Dec. 12, 1939. E. L. BAKER 2,183,273

GAS LIGHTER FOR WICK OIL BURNERS

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Fig. 1.

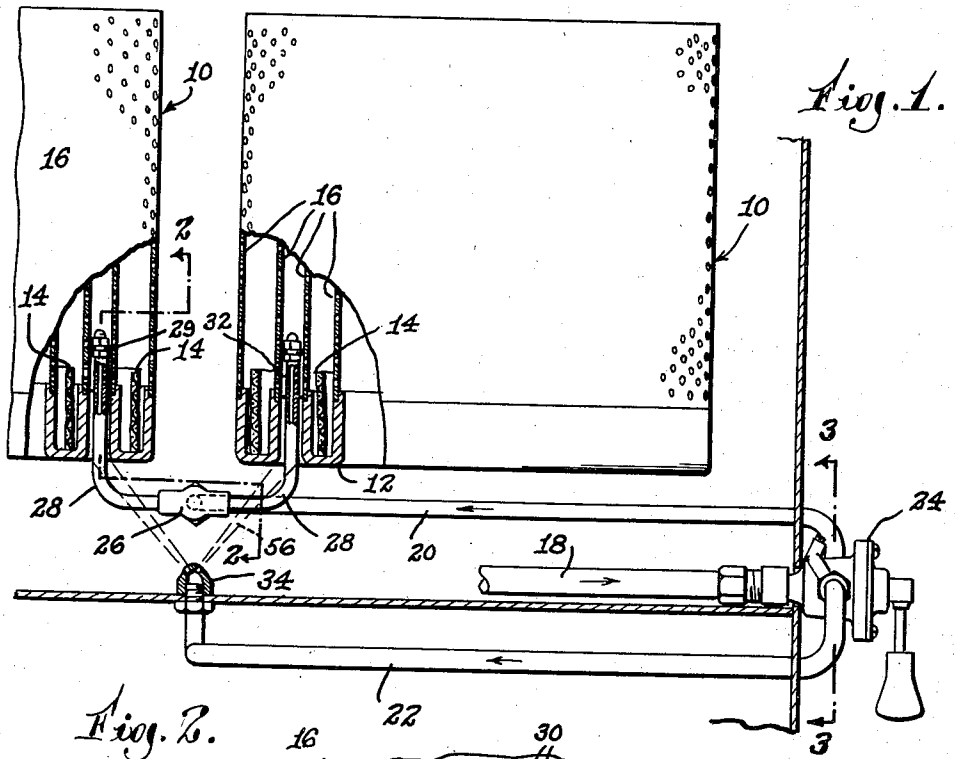


Fig. 2.

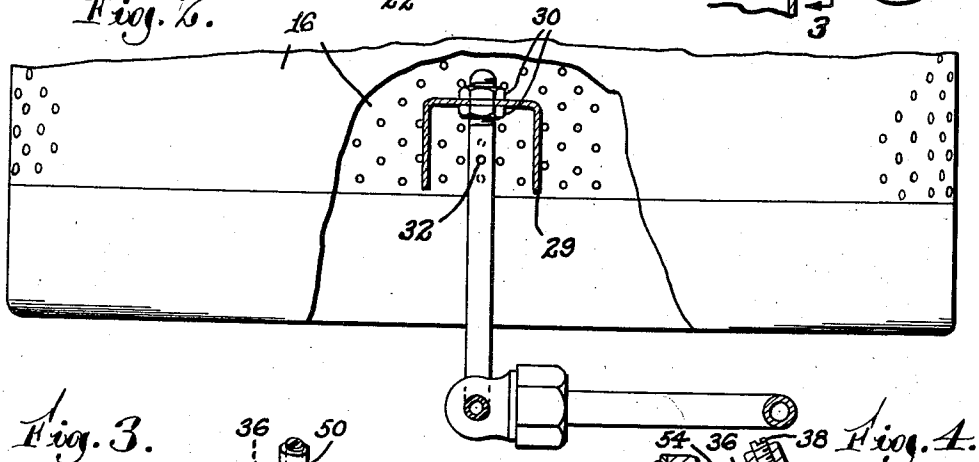


Fig. 3.

