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HYDROCARBON OIL BURNER.

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Fig. 1.

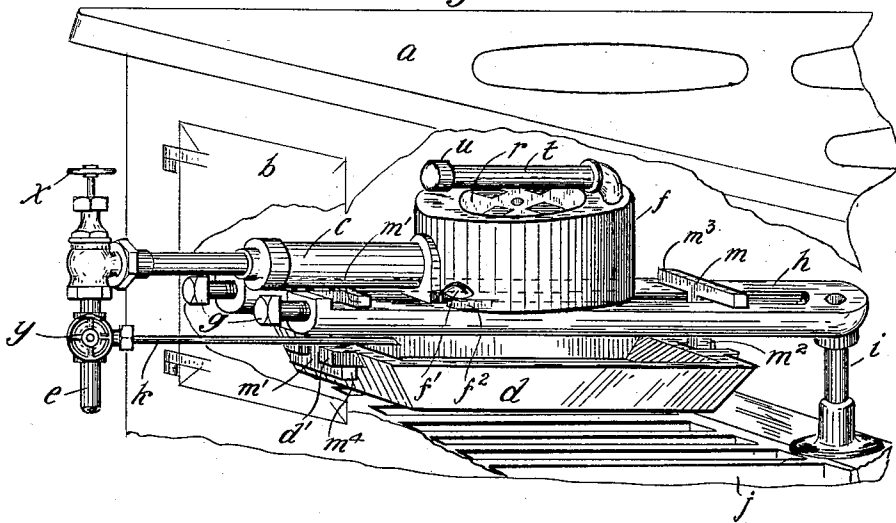


Fig. 2.

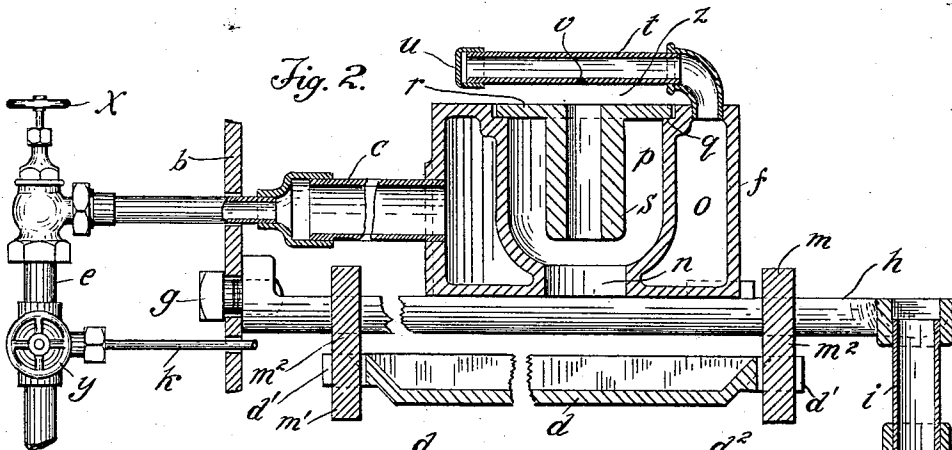
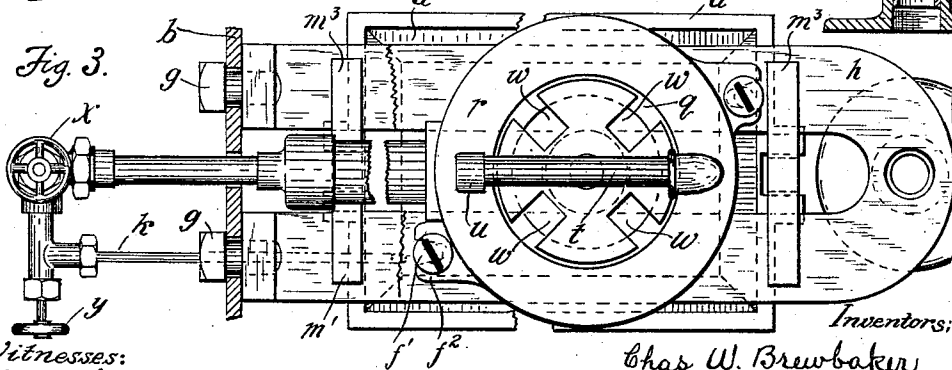


Fig. 3.



