

No. 649,252.

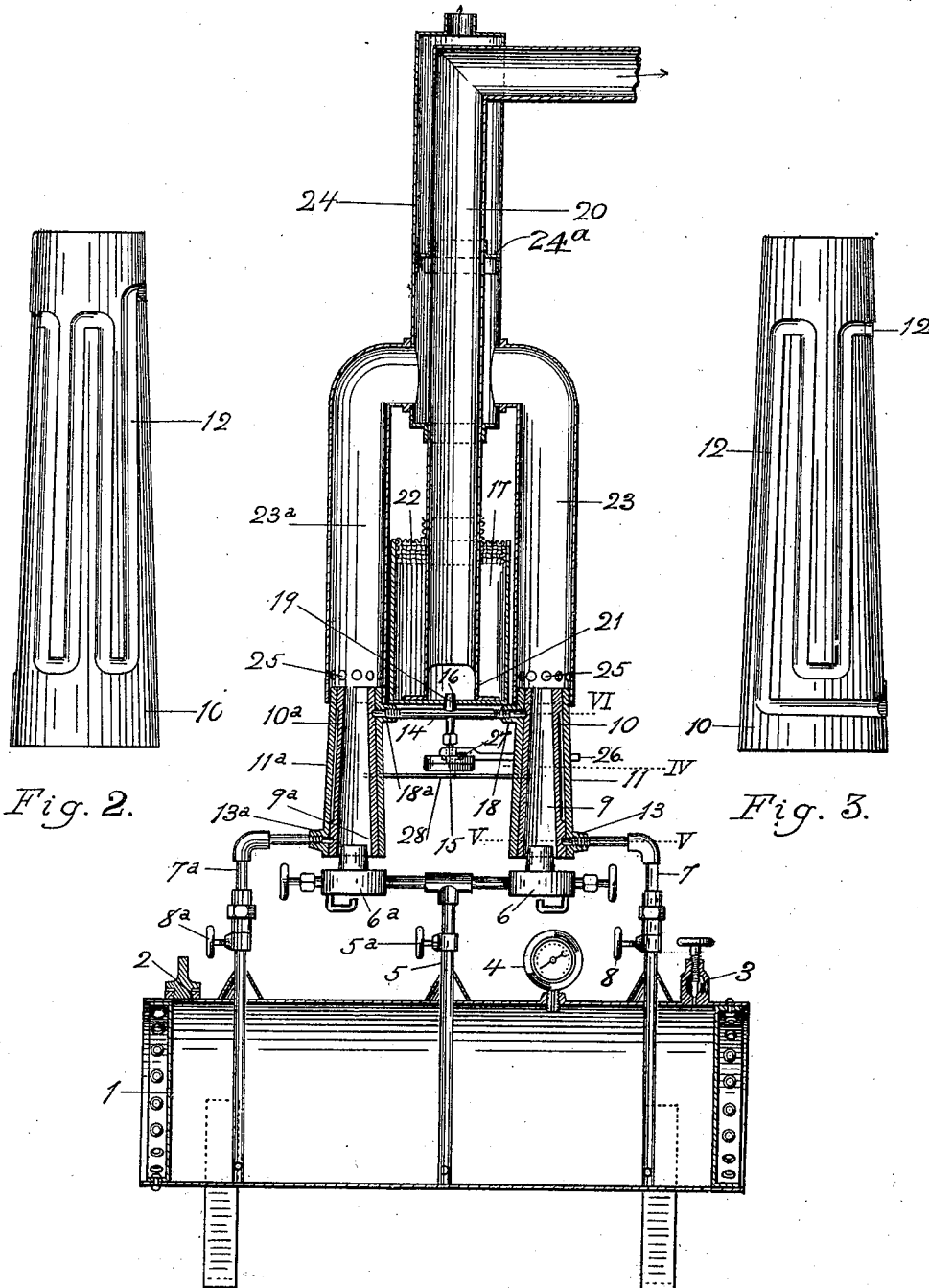
Patented May 8, 1900.

A. F. MOREY.
CARBURETER.

(Application filed Jan. 2, 1900.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

K. M. Imboden,
J. C. Spencer.

Fig. 1.

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2 Sheets—Sheet 2.

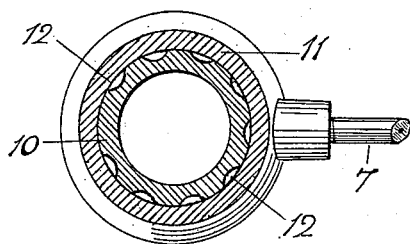


Fig. 4.

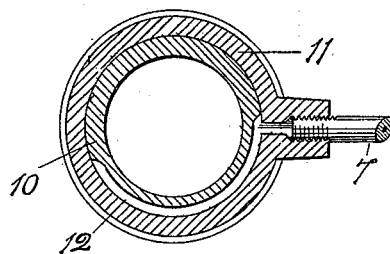


Fig. 5.

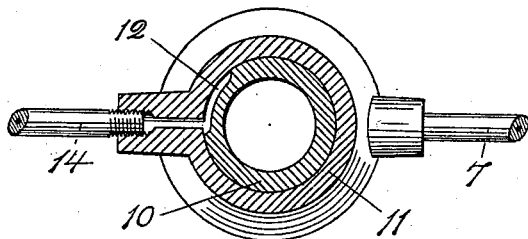


Fig. 6.

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UNITED STATES PATENT OFFICE.

AMOS F. MOREY, OF KANSAS CITY, MISSOURI.

CARBURETER.

SPECIFICATION forming part of Letters Patent No. 649,252, dated May 8, 1900.

