

GAS BURNER ✓

This invention relates to a gas burner, more particularly to a gas burner with inner and outer gas outlets for fluid communication with inner and outer
5 gas conduits which are supplied respectively with a fuel gas.

Referring to Fig. 1, a conventional gas burner 1 is shown to include an inner gas outlet member 3 which is disposed at a central axis, and an outer gas outlet
10 member 2 around the inner gas outlet member 3. Two gas conduits 4 extend outwardly from the gas burner 1 and are fluidly communicated with the inner and outer gas outlet members 3,2, respectively, to supply fuel gas to the gas burner 1. A plurality of inner gas outlet
15 holes 301 are formed in a surrounding wall of the inner gas outlet member 3. A plurality of outer gas outlet holes 202 are formed in an annular periphery of the outer gas outlet member 2. A number of outlet holes 203 are formed in an upper wall between the inner and
20 outer gas outlet members 2,3. In use, with reference to Fig. 2, the flames spurting from the gas outlet holes 301,202 are distributed in an annular shape due to the annular arrangement of the holes 301,202, thereby resulting in uneven heating of a pot when the pot is
25 placed on the gas burner 1.

The object of the present invention is to provide a gas burner which can heat a pot thereon evenly.

Another object of the present invention is to provide a gas burner which can guide entry of fresh air therein for facilitating the burning of fuel gas.

According to this invention, a gas burner includes
5 a head seat with outer and inner ring flanges that extend upwardly from and coaxial to a surrounding wall thereof in a central axis so as to define therebetween an outer annular outlet to permit upward flow of a fuel gas from an outer gas conduit. The inner ring flange
10 confines an inner gas outlet adapted to be fluidly communicated with an inner gas conduit so as to permit fuel gas from the latter to flow upwardly. A hollow gas guiding member includes a bottom wall with an annular inlet, and an upper wall which is spaced apart
15 from the bottom wall to confine an annular chamber. When the gas guiding member is seated on the head seat, the annular inlet mates with and engages both the inner and outer ring flanges to permit the fuel gas in the outer annular outlet to flow into the annular chamber.
20 The annular inlet defines a circumferential line around the central axis. The upper wall includes a plurality of first protuberances and a plurality of second protuberances which extend outwardly and radially of the circumferential line, and which are
25 alternately connected so as to form a peripheral portion distal to the circumferential line. Each first protuberance is of a dimension smaller than that of

each second protuberance. The upper wall further has a plurality of first fuel gas outlet holes which are in fluid communication with the annular chamber and which are spacedly disposed along the peripheral portion. As such, the first fuel gas outlet holes are evenly distributed over the upper wall.

Moreover, a plurality of guiding concavities are formed on junctures of a peripheral wall and the surrounding wall of the head seat at portions corresponding to the first protuberances for guiding entry of air into the annular chamber of the gas guiding member for facilitating the burning of the fuel gas.

Other features and advantages of the present invention will become apparent in the following detailed description of the preferred embodiments of the invention, with reference to the accompanying drawings, in which:

Fig. 1 is a perspective view of a conventional gas burner;

Fig. 2 is a top view of the conventional gas burner showing the flames made thereon during use;

Fig. 3 is an exploded view of a first preferred embodiment of a gas burner according to this invention;

Fig. 4 is a top view of the first preferred embodiment;

Fig. 5 is a sectional view of the gas burner shown in Fig. 4, taken along lines 5-5 thereof;

Fig. 6 is a top view of a portion of the gas burner of the first preferred embodiment showing the arrangement of the flames made thereon during use; and

Fig. 7 is a sectional view of a second preferred embodiment of the present invention.

Referring to Figs. 3, 4 and 5, the first preferred embodiment of a gas burner according to the present invention is shown to comprise a head seat 10, a central cap 30, and a hollow gas guiding member 20.

