

GAS BURNER

This invention relates to a gas burner, more particularly to a gas burner with outer and inner surrounding outlets which are in fluid communication with inner and outer gas conduits that are supplied respectively
5 with a fuel gas and which can spurt flames evenly.

Referring to Figs. 1 and 2, a conventional gas burner is shown to include a head seat 1 which has a central hole 102 and an annular outer surrounding outlet 101 that is
10 formed around the central hole 102 and that has an opening 401 in a bottom wall 105 of the head seat 1. A burner cap 2 is mounted on the head seat 1 for spurting flames. An inner tube 103 is disposed in the central hole 102 and extends along a central axis. A central cap 3 is mounted
15 on the inner tube 103. An outer gas conduit 4 is in fluid communication with the opening 401 in the annular outer surrounding outlet 101 and extends outwardly of the head seat 1 from a bottom wall 105 thereof to supply fuel gas to the head seat 1. An inner gas conduit 5 is connected
20 to and is in fluid communication with the inner tube 103, and extends outwardly from the head seat 1 to supply fuel gas to the head seat 1. However, fuel gas supplied to the annular outer surrounding outlet 101 from the outer gas conduit 4 can not flow smoothly due to the bent shape of
25 the latter. In addition, when the fuel gas flows in the outlet 101 through the opening 401, the gas pressure proximate to the opening 401 is larger than that distal

to the opening 401, thereby causing uneven flames spurting from the burner cap 2. Moreover, no means is provided for adjusting an amount of air entering into the gas burner.

5 The object of the present invention is to provide a gas burner which can spurt flames evenly and which permits adjustment in the amounts of air entering to mix with the fuel gas in the outer and inner gas conduits.

According to this invention, the gas burner includes a head seat which has a looped bottom wall with inner and outer peripheries perimetrically opposite to each other and around a central axis, an outer surrounding wall which extends upwardly from the outer periphery of the bottom wall in a first direction parallel to the central axis, and an inner surrounding wall which extends upwardly from the inner periphery of the bottom wall and perimetrically opposite to the outer surrounding wall. The outer and inner surrounding walls define therebetween an outer surrounding outlet. The outer surrounding wall is formed with a gas inlet in fluid communication with the outer surrounding outlet, and has proximate and distal ends relative to the gas inlet. The proximate and distal ends are disposed diametrically opposite to each other, and have top proximate and distal edges which define a horizontal plane and which are distant from the bottom wall with proximate and distal distances, respectively. The proximate distance is longer than the distal distance. An outer gas conduit includes a first connecting end portion which is secured

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to and which is in fluid communication with the gas inlet,
and a first gas receiving end portion which extends from
the first connecting end portion and outwardly of the outer
surrounding wall in a second direction radial to the central
axis, and which is adapted to be supplied with the fuel
gas such that the fuel gas in the outer gas conduit is
permitted to flow upwardly in the outer surrounding outlet
in the first direction. An inner gas conduit has a second
connecting end portion which is disposed to be inwardly
and which is perimetrically spaced apart from the inner
surrounding wall and which extends along the central axis
to form upper and lower ends, and a second gas receiving
end portion which extends from and which is in fluid
communication with the lower end of the second connecting
end portion in a third direction radial to the central axis
and beneath the bottom wall such that the fuel gas in the
second gas receiving end portion is permitted to flow
upwardly in the second connecting end portion in the first
direction.

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

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

Fig. 2 is a sectional view of the conventional gas stove;

Fig. 3 is a perspective view of a preferred embodiment
of a gas stove according to this invention;

Fig. 4 is a sectional view of the preferred embodiment;

Fig. 5 is a top view of the preferred embodiment when a burner cap is removed for the sake of clarity; and

Fig. 6 is a perspective view showing an inner gas conduit
5 of the preferred embodiment.

Referring to Fig. 3, the preferred embodiment of the gas stove according to the present invention is shown to comprise a head seat 10, an outer gas conduit 20, and an inner gas conduit 30.

