

No. 690,444.

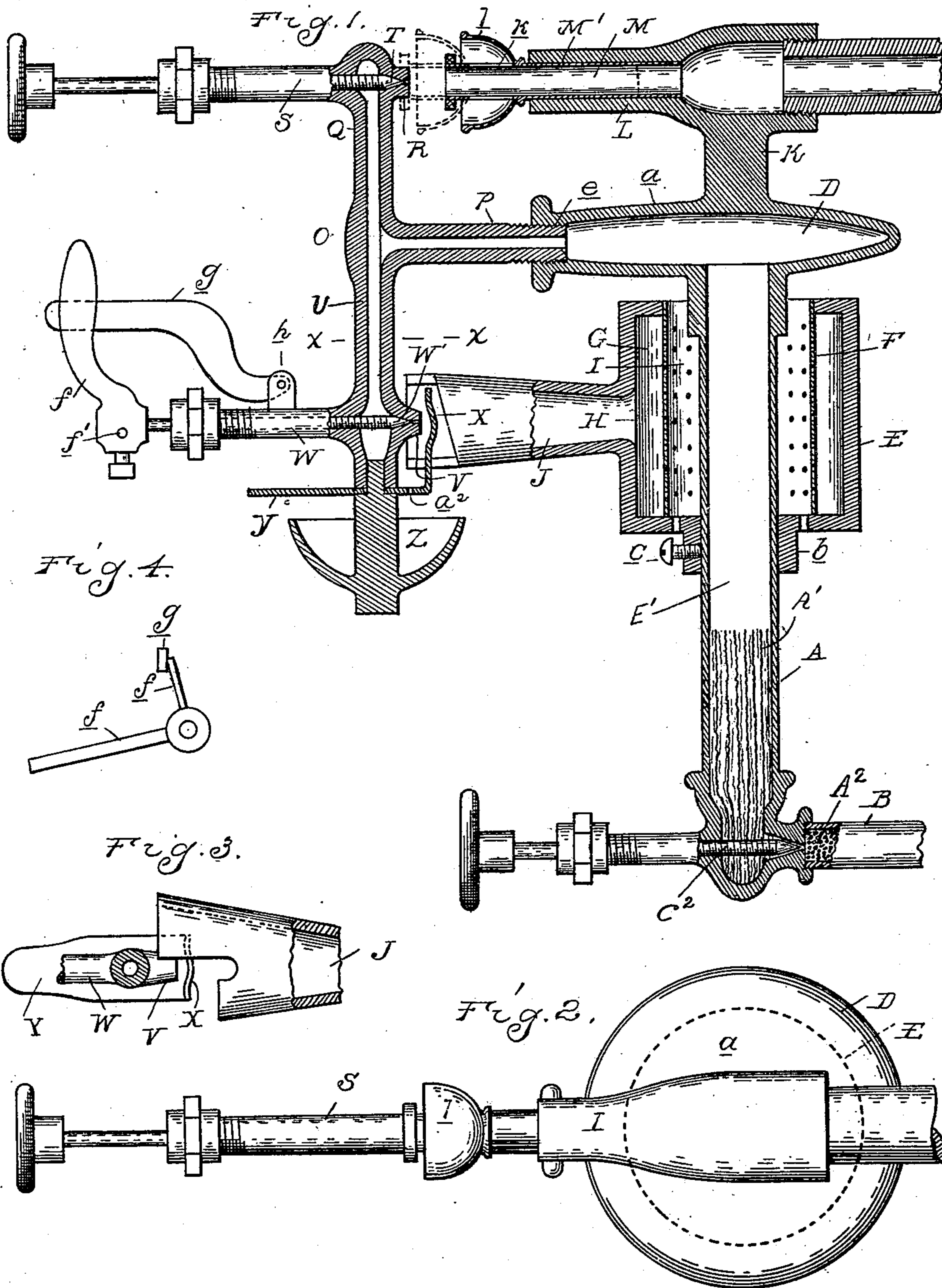
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O. A. LANE & H. A. DAVENPORT.

CARBURETER.

(Application filed June 25, 1901.)

(No Model.)



Witnesses
H. B. Smith
W. B. Doherty

Inventors
Oscar A. Lane
Hudson A. Davenport
By *[Signature]*
Attys.

UNITED STATES PATENT OFFICE.

