

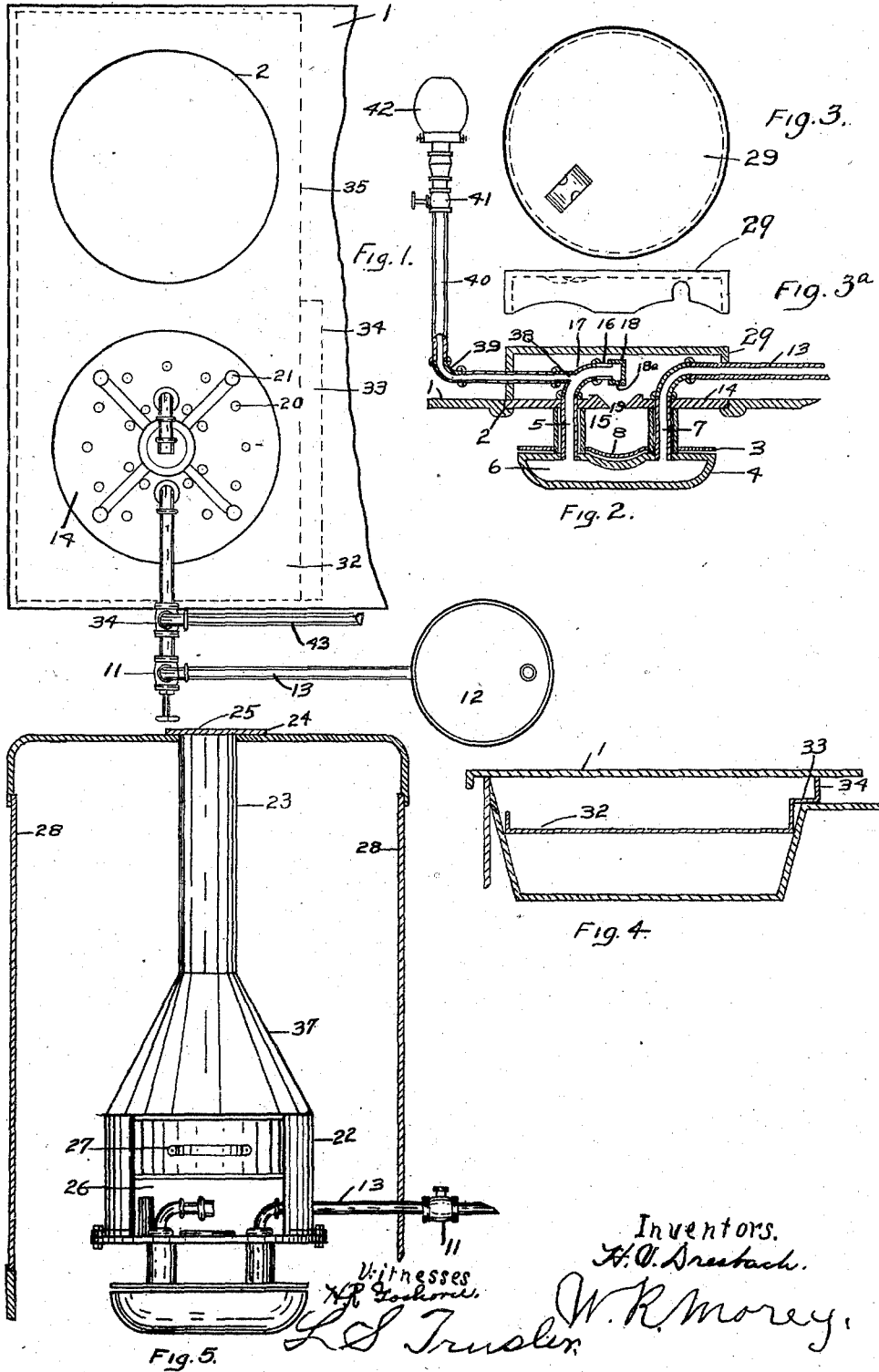
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VAPOR BURNER.

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967,622.

Patented Aug. 16, 1910.



Witnesses
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VAPOR-BURNER.

967,622.

Specification of Letters Patent. Patented Aug. 16, 1910.

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To all whom it may concern:

Be it known that we, HARRY V. DRESBACH and WARREN R. MOREY, citizens of the United States, residing at Iola, in the county of Allen and State of Kansas, have invented certain new and useful Improvements in Vapor-Burners; and we 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.

Our invention has relation to new and useful improvements in vapor generators and burners, and has, as one of its objects, to produce such a burner as will be adapted for use in cooking stoves, heating stoves and lamps and other devices.