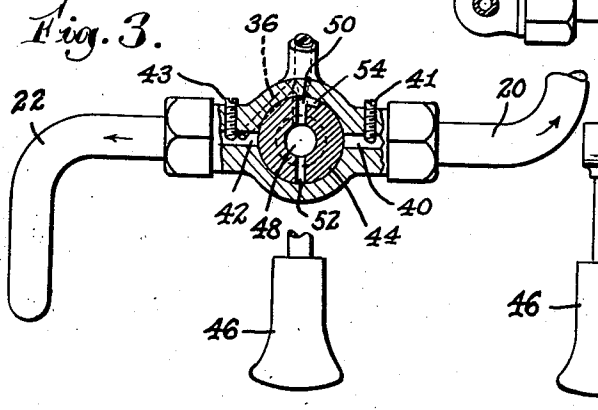
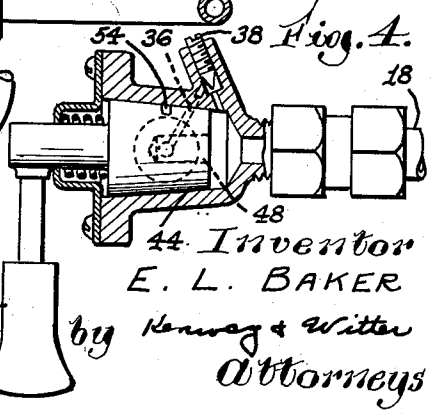


Fig. 4.



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Fig. 5

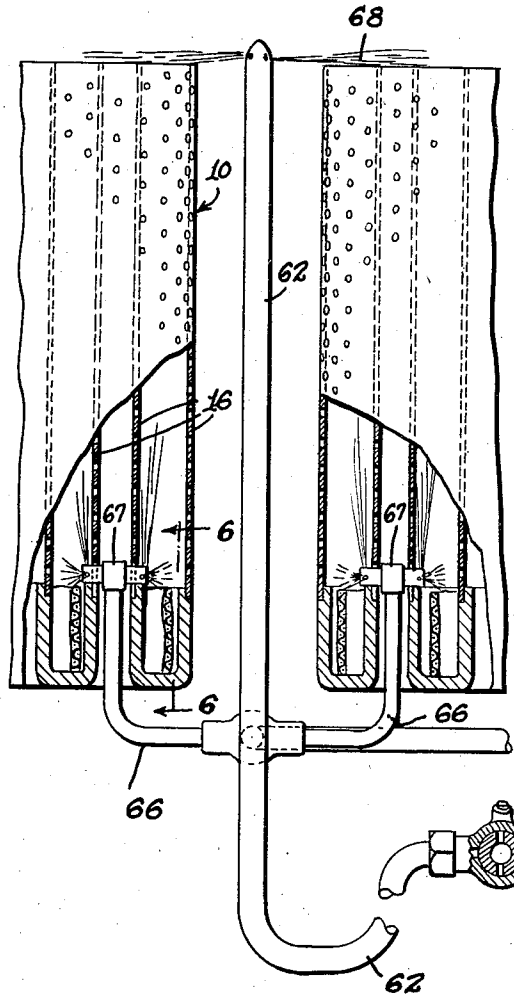


Fig. 7.

