June 1, 1937. C. E. METHUDY 2,082,296

IGNITION DEVICE FOR GAS BURNERS

Filed Dec. 22, 1930 2 Sheets-Sheet 1

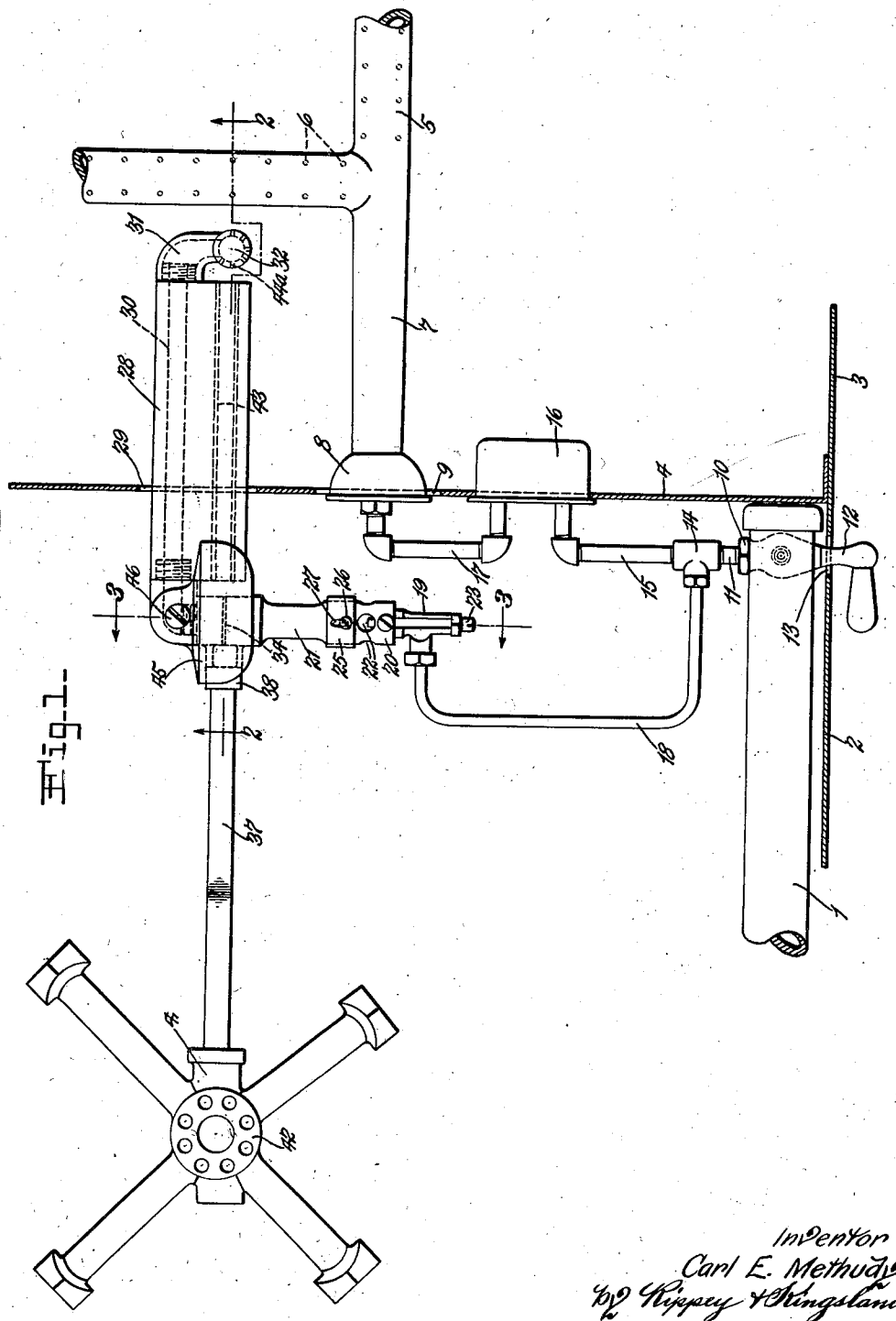


Fig. 1

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Fig. 2.

