May 8, 1934. I. V. BRUMBAUGH ET AL 1,957,442

FLASH LIGHTER CONSTRUCTION FOR GAS RANGES

Filed March 30, 1931 3 Sheets-Sheet 1

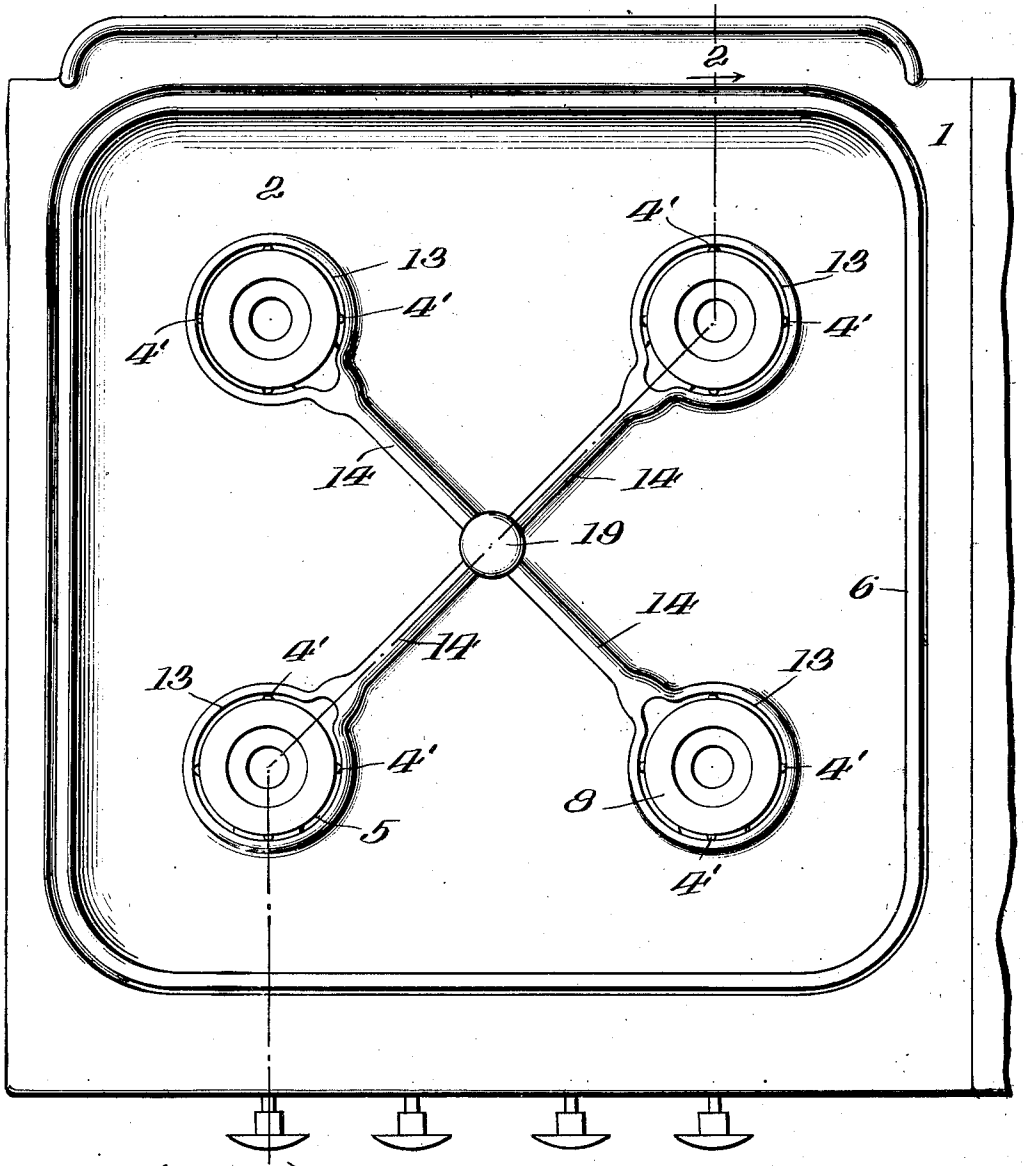


FIG. 1.