10 Referring to Figs. 3, 4 and 5, the head seat 10 has a looped bottom wall 12 with inner and outer peripheries which are perimetrically opposite to each other and around a central axis, an outer surrounding wall 101 which extends upwardly from the outer periphery of the bottom wall 12
15 in a first direction parallel to the central axis, and an inner surrounding wall 102 which extends upwardly from the inner periphery of the bottom wall 12 and which is perimetrically opposite to the outer surrounding wall 101. The outer and inner surrounding walls 101,102 define
20 therebetween an annular outer surrounding outlet 11. An inner surrounding outlet 15 is defined by the inner surrounding wall 102, and extends outwardly of the outer surrounding wall 101 in a second direction radial to the central axis. The outer surrounding wall 101 is formed with
25 a tubular protrusion 13 with a gas inlet 14 defined therein and in fluid communication with the outer surrounding outlet 11, and has proximate and distal ends 111,112

relative to the gas inlet 14 and diametrically opposite to each other. The proximate and distal ends 111, 112 have top proximate and distal edges which define a horizontal plane and which are distant from the bottom wall 12 with proximate and distal distances, respectively. The proximate distance is longer than the distal distance. Particularly, the bottom wall 12 is inclined downwardly and gradually from the distal end 112 to the proximate end 111. A burner cap 16 is mounted on the top edge of the outer surrounding wall 101, and has an annular inner support flange 161 which engages the inner surrounding wall 102, and a number of gas outlet holes 162 which are communicated with the outer surrounding outlet 11 for spurting flames.

The outer gas conduit 20 including a tubular first connecting end portion 21, a first gas receiving end portion 22, and a first air intake adjusting member 23. The first connecting end portion 21 has an end 211 which is inserted securely into the tubular protrusion 13 to be in fluid communication with the gas inlet 14, and an opposite open end which extends from the end 211 in the second direction and which is formed integrally with a positioning plate 212 that extends in the second direction away from the end 211. The positioning plate 212 has an engaging slot 213 and a screw hole 214 formed in the engaging slot 213 (as shown in Fig. 5). The first gas receiving end portion 22 is in the form of a spout which is mounted securely on the positioning plate 212, and has a spout end 221 which is

spaced apart from the opposite open end of the first connecting end portion 21 in the second direction, and a receiving end 222 adapted to be supplied with fuel gas. As such, fuel gas can be inserted into the outer gas conduit 20 via the receiving end 222 and can flow upwardly in the outer surrounding outlet 11 in the first direction. In addition, the first air intake adjusting member 23 includes a sliding plate 231 and a barrier plate 232 which extends upwardly and transverse to the sliding plate 231 and which has a through hole 235 for passage of the spout end 221. An elongate sliding slot 233 is formed in the sliding plate 231, and a screw fastener 234 passes through the sliding slot 233 and engages the screw hole 214 such that the sliding plate 231 is movable relative to the first connecting end portion 21 in the second direction upon loosening the screw fastener 234. As such, a distance between the barrier plate 232 and the opposite open end of the first connecting end portion 21 is adjustable so as to control an amount of air entering therein.

With reference to Fig. 6, the inner gas conduit 30 includes a second connecting end portion 31, a second gas receiving end portion 32, and a second air intake adjusting member 33. The second connecting end portion 31 includes an upright end 311 which is disposed to be inwardly and perimetrically spaced apart from the inner surrounding wall 102 and which extends along the central axis. A central cap 40 is mounted on a top of the upright end 311, and has

a plurality of gas outlet holes 401 for spurting flames. The second connecting end portion 31 further includes a transverse end 312 which is connected to the upright end 311 and which extends in a third direction radial to the central axis and beneath the bottom wall 12. The transverse end 312 is formed integrally with a positioning plate 313 which extends in the third direction and which has an engaging slot 314 and a screw hole 315 formed in the engaging slot 314 (as shown in Figs. 5 and 6). A pair of retaining plates 316 are disposed on the transverse end 312 so as to be secured on the bottom wall 12 by means of screw fasteners 317. The second gas receiving end portion 32 and the second air intake adjusting member 33 are similar to the first gas receiving end portion 22 and the first air intake adjusting member 23 in construction. The second gas receiving end portion 32 is mounted securely on the positioning plate 313, and has a spout end 321 which is spaced apart from the transverse end 312 in the third direction, and a receiving end 322 adapted to be supplied with fuel gas. As such, fuel gas can flow into the inner gas conduit 30 via the receiving end 322 and upwardly in the inner surrounding outlet 15 in the first direction. The second air intake adjusting member 33 includes a sliding plate 331 and a barrier plate 332 which extends upwardly and transverse to the sliding plate 331. A screw fastener 317 passes through a sliding slot formed in the sliding plate 331 and engages the screw hole 315 such that the

