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LIGHTER STRUCTURE FOR GAS BURNERS

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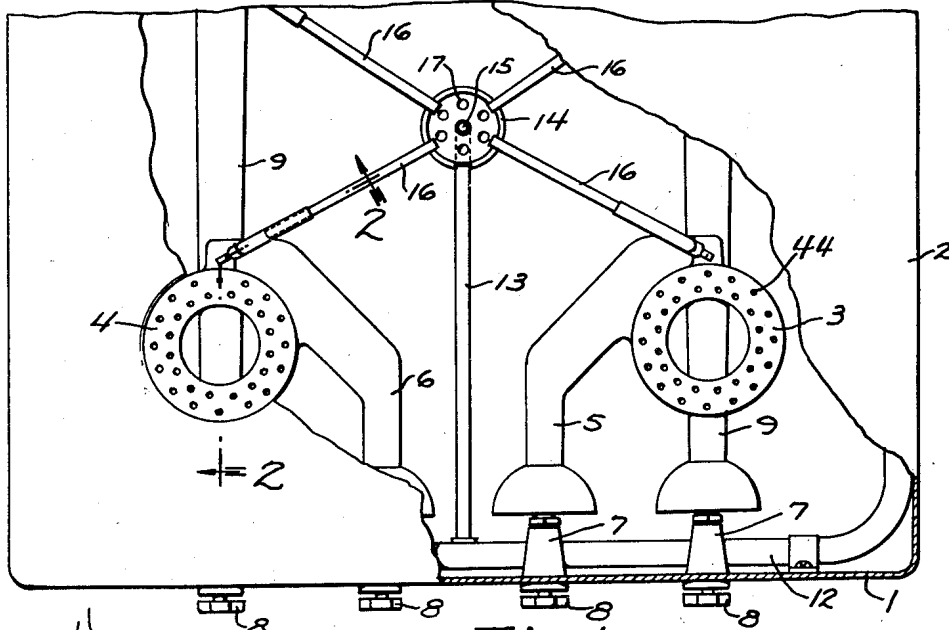


Fig. 1.

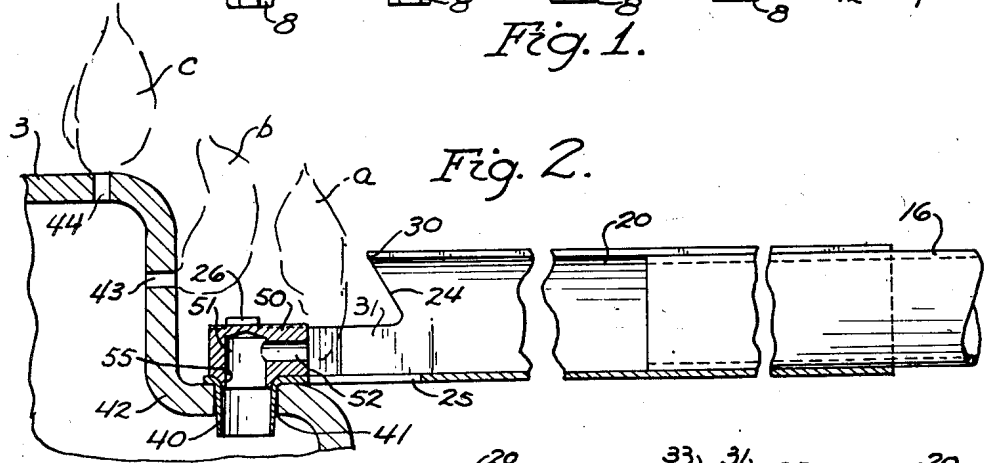


Fig. 2.

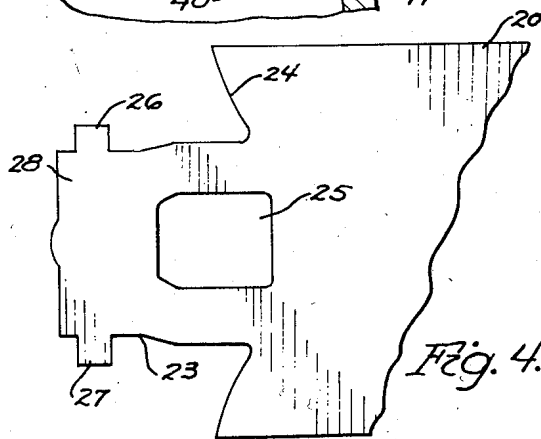


Fig. 4.

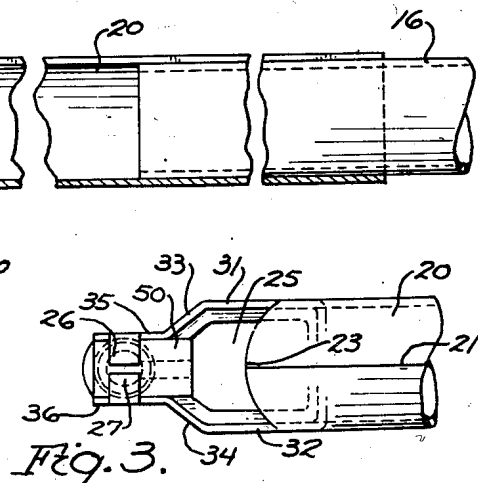


Fig. 3.