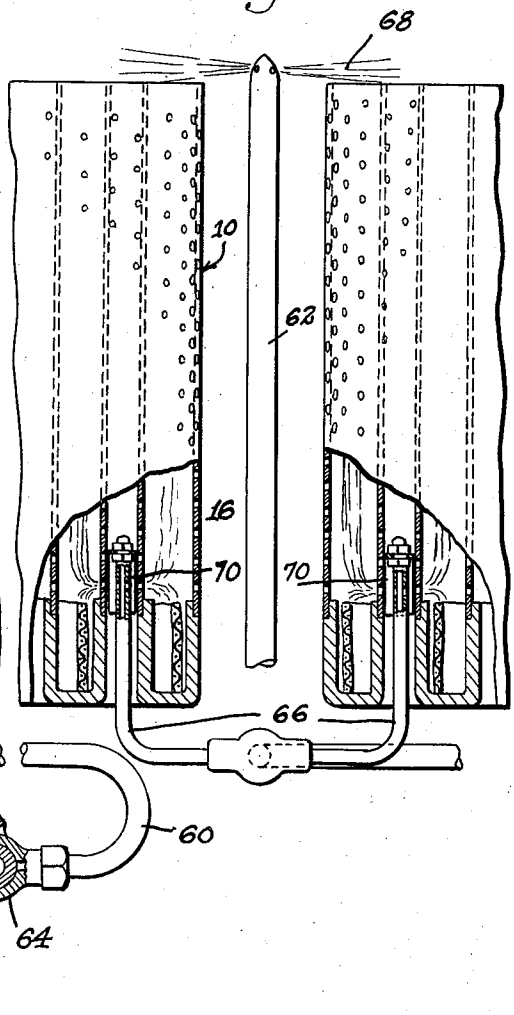
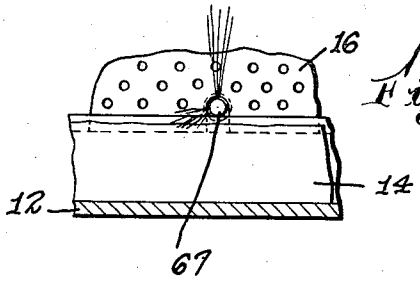


Fig. 6.



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UNITED STATES PATENT OFFICE

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GAS LIGHTER FOR WICK OIL BURNERS

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10 Claims. (Cl. 158—90)

This invention relates to gas lighters for wick oil burners and more particularly to such a lighter in which the opening of a gas valve serves automatically to light the wicks of one or a plurality of oil burners. Wick oil burners are in extensive use, particularly in cooking ranges, and the manual lighting of these burners is an inconvenient and burdensome task. The primary object of my invention is to provide a novel gas burning mechanism for conveniently lighting such burners.

Range oil burners of the wick type are commonly of annular configuration and each wick has cooperating therewith annular perforated cylinders providing a combustion chamber therebetween, each burner usually employing two annular and relatively concentric wicks and a pair of perforated cylinders cooperating with each wick. In accordance with my invention, I provide means for conducting wick-lighting gas to the wick chamber and/or to a chamber located between two adjacent wicks, and cooperating therewith I provide a pilot jet. The pilot jet normally remains lighted with a small flame. Gas is conducted from a common source to the wick chamber and jet and this gas is under the control of a single manually operated valve. The pilot jet is provided with apertures arranged to project a flame or flames to a position igniting the wick-lighting gas and such flames are projected only when the valve is opened. Opening movement of the valve causes a flow of wick-lighting gas and increases the flow of gas to the jet whereupon the projected flames light the wick-lighting gas which thereupon serves to light the wick. The invention may be constructed in different forms and in one form illustrated in the drawings the valve serves automatically to permit an advance flow of gas to the wick chamber as and for the purposes hereinafter described. The production of an improved wick-lighting apparatus of this nature comprises a further object of the invention.

These and other features of the invention will be best understood and appreciated from the following description of preferred embodiments thereof selected for purposes of illustration and shown in the accompanying drawings, in which

Fig. 1 is a fragmentary side elevation of two wick oil burners having my improved gas lighter applied thereto,

Fig. 2 is an enlarged sectional view taken on line 2—2 of Fig. 1,

Fig. 3 is an enlarged sectional view through the gas controlling valve. taken on line 3—3 of Fig. 1,

Fig. 4 is a longitudinal sectional view through the valve,

Fig. 5 is a fragmentary side elevation of two burners having a modified form of my invention applied thereto,

Fig. 6 is an enlarged detailed view taken on line 6—6 of Fig. 5,

Fig. 7 is a fragmentary side elevation of two burners having a further modified form of my invention applied thereto.

Referring first to the form of my invention illustrated in Figs. 1–4, two oil burners are indicated at 10. Each burner embodies two annular and concentric channel members 12 having wicks 14 therein. Mounted on the channel members at opposite sides of and extending upwardly from the wicks are concentric cylinders 16 perforated at 17. Oil is fed to the channel members in the usual and well-known manner (not illustrated).