sliding plate 331 is movable relative to the second connecting end portion 31 in the third direction upon loosening the screw fastener 317. As such, a distance between the barrier plate 332 and the transverse end 312 of the second connecting end portion 31 is adjustable so as to control an amount of air entering therein.

As illustrated, since the bottom wall 12 is inclined gradually and downwardly from the distal end 112 to the proximate end 111, the cross-section area of the outer surrounding outlet 11 increases gradually from the distal end 112 to the proximate end 111, and fuel gas entering the outer surrounding outlet 11 from the gas inlet 14 can flow evenly toward the distal end 112 so as to spurt flames evenly from the burner cap 16. In addition, since the outer gas conduit 20 is disposed to extend in the second direction without bending, the flow of fuel gas can be smooth without interruption. By virtue of the first and second air intake adjusting members 23,33, the amounts of air entering the outer and inner gas conduits 20,30 are adjustable to vary the flaming effect.

**CLAIMS:**

1. A gas burner adapted to be supplied with a fuel gas, including:

5 a head seat having a looped bottom wall with inner and outer peripheries perimetrically opposite to each other and around a central axis, an outer surrounding wall extending upwardly from said outer periphery of said bottom wall in a first direction parallel to the central axis, and an inner surrounding wall extending
10 upwardly from said inner periphery of said bottom wall and perimetrically opposite to said outer surrounding wall, said outer and inner surrounding walls defining therebetween an outer surrounding outlet, characterized in that:

15 - said outer surrounding wall is formed with a gas inlet in fluid communication with said outer surrounding outlet, and has proximate and distal ends relative to said gas inlet, said proximate and distal ends being disposed diametrically opposite to each other and having
20 top proximate and distal edges which define a horizontal plane and which are distant from said bottom wall with proximate and distal distances respectively, said proximate distance being longer than said distal distance;

25 an outer gas conduit including a first connecting end portion secured to and in fluid communication with said gas inlet, and a first gas receiving end portion



extending from said first connecting end portion and outwardly of said outer surrounding wall in a second direction radial to the central axis, and adapted to be supplied with the fuel gas such that the fuel gas in said
5 outer gas conduit is permitted to flow upwardly in said outer surrounding outlet in the first direction;

an inner gas conduit having a second connecting end portion disposed to be inwardly and perimetrically spaced apart from said inner surrounding wall and
10 extending along the central axis to form upper and lower ends, and a second gas receiving end portion extending from and in fluid communication with said lower end of said second connecting end portion in a third direction radial to the central axis and beneath the bottom wall
15 such that the fuel gas in said second gas receiving end portion is permitted to flow upwardly in said second connecting end portion in the first direction.

2. The gas burner as claimed in Claim 1, further characterized in that said bottom wall is inclined
20 downwardly and gradually from said distal end to said proximate end .

3. The gas burner as claimed in Claim 1, further characterized in that said first gas receiving end portion is spaced apart from said first connecting end
25 portion in the second direction, said outer gas conduit further including a first air intake adjusting member disposed between said first connecting end portion and



said first gas receiving end portion and movable relative to said first connecting end portion in the second direction so as to adjust an amount of air entering said outer gas conduit via said first connecting end portion.

4. The gas burner as claimed in Claim 1, further characterized in that said second gas receiving end portion is spaced apart from said second connecting end portion in the third direction, said inner gas conduit further including a second air intake adjusting member disposed between said second connecting end portion and said second gas receiving end portion and movable relative to said second connecting end portion in the third direction so as to adjust an amount of air entering said inner gas conduit via said second connecting end portion.