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2,510,899

LIGHTER STRUCTURE FOR GAS BURNERS

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5 Claims. (Cl. 158—115)

1

2

This invention relates to lighters for gas burners and has to do particularly with the tip construction of a flash tube.

A lighter construction for a plurality of relatively grouped burners as, for example, in a gas range, may embody a pilot flame which is relatively centrally disposed and flash tubes which extend from the vicinity of the pilot flame to the burners, there being usually one flash tube for each burner. When gas is supplied to a burner some of the gas flows through the flash tube and is ignited by the pilot flame. There is a resultant flash back which ignites the gas issuing from the burner. Each flash tube has an open end adjacent the pilot flame and its opposite end is associated with a burner so that it is usually supported by the burner and arranged to receive a flow of gas when the gas is supplied to the burner.

This invention is particularly related to the tip construction of the flash tube at the end where it is associated with a burner. The object is to provide an improved tip construction capable of being manufactured with facility and manufactured economically and yet a structure which is strong and durable. To this end, the metal which forms the flash is so-shaped and worked as to provide a tapered extension integral with the stock of the tube for fitting into an aperture or port in the burner. The tapered extension is hollow for the passage of gas therethrough. Associated with the extension is a body or block of metal which, in effect, provides an angular passage so as to turn the flow of gas and direct it axillary into the flash tube. The block of metal thus merely has an angular passageway therethrough and requires no other machining for forming operations such as those heretofore required in forming an extension on the body for reception in a port or aperture in a burner.

A construction made in accordance with the invention is shown in the accompanying drawings:

Fig. 1 is a general view of a portion of the gas range with some parts cut away and some parts in section and illustrating gas burners and a lighter structure therefor.

Fig. 2 is an enlarged cross sectional view taken substantially on line 2—2 of Fig. 1 showing the flash tube and tip construction.

Fig. 3 is a top plan view of the finished tip construction as shown in Fig. 2.

Fig. 4 is a developed view illustrating the sheet metal stock from which the tip end of the flash tube is fashioned.

The gas range, as shown in Fig. 1, may have suitable sheet metal paneling forming a front wall 1 and a top covering 2 which is cut away to expose a plurality of burners, two of which are illustrated at 3 and 4. The two burners shown each have a mixer tube as illustrated at 5 and 6, to which gas is supplied by the means of suitable valves illustrated at 7 with each valve having a controlling handle 8. Other burners (not shown) have mixer tubes 9 with similar valves 7 and control handles 8 therefor. The main gas supply conduit or manifold is illustrated at 12 for supplying gas to the valves and a supply tube for the pilot flame as shown at 13, is connected into the conduit 12.

The free end of the supply tube may support a housing member 14 which may be somewhat in the nature of a cup, the rim of which surrounds the pilot flame at 15. The several flash tubes, shown generally at 16, have their inner ends opening adjacent the pilot flame, as illustrated, and the inner ends of the flash tube may be supported by the housing 14. The bottom of the cup shaped housing may have a plurality of apertures 17 for the passage of air therethrough.

As illustrated in Figs. 1 and 2, each flash tube 16 may comprise two telescoping tubes so that the length thereof is easily adapted to the spacing between the pilot housing and the respective burners and the tube member adjacent the burner is illustrated at 20. This tube member is preferably fashioned from flat sheet stock, as shown in Fig. 4, and may be fashioned into hollow cross sectional form with an unsealed butt seam 21.

In the forming of the member 20 the sheet metal stock may be cut and shaped as shown in Fig. 4 with some of the metal being cut away to form a relatively narrow extension 23 with the metal cut back or slightly recessed at 24. Some of the metal is punched out to form an aperture 25, and the extension 23 is provided with laterally extending wings 26 and 27. Thus, the extension 23 has a substantial body or area of metal at 28, positioned between the end of the extension and the aperture 25.

When the stock is fashioned into tubular form, the cut back walls provide a sort of overhanging lip 30 and the portions on opposite sides of the cut out part 25 form side walls 31 and 32. These side walls are fashioned or drawn inwardly toward each other as at 33 and 34 and terminate in substantially parallel side walls 35 and 36. This working of the metal provides additional metal in the area 28 and the metal in the area 28 is sub-

3

jected to a forming operation as by means of a punch and die to thereby fashion a downwardly extending hollow projection 40. This projection 40 is adapted to be received in an aperture 41 of the burner, which has an offset portion 42 for the purpose, and above the offset 42 the burner may have a port 43. One of the burner ports is shown at 44 in Fig. 2.