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UNITED STATES PATENT OFFICE.

CHARLES W. BREWBAKER AND GEORGE R. SHANKLIN, OF PORTLAND, OREGON.

HYDROCARBON-OIL BURNER.

1,011,881.

Specification of Letters Patent.

Patented Dec. 12, 1911.

Application filed March 5, 1910. Serial No. 547,593.

To all whom it may concern:

Be it known that we, CHARLES W. BREWBAKER and GEORGE R. SHANKLIN, citizens of the United States, and residents, respectively, of Portland, in the county of Multnomah and State of Oregon, have invented a new and useful Improvement in Hydrocarbon-Oil Burners, of which the following is a specification.

This invention has for its object to obtain a reliable oil burner of the type adapted to be installed in the fire box of a kitchen range, and, furthermore, which is inexpensive to manufacture and easy to keep in good working condition.

Our burner is especially designed to be effective in its operation of converting oil, fed thereto, into gas, and in causing an effective intermixture of air with the generated gas, so as to insure a non-carbonizing blue and intensely hot flame.

Our invention further embodies the particular features herein set forth and claimed.

In the drawings constituting a part of this specification: Figure 1 is a perspective view showing, in outline, that part of a kitchen range embodying the fire box, the door of the latter being broken away in part, and our device is shown as installed in the fire box, as in practice; the oil feed tube from the reservoir being seen as entering through the door of the fire box, which is understood as having a suitable aperture, and the oil-feed pipe also has a pilot pipe entering through the door of the fire box, to inject a stream of oil into the pan of our device, when first starting our burner; Fig. 2 is a longitudinal vertical section of our burner, also a section of the door of the fire box of the range through which the oil-feed and pilot pipes enter; and Fig. 3 is a plan or top view of our device, also showing a section of said door of the fire box.

α represents that portion of a kitchen range in which the fire box is contained.

b is the door of the fire box, which is suitably apertured and through which extends the pipe c , connecting the supply pipe e with the gas generator f of our device. The door of the fire box is further apertured to permit the insertion of the bolts g , by which the solid U-shaped spreader casting h is supported at its outer end, the inner end thereof being supported on a standard i , resting on the bottom of the grate j . A

pilot pipe k also enters the door b and is adapted to throw a stream of oil into the spreader pan d , suspended by hangers m , m' from the casting h .

The gas generator f is of cylindrical form and comprises a circumferential generating chamber o , the base of such chamber projecting inward, so as to afford greater heating area, and said generator is provided with a central chamber p , open at the top and the bottom; the latter being smaller than the top opening, and the purpose of such contraction of the bottom opening being to promote intermixture of gas and air injected and drawn into said central chamber p . The top of the central chamber is provided with an annular seat q , in which is supported a plate r , provided with a pendent nipple s . At the top of the gas chamber o is provided a pipe extension t , the end of which is closed by a cap u . Said pipe extension t extends diametrically over the top opening of the chamber p , and is provided with a bottom orifice v , adapted to discharge the gas centrally into the hollow of the nipple s .

The plate r is provided with a series of radially disposed air apertures w , the purpose of which is to divide into streams the air drawn into the central chamber p , and thus facilitate the intermixture of said air with the gas injected into said chamber p . The supply pipe e is provided with valves x , y , to control the supply of oil through the pipe c to the generator, and also the pipe k . The hangers m and m' are conveniently made to comprise a perpendicular member m^2 and top and bottom cross-bars m^3 , m^4 , and the spreader pan being made with lugs d' .

Our burner is started, in the first place, by injecting a small quantity of oil into the spreader pan d and igniting the oil. As soon as the generator has become sufficiently heated the valve x may be opened and oil will be injected into the generating chamber o , which, upon being gasified, is injected through the orifice v of the extension pipe t , through the nipple s . The jet of gas issuing from the orifice v of the pipe t , having to pass through space z , will draw in and intermix with it some air in its passage through the nipple s , and as it discharges from the bottom orifice of the nipple s , the intermixture will be further intermixed with air drawn in through the aperture w of the

plate r . The gas issuing from the orifice n in the bottom of the generator is ignited by the burning oil still contained in the spreader pan d , and the flame then produced is spread longitudinally to the rectangular form of the fire box by means of the sloping sides d^2 of the spreader d , and the spreader casting h , the bottom of said spreader casting being convexed so as to facilitate the spreading of the flames, as mentioned.