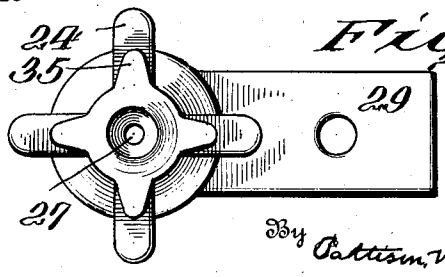


FIG. 8.

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FLASH LIGHTER CONSTRUCTION FOR GAS RANGES

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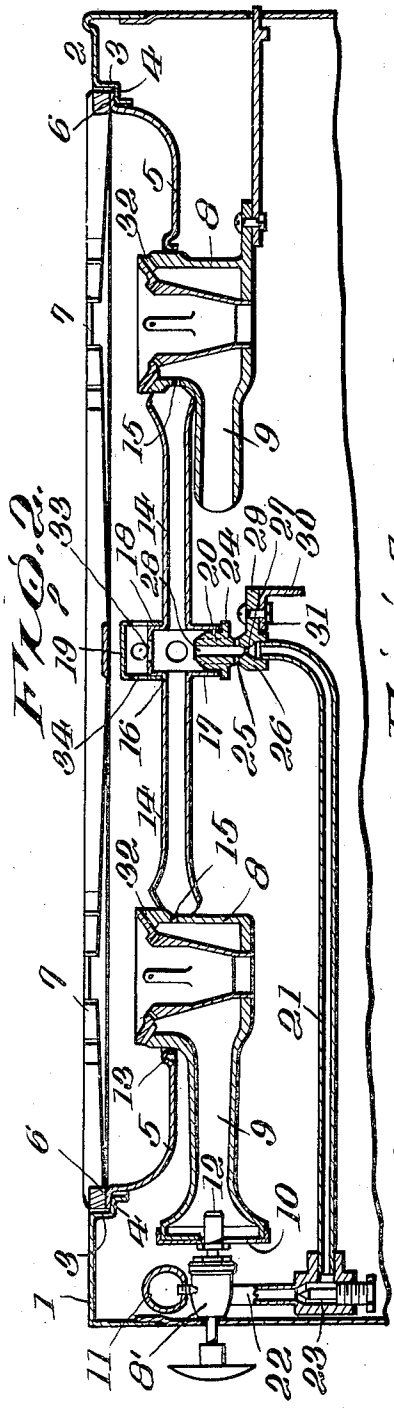


Fig. 2.

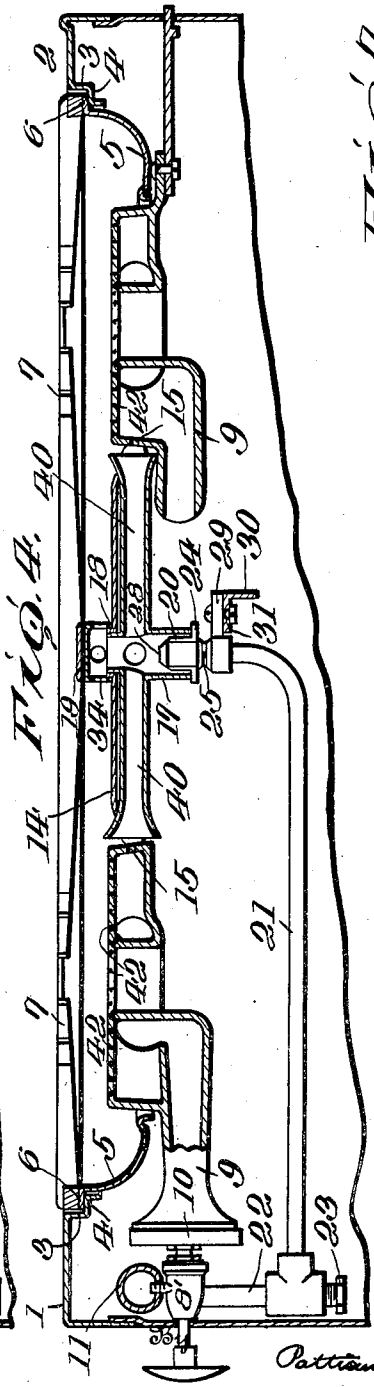


Fig. 4.