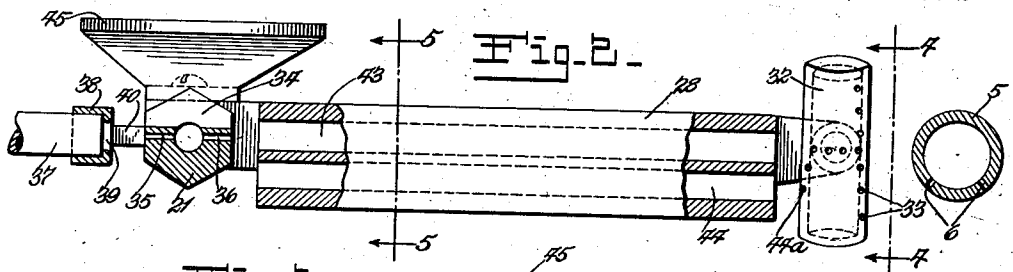


Fig. 3.

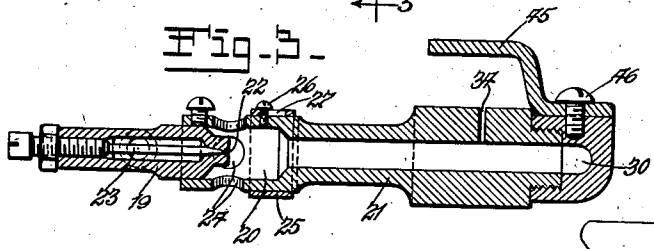


Fig. 4.

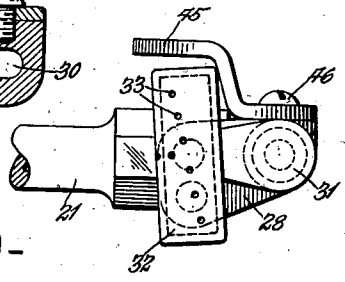


Fig. 5.

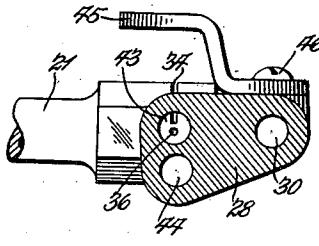


Fig. 6.

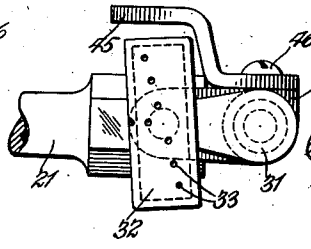


Fig. 7.

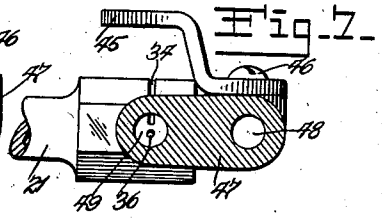
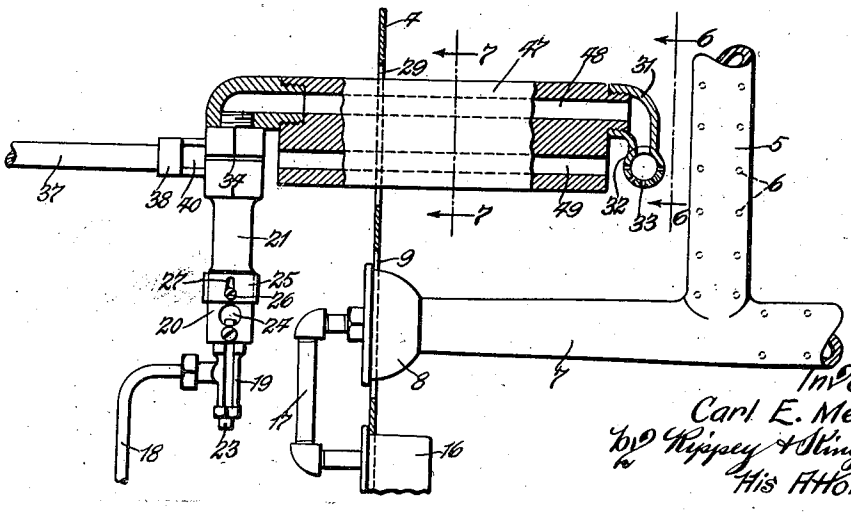


Fig. 8.