A further object of our invention is to produce a vapor generator and burner so constructed that the full value of the oil will be attained therefrom. And a further object of our invention is to provide a generator and burner that is designed to burn kerosene and other heavy hydro-carbon oils without clogging or sooting.

In carrying out this idea, we have so arranged the several parts of our invention that the vaporized oil is injected from the exterior into the combustion chamber so as to entrain therewith a large proportion of warm air and thereby secure a more perfect combustion than is secured in other vapor-burners of the class.

We believe that by the use of our improved burner, a greater draft will be secured, thus securing greater heat, as a result of greater combustion.

With these, and other objects in view our invention consists of the novel construction and arrangements of parts as are hereinafter described in the following specifications and illustrated in the accompanying drawings forming a part thereof; said novelty of construction being particularly pointed out in the claims hereunto appended.

Reference being had to the drawings, Figure 1, is a view of the top plate of a cooking stove, showing the application of the invention thereto. Fig. 2, is a vertical section through the top plate of the stove, burner, and lid, together with a figure showing and setting forth a lamp attachment thereto. Fig. 3 is a top plan view of the covering for the burner; Fig. 3^a, a side view of the covering for the burner. Fig. 4, is a vertical section through the pan which forms the bot-

tom floor and sides of the combustion chamber; and Fig. 5, is a view of the modified form of the burner as applied to heating stoves.

The Fig. 1, in the drawing represents the top plate of a cooking stove, and having, as usual, one or more pot holes, top to be closed by removable covers. The generator and burner has top to fit within one of the said pot holes and to rest upon the surrounding ledge thereof and comprises a solid bowl piece 4 with a hollow generating-chamber 6 therein, in which the hydro-carbon oil is vaporized preliminary to its introduction into the combustion-chamber or lamp. The top surface of the generator is covered with an iron plate 3 which is dished in the center to form a cup 8 in which the oil is initially ignited to start the burner, and the said plate 3 is also used for a protection to the said generator. The induction tube or pipe 7 extends vertically through the top plate 14 and through a part of the combustion-chamber 15 into the generating-chamber 6, and the upper end of this pipe 7 is connected with a hydro-carbon supply pipe 13 having a needle valve 11 as shown in Fig. 1, therein controlling the flow of oil from an elevated tank 12 as shown in Fig. 1. The oil passes from the tank to the said supply pipe through pipe 13. The tank 12 is to be supported by legs or some other support than the stove. Beside the induction tube 7 there is an eduction tube 5 passing from the generating-chamber 6 through the upper part of the generator and covering to and through the upper plate 14. This eduction tube or pipe conveys the vapor from the generating-chamber to a gas-tube or pipe 16 extending horizontally above and projecting inwardly toward the center of the top plate 14 and gas-tube 16 is connected with the said tube 5 by elbow 17. Upon the end of said tube 16 is removably mounted an injector 18 having a discharge opening 18^a in its bottom located directly over the feed opening in the center of the top plate 14. Extending from elbow 17 there is a pipe or tube 38 upon the end of which there is an elbow 39 which connects with pipe 40 that extends to lamp 42.

In operating the said burner oil is admitted into the vaporizing-chamber through tube 7 by opening the valve 11 and allowing the oil to flow until it fills chamber 6 and overflows through pipe 5 elbow 17 pipe 16 and fills the cup 8 when the valve is closed

in order to shut off the supply of oil. The oil that has overflowed into cup 8 is then ignited, allowed to burn and in the burning the generator 4 is heated thereby expanding the oil in chamber 6 causing it to force its way through the opening 18^a. By the time the oil that was initially let into the chamber has been expanded and burned the generating bowl 4 has become so hot that on opening valve 11 and valve 34 letting a constant supply of oil and air into the generating-chamber which oil is expanded into a vapor or gas by the excessive heat of the generating bowl 4 and then passes out through the education tube 5 passing out through elbow 17 tube 16 into cap 18 thence through opening 18^a and through opening 19 into the combustion-chamber 15 and is there consumed, and the vapor or gas thus being ejected into the combustion-chamber from the exterior of the burner and stove entrains with it a large quantity of air through the opening 19 thereby causing a down draft drawing more air through the holes in the top plate of the lid or plate 14 as shown in Fig. 1. One of the holes in said lid or plate is marked 20 which is to represent all of the holes in the said lid or plate, said holes 20 being for the purpose of making more perfect combustion. In operating said burner after the said generator has become so heated that it will generate the said oil into a vapor as it flows into it as above described, compressed air is let into the supply pipe 13 through pipe 43 which leads from a compressed air chamber to pipe 13 and is controlled by valve 34 thus mixing air with the said oil before it is let into the combustion-chamber 6. The flame passes out all around generating bowl 4 enveloping it in flame thereby keeping it heated to a very high degree and thereby making it a more perfect generator. The top plate 14 is provided with four lugs one of which is marked 21 as shown in Fig. 1, to support a cooking vessel when the covering as shown in Fig. 3, is removed.