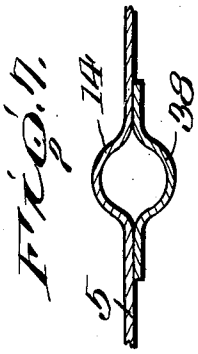


Fig. 7.

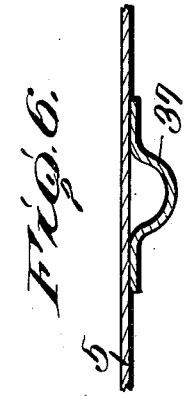


Fig. 6.



Fig. 5.

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FLASH LIGHTER CONSTRUCTION FOR GAS RANGES

Filed March 30, 1931 3 Sheets-Sheet 3

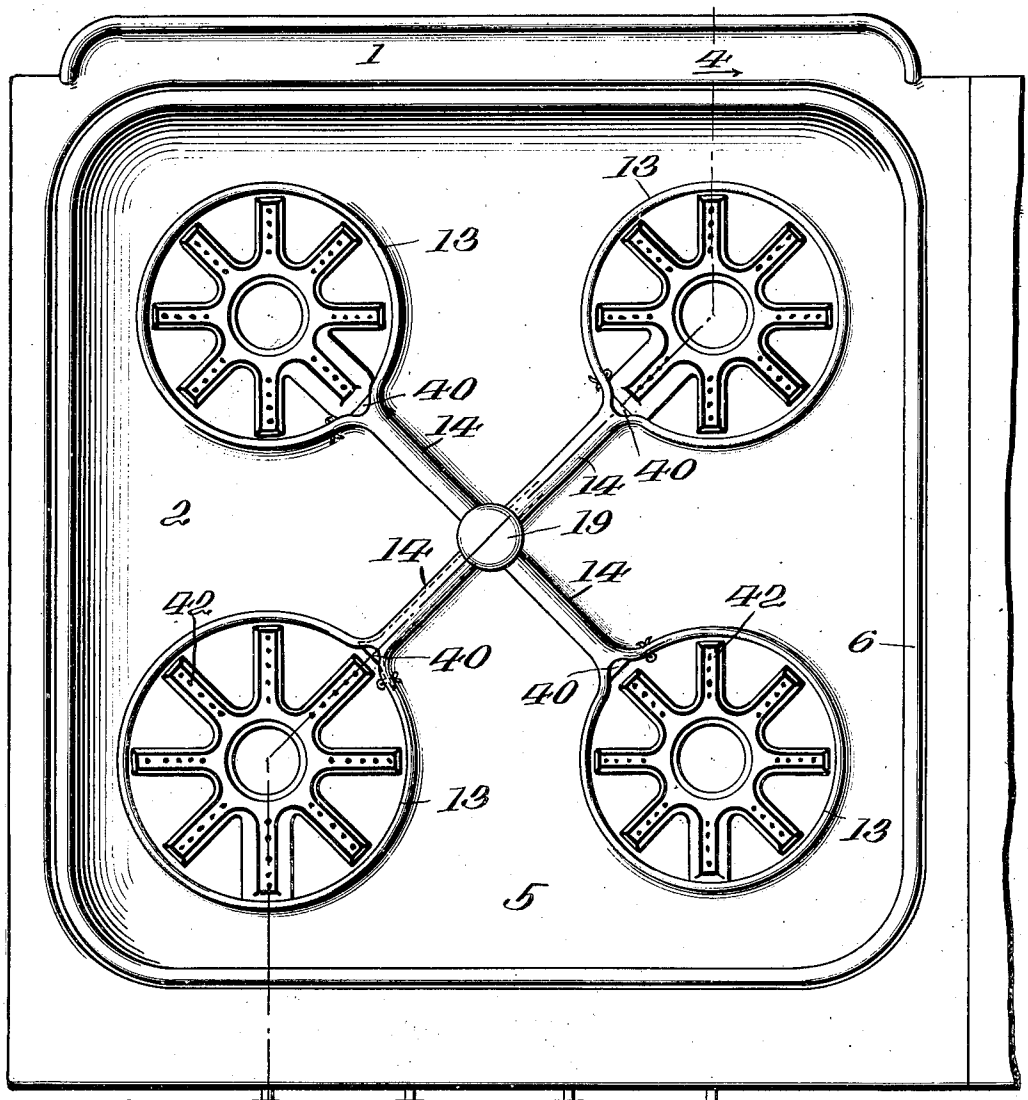
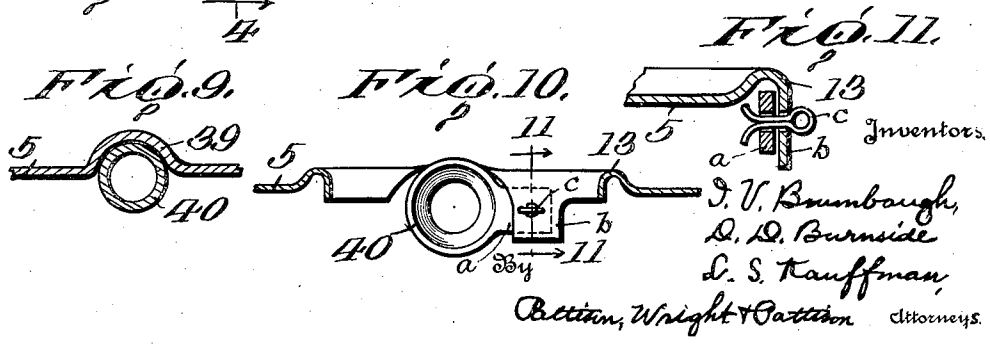


