No. 742,629. PATENTED OCT. 27, 1903.

J. B. & H. V. GORRELL.

HYDROCARBON BURNER.

APPLICATION FILED JAN. 15, 1903.

NO MODEL.

Fig. 1.

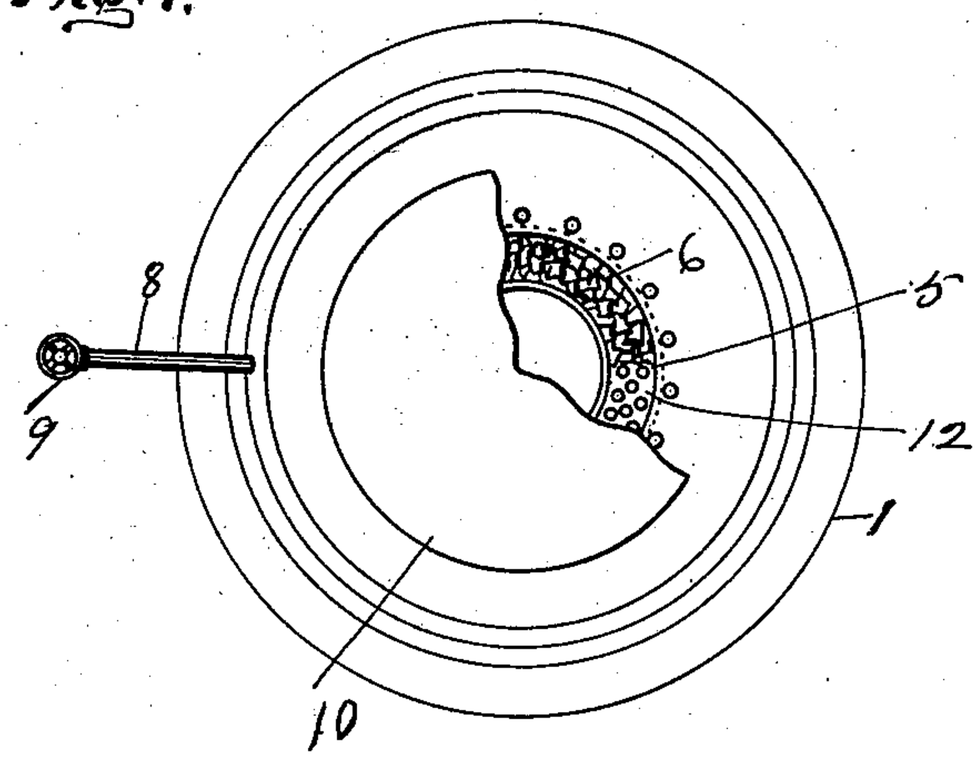


Fig. 2.