OSCAR A. LANE AND HUDSON A. DAVENPORT, OF ADRIAN, MICHIGAN,
ASSIGNORS TO ADRIAN GAS MACHINE MANUFACTURING COMPANY,
OF ADRIAN, MICHIGAN, A CORPORATION OF MICHIGAN.

CARBURETER.

SPECIFICATION forming part of Letters Patent No. 690,444, dated January 7, 1902.

Application filed June 25, 1901. Serial No. 65,900. (No model.)

To all whom it may concern:

Be it known that we, OSCAR A. LANE and HUDSON A. DAVENPORT, citizens of the United States, residing at Adrian, in the county of Lenawee and State of Michigan, have invented certain new and useful Improvements in Gas-Generators, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention has reference generally to gas apparatus, and particularly to a gas-generator of the class wherein the vapor is generated from a hydrocarbon liquid and subsequently mixed with a suitable quantity of air to produce an illuminating-gas.

The object of the present invention is to provide a generator of this type capable of producing a dry or what is generally termed a "fixed" gas; and the invention consists in the peculiar formation of the generator whereby the results referred to are attained, and, further, in various details of construction, as will be fully hereinafter described, and shown in the drawings, in which—

Figure 1 is a sectional elevation. Fig. 2 is a plan view. Fig. 3 is a section on line xx of Fig. 1, and Fig. 4 is an end elevation of a portion of the generator.

In the drawings thus briefly described the reference-letter B designates an oil-supply conduit communicating with a suitable reservoir (not shown) and having arranged within its discharge end A a quantity of capillary material A', preferably in the form of wicking.

D is the retort for the generator, preferably disk-shaped in configuration, adjacent to which is the burner E.

E' is a vapor-generating chamber connecting the oil-supply conduit with the retort and extending, as shown, between the burner and the capillary material.

C² designates a valve for the supply-conduit upon the feed side of the capillary material, and A² represents a filter, preferably in the form of gravel, arranged within the conduit upon the side of the valve opposite to the wicking.

The burner referred to is cylindrical in form, encircles the vapor-generating cham-

ber immediately beneath the retort, and is provided with adjusting mechanism in the form of a tubular bearing b and a set-screw c , whereby it may be adjusted to or away from the retort, as desired.

As illustrated, the burner is open at its upper end or top and has arranged within an annular foraminous diaphragm F, dividing the interior of the burner into a mixing-chamber G, provided with an inlet-opening H, and a combustion-chamber I. The burner is also provided around its inlet with a flaring hood J, cut away at one side to receive a deflector X, hereinafter described.

K designates a solid post or standard located centrally upon the upper imperforate face a of the retort. Mounted upon this standard is a mixer L, having a tubular bearing M', in which is arranged for sliding movement a mixing-tube M. This tube, as shown, has openings k formed therein and carries a shield l , extending over the openings.

O designates a branched vapor-conduit, preferably T-shaped in configuration, the main section or stem P of which is detachably secured to and communicates with the retort D through an outlet-opening e in its periphery. The upwardly-projecting member Q of the conduit extends to a point adjacent to the mixer and terminates in a nozzle R, adapted to be coupled to the mixer by the tube M. The branch Q is further provided with a valve-casing S, containing a needle-valve T, which controls the discharge of vapor through the nozzle. The lower or downwardly-projecting branch member U of the vapor-conduit is provided with a nozzle V, which is directed toward the hood J, and, further, with the valve-casing W, containing the needle-valve W', controlling the passage.

Z designates a burner in the form of a cup for initially heating the vapor-conduits, the burner being located beneath both conduit branches, as shown. If desired, the cup may be filled with oil from the supply-conduit, in which case the deflector X is employed for conducting the oil from the lower branch member U to the cup. The deflector consists of a plate carried by an arm Y, the lat-

ter being swiveled to the member U and apertured at a^2 for the passage of the oil there-through.

The lower needle-valve is provided with the handle f , carrying a pin f' , which projects at substantially right angles thereto, and g is a stop against which the handle and pin are adapted to strike. The stop is preferably in the form of a finger pivoted between brackets h upon the valve-case W and having its outer or free end extending beyond the valve-handle and intermediate the latter and the pin. The movement of the valve is thus limited in either direction, it being capable of being opened but a slight distance and prevented when turned in the opposite direction from being forced too tightly or jammed against its seat.