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UNITED STATES PATENT OFFICE

2,082,296

IGNITION DEVICE FOR GAS BURNERS

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Application December 22, 1930, Serial No. 504,004

6 Claims. (Cl. 158—115)

This invention relates to ignition devices for gas burners, and has special reference to devices for igniting the burner located in the oven of a gas range by means cooperating with the constantly burning pilot light device located outside of the oven of the range.

An object of the invention is to provide an improved device for igniting gas passing from the gas burner located in the oven of a gas range comprising a member extending through the wall of the oven and having a burner at one end located adjacent to the oven burner proper within the oven and having the opposite end extending toward the usual constantly burning pilot light that is located outside of the oven and connected therewith by a tube, in combination with novel means for admitting gas into the outer end of said member and for discharging gas into said tube and maintaining a flame of ignition produced by the ignition of gas passing to the pilot light, and means for conducting the flame of ignition to the burner located at the inner end of said member.

Another object of the invention is to provide an improved ignition device for gas burners for igniting a gas burner located in the oven of a gas range by use of the constantly burning pilot light located outside of the range, said device embodying all of the essential elements arranged and combined in the same or in the equivalent cooperative manner to that herein disclosed, reference being made to the accompanying drawings, in which—

Fig. 1 is a plan view sufficiently illustrating the invention in its relationship to the cooperating pilot light and oven burner of a gas range.

Fig. 2 is an enlarged sectional view approximately on the line 2—2 of Fig. 1.

Fig. 3 is an enlarged sectional view approximately on the line 3—3 of Fig. 1.

Fig. 4 is an end elevation of an important element of the invention as seen from the line 4—4 of Fig. 2.

Fig. 5 is a cross sectional view on the line 5—5 of Fig. 2.

Fig. 6 is an end elevation of a modified form of the invention seen from the line 6—6 of Fig. 8.

Fig. 7 is a cross sectional view on the line 7—7 of Fig. 8 showing a modified form of the invention.

Fig. 8 is a plan view of the modified form of the invention that is shown in Figs. 6 and 7, parts being shown in section.

The present invention applied to and combined with the gas burner of the oven of a gas stove for igniting the gas passing from the gas outlets of said burner by cooperation with the constantly burning pilot light device that is located outside of the oven.

As shown, the gas manifold 1 is supported within the burner box 2 which constitutes a wall at the front of said manifold, thus concealing the manifold from the front of the gas stove. This gas stove comprises an oven having a front wall 3 and a side wall 4 that separates the oven from the usual burner box frame of the stove. A gas burner 5 is located within the oven and has numerous gas outlet openings 6 from which the gas passes from within the burner and at which the gas is ignited and continues to burn during the time that the oven is in use. The burner 5 receives gas from a tubular arm 7 that extends toward the wall 4 and is equipped with an air mixer device 8 located within a hole 9 in the wall 4 and opening to the outside of the oven.

A valve device 10 of conventional or familiar construction controls the passage of gas from the manifold 1 into a pipe 11. The valve device is opened and closed by a handle 12 extending forwardly through a hole 13 in the wall 2 and being accessible from the outside.

The pipe 11 opens into one end of a T-fitting 14, the opposite end of which opens into a pipe 15 opening into a thermostatic heat control valve device 16 that is exposed to the heat within the oven. A pipe 17 conducts gas from the thermostatic heat control valve device 16 and discharges the gas through the air mixer 8 and into the tubular extension 7 of the gas burner. The construction and function of the device 16 are well known, it being familiar that these devices are commercially available and can be mounted approximately in the arrangement shown so as to control the amount of gas passing to the gas burner in response to the heat within the oven.