The lid or cover 29, shown in Figs. 3 and 3^a, is designed to be placed over the plate 14 and is scalloped out as shown by 31 for the purpose of admitting hot air only from the bottom of the said lid or covering next to the stove. The said covering is used also for the purpose of muffling the noise or humming sound caused by the air rushing through the holes in the top plate 14.

In operating the said burner and generator for lighting purposes the vapor is generated as above described and let into the lamp 42 through pipe 38 elbow 39 pipe 40 and through valve 41.

Fig. 4, shows a vertical section of the fire-box pan over which the generator is placed. This pan forms the bottom and sides of the combustion-chamber, the pan fitting in the fire-box of an ordinary cooking stove. The

piece 34 fits up against the top of the stove so that the flame can pass directly back from the burner that sits just in front of it. The flame is forced to pass out through the opening 35 as shown in Fig. 1, and by forcing it out through 35 it spreads over the top of the oven. 32 represents the bottom of the said pan. A top view of the said pan is also shown by the dotted lines in Fig. 1. By the use of this pan we prevent air from coming in from the bottom of the fire-box to mix with the flame as produced and burned by the said burner and generator thus forcing all the air to come in from above as above described, and for the further use of making the whole of the stove's fire-box above the said pan a combustion-chamber.

In Fig. 5, we show a modified form of burner as adapted for use in connection with heating stoves. In this form the device 24 represents the flange which is connected with a large pipe 23; pipe 23 is connected with a large jacket 22 which is in the form of a frustum of a cone. The jacket 22 has an opening 26 whereby the burner may be lighted and after the burner is lighted the lid 27 may be pulled down thus compelling the air to pass down from the top of the stove through a pipe 23 through the jacket 22 through the top plate 14 of the said generator into the combustion-chamber below, thereby causing a down draft. The generator as shown in Fig. 2, is bolted to the jacket 22, thus the generator hangs suspended in the heating stove with its induction tube 13 passing out through the side of the stove 28 to the reservoir 12. Thus we use all of the inside of the stove that is outside of the burner and its attachments for a combustion-chamber.

Having described our invention, what we claim, and desire to secure by Letters Patent, is:

1. A burner comprising a generator having a fuel-burning concaved portion on its top surface, a fuel-supply pipe connected to said generator, a discharge-pipe for said generator, a spreader-plate supported above said generator and provided with a central opening which aligns with said concaved portion of the generator, said plate also provided with a plurality of air-openings, means carried by said discharge-pipe for delivering fuel through the central opening of said plate to the concaved portion of said generator, and a cap fitted over said plate and provided with openings for supplying air through said plate to the burner-surface of the generator, substantially as shown and described.

2. A burner comprising a generator having a fuel-burning portion, a fuel-supply pipe connected to said generator, a discharge-pipe for said generator, a spreader-plate above said generator having air-

openings and an opening which alines with the central portion of the generator, means on the discharge-pipe for delivering fuel through the opening in the spreader-plate to the generator and means fitting over said plate and having openings through which air is supplied to the surface of the generator, substantially as shown and described.

3. A burner comprising a generator having a fuel-burning concaved portion, fuel supply and discharge pipes connecting with said generator, a spreader-plate above said generator having a central opening above the concaved portion of the generator and air-openings, an injector carried by the discharge-pipe for delivering fuel through the central opening of the spreader-plate to the top of the generator, and a cap fitted over said plate provided with openings for supplying air through said plate to the burner-surface of the generator, substantially as shown and described.

4. A burner comprising a generator hav-

ing a concaved central portion, fuel supply and discharge pipes, a plate having a concaved central portion corresponding to the concaved portion of the generator, a spreader-plate supported above the generator and having a central opening above the concaved portion of the said plate, and air-inlet openings, means carried by the discharge-pipe by which fuel is delivered through the opening in the spreader-plate to the concaved portion of the plate just above the generator, and a cap provided with openings for supplying air to the surface of the burner, substantially as shown and described.

In testimony whereof we have hereunto set our hands in the presence of two subscribing witnesses.

H. V. DRESBACH.
W. R. MOREY.

Witnesses:

L. S. TRUSLER,
H. R. GOSHORN.