A gas supply pipe 18 has communication with two pipes 20 and 22 through a valve member 24. The pipe 20 branches at 26 into two pipes 28 respectively for the two burners. Each such pipe 28 extends upwardly between the two channel members 12 and the two inner cylinders 16 and carries an inverted U-shaped gas deflecting shield 29 on top and between lock nuts 30, the shield having contact with the two adjacent cylinders. The top end of each pipe 28 is closed and gas exit ports 32 are provided therein beneath the shield and substantially in alignment with perforations 17 in the cylinders opposite to the wicks.

The pipe 22 extends to a point beneath the burners 10 and is provided with a pilot jet 34 on its top end, the jet having gas exit ports directed upwardly toward the pipes 28 within the burner openings. A by-pass 36 in the valve member permits a continuous flow of gas to the jet, this flow being regulated by a screw 38. The pipes 20 and 22 are in communication with ports 40 and 42 in the valve member 24, and screws 41 and 43 are provided for adjustably limiting the flow of gas through these ports. Within the valve member 24 is a valve 44 adapted to be rotated by a handle 46. Gas from the supply pipe 18 enters a port 48 in the valve and is adapted to pass therefrom through ports 50 and 52 to the pipes 20 and 22 when the valve is rotated clockwise (Fig. 3), the port 50 preferably being provided with an extension 54 for providing communication with the port 40 in advance of communication of the port 52 with the port 42.

It will now be apparent that the by-pass 36 keeps the pilot light continuously lighted. When it is desired to light one of the burner wicks, the oil

valve to the burner or burners having been opened for a sufficient time to saturate the wicks, the operator merely rotates the valve handle 46 clockwise. Communication of ports 54 and 50 with port 40 thereupon causes a flow of gas through the pipe 20 to the chambers within the shields 29 and this gas flows outwardly through exit ports 32 and perforations 17 to the wick chamber. Communication of port 52 with port 42 increases the flow of gas to the pilot jet whereupon the pilot flames 56 are projected into the burner openings as illustrated in Fig. 1. The gas within the shields 29 is thereupon ignited and the gas and flames passing through the perforations into the wick chamber in turn lights the wicks. It should be particularly noted that the port 54 serves to provide a supply of gas in the wick and shield chambers in advance of projecting the flames 56, it being understood that the valve 44 is opened only momentarily to effect the lighting of the wicks. This advance flow of gas is of importance since the gas flame will not readily flash through the cylinder perforations to the wick chambers unless gas is already present in the wick chambers.

In Figs. 5 and 6 is illustrated a somewhat modified form of the invention. The burners are the same as illustrated in Fig. 1 and the flow of gas through pipes 60 and 62 is controlled by a valve 64 in like manner as in Fig. 1 except that this valve has no port corresponding to the extended port 54. The pipe 60 has two branches 66 each provided with a T-shaped nozzle 67 on its top and extending through the adjacent cylinders and into the wick chambers. Each nozzle tip has two gas exits, one directed toward the wick and the other directed upwardly. The pilot pipe 62 extends to a position above the top ends of the cylinders and is provided with jet openings directed over the top ends of the cylinders. When the valve 64 is opened, gas flows into the wick chambers and upwardly within the cylinders. Simultaneously therewith the flow of gas through the pipe 60 is increased to project the flames 68 over the tops of the cylinders. These projected flames ignite the gas within the cylinders whereby the gas at the nozzles 67 is ignited and in turn lights the wicks.

The form of the invention illustrated in Fig. 7 is the same as in Fig. 5 except that shields 70, like the shields 29 are employed in lieu of the nozzles 67.

It will now be apparent that I have provided a relatively simple and efficient gas lighter for wick oil burners and furthermore that the construction is such as readily to adapt the apparatus to oil burners now in use.

Having thus described my invention what I claim as new and desire to secure by Letters Patent of the United States is:

1. In combination with an oil burner having a wick located between two vertical walls one of which is perforated, means providing a gas chamber adjacent to the wick on the opposite side of the perforated wall, means for conducting gas to the chamber, a pilot jet, a source of gas supply, means for continuously conducting gas therefrom to the jet, and a manually operated valve for permitting a flow of gas through the second-named means and increasing the flow of gas to the jet upon opening movement of the valve, the jet being arranged to ignite the gas flowing from the second-named means.