In starting the generator the several valves are closed, and a small quantity of oil is preferably placed within the cup Z and ignited for the purpose of initially heating the vapor-conduits. The valves C^2 and W' are then opened, and the oil from the reservoir by hydrostatic or air pressure is caused to flow into the lower branch of the vapor-conduit, where it is immediately vaporized, the vapor passing into the burner E, where it is ignited. As soon as the retort is sufficiently heated by the burner the valve T is then opened. A portion of the generated vapor supplies the burner, while the balance passes through the mixer and from thence to the point or points of consumption.

In the operation of the apparatus the supply of gas to the lights or jets is controlled by the valve C^2 , which limits the passage of the oil to the vapor-generating chamber, and through the agency of the capillary material, which produces a uniform generation of vapor, the jets burn at a uniform intensity and the so-called "jumping" of the flame is prevented. Attention is also drawn to the fact that the capillary material referred to is separated from the burner by the vapor-generating chamber. Thus overheating of the oil within the capillary material and the resultant clogging of the latter by the deposit therein of the tarry products of the oil is prevented. The capillary material being thus unobstructed, vapor is continuously and uniformly discharged therefrom into the vaporizing-chamber and subsequently into the retort, where it is superheated, and the burning of the jets at a uniform intensity is maintained during the entire operation of the apparatus.

The filter within the supply-conduit is preferably arranged immediately adjacent to the valve C^2 , and in addition to keeping the oil free from impurities serves to regulate the flow to the valve.

It is to be noticed from the construction of the apparatus as set forth that the vapor-conduits are arranged at one side of the retort in a position where both may be initially heated by the single burner or cup Z. The entire delivery-conduits for the vapor being

thus properly heated before the apparatus is started, the liability and danger of oil being subsequently conveyed to the points of consumption is prevented. Furthermore, by employing alining vapor branches leading to the mixer and burner means are provided whereby the lighter portions of the superheated vapor pass upwardly into the mixer, while the heavier portions drop and enter the burner E, where they are consumed.

What we claim as our invention is—

1. In a gas-generator, the combination with a retort, of a burner adjacent thereto, an oil-supply conduit, capillary material within the discharge end of said conduit, a vapor-generating chamber connecting the conduit with the retort and extending between the capillary material and burner, and a valve for the supply-conduit.
2. In a gas-generator, the combination with a retort, of a burner adjacent thereto, an oil-supply conduit, capillary material within the discharge end of said conduit, a vapor-generating chamber connecting the conduit with the retort and located between the capillary material and burner, a valve within said supply-conduit in proximity to and upon the feed side of the capillary material, and a filter within the supply-conduit at the side of the valve opposite to said capillary material.
3. In a gas-generator, the combination with the retort, of an oil-supply conduit communicating therewith, a mixer above and a burner beneath said retort, and a vapor-delivery conduit, communicating with the retort, having alining upwardly and downwardly extending members leading to the mixer and burner respectively whereby the lighter portions of the vapor are delivered to the mixer and the heavier portions to the burner.
4. In a gas-generator, the combination with a supply-conduit, of a retort with which said conduit communicates, a burner having an inlet-opening formed therein, a mixer, and a vapor-conduit leading from the retort having alining valve-controlled branch members extending into operative relation to the mixer and burner.
5. In a gas-generator, the combination with a supply-conduit, of a retort communicating therewith, a burner for the retort, having an inlet-opening therein, a mixer, and a branched vapor-conduit having its main section or member detachably secured to and communicating with the retort, and alining valve-controlled branch members extending into operative relation to the mixer and burner respectively.
6. In a gas-generator, the combination with a supply-conduit, of a retort communicating therewith, a burner and a mixer for said retort, a branched vapor-conduit detachably secured to the retort, the branch members thereof extending adjacent to the burner and mixer respectively, a nozzle upon the vapor-conduit branch in proximity to the mixer, and a combined mixing-tube and coupler adjust-

ably secured to the mixer and adapted to engage the nozzle upon the vapor-conduit branch.

5 7. In a gas-generator, the combination with a supply-conduit, of a retort with which said conduit communicates, a burner for the retort, a mixer, vapor-conduits at one side of said retort leading from the latter to the retort burner and mixer, and a burner beneath

both vapor-conduits for initially heating said conduits for the purpose set forth.

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

OSCAR A. LANE.

HUDSON A. DAVENPORT.

Witnesses:

L. A. BROWNE,

M. L. GILLEN.