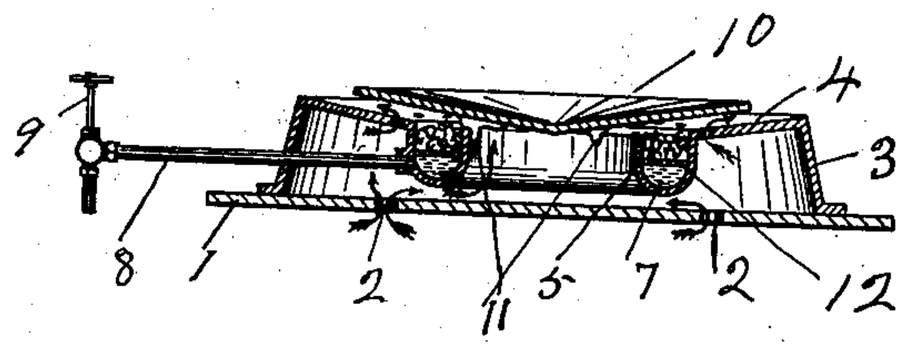
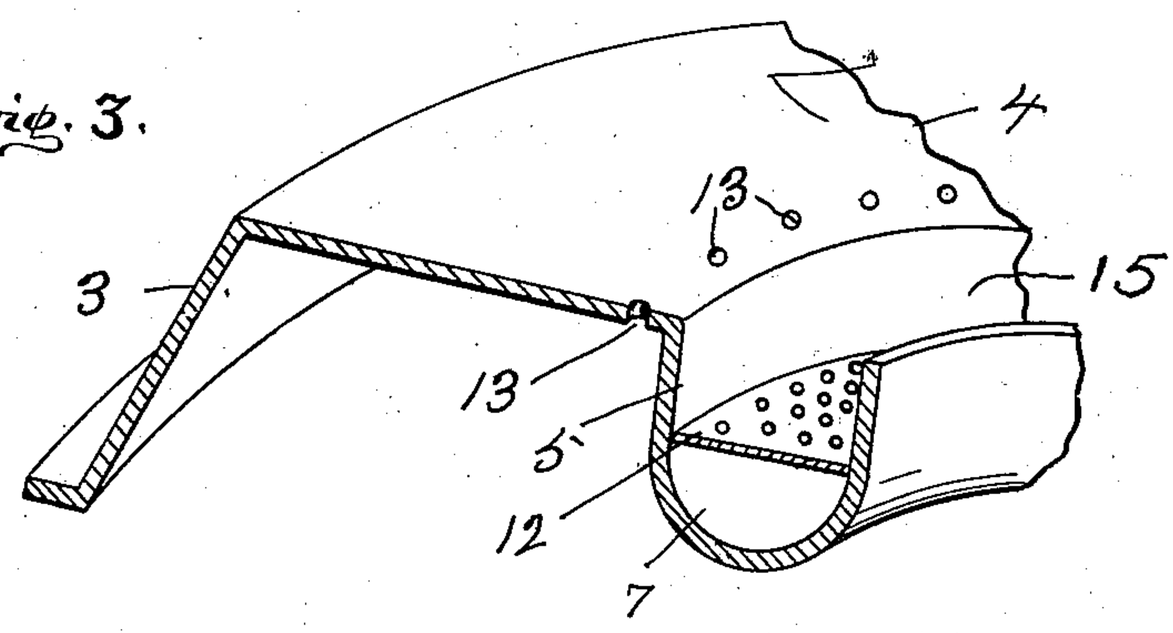


Fig. 3.



WITNESSES:

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Augusta Viberg.

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No. 742,629. Patented October 27, 1903.

UNITED STATES PATENT OFFICE.

JOHN B. GORRELL AND HIRAM V. GORRELL, OF LAOTTO, INDIANA, ASSIGNORS OF ONE-THIRD TO WINFIELD GORRELL, OF LAOTTO, INDIANA.

HYDROCARBON-BURNER.

SPECIFICATION forming part of Letters Patent No. 742,629, dated October 27, 1903.

Application filed January 15, 1903. Serial No. 139,100. (No model.)

To all whom it may concern:

Be it known that we, JOHN B. GORRELL and HIRAM V. GORRELL, citizens of the United States, residing at Laotto, in the county of Noble, in the State of Indiana, have invented certain new and useful Improvements in Hydrocarbon-Burners; and we do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form part of this specification.

Our invention relates to improvements in hydrocarbon-burners specially designed and adapted for domestic use and for the generation of steam.

The primary object of our present invention is to provide an improved hydrocarbon-burner adapted for the perfect combustion of petroleum or other fuel-oils for domestic and other purposes.

In the accompanying drawings similar reference-numerals indicate like parts throughout the several views, in which—

Figure 1 is a plan view of my invention, broken away in part. Fig. 2 is a cross-section of the same, showing the relative arrangement of the operative parts. Fig. 3 is a fragmentary enlarged detail of the retort, showing the perforated plate used in separating the fuel-chamber from the fuel-oil chamber.

We have illustrated our invention as applied to an ordinary heating-stove, though it may readily be adapted for use in any proper furnace or other situation in which a burner can be employed.

Our improved burner consists of a hollow shell or casing having inlet and outlet draft-openings and a central draft-opening and provided with an annular retort adjacent to said central opening having a liquid-fuel chamber and a generating or vapor chamber provided with a non-combustible absorbent and a deflecting-plate so fixed above said central opening and said retort as to radially deflect the draft of said central opening across the top of the combustion-chamber during the process of carburization and means for supplying the liquid fuel to the fuel-chamber.