We find that we can effectively use the so-called stove-oil or distillate of 34 degrees gravity, and grades of distillate of lighter gravity.

The generator f is secured in place on the spreader casting h by screws f' inserted through lugs f^2 cast on the base of the generator.

We claim:

1. In a hydrocarbon burner, the combination of a support adapted to spread the flames in a longitudinal direction; a cylindrical generator comprising a circumferential vaporizing chamber and provided with a central perpendicular chamber open at the top and bottom, the base of said vaporizing chamber projecting inward, and said central chamber converging at the bottom; an oil-feed tube leading into said vaporizing chamber of the generator; a pipe extending from the vaporizing chamber diametrically over the open top of said central chamber, said extension pipe closed at its end and provided with an orifice discharging centrally in the top opening of the central chamber; a plate removably supported at the top of said central chamber, said plate provided with radially disposed apertures and having a central pendent nipple; and a spreader pan arranged longitudinally under the said support.

2. In a hydrocarbon burner, the combination of a support consisting of a U-shaped casting, the bottom of which is convexed; a cylindrical generator comprising a circumferential vaporizing chamber and provided with a central perpendicular chamber open at the top and bottom, the base of said vaporizing chamber projecting inward, and said central chamber converging at the bottom; an oil-feed tube leading into said vaporizing chamber of the generator; a pipe extending from the vaporizing chamber diametrically over the open top of said central chamber, said extension pipe closed at its end and provided with an orifice discharging centrally in the top opening of the central chamber; a plate removably supported at the top of said central chamber, said plate provided with radially disposed apertures and having a central pendent nipple; and a spreader pan arranged longitudinally under the U-shaped casting.

3. In a hydrocarbon burner, the combination of a support adapted to spread the

flames in a longitudinal direction; said support consisting of a U-shaped casting, the bottom of which is convexed; a cylindrical generator comprising a circumferential vaporizing chamber and provided with a central perpendicular chamber open at the top and bottom, the base of said vaporizing chamber projecting inward, and said central chamber converging at the bottom, the top rim of said central opening of the generator provided with an annular seat; an oil-feed tube leading into said vaporizing chamber of the generator; a pipe extending from the vaporizing chamber diametrically over the open top of said central chamber, said extension pipe closed at its end and provided with an orifice discharging centrally in the top opening of the central chamber; a plate removably supported on said annular seat at the top of said central chamber, said plate provided with radially disposed apertures and having a central pendent nipple; and a spreader pan arranged longitudinally under the said support.

4. In a hydrocarbon burner, the combination of a support; a cylindrical generator comprising a circumferential vaporizing chamber and provided with a central perpendicular chamber open at the top and bottom, the base of said vaporizing chamber projecting inward, and said central chamber converging at the bottom, the top rim of said central opening of the generator provided with an annular seat; an oil-feed tube leading into said vaporizing chamber of the generator; a pipe extending from the vaporizing chamber diametrically over the open top of said central chamber, said extension pipe closed at its end and provided with an orifice discharging centrally in the top opening of the central chamber; a plate removably supported on said annular seat at the top of said central chamber, said plate provided with radially disposed apertures and having a central pendent nipple; and a spreader pan arranged longitudinally under said support and suspended therefrom.

5. In a hydrocarbon burner, the combination of a support adapted to spread the flames in a longitudinal direction; said support consisting of a U-shaped casting, the bottom of which is convexed; a standard supporting the inner end of said spreader casting; a cylindrical generator comprising a circumferential vaporizing chamber and provided with a central perpendicular chamber open at the top and bottom, the base of said vaporizing chamber projecting inward, and said central chamber converging at the bottom, the top rim of said central opening of the generator provided with an annular seat; an oil-feed tube leading into said vaporizing chamber of the generator; a pipe extending from the vaporizing chamber diametrically over the open top of said central

chamber, said extension pipe closed at its end and provided with an orifice discharging centrally in the top opening of the central chamber; a plate removably supported
5 on said annular seat at the top of said central chamber, said plate provided with radially disposed apertures and having a central pendent nipple; and a spreader pan arranged longitudinally under the U-shaped spreader casting and suspended therefrom. 10

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