

March 24, 1959

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2,878,863

GAS BURNER AND LIGHTER

Filed Sept. 7, 1956

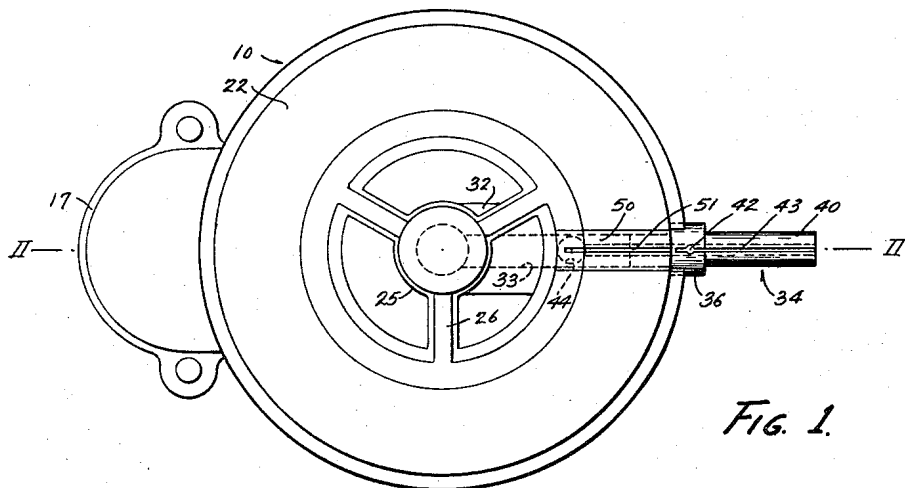


FIG. 1.

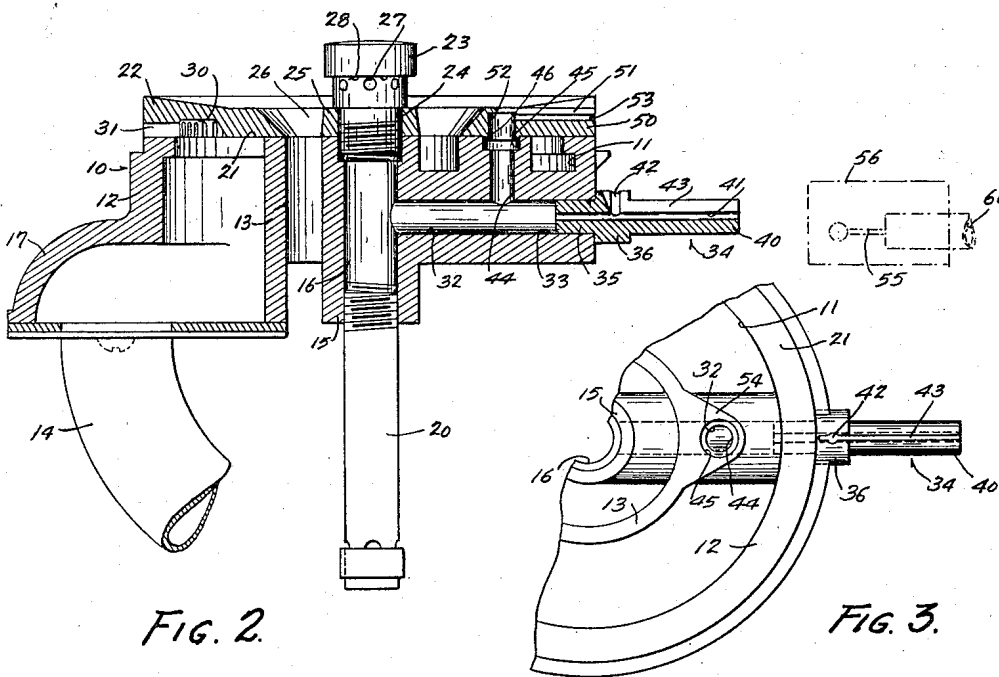


FIG. 2.

FIG. 3.

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Application September 7, 1956, Serial No. 608,602

6 Claims. (Cl. 158—116)

My invention relates in general to lighters for gas burners and in particular to a lighter for a multiple or dual gas burner having a centrally arranged simmer burner.

It is well known that in burners of this type, it is usual for the gas to flow to the simmer burner and then to the main burner. Under this arrangement, there is always a question whether or not the main burner will be ignited; and even if ignited, be so retarded that the delay will result in a relatively large amount of unignited gas mixture being discharged into the atmosphere.

The principal object of my invention is to provide means for igniting the main burner, the instant it is supplied with gas mixture, thus avoiding any escape into the atmosphere of unignited gas mixture.