A pipe 18 has one end opening from the arm of the T-fitting 14 and the opposite end opening into a hollow member 19 having one end extending into an air chamber 20 on the outer end of a tubular part 21. The end of the hollow member that is within the air chamber 20 has a reduced opening 22 for discharging gas from the member 19 into said chamber 20. This reduced opening 22 is controlled by a needle device 23 that is screwed into the outer end of the member 19 and is adjustable to vary and to regulate and to control the amount of gas that may pass through said opening 22.

The air chamber 20 has a number of air inlet

openings 24 to admit air into said chamber for mixture with the gas in order to produce a proper mixture of air and gas. The capacity of these air openings 24 may be varied by a ring 25 mounted around the chamber 20 and being adjustable thereon to vary the sizes of said openings 24. The ring 25 may be secured in any adjustment in which it is placed by a set screw 26 passing through a slot 27 in said ring and engaging in the wall of the chamber 20.

A member 28 extends through an opening 29 in the oven wall 4 and has its inner end spaced from the burner 5 and its outer end engaged with the tubular part 21 (Fig. 3). The tubular part 21 opens into a passage 30 in the member 28. The inner end of the passage 30 opens into an angular tube 31 (Fig. 1) which conducts the gas from the passage 30 into a hollow burner member 32 located adjacent to the burner 5 and having through the wall thereof numerous gas outlet openings 33, certain of which open toward the burner 5 and certain of which open generally toward the end of the member 28. It is now clear that when the valve 10 is opened, gas will pass from the manifold 1 through said valve and through the pipe connections 15, etc. to the burner 5; and will also pass through the tube 18, the member 19, the tubular part 21, the passage 30, and the angular tube 31 into the burner device 32 and thence through the gas outlet openings 33.

The tubular part 21 has in its upper side a slot 34 (Figs. 2 and 3) that intersects the opening through said tubular part and constitutes a jet at which gas may continue to burn when said gas is ignited and so long as the valve 10 remains open. The tubular part 21 also has a pair of holes 35 and 36 forming diametrically opposite outlets from the opening through said part 21 (Fig. 2). The opening 35 discharges gas toward and into the adjacent open end of a pipe 37, one end of which is mounted in a socket 38 supported by the member 28 and having an inlet opening 39 toward the opening 35. Thus, gas leaving the opening 35 passes through the space 40 and thence through the opening 39 and into the pipe 37. The opposite end of the pipe 37 is mounted in a socket 41 opening into the constantly burning pilot light device 42. Thus, gas is conducted to the constantly burning pilot light device 42 and becomes ignited, creating a pressure wave of ignition which is forced back through the pipe 37 and ignites the gas passing from the burner jet slot 34, the pressure wave of ignition being continued through a passage 43. The passage 43 extends through the member 28, having one end adjacent to the gas outlet opening 36 and having the other end opening toward the burner 32 and toward the openings 33 that open toward the end of said member 28. Thus, the gas passing from the openings 33 is ignited, maintaining a flame adjacent to the burner 5, so that the gas passing from said burner 5 through the openings 6 will surely be ignited, thus igniting the oven burner.

If desired, the member 28 may be provided with a passage 44 having its inner end opening adjacent to a gas outlet opening 44a and its outer end opening adjacent to the jet device 34. This passage 44 will function as an auxiliary device to receive gas passing from the opening 44a and conduct said gas to the burning jet device 34 for ignition by said jet device and will conduct the pressure wave of ignition to the burner 32. Gas at the burner 32 becoming ignited will ignite gas at the main burner 5. In this way, by means of conducting gas from the burner 32 through the passage 44 to the ignited jet device 34, the burner 32 will surely be ignited even though the port 36 becomes clogged or, for other reason, fails to discharge gas in the passage 43.

An angular guard 45 is detachably secured to the member 28 by a fastener 46. This guard extends upwardly and laterally above the jet device 34 and prevents the flame at the jet device from rising too high and also baffles the gas leaving the openings 35 and 36 so as to effect complete combustion.

In the variation of the invention shown in Figs. 6, 7 and 8, a member 47 is substituted for the member 28 and has therethrough a passage 48 corresponding to the passage 30 and a passage 49 corresponding to the passage 43, and omits the passage 44. Excepting for this omission of the passage 44 from the member 47, the variation of the invention shown in Figs. 6, 7 and 8 is the same as the invention shown in the preceding views of the drawings.