The burner is mounted in any suitable manner upon a proper base 1 (shown in the accompanying drawings as a common form of base for a heating-stove) and is provided with a plurality of vertical inlet draft-openings 2 and consists of a circular plate 3, provided upon its upper edge with an inwardly-projecting horizontal flange 4, to whose inner edge is rigidly fixed the open-topped semi-cylindrical trough-like retort 5, adapted to contain fragments of fire-brick or other non-combustible liquid-fuel absorbents 6, which are so arranged in the retort-chamber as to leave an annular oil-space 7 directly beneath the fire-brick 6 and into which the oil is fed from any proper tank or other source of supply in any proper manner, as by an inlet-pipe 8, controlled by a feed-valve 9. The vapor-chamber 15 is separated from the oil-chamber 7 by means of an annular perforated plate 12.

The retort 5 may of course be cast integral with the said plate 3 and flange 4, if desired.

A circular concavo-convex deflecting-plate 10 is arranged directly above the retort 5 and the flange 4 and slightly out of contact therewith, being supported in that position by means of a plurality of pendent lugs 11 on the lower face of the deflecting-plate and which rest upon the inner edge of the retort, as shown in Fig. 2, thereby providing an annular draft-opening between the open top of the retort and the deflecting-plate and also between the flange 4 and the deflecting-plate for the purpose hereinafter described.

The flange 4 is provided with a series of vertical draft-openings 13 adjacent to the outer edge of the retort, as shown in Fig. 3.

The operation of our invention thus described is obvious and, briefly stated, is as follows: The annular retort 5 is provided with a proper quantity and arrangement of non-combustible absorbent material, leaving an annular oil-chamber beneath the same, into which the fuel-oil is fed either by gravity, by air-pressure in a well-understood manner, or by any

other proper manner, discharging into the said chamber through the induction-pipe 8 or any other suitable means. By lighting the saturated material in the retort 5 the heat thereof will continuously and uniformly convert the contents of the fuel-oil chamber 7 into an inflammable fuel-gas in the retort, the flame being constantly maintained by the upward circulation of air through the vertical openings in the base-plate 1 and the vertical openings 13 in the flange 4 and also by the free circulation of fresh air through the said openings 2 and then through the narrow annular opening between the said deflecting-plate 10 and the open top of the fuel-chamber, thereby constantly forming an admixture of oxygen with the gas generated in and arising from the fuel-chamber.

The circulation of air through the burner in the process of generation is indicated by arrows in Fig. 2.

Having thus described our invention and the manner of employing the same, what we claim as our invention, and desire to secure by Letters Patent, is—

1. A hydrocarbon-burner consisting of a hollow cylindrical casing closed upon its lower end by a perforated base-plate, and provided upon its upper end with a horizontal flange having a central opening; a pendent annular retort fixed to the inner edge of the said flange and arranged in the opening, and having a fuel-oil chamber and a superimposed vapor-chamber separated therefrom by an interposed partition; and a deflector-plate arranged above the retort and adapted to direct the flame radially therefrom.

2. In a hydrocarbon-burner the combination of a cylindrical casing having upon its upper edge a horizontal annular perforated flange; a base-plate closing the bottom of the casing and provided with a series of draft-openings; a pendent annular retort fixed to the inner edge of the flange, leaving a central outlet draft-opening, and having a fuel-oil chamber and a superimposed vapor-chamber separated therefrom by an interposed perforated partition; and a deflector-plate arranged above the retort and adapted to direct the flame radially therefrom.

3. The combination of a generator consisting of a hollow casing, a base-plate closing the bottom of the casing and provided with draft-openings, an annular plate closing the top of the casing; and an open-topped retort secured to the inner edge of the annular plate, and having a lower chamber for the liquid fuel, and a compartment separated therefrom for the vapor-chamber; and a deflector-plate so mounted on the casing as to direct the ascending draft radially across the top of the vapor-chamber.

Signed by us at Laotto, county of Noble, State of Indiana, this 10th day of January, A. D. 1903.

JOHN B. GORRELL.
HIRAM V. GORRELL.

Witnesses:
SAMUEL F. KNISS,
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