FIG. 3.



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1,957,442

FLASH LIGHTER CONSTRUCTION FOR GAS RANGES

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Application March 30, 1931, Serial No. 526,538

18 Claims. (Cl. 158—115)

This invention relates to improvements in flash lighter construction for gas ranges which is hereinafter described and shown.

The present improvement is particularly intended to be applied to that type of gas range which has a burner tray and the broad idea is to combine the tray and the flash light tubes extending from the lighter to the burners whereby the tubes and the tray are in a fixed relation in respect to the main burners and a pilot burner, the latter burner being preferably centrally arranged in the range in respect to the said main burners whereby the tubes and the lighter itself are always in proper relation to the main burners.

A further object of the invention is to provide a removable burner tray for permitting ready access to the main burners, which tray has firmly attached to it gas passageways which extend from the main burners to a centrally arranged pilot burner whereby the correct position of these passageways in respect to the main burner and the pilot burner is always insured and can not become misplaced or out of position although the said tray is conveniently removed and replaced in position on the gas range.

In the manufacture and use of automatic lighters for the cooking top burners of a range as heretofore constructed the flash light tubes are liable to get out of proper position in respect to the main burners and even in respect to the pilot burner, and the broad idea herein disclosed is to make the gas carrying tubes of the flash lighter as a fixed part of the tray which always insures their proper relative positions for correct operation.

The present improvement has other advantages and objects which will appear hereinafter from the description and disclosure.

In the drawings:

Figure 1 is a plan view of a conventional top burner portion of a range showing our improved combined tray and flash light tubes.

Fig. 2 is a vertical sectional view on the line 2—2 of Figure 1.