2. In combination with an oil burner having two annular and relatively concentric wicks, two relatively spaced and concentric perforated cylinders between and extending upwardly beyond the wicks, means between and cooperating with the cylinders providing a gas chamber adjacent to the wicks, means for conducting gas to the chamber, a pilot jet, a source of gas supply, means for continuously conducting gas therefrom to the jet, and a manually operated valve for permitting a flow of gas through the second-named means and increasing the flow of gas to the jet upon opening movement of the valve, the jet being arranged to ignite the gas flowing from the second-named means to the gas chamber.

3. In combination with an oil burner having two relatively spaced wicks and a vertical opening between the wicks, a conduit extending upwardly into the opening and having exits between and directed toward the two wicks, a pilot jet beneath the conduit, a source of gas supply, means for continuously conducting gas therefrom to the jet, and a manually operated valve for permitting a flow of gas through the conduit and increasing the flow of gas to the jet upon opening movement of the valve, the jet being arranged to ignite the gas flowing from said exits.

4. In combination with two relatively spaced oil burners each comprising a wick and oppositely disposed and relatively spaced perforated walls extending upwardly at opposite sides of the wick, means providing chambers respectively adjacent to the wicks, means for conducting gas to the chambers, a pilot jet between the burners, a source of gas supply, means for continuously conducting gas therefrom to the jet, and a manually operated valve for permitting a flow of gas through the first-named means and increasing the flow of gas to the jet upon opening movement of the valve, the jet being arranged to shoot gas flames to a position relative to said walls to ignite the gas in said chambers.

5. In combination with an oil burner having two annular and relatively concentric wicks, two relatively spaced and concentric cylinders between and extending upwardly beyond the wicks, a nozzle between and projecting through the cylinders and having gas exits directed toward the wicks, means for conducting gas to the nozzle, a pilot jet, a source of gas supply, means for continuously conducting gas therefrom to the jet, and a manually operated valve for permitting flow of gas to the nozzle and increasing the flow of gas to the jet upon opening movement of the valve, the jet being arranged to ignite the gas flowing from the nozzle.

6. In combination with an oil burner having two annular and relatively concentric wicks, two relatively spaced and concentric perforated cylinders between and extending upwardly beyond the wicks, a gas conduit extending upwardly between the cylinders, an inverted U-shaped shield on the conduit forming a chamber between the cylinders opposite to the wicks, the conduit having exits beneath the shield and opposite to the wicks, a pilot jet, a source of gas supply, means for continuously conducting gas therefrom to the jet, and a manually operated valve for permitting flow of gas to the conduit and increasing the flow of gas to the jet upon opening movement of the valve, the jet being arranged to ignite the gas flowing from the exits.

7. In combination with an oil burner having a wick located within a burner chamber, means for conducting gas to the chamber at the wick, a pilot jet remote from the wick and pointing toward the chamber, a source of gas supply, means for con-

tinuously conducting gas therefrom to the jet to provide a pilot light, and a manually operated valve constructed to permit a flow of gas through the first-named means to the chamber and an increased flow of gas to the pilot jet upon opening movement of the valve whereby providing wick-igniting gas to the chamber and projecting the pilot jet flame to such gas.

8. The combination defined in claim 7 in which the valve is constructed to permit a flow of gas through the first-named means in advance of increasing the flow of gas to the jet.

9. The combination defined in claim 7 in which the oil burner has two annular and relatively concentric wick chambers, and in which the first-named means embodies a single conduit for conducting gas to both chambers and the pilot jet flame is projected to such gas.

10. A gas lighter for a plurality of oil burners, comprising a source of gas supply, two conduits in communication with said source and having relatively spaced exits, a pilot jet between and having outlet ports directed toward said exits, a conduit from the jet to said source arranged to provide a small and continuous flow of gas to the jet, and a single manually operable valve between said source and the conduits and having a rotary element with ports therethrough to the conduits adapted upon opening movement of the valve to cause a flow of gas through said two conduits and so increase the flow of gas to the jet as to shoot igniting flames to the gas flowing from the exits.

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