A further object is to provide a dual gas burner so constructed that gas mixture to the ignition means can only be supplied by the simmer mixing tube, thereby igniting this burner first and making certain that the main burner will be ignited immediately upon supply of gas mixture thereto.

A further object is to provide a dual gas burner with double ignition means, whereby both burners may be ignited simultaneously or in sequence from any suitable pilot light.

A further object of my invention is to provide a burner so constructed that gas mixture is supplied to both ignition means by and simultaneously with the supply of gas to the simmer burner through the mixing tube thereof.

A still further object is to provide ignition means in the form of an ignition tube extending outwardly and carried by the main burner body and having an ignition slot and orifice for producing a vertical flame when ignited.

A further object is to provide the main burner cap with a vertical slot and a communicating horizontal ignition orifice.

Moreover, the main burner cap of my invention is provided with a vertical passage which registers with the vertical passage of said body, said cap being provided with a hollow hub for engagement with a recess formed in the burner body, whereby the vertical passages will be kept in registration.

Moreover, it is an object of my invention to provide a dual burner having dual ignition means which can be constructed economically and which can be readily disassembled for convenient cleaning.

The above objects and advantages have been accomplished by the device shown in the accompanying drawings, of which:

Fig. 1 is a plan view of my invention;

Fig. 2 is a side sectional elevation taken on line II—II of Fig. 1; and

Fig. 3 is a fragmentary plan view of the burner body with the burner cap removed.

My invention comprises a burner body 10 having an annular combustible mixture space 11 which is confined by means of an outer wall 12 and an inner wall 13. Ex-

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tending outwardly and downwardly from the body part and in communication with the space 11 is an elbow portion 17 to the lower face of which is secured the mixing tube 14 of the main burner.

Mounted within the burner body and in spaced relation with the inner wall 13 thereof is a simmer burner post 15. This post is formed with a vertical passage 16, and a simmer mixing tube 20 is secured to the lower end thereof preferably by screw threaded means. The upper end of the post is coplanar with the top surface 21 of the burner, and a burner cap 22 is disposed upon this surface. This burner cap is preferably held in place by means of the simmer burner 23 which passes through an aperture 24 formed in the hub 25 of the cap and which is screw-threaded into the upper end of the post 15. Radiating arms 26 connect the hub 25 of the cap with the outer portion thereof. The simmer burner is formed with the usual radially arranged apertures 27 and 28 for the passage of gas mixture coming through the vertical passage 16. The inner face of the burner cap is formed with the usual combustion mixture recess 30 from which radiating slots 31 are extended, whereby the mixture contained within the cap is conducted outwardly to the outer edge surface thereof for combustion. The body is formed with a lateral body portion 32 which extends from the post to the inner wall 16, and from the inner wall to the outer wall 12. This portion is formed with a lateral passage 33 which extends to the outer periphery of the burner body 10.

My invention includes a lighter tube 34 having an inwardly extending portion 35 which is disposed in the outer end of the passage 33. A collar portion 36 is formed immediately in front of the portion 35, and a slotted portion 40 extends outwardly from the collar 36. The lighter tube is formed with a central flash orifice 41 which extends the entire length thereof and receives gas mixture from the passage 33. The collar 36 is formed with a vertical flash orifice 42 which is connected at its inner end to the orifice 41. A carryover ignition slot 43 is formed in the tube extending from the outer end thereof and terminating at a point slightly beyond the vertical flash orifice 42. The slot extends into the central orifice 41, and when supplied with gas from the passage 33, a thin flame is projected upwardly toward the main burner cap.

Extending upwardly from the passage 33 is a vertical passage 44 which terminates at its upper end in a counterbore 45. The counterbore 45 is designed to receive a locating sleeve or nub 46 carried by the burner cap 22 and serving to act as a detent to prevent rotation of the cap about the body.

The burner cap 22 is formed at a point adjacent the locating sleeve with a solid portion 50. This portion of the cap is formed with an ignition slot 51 which extends from the outer periphery of the cap to and into a vertical recess 52 formed in the portion 50 of the cap and in the locating sleeve 46. Extending radially into the burner cap is an ignition orifice 53 which is in communication with the recess 52 and with the ignition slot 51. As shown in Fig. 3, the counterbore 45 is formed in an extension 54 of the lateral portion 36, whereby gas mixture coming through the passage 33 will be confined in its upward passage to the recess 52 of the cap.

It is obvious that any suitable pilot light may be used in connection with the ignition means of my invention; and, for illustrative purposes, I have shown in dot and dash lines a pilot nozzle 55 which is protected by means of a pilot hood 56. The tube 60 of the pilot is connected to any suitable source of gas supply (not shown).