Fig. 3 is a plan view of a conventional type of a cooking top burner portion of a gas range showing our improvement applied to an eight prong type of burner.

Fig. 4 is a vertical sectional view on the dotted line 4—4 of Figure 3.

Fig. 5 is a vertical sectional view of part of a burner tray showing one form of a flash light tube.

Fig. 6 is a vertical sectional view of part of a burner tray showing another form of flash light tube.

Fig. 7 is a vertical sectional view of part of a burner tray showing another type of flash light tube.

Fig. 8 is an enlarged top plan view of the pilot light used in our invention.

Fig. 9 is a vertical sectional view through a part of a burner tray showing another form of flash light tube applied to the tray.

Fig. 10 is a fragmentary view showing one method of attaching the outer ends of the flash tubes to the burner tray.

Fig. 11 is a vertical sectional view taken on the line 11—11 of Figure 10, looking in the direction indicated by arrows.

Referring now particularly to Figures 1 and 2 of the drawings a conventional type of cooking top burner frame 1 is shown. The horizontal portion 2 of the top 1 has its edge conventionally depressed as shown at 3, which forms a relatively short horizontal portion 4 that surrounds the opening in the said frame. A burner tray 5 has its periphery 6 turned outwardly and resting upon the said horizontal portion 4. Placed on this outwardly turned portion of the tray is a grate 7 which is constructed to cooperate with the type of burner shown in Figure 2. In Figure 2 is shown also a type of burner 8 which is used on ranges. These burners 8 are provided with a mixing tube 9 carrying at its outer end the usual shutter 10 for regulating the air to the mixing tube. Extending horizontally across under the burner top frame 1 is a gas manifold 11 with which is connected any desired form of gas controlling valve 8' which controls the amount of gas flowing from the manifold 11 and out through a nipple 12 within the mixing tube 9. Thus far we have described a construction which is common to a type of stove manufactured and sold by the American Stove Company of St. Louis, Missouri, and we will now explain the present improvement.

The burner tray may be made integral with the frame 1, if desired, without departing from the spirit and scope of the invention, and the appended claims are to be construed as covering a burner tray whether it be made as a part of the surrounding frame, or attached to said frame, or separate from said frame.

The burner tray 5 is provided with openings 13 through which the upper ends of the burners 8 extend. The peripheries of these openings 13 fit the burners fairly close but at the same time enable the burner tray to be removed for the

purpose of giving access to the burners or for the purpose of enabling the burners to be removed and replaced in operative position or for cleaning the said range. This burner tray 5 is provided with four tubes 14 in the construction here shown, the outer open ends of these tubes being located adjacent the said burners 8. These open outer ends of the tubes are located to receive gas through an opening 15 formed in the burner 8. The inner ends 16 of these tubes are connected together and formed on the under sides of the inner ends of these tubes is a downwardly projecting flange 17. The upper portions of the inner ends of these tubes have an upwardly extending projection 18 and upon this projection 18 a suitable cap 19 is placed, the purpose and object of this cap will be hereinafter described. A pilot light 20 is embraced by the said depending flange 17 and this pilot light is connected by a suitable tube 21 with the gas manifold 11 in any desired manner whereby gas flows at all times through the vertical portion 22 of the tube 21 to the burner 20. For the purpose of controlling and regulating the height of the flame of this pilot light 20 a needle valve 23 is located at the junction of the pipe 21 with the vertical portion 22 thereof.

The pilot light 20 is provided with a stop 24 on which rests the depending flange 17 and below this stop 24 the pilot light 20 is provided with one or more air ports 25. Below the said air ports 25 the pilot light has an opening in which the upper end 26 of the pipe 21 is secured and above the upper end of this pipe the passageway is constricted between the end 26 of the pipe and the port 25 as shown at 27. Attention is directed to the fact that the upper end 28 of the pilot light is below the ends of the pipes 14 for a purpose which will be described presently. An arm 29 extends laterally from the lower end of the pilot 20 and this arm is attached to a bracket 30 the lower end of which is attached to any desired portion of the top burner part of the range. This bracket 30 and the arm 29 are connected firmly in any desired manner and as here shown a suitable screw and nut 31 is used. In this way the pilot light 20 is firmly attached independently of the tubes 14 and the burner tray 5.