A body or block of metal is positioned on the portion 28 and it is of such a size as to be snugly embraced on opposite sides by the walls 35 and 36. This block of metal is illustrated at 50 and it has an angular passageway therein which may be formed by drilling operations with one portion of the passageway 51 in registry with the hollow extension 40 and with the other portion of the angular passageway at 52 extending in a direction axially of the flash tube. The wings 26 and 27 are fashioned to overlie the top of the block 50 to hold it securely in position. The block 50 may have a slight protuberance as at 55 for fitting into the recess provided by the base end of the hollow extension to thereby accurately register the passage 51 with the hollow extension and to prevent displacement of the member 50 axially of the flash tube.

In the operation of the structure, a valve 7 is manipulated to open position and gas flows to the burner. Some of the gas flows through the extension 40 through the passageway 51-52 and is projected into the flash tube. The gas flows through the tube and is ignited by the pilot flame 15 with a resultant explosion or flash back which ignites the gas issuing from the passage 52. The flame *a* of the thus ignited gas may, in turn, ignite gas issuing from port 43 as indicated by the flame *b* although the gas issuing from port 43 may, in some instances, be ignited by the flash. The flame *b* is in igniting relationship to the gas issuing from the burner ports 44 to thus provide the flame *c*. Air passes upwardly through the opening 45 to provide secondary air to aid in the combustion of the flame *a*.

Thus, it will be noted that the extension 40 is formed integrally from the sheet metal stock which provides the flash tube section 20. And this structure is provided with facility and economically in the formation of the sheet metal. The block 50 need not be provided with an extension but is merely a member provided with passages for directing the flow of gas through an angle of about 90° so that the gas is directed into the flash tube.

I claim:

1. In a lighter for a gas burner wherein a flash tube extends from a relatively remote pilot flame to a burner and wherein the burner has an opening for the flow of gas therethrough; a flash tube structure comprising, sheet metal stock fashioned into tubular form and having a portion extending from the end of the tubular form, said extending portion having a hollow extension struck out from the sheet metal stock and integral therewith for fitting into the opening in the burner, and a block-like member mounted on the extending portion and having an angular passage therein for receiving gas flowing from the burner through the hollow extension and for directing the gas into the flash tube.

2. In a lighter for a gas burner wherein a flash tube extends from a relatively remote pilot flame to a burner and wherein the burner has a vertically disposed opening for the flow of gas there- through; a flash tube structure comprising, sheet

4

metal stock fashioned into tubular form and having a portion extending from the end of the tubular form with a substantially horizontally positioned part, said part having a vertically disposed hollow extension struck out from the sheet metal stock and integral therewith for fitting into the opening in the burner, and a block-like body of metal mounted on said horizontally disposed part and having a passage therethrough with a substantially vertically extending part communicating with the hollow of said extension and a substantially horizontally extending part, said passage being formed for receiving gas flowing from the burner and for directing the gas into the flash tube.

3. A flash tube structure of a lighter for a gas burner having an upwardly opening aperture, a tube fashioned from sheet metal stock, said tube adapted to lie substantially in a horizontal position, the metal contiguous with the lower portion of the tube projecting therefrom to provide a supporting arm, the metal of the supporting arm having an integrally fashioned downwardly extending tubular projection struck out from the sheet metal stock adapted to fit into the upwardly opening aperture of a burner, and a block of metal mounted on said arm and having a passage therein, said passage having a substantially vertically extending part in communication with the hollow extension and substantially horizontally extending part facing the end of the tubular form, said passage adapted to receive gas flowing from the burner and direct the same into the tubular form.

4. A flash tube structure of a lighter for a gas burner having an upwardly opening aperture, a tube fashioned from sheet metal stock, said tube adapted to lie substantially in a horizontal position, the metal contiguous with the lower portion of the tube projecting therefrom to provide a supporting arm, the metal of the supporting arm having an integrally fashioned downwardly extending tubular projection struck out from the sheet metal stock adapted to fit into the upwardly opening aperture of a burner, and a block of metal mounted on said arm and having a passage therein, said passage having a substantially vertically extending part in communication with the hollow extension and substantially horizontally extending part facing the end of the tubular form, said passage adapted to receive gas flowing from the burner and direct the same into the tubular form, said projecting arm having upstanding side walls embracing the block of metal on opposite sides and the upstanding walls having tabs thereon fashioned over the block of metal.

5. A flash tube structure of a lighter for a gas burner having an upwardly opening aperture, a tube fashioned from sheet metal stock, said tube adapted to lie substantially in a horizontal position, the metal contiguous with the lower portion of the tube projecting therefrom to provide a supporting arm, the metal of the supporting arm having an integrally fashioned downwardly extending tubular projection struck out from the sheet metal stock adapted to fit into the upwardly opening aperture of a burner, and a block of metal mounted on said arm and having a passage therein, said passage having a substantially vertically extending part in communication with the hollow extension and substantially horizontally extending part facing the end of the tubular form, said passage adapted to receive gas flow-

2,510,899

5

ing from the burner and direct the same into the tubular form, said projecting arm having upstanding side walls embracing the block of metal on opposite sides and the upstanding walls having tabs thereon fashioned over the block of metal, said block of metal having a small protuberance projecting into the hollow extension to thereby lock the body of metal in position.

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6

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