From the foregoing it will be clear that when gas mixture is supplied through the mixing tube 20 to the simmer

burner through the passage 16, the passages 33 and 44 will also receive combustible mixture. Such mixture will flow out through the central orifice 41 of the lighter tube and upwardly in a vertical direction through the carry-over ignition slot 43 and vertical orifice 42. A portion of this gas mixture will also flow through the recess 52 and outwardly and upwardly through the ignition orifice 53 and ignition slot 51 in the burner cap. When the gas mixture flows outwardly through the ignition orifice 41, it will be projected toward the flame of the pilot 55 and thereby be ignited thus causing a thin flame to be projected upwardly past the outer end of the ignition orifice 53 and ignition slot 51, serving to ignite the gas being emitted therefrom. The ignition of gas coming from the ignition slot 51 will ignite gas mixture coming from the simmer burner. When gas mixture is supplied to the angular chamber 11 of the burner, whether it is supplied synchronously with the supply of gas to the simmer burner or subsequent thereto, it will be ignited by the flame coming from the ignition tube 34 and the ignition slot 51 of the burner cap. It will thus be obvious that since the flame coming from the ignition tube extends upwardly in close proximity to the gas coming through the gas slot of the main burner cap no unignited gas mixture can flow from the main burner after the simmer burner has been once ignited thus obviating the possibility of unignited gas flowing from the main burner.

While I have shown the ignition tube and the portion 50 of the cap as having ignition parts, it is obvious that the carry-over slots in either or both of these parts may be used to ignite the burners.

Obviously, these and other modifications of the details herein shown and described may be made without departing from the spirit of my invention or the scope of the appended claims.

What is claimed is:

1. A gas burner, comprising a main burner having a body, a cap for said main burner detachably carried by said body and formed with an annular mixture recess, a main burner mixing tube in communication with the annular recess of said cap, said body being formed with a simmer burner post having a vertical passage, a simmer burner detachably mounted at the upper end of said post and in communication with the vertical passage thereof, a simmer mixing tube secured to the lower end of said post and in communication with the passage thereof, said body having a lateral body portion formed with a lateral passage, said lateral passage being separated from the annular recess of said cap and being in communication with the passage of said post, said body being formed with a vertical gas passage extending upwardly from and in communication with the lateral passage thereof and formed at its upper end with a counterbore, said cap being formed with a vertically disposed cap passage in registration with the vertical passage of said body, an annular nub surrounding the lower end of said cap passage and engageable with the counterbore of said vertical passage, said cap being formed with a radially arranged ignition orifice extending from said cap passage to the exterior periphery of said cap, and a radially arranged ignition slot formed in the cap and opening into the top surface thereof, said radial ignition slot extending into the radially arranged ignition orifice of said cap and into the upper end of said vertical cap passage.

2. A gas burner, comprising a main burner having a body, a cap for said main burner detachably carried by said body and formed with an annular mixture recess, a main burner mixing tube in communication with the annular recess of said cap, said body being formed with a simmer burner post having a vertical passage, a simmer burner detachably mounted at the upper end of said post and in communication with the vertical passage thereof, a simmer mixing tube secured to the lower end of said post and in communication with the passage thereof, said

body having a lateral body portion formed with a lateral passage terminating at the outer periphery thereof, said lateral passage being separated from the annular recess of said cap and being in communication with the passage of said post, said body being formed with a vertical gas passage extending upwardly from and in communication with the lateral passage thereof and formed at its upper end with a counterbore, said cap being formed with a vertically disposed cap passage in registration with the vertical passage of said body, an annular nub surrounding the lower end of said cap passage and engageable with the counterbore of said vertical passage, said cap being formed with a radially arranged ignition orifice extending from said cap passage to the exterior periphery of said cap, a radially arranged ignition slot formed in the cap and opening into the top surface thereof, said radial ignition slot extending into the radially arranged ignition orifice of said cap and into the upper end of said vertical cap passage, an ignition tube mounted in the outer end of said lateral passage and located in substantially the same plane as the ignition orifice of said cap, said tube being formed with a longitudinal ignition orifice and with a communicating vertical ignition orifice, said tube being also formed with a vertically arranged ignition slot in communication with said longitudinal and vertical ignition orifices, whereby gas supplied to said simmer burner can be ignited by said ignition tube preliminarily to the ignition of the main burner.