The operation of the above described construction is that gas is flowing through the pipe 22 and 21 to the pilot light 20 and air is drawn into this pilot light 20 through the air ports 25 whereby the pilot light makes a Bunsen flame. When it is desired to light any one of the main burners 8 the valve 8′ is open and gas flows through the nipple 12 into the mixing tube 9.

Owing to the pressure of the mixed air and gas in the burner 8 part of it flows through the port 15 into the adjacent end of the pipe 14 and to the Bunsen flame furnished by the pilot light 20. When the gas reaches this pilot light it is ignited and it flashes back and lights the mixed air and gas at the port 15 which is below the main flame passageways 32 and ignites the gas from these passages so that a main flame is produced for cooking purposes. It will be understood of course that when the gas is lighted at one of the main ports 32 it spreads to all parts of the main burner in a manner well understood by those skilled in the art. By positioning the upper end 28 of the pilot 20 below the inner end of the tubes 14 it prevents the flash of flame in the tube from extinguishing the pilot light. The above operation may be repeated in respect to the other burners since the tubes 14 of the other burners all extend to a central part and all of them operate in the manner described in connection with one of these main burners and flash light.

For the purpose of permitting the escape of the products of combustion from the pilot light 20 the upper portion 18 is provided with an opening 33 and for the purpose of protecting the pilot light from air drafts and from any material being cooked spilling through the opening 33 and thus extinguishing the pilot light we provide the cap 19 which has its upper end closed while its side wall is provided with openings 34 through which the products of combustion from the pilot light pass.

From the above description it will be understood that the tubes 14 and the flange 17 are permanently connected so that it is impossible for them to get out of operative position. By making these tubes 14 a part, so to speak, of the burner tray 5 enables the burner tray to be removed for any purpose whatever and afterwards replaced and when replaced assures the proper positioning of the flash light tubes 14 in respect to the main burners 8 and in respect to the pilot burner 20. When the burner tray is removed the pilot light 20 remains attached to the top burner portion and in a fixed relation. The flame 17 serves to position the upper end 28 of the pilot light in respect to the flash light tubes 14 so that the pilot light at all times is in its proper position in respect to the inner ends of the flash light tubes 14.

For the purpose of supplying secondary air for the pilot light, the stop 24 constitutes several prongs 35 which are clearly shown in Figure 8, the flange 17 embracing the ends of these prongs and the secondary air flows to the pilot light through the space between these prongs while the prongs 24 constitute a supporting stop or rest for the flange 17.

The flash light tubes 14 may be made in various ways. For instance in Figure 5 these tubes are shown as formed by forming in the burner tray upwardly raised portions 14 and the bottom wall of the flash tubes is formed by a plate 36 located beneath the burner tray and suitably gas-tight attached to the under side of the said tray.

In Figure 6 the tray is left straight and attached gas tight to the under portion of the tray is a curved member 37 thus forming flash light tubes. Again in Figure 7 the flash light tubes are formed by pressing the tray upward and then attaching to the under side of the tray a depressed member 38. This latter form makes the tubes substantially circular in form while in the manner of forming these flash light tubes shown in Figures 5 and 6, one wall of the flash light tube is flat while the other wall is in curved form. In Figure 9 another manner of forming the tray 5 with an upwardly curved portion 39 and located under the tray and extending partly in this curved portion is a suitable tube 40. In either case it is understood that the outer ends of these flash light tubes are in fixed relation on the burner tray 5 while their inner ends are connected immediately below the cap 19. Figures 10 and 11 show one method of attaching the outer ends of the tubes 40 to the burner tray.