The preceding description of the construction and arrangement of the invention includes a sufficient description of the use and mode of operation thereof to afford a clear understanding. It is apparent that the invention may be varied widely in other particulars than as specially described. I contemplate such variations as may be desirable and which may be made without departure from the nature and principle of the invention as defined by the appended claims.

I claim:

1. A device of the character described comprising a gas burner having gas outlet openings, a gas manifold, a constantly burning pilot light device, a jet supported between said burner and said pilot light device, pipes for conducting gas to said burner and to said jet respectively, a valve controlling the passage of gas from said manifold into said pipes, a pipe for conducting gas from said jet to said pilot light device and for conducting a pressure wave of ignition from said pilot light device to said jet, an auxiliary burner supported adjacent to said first named burner, means for conducting gas and a pressure wave of ignition of said gas from said jet to said auxiliary burner, means for conducting gas from said pipe that leads to said jet to said auxiliary burner, and means for conducting gas from said auxiliary burner to a point adjacent to said jet.

2. A device of the character described comprising a gas burner having gas outlet openings, a constantly burning pilot light device, a jet spaced from said burner and said pilot light device, an auxiliary burner mounted adjacent to said gas burner, means for conducting gas to said jet, a passage for conducting a pressure wave of ignition from said jet to said auxiliary burner, a pipe for conducting gas from said jet to said pilot light device for ignition and for conducting the pressure wave of ignition from said pilot light device to said jet and thence through said passage to said auxiliary burner, means for supplying said auxiliary burner with gas, and means for conducting to said jet for ignition thereby gas that escapes from said auxiliary burner.

3. A device of the character described comprising a gas burner having gas outlet openings, an auxiliary burner supported adjacent to

said gas burner, a jet supported at a distance from said auxiliary burner, a passage having one opening adjacent to said jet and the opposite end opening adjacent to said auxiliary burner for receiving gas from said jet, an additional passage having its ends opening adjacent to said jet and said auxiliary burner respectively and arranged to receive and conduct to said jet for ignition thereby gas that escapes from said auxiliary burner to cooperate with said jet to ignite the gas in said first passage, and means for supplying said auxiliary burner with gas.

4. A device of the character described comprising a gas burner having gas outlet openings, an auxiliary burner supported adjacent to said gas burner, a jet supported at a distance from said auxiliary burner, a passage having one opening adjacent to said jet and the opposite end opening adjacent to said auxiliary burner for receiving gas from said jet, an additional passage having its ends opening adjacent to said jet and said auxiliary burner respectively and arranged to receive and conduct to said jet for ignition thereby gas that escapes from said auxiliary burner to cooperate with said jet to ignite the gas in said first passage, means for supplying said auxiliary burner with gas, and means for igniting gas that passes from said jet and conducting a pressure wave of ignition to said jet to ignite the gas passing from said jet.

5. A device of the character described comprising a main gas burner, an auxiliary burner mounted adjacent to said main gas burner for igniting gas passing from said main gas burner, means for supplying gas to said auxiliary burner, a jet supplied with gas from said means, a constantly burning pilot light device, a pipe for conducting to said pilot light device gas that passes from said jet and for conducting from said pilot light device a pressure wave of ignition to said jet to ignite gas passing from said jet, means for conducting a pressure wave of ignited gas from said jet to said auxiliary burner, and means for conducting to said jet for ignition thereby gas that escapes from said auxiliary burner for the purpose described.

6. A device of the character described comprising a gas burner having gas outlet openings, an auxiliary burner adjacent thereto, a constantly burning pilot light, a jet intermediate said auxiliary burner and said pilot light, means for supplying gas to said burners and said jet, a gas and pressure wave conducting pipe between the pilot light and the jet, and a multi-passage member interposed between said jet and said auxiliary burner including a passage for conducting an ignition pressure wave from said jet to said auxiliary burner and a passage for conducting gas from said auxiliary burner to said jet.

CARL E. METHUDY.