3. A gas burner, comprising a main burner having a body, a cap for said main burner detachably carried by said body and formed with an annular mixture recess, a main burner mixing tube in communication with the annular recess of said cap, said body being formed with a simmer burner post having a vertical passage, a simmer burner detachably mounted at the upper end of said post and in communication with the vertical passage thereof, a simmer mixing tube secured to the lower end of said post and in communication with the passage thereof, said body having a lateral body portion formed with a lateral passage, said lateral passage being separated from the annular recess of said cap and being in communication with the passage of said post, said body being formed with a vertical gas passage extending upwardly from and in communication with the lateral passage thereof, said cap being formed with a vertically disposed cap passage in registration with the vertical passage of said body, an annular nub surrounding the lower end of said cap passage and engageable with said vertical passage, said cap being formed with a radially arranged ignition orifice extending from said cap passage to the exterior periphery of said cap, and a radially arranged ignition slot formed in the cap and opening into the top surface thereof, said radial ignition slot extending into the radially arranged ignition orifice of said cap and into the upper end of said vertical cap passage.

4. A gas burner, comprising a main burner having a body, a cap for said main burner detachably carried by said body and formed with an annular mixture recess, a main burner mixing tube in communication with the annular recess of said cap, said body being formed with a simmer burner post having a vertical passage, a simmer burner detachably mounted at the upper end of said post and in communication with the vertical passage thereof, a simmer mixing tube secured to the lower end of said post and in communication with the passage thereof, said body having a lateral body portion formed with a lateral passage terminating at the outer periphery thereof, said lateral passage being separated from the annular recess of said cap and being in communication with the passage of said post, said body being formed with a vertical gas passage extending upwardly from and in communication with the lateral passage thereof, said cap being formed with a vertically disposed cap passage in registration with the vertical passage of

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said body, an annular nub surrounding the lower end of said cap passage and engageable with said vertical passage, said cap being formed with a radially arranged ignition orifice extending from said cap passage to the exterior periphery of said cap, a radially arranged ignition slot formed on the cap and opening into the top surface thereof, said radial ignition slot extending into the radially arranged ignition orifice of said cap and into the upper end of said vertical cap passage, an ignition tube mounted in the outer end of said lateral passage and located in substantially the same plane as the ignition orifice of said cap, said tube being formed with a longitudinal ignition orifice and with a communicating vertical ignition orifice, said tube being also formed with a vertically arranged ignition slot in communication with said longitudinal and vertical ignition orifices, whereby gas supplied to said simmer burner can be ignited by said ignition tube preliminarily to the ignition of the main burner.

5. A gas burner, comprising a main burner having a body, a cap for said main burner detachably carried by said body and formed with an annular mixture recess, a main burner mixing tube in communication with the annular recess of said cap, said body being formed with a simmer burner post having a vertical passage, a simmer burner detachably mounted at the upper end of said post and in communication with the vertical passage thereof, a simmer mixing tube secured to the lower end of said post and in communication with the passage thereof, said body having a lateral body portion formed with a lateral passage, said lateral passage being separated from the annular recess of said cap and being in communication with the passage of said post, said body being formed with a vertical gas passage extending upwardly from and in communication with the lateral passage thereof, said cap being formed with a vertically disposed cap passage in registration with the vertical passage of said body, and an annular nub surrounding the lower end of said cap passage and engageable with said vertical passage, said cap being formed with a radially arranged ignition orifice extending from said cap passage to the exterior periphery of said cap.

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6. A gas burner, comprising a main burner having a body, a cap for said main burner detachably carried by said body and formed with an annular mixture recess, a main burner mixing tube in communication with the annular recess of said cap, said body being formed with a simmer burner post having a vertical passage, a simmer burner detachably mounted at the upper end of said post and in communication with the vertical passage thereof, a simmer mixing tube secured to the lower end of said post and in communication with the passage thereof, said body having a lateral body portion formed with a lateral passage terminating at the outer periphery thereof, said lateral passage being separated from the annular recess of said cap and being in communication with the passage of said post, said body being formed with a vertical gas passage extending upwardly from and in communication with the lateral passage thereof, said cap being formed with a vertically disposed cap passage in registration with the vertical passage of said body, an annular nub surrounding the lower end of said cap passage and engageable with said vertical passage, said cap being formed with a radially arranged ignition orifice extending from said cap passage to the exterior periphery of said cap, an ignition tube mounted in the outer end of said lateral passage and located in substantially the same plane as the ignition orifice of said cap, said tube being formed with a longitudinal ignition orifice and with a communicating vertical ignition orifice, said tube being also formed with a vertically arranged ignition slot in communication with said longitudinal and vertical ignition orifices, whereby gas supplied to said simmer burner can be ignited by said ignition tube preliminarily to the ignition of the main burner.

References Cited in the file of this patent

UNITED STATES PATENTS

951,724	Cole	Mar. 8, 1910
2,215,711	Mueller	Sept. 24, 1940
2,511,208	Hornung	June 13, 1950
2,537,692	Mueller	Jan. 9, 1951
2,781,779	Kindl	Feb. 19, 1957