In order to position the main burners 8 in the openings 13 the burners are here shown as provided with projecting spacers 4′ though of course this may be reversed and the projections formed on the inner edge of the openings 13. The forming of these spacers on the burners 8 is the pre-

ferred construction and it has certain advantages.

In Figure 3 we show this flash light construction as applied to a burner having a plurality of prongs 42 and when this type of burner is used the spacers 4' are of course unnecessary. One object of the spacers is to supply air around the burners 8.

Figures 3 and 4 show the invention above described when used in conjunction with a burner having a plurality of prongs as shown in Figure 3. The type of flash light tube shown in Figure 4 is substantially the same as shown in Figure 9 and it consists of a tube 40. In respect to the operation of the construction shown in Figures 3 and 4 it is the same as that shown in the other figures of the drawings and hence a detailed description is unnecessary. With the exception of the burners 42 and the tubular flash light tubes 40 the same reference letters used in describing the invention are applied to Figures 3 and 4.

From the above description and disclosure it will be understood that in all of the drawings the flash light tube or tubes are carried by the burner tray. Whether these tubes be integral with the tray as shown in Figures 4, 5, and 7 or whether the tubes be separate and attached to the tray as in Figure 9 they are in either event carried by the tray, and therefore the claims are to be so construed so long as the flash light tubes whether integral or separate are in fixed relation with the said tray.

We wish it understood that certain constructions of this flash light improvement may be varied without departing from the spirit and scope of the present invention so long as such changes are still within a liberal interpretation of the appended claims.

We also wish to call attention to the fact that an additional feature, and quite important in this construction, is its cleanliness inasmuch as the tubes are all located below the tray and its upper surface is readily kept clean. This is not the case with the usual type of flash lighter in which the said flash tubes are exposed in the burner box. This would also not be true if we placed the lighter tubes above the burner tray as the device would then be difficult to clean and would defeat one of the objects of the invention herein disclosed and described.

Having thus described our invention what we claim and desire to secure by Letters Patent is:—

1. A flash light construction for gas ranges comprising a burner tray, a pilot light, and a flash light tube carried by the said burner tray having a housing embracing the pilot light whereby its proper operative position is at all times assured.

2. A flash light construction for gas ranges comprising a burner tray, main burners, a pilot light in a fixed position independent of the tray and a flash light tube carried by the said tray having one end adjacent the main burner and its opposite end embracing the pilot light whereby the proper operating position of the flash light tubes is assured.

3. A flash light construction for the top burner construction of gas ranges comprising a depending burner tray having burner openings, main burners projecting through the said openings, a pilot light supported in fixed relation independently of the said tray, a flash light tube secured to the burner tray and having its receiving end adjacent the burner, the wall of the burner having a gas port delivering gas to the flash light tube and the opposite end of the tube communicating with the pilot light, the parts arranged for the purpose set forth.

4. A pilot light construction for burners of a range comprising a burner tray having burner openings, main burners arranged to operate through said openings, a pilot light fixedly supported between the said main burners, flash light tubes carried by the burner tray and having their inlet ends adjacent the main burners and receiving gas therefrom and their inner ends connected and provided with a depending member cooperating with the said pilot light for positioning the same as set forth.

5. A flash light construction for top burners of a range comprising a burner tray having burner openings, main burners adapted to operate through said openings, flash light tubes connected with and carried by the said tray and having their outer ends adjacent the main burners and receiving gas therefrom, the inner ends of the flash light tubes being provided with a depending member, a pilot light embraced by the said depending member and located below the said inner ends of the flash light tubes, the parts operating as set forth.

6. A flash light construction for ranges comprising a burner tray having burner openings, main burners adapted to operate through the said burner openings, flash light tubes carried by the said tray and having their outer ends adjacent the main burners and receiving gas therefrom, the flash light tubes converging towards the center of the tray and connected and communicating with each other, the inner ends of the flash light tubes being provided with a depending member embracing the pilot light projecting within the depending member, said pilot light being located below the inner ends of the flash light tubes, for the purpose set forth, the inner connected ends of the flash light tubes having communication outside of the tubes for the products of combustion, the parts operating for the purpose described.

