

J. RYCKMAN & J. D. VIVIAN.
GAS GENERATING OIL BURNER.
APPLICATION FILED OCT. 17, 1910.

993,412.

Patented May 30, 1911.

Fig. 1

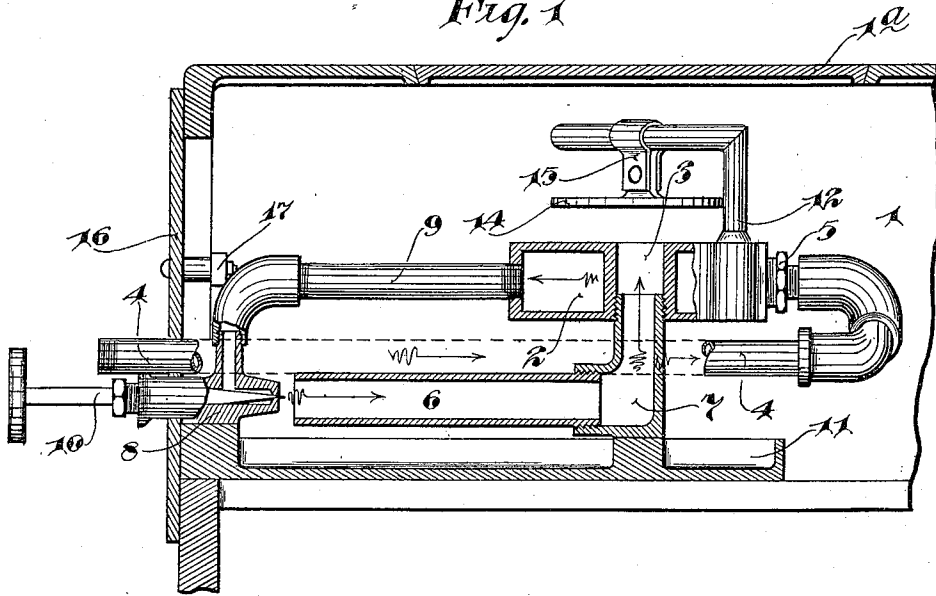
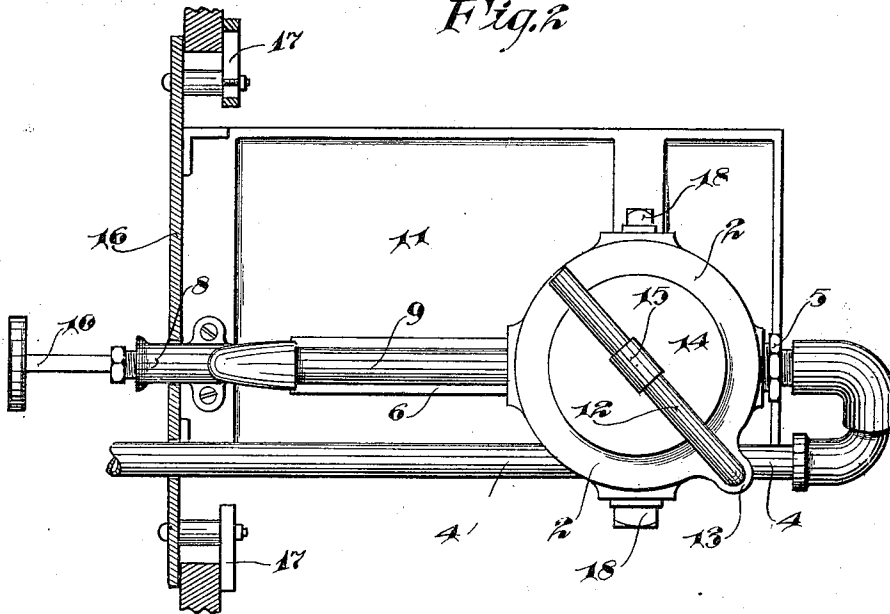


Fig. 2



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UNITED STATES PATENT OFFICE.

JOHN RYCKMAN AND JOHN D. VIVIAN, OF MINNEAPOLIS, MINNESOTA.

GAS-GENERATING OIL-BURNER.

993,412.

Specification of Letters Patent.

Patented May 30, 1911.

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To all whom it may concern:

Be it known that we, JOHN RYCKMAN and JOHN D. VIVIAN, citizens of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Gas-Generating Oil-Burners; and we do hereby 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.

Our invention has for its object to provide an improved gas generating oil burner and, to this end, the invention consists of the novel devices and combinations of devices hereinafter described and defined in the claim.

