

No. 696,457.

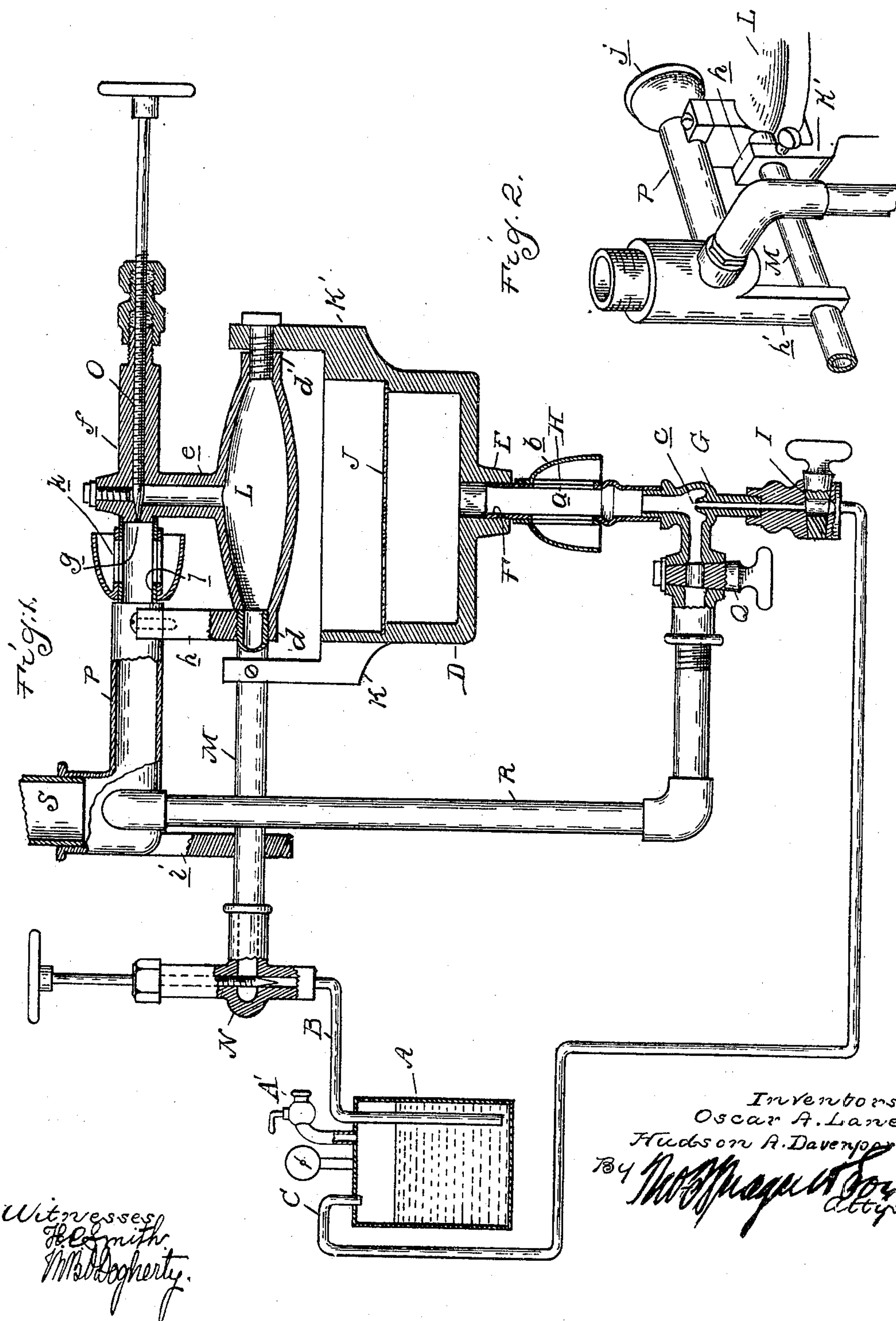
Patented Apr. 1, 1902.

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

CARBURETER.

(Application filed Apr. 27, 1901.)

(No Model.)



UNITED STATES PATENT OFFICE.

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

CARBURETER.

SPECIFICATION forming part of Letters Patent No. 696,457, dated April 1, 1902.

Application filed April 27, 1901. Serial No. 57,751. (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 Carbureters, of which the following is a specification, reference being had therein to the accompanying drawings.

10 The invention relates to gas-generators of that type in which the gas is produced by the mixture of a suitable quantity of hydrocarbon oil with air.

15 The invention consists in the peculiar construction of generator, and more particularly to the means employed for generating the initial heat for starting said generator into operation, and, further, in the peculiar construction, arrangement, and combination of parts, as more fully hereinafter described, and specifically set forth in the claims.

20 In the drawings, Figure 1 shows the generator in sectional elevation, together with a diagrammatic illustration of the hydrocarbon-tank and connections. Fig. 2 is a perspective view of a portion of the generator.

25 A is the hydrocarbon-tank, of any suitable construction, which is provided with means, such as the valve-controlled nipple A', for admitting a quantity of air under pressure in the upper portion thereof above the level of the liquid. This air under pressure serves to feed the oil from the tank and is also used in starting the generator, as hereinafter described.

30 B is an oil-outlet pipe extending downward within the tank to near the bottom thereof, and C is a pipe connecting with the tank above the level of the liquid.