7. A flash light construction for ranges comprising a burner tray having a burner opening, a burner operating through the said opening, a flash light tube carried by the burner tray and having one end adjacent the burner and receiving gas therefrom, a pilot light located at the opposite end of the flash light tube, and means adapted to locate the pilot light below the inner end of the tube, for the purpose described.

8. A flash light construction for ranges comprising a burner tray having a burner opening, a main burner operating through said opening, a flash light tube carried by the burner tray and having one end adjacent the burner and adapted to receive gas therefrom, and a pilot light at the opposite end of the flash light tube, the parts operating for the purpose set forth.

9. A flash light construction for ranges comprising a burner tray having main burner openings, main burners operating through the said openings, flash light tubes having one end adjacent the said burners and adapted to receive gas therefrom, said flash light tubes carried by the burner tray, the inner ends of the tubes connected and in communication with each other, said connected ends of the tubes having a depending flange, a pilot light projecting within the flange provided with a stop for the flange and with openings for secondary air to the pilot light, the pilot light located in the flange at such point as to prevent the flash from extinguishing the pilot

light and means for supporting the pilot light independently of the said tray.

10. A flash light construction for ranges comprising a burner tray having a burner opening, a burner adapted to operate through said opening, a flash light tube formed integral with the said tray and having one end adjacent the burner to receive gas therefrom, a pilot light at the other end of the tube supported independent of the said tray, the parts adapted to operate as described.

11. A flash light construction comprising a tray having a plurality of main burner openings, the tray provided with integral flash light tubes having one end adjacent said openings and their opposite ends communicating with each other, a pilot light at the communicating ends of the flash light tubes and main burners at the opposite ends of said flash light tubes, for the purpose set forth.

12. A flash light construction for ranges comprising a burner tray having burner openings, flash light tubes carried by the burner tray having one end adjacent the said openings, the opposite ends of the flash light tubes provided with a depending housing for a pilot light, a pilot light therein, a protecting cap above the pilot light having lateral openings for the passage of the products of combustion from the pilot light.

13. A burner tray constructed to operate as a flash light member, said tray carrying flash light tubes, for the purpose set forth.

14. A burner tray forming part of a flash light construction having a main burner opening, a flash light tube carried by the tray having one end adjacent said opening and its opposite end provided with a depending housing adapted to receive a pilot light.

15. A burner tray forming part of a flash light construction, said tray having a plurality of main burner openings, and a plurality of flash light tubes connected to and carried by the said tray with one end of the tubes adjacent the said openings and the other ends of the tubes communicating with each other and constructed to receive a pilot light.

16. A burner tray forming part of a flash light construction, said burner tray having main burner openings, flash light tubes carried by the said tray, one end of the tubes adjacent the said openings and their opposite ends communicating with each other and forming a depending member adapted to receive and locate a pilot light, and a cap above the said depending member adapted to permit the escape of products of combustion from the pilot light and to protect the said pilot light.

17. In a gas range, a burner chamber with a burner therein and a cooking top thereabove, a burner tray in said chamber provided with an opening through which said burner projects, a pilot light positioned beneath said tray, a flash light tube carried by the under side of said tray and having one end adjacent the side of said burner to receive gas therefrom and its other end terminating in a housing, and said housing enclosing said pilot light, whereby the tray and its tube are properly operatively positioned.

18. In a gas range, a burner chamber having burners therein and a cooking top thereabove, a burner tray in said chamber and supported by said cooking top, said tray provided with openings through which said burners project, said burners provided with gas outlet openings in their sides at a point beneath said tray, a pilot light positioned beneath said tray, flash light tubes carried by the under side of said tray and having their one ends positioned to receive gas from the openings in the sides of said burners and their opposite ends in conjunction with said tray terminating in and forming a housing, and said housing adapted to receive and embrace said pilot light, whereby the tray and its tubes are properly operatively positioned.

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