against the upper sides of the upwardly and outwardly inclined deflecting plates at a right angle to the transverse pipe. Also to provide an air passage upwardly from opposite sides of the transverse pipe through the ovate burner and between the deflecting plates.

A further object is to provide an ovate shaped chambered gas burner, into the chamber of which mixed gas and air is discharged, and through the center of which air is sucked upwardly by the gases discharged upwardly from the ovate gas chamber impinging and deflecting outwardly incident to engagement with the under sides of upwardly diverging deflecting plates which cause vacuum pockets on the upper sides of the deflecting plates thereby causing air induction and entrainment, to the point of combustion.

With the above and other objects in view the invention resides in the combination and arrangement of parts as hereinafter set forth, shown in the drawing, described and claimed, it being understood that changes in the precise embodiment of the invention may be made within

the scope of what is claimed without departing from the spirit of the invention.

In the drawing:

Figure 1 is a perspective view of the burner unit.

Figure 2 is a vertical transverse sectional view through the burner taken on line 2—2 of Figure 1.

Figure 3 is a vertical longitudinal sectional view through one of the burners and a portion of one of the feed lines.

Figure 4 is a top plan view of one of the burners.

Referring to the drawing, the numeral 1 designates the intake pipe which terminates in branch pipes 2 at a right angle thereto and connected to the branch pipes are feed pipes 3 which may be of any number desired, three being shown for purposes of illustration. Mounted on the feed pipes 3 and extending upwardly therefrom are gas burners 4, all of which are similarly constructed and one of which will be described in detail, it being understood that the reference numerals will apply to all the burners. Each burner comprises an upwardly extending casing 5 having a chamber 6 therein, which arches the upper side of the feed pipe 3, as clearly shown in Figure 2 and houses the gas port 7 in the feed pipe. Opposite sides of the casing 5 may be secured at 8 to the feed pipe in any suitable manner, for instance by abrasion, and it will be noted that the opposite sides 9 of the casing are provided with air supply ports 10, through which air is sucked by the upwardly rushing gas projected upwardly from the port 7. Air ports 10 are preferably disposed below the discharge end of the gas port 7 to insure a suction of air into the chamber 6.

Telescopically engaging in the upper end of the casing 5, at 11 is an upwardly extending pipe 12, the lower end of which is provided with a lug 13 which is received in a recess 14 in the upper end of the casing 5, and which prevents rotation of the burner supported on the casing and maintains the same in proper position. The upwardly extending pipe 12 terminates in a transverse portion 15 having a gas passage 16 therein, through which the previously mixed air and gas passes to the substantially oval shaped horizontally disposed chamber 17 in the burner proper, and which chamber is in a similarly shaped burner casing 18, which has its upper side open as at 19 at opposite sides of the burner casing and at a right angle to the transverse portion 15. Burner casing 18 is provided with a centrally disposed air passage 20 through which air passes upwardly

through the burner casing, and through the air passages 21 at opposite sides of the transverse portion 15, therefore it will be seen that air will be sucked upwardly by the flame above the burner through the passage 21 to the point of combustion. As the gas passes upwardly through the chamber 17 it engages the under sides 22 of the upwardly and outwardly inclined deflecting plates 23 above the burner, and this deflected gas causes a vacuum above the plates 23, thereby causing a suction of the air through the passage 21 to the point of combustion. It will be noted that the deflecting plates extend upwardly and outwardly from opposite sides of the air passage 20 and that they extend across the ends of the gas chamber 17, therefore all gas leaving the chamber 17 will impinge against the under sides of the upwardly and outwardly inclined deflecting plates, hence gas will not escape around the ends of the deflecting plates.

From the above it will be seen that a gas burner is provided wherein air is admitted and mixed with the gas at two points before it reaches the point of combustion, thereby thoroughly merging the same and allowing a proper mixture of air and gas, as the gas expands in the pipe 12 and the chamber 6. It will also be seen that the burner chamber 17 discharges the gas upwardly in a form other than round against the under side of the deflecting plates 23 and in a manner whereby the flame will be spread over a large area and at the same time a vacuum is formed above the plates which will induct the air from the air passage 21 to the point of combustion.

The invention having been set forth what is claimed as new and useful is:

1. A burner assembly comprising an intake pipe, a plurality of feed pipes connected to the intake pipe, a plurality of upwardly extending burners carried by said feed pipes, said burners each comprising a chambered casing mounted on the feed pipe in engagement therewith and having air intake ports at opposite sides of the feed pipe, an upwardly extending pipe carried by the casing in the vertical plane of the feed pipe and into which gas from the feed pipe and air from the chambered casing pass, said pipe terminating in an approximately annular chambered burner casing into the chamber of which the gas and air are discharged, an air passage through said burner casing, discharge means at opposite sides of the upper end of the burner casing and upwardly and outwardly inclined deflecting plates against the under sides of which gas is projected, whereby air passing through the burner between the plates will be inducted to the gas at the point of combustion.

2. A burner comprising a supply pipe having an upwardly extending discharge port, a chambered

casing engaging the supply pipe and having its chamber arching the supply pipe transversely and the discharge port therein, means for admitting air to the chamber of the casing, an upwardly extending pipe carried by the casing, a transverse pipe carried by the upper end of the upwardly extending pipe, a continuously chambered burner casing carried on the ends of the transverse pipe and having a chamber therein in communication with the chamber in the transverse pipe and the opposite sides of its chamber discharging upwardly to the atmosphere at opposite sides of the burner casing, said burner casing having an air passage therethrough with its lower end in communication with the atmosphere at opposite sides of the transverse pipe, the opposite sides of the air passage through the burner casing terminating in upwardly and outwardly inclined deflecting plates extending above the upper discharge ends of the chamber in the burner casing at opposite sides and across the ends of the chamber in the burner casing.

3. A gas burner comprising a T-shaped gas supply pipe, a continuous burner casing connected to the arms of the T-shaped supply pipe and having communication with the chamber of said arms and open to the atmosphere at the upper end thereof, an air port extending through said burner casing and having communication with the atmosphere at opposite sides of the arms of the T-shaped member and the atmosphere above the burner, and upwardly and outwardly inclined deflecting plates carried by the burner casing above the discharge end of the chamber therein and in spaced relation thereto, said deflecting plates extending across the ends of the chamber in the burner casing.

4. The combination with a burner having a continuous chamber therein and an air supply passage therethrough, said chamber being open at its upper end and having inner and outer walls, of upwardly and outwardly inclined deflecting plates carried by opposite sides of the air passage and by the inner wall and terminating above the upper end of the continuous chamber, said plates extending downwardly and inwardly into opposite sides of the continuous chamber.

5. A gas burner comprising a transverse chambered portion, a burner casing above the transverse portion and having a continuous gas passage therein above the transverse portion and in communication with the chamber thereof, the upper sides of the continuous chamber being open to the atmosphere at opposite sides of the burner and upwardly and outwardly inclined deflecting plates carried by the upper end of the burner and terminating above the upper open portions of the continuous burner casing.

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