



# UNITED STATES PATENT OFFICE.

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PREHEATER FOR GASOLINE STOVES.

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*To all whom it may concern:*

Be it known that I, WILLIAM C. COLEMAN, a citizen of the United States, residing at Wichita, in the county of Sedgwick and State of Kansas, have invented certain new and useful Improvements in Preheaters for Gasoline Stoves; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to hydrocarbon fuel burners and the primary object thereof is to provide a novel form of pre-heater for heating the generating chamber which transforms the liquid fuel into vapor or gas preparatory to admitting it into the burner chamber or chambers. The invention contemplates the provision of a slide which may be conveniently actuated to cause a baffle to be interposed between the discharge end of the vaporizing chamber and the intake manifold for the burners so that the liquid initially passing through the vaporizing chamber before the vaporizing chamber is heated will be deflected into a pre-heating pan or cup under the vaporizing chamber where it may be ignited to heat the vaporizing chamber so as to heat the liquid fuel to a vapor temperature, then the slide may be actuated to move the deflector out of the path of the fuel issuing from the vaporizing chamber permitting it to pass into the burner manifold. The slide may be conveniently controlled from a point adjacent to the valve control and consists of certain novel embodiments which will be described in detail hereinafter, references being had to the accompanying drawings, in which:

Fig. 1 is a perspective view of a burner constructed in accordance with my invention.

Fig. 2 is a detail perspective view of the slide and vaporizer cup.

Fig. 3 is a longitudinal sectional view showing the slide in cross section and the vaporizing cup in longitudinal section with the deflector in functional position, and

Fig. 4 is a sectional view through the slide and cup when the through port is in alignment with the vaporizing chamber.

Referring now to the drawings,

1 designates the base of the burner manifold here shown as provided with two burner plates 2 and 3 provided with spaces to receive the gasified fuel so it can be ignited through the slits 4 and 4'. The members 2 and 3 are conventional burner elements so their specific construction is immaterial. The manifold 1 has a vertical inlet tube 5 connected to the rear wall 6 of a rectangular slide guide 7 by a duct 8. The forward end of tube 8 is slightly flared to provide a relatively wide mouth or inlet end so that gas and air may enter the duct 8 through different ports and become mixed to provide the proper air and gas mixture for the flame, therefore it will be seen that the duct 8 is a mixing chamber. In the front wall 9 of the guide 7 is an opening 10 receiving the discharge end of the vaporizing chamber or tube 11 which has one end supported by the wall 9 and the other on a bracket 12 carried by the front burner element 2. The effective port area of the discharge end of the vaporizing chamber 11 is controlled by a valve on the end of the stem 13 in the usual manner and the vaporizer tube 11 may be supplied with fluid through a pipe connection 14 communicating with a suitable source of supply, preferably under pressure. Slidable in the burner guide is a guide plate 15. The block constitutes a valve for valving off communication between the discharge end of the vaporizer tube 11 and the duct 8 and when the block or valve 15 functions as such, a concavity or recess 16 of the vaporizing pan or cup 17 will be brought into line with the discharge end of the vaporizing tube 11 so that the liquid fuel will be discharged against the concavity and be deflected into the longitudinally disposed pre-heater cup in line with but below the vaporizing tube 11. The vaporizing cup 17 is boat-shaped and it preferably has a central opening 18 in its bottom surrounded by a vertical flange 19, the central opening being for the purpose of permitting air to flow through the bottom of the cup to supply the necessary oxy-

gen to support combustion. The plate 15 is guided in grooves 20 and 21 and is provided with openings 22 and 23. The opening 22 is adapted to be brought into register with the discharge end of the vaporizer tube 11 directly into the duct 8 through the ported member 5 into the manifold 1, while the opening 23 permits the fuel to discharge into vaporizer cup 17. A controlling member for the slide or block 15 is shown as comprising a rock shaft 24 mounted in the bearings 25 and 26. The front end of the rock shaft has a right angular extension to provide a handle 27 and the other end has an upstanding projection 28 engaging a lug 29 in the slide (see Fig. 2) so by turning the handle 27 the slide can be reciprocated in its guide to cause the fuel passing from the vaporizer chamber or tube 11 to be deflected in the cup 17 or permitting it to pass into the duct 8 and then on to the burners. The inlet openings to one of the burner elements 2 or 3 may be controlled by an individual valve on a stem 30, the other burner being under the control of the valve on stem 13. The slot 31 in front of guide 7 is long enough to permit the necessary movement of the cup 17 as it is carried to and fro by the slide plate 15.