The head seat 10 includes a hollow circular seat body 11, and outer and inner gas conduits 12, 13 which extend from a peripheral wall 101 of the seat body 11, which are in fluid communication with the seat body 11, and which can be supplied with a fuel gas. The seat body 11 has a surrounding wall 102 which extends radially and inwardly of the peripheral wall 101 around a central axis, an outer ring flange 112 which extends upwardly from and coaxial with the surrounding wall 102, the outer ring flange 112 being disposed distal to the peripheral wall 101, an inner ring flange 14 which is disposed inwardly of and coaxial to the outer ring flange 112, which extends in a first direction parallel to the central axis and upward to project beyond the surrounding wall 102, and which confines an inner gas outlet 141 therein, and a central duct 15 which is disposed in the inner gas outlet 141 coaxial to the inner ring flange 14. The central duct 15 has

a lower end which is connected to and which is fluidly communicated with the inner gas conduit 13, and an upper end which extends upwardly in the first direction so as to permit the fuel gas from the inner gas conduit 13 to flow upwardly in the central duct 15. In addition, the inner ring flange 14 cooperates with the outer ring flange 112 to define therebetween an outer annular outlet 111 which is fluidly communicated with the outer gas conduit 12 so as to permit the fuel gas in the outer gas conduit 12 to flow upwardly in the first direction. The central cap 30 is mounted detachably on the upper end of the central duct 15, and has a plurality of inner fuel gas outlet holes 31 which are formed in a surrounding wall thereof and which are fluidly communicated with the central duct 15. Four guiding concavities 16 are formed on a juncture of the peripheral wall 101 and the surrounding wall 102 at intervals. One of the guiding concavities 16 confronts the inner and outer gas conduits 13,12.

The hollow gas guiding member 20 is seated on the seat body 11 of the head seat 10, and includes a bottom wall 20a and an upper wall 20b which is spaced apart from the bottom wall 20a to confine an annular chamber 22 in the first direction. The bottom wall 20a has an annular outer end wall 221 which is disposed around the central axis and which can engage the outer ring flange 112 of the seat body 11. The upper wall 20b has

a central opening 211 which is formed about the central axis, and an annular inner end wall 27 which extends downwardly from the central opening 211 and which is disposed proximate to the central axis relative to the annular outer end wall 221 so as to confine an annular inlet 28 therebetween that is in fluid communication with the annular chamber 22 of the gas guiding member 20. The annular inner end wall 27 confines an inner guiding outlet 21, and can engage the inner ring flange 14 of the seat body 11 so as to fluidly intercommunicate the inner gas outlet 141 and the central opening 211.

In addition, the annular inlet 28 defines a circumferential line around the central axis. The upper wall 20b includes four circular first protuberances 24 and four circular second protuberances 23 which extend outwardly and radially of the circumferential line and which are alternately connected so as to form a peripheral portion 29 distal to the central axis and with a curved shape. Each first protuberance 24 is of a dimension smaller than that of the second protuberance 23. A series of first outer fuel gas outlet holes 25 are formed in the upper wall 20b, are in fluid communication with the annular chamber 22 of the gas guiding member 20, and are spacedly disposed along the entire length of the peripheral portion 29. Preferably, the first protuberances 24 are superimposed upon the guiding

concavities 16 respectively for guiding fresh air adjacent to the first protuberances 24 to flow as close as possible relative to the first fuel gas outlet holes 25 in the first protuberances 24. If desired, a plurality of third fuel gas outlet holes 26 are formed in the second protuberances 23 proximate to the central axis relative to the first outer fuel gas outlet holes 25.

In use, with reference to Fig. 6, because of the curved arrangement of the first outer fuel gas outlet holes 25 in the upper wall 20b, the flames can spurt out therefrom, and the distribution of the flames can reach most portions of a pot bottom, thereby resulting in even application of heat to the pot bottom.