35 D is a casing, preferably of cylindrical form and provided at its lower end with a nipple E, connected with the pipe F. The latter constitutes a vapor-mixing tube, which at its lower end is connected with a fitting G and at an intermediate point is provided with a series of air-inlet apertures a. The pipe F is surrounded by a correspondingly-apertured sleeve H, constituting a valve for restricting said air-inlet aperture a, and connected to this sleeve is a hood b. The fitting G is pro-

vided with a jet-nozzle c, which is directed upwardly and centrally of the pipe F. This nozzle is connected with the pipe C, leading from the upper portion of the hydrocarbon-tank, and a valve I is connected into the said pipe, preferably just below the nozzle c.

The casing D is open at its upper end and below the opening is provided with a horizontally-arranged perforated diaphragm J.

K and K' are two lugs or ears, preferably 60 formed integral with the casing D and projecting upwardly therefrom at diametrically opposite points. These ears serve to support the retort L, which latter is preferably in the form of a hollow disk extending across the opening in the casing D and slightly above the latter.

d and d' are lugs extending outward from the disk and adapted to fit between the ears K and K' on the casing D. The lug d is centrally apertured and is connected with a pipe M, extending laterally from the retort, and at its outer end connected to the valve N. This valve is preferably of the needle type and forms a connection between the pipe M and the pipe B, leading from the oil-space of the tank A.

e is a hollow stem extending upward from and preferably formed integral with the retort L. At its upper end this stem is provided with a T-arm f, which forms the screw-threaded socket for the stem O of a needle-valve. This valve controls a jet-aperture g, formed in the stem e and directed laterally into a mixing-tube P. This mixing-tube is in the form of an angle-fitting, which at one end is screwed or otherwise secured to a lug h, formed integral with the retort L. At the angle of the fitting is a downwardly-extending lug i, which is apertured for the passage of the pipe M therethrough and forms a brace connection between said pipe and the fitting P. In the space between the fitting P and the hollow stem e is arranged a hood j, which is connected to a sleeve k, the latter surrounding an apertured tube l and being provided with corresponding apertures, so as to constitute a valve for controlling the air-inlet into the fitting P.

The fitting G is preferably formed integral 100

with the casing of a plug-valve Q, which controls a lateral inlet into the pipe F. This valve-casing is connected by a pipe R with the fitting P.

5 The parts being constructed as shown and described, the operation is as follows: The liquid in the tank A being under pressure it will be forced through the pipe B to the valve N, which in the initial position of parts is
10 closed. The air in the tank A above the liquid will be saturated with the vapor of the hydrocarbon oil, so as to form a combustible gas, which passes through the pipe C to the valve I. To start the generator, the valve I
15 is first opened, which permits the vapor in the pipe C to pass through the jet-nozzle c into the mixing-pipe F and from the latter into the chamber within the casing B below the perforated diaphragm J. The gas then
20 passes through the apertures in said diaphragm and may be ignited to form a flame directly beneath the retort. Thus the generator may be started without the burning of any of the liquid hydrocarbon, and as the vapor
25 passing through the jet-nozzle c is mixed with air entering through the hood H and apertures a a blue flame is produced from the start. This will do away with the objectionable deposit of soot, which is unavoidable
30 where the liquid hydrocarbon is used for starting the burner. When the flame has sufficiently heated the retort L, the valve N is opened to admit the liquid hydrocarbon through the pipe M into the retort, where it
35 will be instantly vaporized and will pass upward through the hollow stem e. The valve O may then be opened to permit of the passage of a jet of vapor into the fitting P, where it will be mixed with air entering through the
40 hood j. The fitting P is connected with a service-pipe S, so that the combined air and vapor will pass through said pipe to the point of combustion. A small portion of the vapor will, however, be drawn downward through
45 the pipe R and pass the valve Q into the pipe F, and thus after the generator is started the valve I may be shut off.

The apparatus as above described forms an efficient generator, which may be easily started

at any time, while the construction of parts 50 is simple, so as to reduce the cost of manufacture.

What we claim as our invention is—

1. In a carbureter, the combination with a tank adapted to contain oil and air thereabove 55 and in contact therewith under pressure, of a retort, a vapor-burner for heating said retort, a valve-controlled pipe connecting the liquid-space of said oil-tank with said retort, and a second valve-controlled pipe connecting 60 the air-space of said oil-tank with said burner, whereby the vapor-saturated air within said oil-tank may be burned to furnish the initial heat to said generator and also form the propelling force for feeding the oil. 65

2. In a carbureter, the combination with a tank adapted to contain oil and air thereabove and in contact therewith under pressure, of a retort, a vapor-burner for heating said retort, a mixing-tube into which the vapor is 70 directed from said retort and which is connected with the service-pipe, a valve-controlled pipe connecting the oil-space of said oil-tank with said retort; a second valve-controlled pipe connecting the air-space of said 75 oil-tank with said vapor-burner and a pipe connecting said mixing-tube with said vapor-burner, for the purpose described.

3. In a carbureter, the combination of a cylindrical burner-casing open at its upper end 80 and having ears projecting upwardly from opposite sides thereof, a retort in the form of a hollow disk arranged between said ears above said burner, an oil-inlet pipe to said retort passing through an aperture in one of said 85 ears, a valve-controlled vapor-outlet stem projecting upward from said retort, a mixing-tube supported upon said retort in line with the vapor-outlet and a depending apertured lug on said mixing-tube engaging with said 90 oil-inlet pipe and forming a brace.

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

OSCAR A. LANE.

HUDSON A. DAVENPORT.

Witnesses:

L. J. WHITTEMORE,

H. C. SMITH.