In the accompanying drawings which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings, Figure 1 is a view chiefly in vertical section, but with some parts shown in full and some parts broken away, illustrating our improved burner applied in the fire box of a range or cooking stove; and Fig. 2 is a plan view of the burner showing portions of the stove in horizontal section.

The numeral 1 indicates, as an entirety, the fire box of the range or cooking stove to which the burner is shown as applied. The burner comprises a hollow annular shell 2, which is preferably cast and affords a generating chamber having an axial passage 3 extending vertically therethrough. The oil from an elevated tank or other source for supplying the oil under pressure, is delivered through a supply passage 4 which is connected to the generating chamber of the shell 2, as shown through a pipe coupling 5. A horizontally disposed mixing tube 6 is connected by an elbow 7 to the axial passage 3 of the shell 2. A nozzle 8 is positioned for delivery directly into the open end of the mixing tube 6, and this nozzle is connected by a pipe 9 to one side of the generating chamber of the shell 2. The discharge orifice of the nozzle 8 is adapted to be opened and closed by a suitable valve 10, preferably of the needle valve type. A drip pan 11 is placed in the bottom of the fire box 1 and is preferably rigidly attached to the bottom portions of the elbow 7 and nozzle 8.

A small L-shaped pedestal 12 is pivotally connected, at its lower end, to a projecting lug 13 of the shell 2 with its horizontal upper portion normally extending above the axial passage 3 of the said shell 2. A disk-like deflecting plate 14 is supported by the lower end of a hanger 15, which is adjustably mounted on the horizontal upper portion of the pedestal 12. Normally, or ordinarily, this deflector plate 14 will be positioned with its axis alined with the axis of the shell passage 3, but spaced above the shell so as to properly spread the flame which strikes the same. This deflector may, however, be turned at one side of the passage 3 and thereby thrown out of action at will.

By reference to Fig. 1, it will be noted that the passage 3 and the deflector (when the latter is in normal position) are located axially directly under one of the stove lids 1^a, so that when the latter is removed, the flames spread by the deflector 14 will be evenly distributed under the open lid hole. The greatest heating effect will be produced when the deflector is in the working position as shown and, hence, the deflector will be positioned for action when the stove is used for baking or heating purposes. Sometimes, however, when the cooking utensil is placed in the open hole over the burner, the best results can be obtained by turning the deflector to one side so that the flame will directly strike the bottom of such utensil. In this latter case, therefore, the axial location of the passage 3 in respect to the lid opening is highly important.

The improved burner may be applied to any range or cooking stove or to other stoves, for that matter, very easily and at small cost. In most instances, the burners will be applied one under each of the holes that directly overlie the fire box of the stove.

This improved burner was especially designed to generate gas from kerosene and to burn the same, but it may be used to generate and burn gas formed from other oils.

The shell 2 of the generating chamber is shown as provided with openings closed by detachable plugs 18, so that, when desired, one or more additional gas burners may be coupled to the generating chamber and supplied with gas therefrom. For the convenient attachment of the burner to the range

or cooking stove, the drip pan 11 and nozzle 8 are shown as attached to a plate 16 which closes one end of the fire box and is held in place by adjustable turn buttons 17. To
5 start the burner, a small amount of the oil will be allowed to run into the drip pan 11, by opening the valve 10, while the burner is cold. The loose oil in the drip pan being ignited will heat the generating shell 2 and
10 pipe 9 and generate gas therein. Then, when the gas has been generated, the valve 10, which should be closed during the initial generation of gas, will be again opened and gas will then be discharged from the nozzle
15 8 into the mixing tube 6. Air will be drawn into the open end of the mixing tube 6 with the gas and will thus afford the necessary oxygen required to support complete combustion. The heat produced by the burner,
20 in generating the gas, will maintain a sufficient generation of gas, so that, after the burner has been properly started, the liquid fuel burned will be in gaseous form instead of in liquid form.
25 In actual practice, the efficiency of the im-

proved burner above described has been demonstrated.

What we claim is:

In a gas generating burner, the combination with an annular generating chamber having an axial passage, of a mixing tube connected to the axial passage thereof, an oil supply pipe leading to said annular generating chamber, a nozzle connected to said generating chamber and positioned to
30 discharge into the said mixing tube, a supporting pedestal pivoted to said generating chamber and having an upper portion adapted to be located over the axial passage of said generating chamber, and a deflect-
35 ing plate suspended from the upper portion of said pedestal and adjustable thereon, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

JOHN RYCKMAN.
JOHN D. VIVIAN.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