When the parts are assembled and it is desired to start the burner the handle 27 may be swung upward to bring the slide to the position shown in Fig. 1 with the slide valving off at duct 8 and presenting the depression 16 or hood of the vaporizer cup 17 integral with slide 15 in line with the discharge end of the vaporizing tube 11, then the valve on end of stem 13 is slightly unseated so as to permit some of the liquid fuel to discharge against the curved surface of the deflecting recess 16 so it will flow into the cup. The fuel can be ignited in the cup and the flame therefrom will heat the vaporizing tube 11 so that the liquid will be generated into gas. The observer can note the condition of the fuel issuing from the vaporizer tube when the valve on the end of stem 13 is slightly unseated and when the proper vaporization is taking place the operator can swing the handle 27 downwardly so that the opening 23 will be in line with the discharge end of the vaporizing tube 11 and since the slide has one back wall, it is obvious that the fuel can pass into the duct 8 and into the manifold 1. Air for the gas will be furnished through the end openings 31 communicating with the hollow portion of the slide as clearly shown in Fig. 1 so a proper mixture will be provided.

It will be apparent from the foregoing that the fluid issuing from the vaporizing chamber or tube 11 may be used as a preheating medium for heating the vaporizer and that its deflection may be easily accom-

plished by manipulating the slide as shown and as the temperature has been raised, the deflector can be moved out of obstructing position and the channel can be used in the usual way.

What I claim and desire to secure by Letters Patent is:

1. A preheater for oil stoves comprising a cup shaped member having a baffle, a vaporizer, a slide to which the cup shaped member is connected and means for moving the slide transversely of and in front of the vaporizer to bring the baffle into and out of line with a discharge opening in the vaporizer so that when the baffle is in line with the discharge opening of the vaporizer, oil discharged from the vaporizer will be directed into the cup shaped member so that it can be ignited to heat the vaporizer.

2. In an oil burner, a vaporizer having a discharge opening, a mixing chamber with which the discharge opening communicates, a slide, a preheater cup on the slide having a baffle in the mixing chamber and in line with the cup and means for actuating the slide to bring the baffle into and out of line with the discharge opening of the vaporizer.

3. An oil burner comprising a burner plate, a vaporizer above the burner plate and having a discharge end beyond the periphery of the burner plate, a transverse mixing chamber into which the vaporizer discharges, a preheater cup having a baffle at one end movable past the discharge end of the vaporizer, the baffle being located in the mixing chamber, a slide supporting the cup, and means for moving the baffle into and out of line with the discharge opening of the vaporizer.

4. An oil burner comprising a burner jet, a vaporizer above the burner jet, a mixing chamber spaced from the burner jet and communicating with the discharge opening of the vaporizer and a transversely movable preheater cup having a baffle in the mixing chamber adapted to align with the discharge opening of the vaporizer to direct fuel downwardly into the cup so that it can be ignited to preheat the vaporizer and means for moving the cup and baffle into and out of alignment with the vaporizer.

5. An oil burner comprising a hollow casting having a burner member for igniting liquid fuel, a vaporizer above the burner member, the length of the vaporizer being greater than the diameter of the burner member, a mixing chamber into which the vaporizer discharges, means communicating the mixing chamber with the burner member, a transversely movable slide in the mixing chamber, a preheater cup carried by the slide having a concavity adapted to align with the discharge end of the vaporizer when the preheater cup is beneath the vaporizer and means for moving the slide

transversely of the vaporizer to bring the concavity into and out of alignment with the discharge end of the vaporizer.

6. An oil burner comprising a burner  
5 member adapted to burn vaporized liquid fuel, a vaporizer above the member, the length of the vaporizer being greater than the diameter of the member, the vaporizer  
10 having a discharge end, a mixing chamber into which the vaporizer discharges, means

for communicating the mixing chamber with the member, a preheater cup having an upwardly extending end adapted to align with the discharge end of the vaporizer when the preheater cup is beneath the va- 15 porizer and a transversely movable slide supporting the preheater cup.

In testimony whereof I affix my signature.

WILLIAM C. COLEMAN.