Referring to Fig. 7, the second preferred embodiment of the gas burner according to this invention is shown to include a head seat 40 and a hollow gas guiding member 50 which is formed integrally with the head seat 40. That is, the annular inlet of the gas guiding member 50 is formed integrally with the inner and outer ring flanges of the head seat 40.

CLAIMS:

1. A gas burner adapted to be in fluid communication with inner and outer gas conduits which are respectively supplied with a fuel gas, comprising:

5 a head seat having a peripheral wall disposed around a central axis, a surrounding wall extending radially and inwardly of said peripheral wall, an outer ring flange extending upwardly from and coaxial with said surrounding wall, said outer ring
10 flange being disposed distal to said peripheral wall, and an inner ring flange disposed inwardly of and coaxial to said outer ring flange, and extending in a first direction parallel to said central axis and upward to project beyond said
15 surrounding wall, said inner ring flange confining an inner gas outlet adapt to be fluidly communicated with the inner gas conduit so as to permit the fuel gas in the inner gas conduit to flow upwardly in said first direction, said inner ring flange
20 cooperating with said outer ring flange to define therebetween an outer annular outlet adapted to be fluidly communicated with the outer gas conduit so as to permit the fuel gas in the outer gas conduit to flow upwardly in said first direction; and
25 a hollow gas guiding member having an annular chamber therein, and including:

 a bottom wall which has an annular inlet



therein in fluid communication with said annular chamber, and which has a dimension such that when said hollow gas guiding member is seated on said head seat, said annular inlet will mate with and engage both said inner and outer ring flanges to permit the fuel gas in said outer annular outlet to flow into said annular chamber, said annular inlet defining a circumferential line around said central axis; and

an upper wall spaced apart from said bottom wall in said first direction, said upper wall including a plurality of first protuberances and a plurality of second protuberances extending outwardly and radially of said circumferential line, said first and second protuberances being alternately connected so as to form a peripheral portion distal to said circumferential line, each of said first protuberances being of a dimension smaller than that of each of said second protuberances in a radial outward direction, said upper wall further having a plurality of first fuel gas outlet holes which are in fluid communication with said annular chamber and which are spacedly disposed along said peripheral portion.

2. The gas burner as claimed in Claim 1, wherein said upper wall of said gas guiding member has a central



opening formed about said central axis, said annular inlet having an annular inner end wall proximate to said central axis and an annular outer end wall distal to said central axis to confine said annular inlet between said inner and outer end walls, said annular inner end wall confining an inner guiding outlet to be fluidly communicated with said central opening of said upper wall, and engaging said inner ring flange when said gas guiding member is seated on said head seat so as to fluidly intercommunicate the inner gas conduit and said central opening.

3. The gas burner as claimed in Claim 2, wherein said head seat further has a central duct disposed inwardly of and coaxial to said inner ring flange, said central duct having a lower end adapted to be fluidly communicated with the inner gas conduit, and an upper end extending upwardly in said first direction so as to be received in said inner guiding outlet when said gas guiding member is seated on said head seat;

said gas burner further comprising a central cap mounted on said upper end of said central duct, and having a plurality of second fuel gas outlet holes formed therein and fluidly communicated with said central duct.

4. The gas burner as claimed in Claim 1, wherein said second protuberances further have a plurality of



third fuel gas outlet holes formed therein proximate to said central axis relative to said first fuel gas outlet holes.

- 5 5. The gas burner as claimed in Claim 1, wherein said head seat further has at least one guiding concavity formed on a juncture of said peripheral wall and said surrounding wall at a portion corresponding to one of said first protuberances for guiding air adjacent to the first protuberances to flow as close as possible relative to the first fuel gas outlet holes 25 in the first protuberances.
- 10 6. The gas burner as claimed in Claim 1, wherein said annular inlet of said gas guiding member is formed integrally with said inner and outer ring flanges of said head seat.
- 15 7. A gas burner substantially as herein described with reference to, or with reference to and as illustrated in, the accompanying drawings.