Application filed January 2, 1900. Serial No. 74. (No model.)

To all whom it may concern:

Be it known that I, AMOS F. MOREY, a citizen of the United States, residing in Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Hydrocarbon-Gas Generators, of which the following is a specification.

My invention relates to improvements in generators for evolving illuminating-gas from volatile hydrocarbons and aims to provide an efficient, convenient, and economical apparatus for supplying such gas for lighting residences, public buildings, &c.

In the drawings, Figure 1 is an elevation, mainly in central vertical longitudinal section, of the entire device. Fig. 2 is an elevation of one of the cores or plugs forming part of the generators herein described detached. Fig. 3 is a similar view of the same plug on the side opposite to that shown in Fig. 2. Fig. 4 is a horizontal section through one of the generators—for example, on the line IV IV of Fig. 1. Fig. 5 is a horizontal section on the line V V of Fig. 1. Fig. 6 is a horizontal section on the line VI VI of Fig. 1.

1 designates the reservoir or tank for containing the liquid material, which may be located in a basement, a detached building, or in any suitable place. The liquid is introduced at an opening 2. A threaded nipple 3 is provided for attaching an air-pump to secure the initial pressure for starting the apparatus or for increasing the pressure in the tank when desired, which pressure is indicated at all times by a gage 4.

5 is a supply-pipe provided with a valve 5^a and leading to the burners 6 6^a, which may be of any preferred type, for supplying heat to the generators 9 9^a. Said burners are mounted immediately below the generators, so that the flame and heat therefrom pass upward through central passages of the generators.

7 7^a designate supply-pipes leading from the tank to the generators 9 9^a, of which I employ two; but it is obvious that the number might be increased or that the apparatus might be arranged to employ only one. Said pipes 7 7^a are also provided with suitable valves 8 8^a. Said generators 9 9^a consist of inner cores or plugs 10 10^a, preferably of con-

ical form, with corresponding central bores passing through them, and outer sleeves 11 11^a, fitting closely to the outer surfaces of said inner plugs and of equal length therewith. In the outer surfaces of said plugs are formed continuous grooves 12, preferably semicircular in cross-section and extending circuitously entirely around said surfaces in alternate circumferential and longitudinal lines, the object being to make said grooves as long as possible in order to fully expose the liquid to be passed through them to the heat from the burners. When said plugs 10 10^a are fitted within the sleeves 11 11^a, closed passages are formed, with the inner surfaces of said sleeves forming the outer wall of said passages.

The pipes 7 7^a, leading to the generators from the tank, enter inlet-openings 13 13^a in the lower ends of the sleeves 11 11^a, which openings connect with the lower ends of the circuitous grooves or passages 12, as shown in Fig. 5. At the upper ends of said passages are similarly connected at the opposite sides of the generators the ends of a pipe 14, as shown in Fig. 6, which pipe passes across from one generator to the other and is provided at its middle portion with a needle-valve 15, controlling an upwardly-projecting nozzle 16.

The operation of the parts as thus far described has been substantially indicated. A sufficient air-pressure having been established in the tank, the liquid is admitted to the burners 6 6^a and ignited. As said burners project upward into the central passages through the generators the heat rapidly raises the generators to a high temperature and the liquid being admitted thereto through the pipes 7 7^a passes into the passages 12, where it is converted into gas, which passes into the pipe 14 and may be ejected through the valve 15 and nozzle 16. A cylindrical mixing-chamber 17, formed of sheet metal and open at the top, is mounted immediately above the nozzle 16 and rests upon the bosses 18 18^a of the sleeves 11 11^a. The bottom of said mixing-chamber contains a central perforation 19, through which the nozzle 16 projects. Within said chamber 17 is placed a vertical gas-discharge pipe 20, which leads upward through the top of said chamber to

the distribution system. Said pipe is open at the bottom and is supported, preferably, on legs 21, resting on the floor of chamber 17 and which hold the lower end of said pipe 20 elevated above said floor. In the annular space between pipe 20 and the upper edges of the walls of chamber 17 is placed horizontally a diaphragm 22, of wire-gauze or perforated metal, the function of which is to prevent the entrance into the mixing-chamber of any foreign matters—such as dust, litter, floating particles, &c.—while at the same time permitting the free passage of air into said chamber. On the upper ends of the generators are mounted vertical flue-pipes 23 23^a, which connect at a point above the mixing-chamber with a central drum 24, through which the gas-discharge pipe 20 passes. Said drum is of cylindrical form and of larger diameter than the discharge-pipe, so that an annular space is left between the outer surface of said pipe and the inner surface of the drum. A perforated collar 24^a, attached to the pipe 20 within the drum, supports said pipe centrally to the drum. The flue-pipes 23 23^a are provided with a series of draft-openings 25 at their lower ends to promote the combustion at that point of any unconsumed gas which may pass upward from the burners through the central passages of the generators. When the gas formed by vaporization in the generators 9 is allowed to pass through pipe 14 and valve 15 into chamber 17, it becomes mixed in said chamber and the lower end of pipe 20, with the oxygen of the air drawn down through the perforated top 22, and a new compound gas is evolved of the greatest efficiency and value as an illuminant. Said gas passes up the pipe 20 and into the distribution system and to the burners, which should be of the Bunsen or Welsbach type. The hot air issuing from the central passages through the generators passes up the pipes 23 23^a and into the drum 24, whence any remaining gases may be carried off, passing through the perforations in collar 24^a into any convenient flue or other outlet. The heat from pipes 23 is communicated to the gas-discharge pipe 20, serving to produce an upward draft through said pipe, and so draw in air into mixing-chamber 17, and also to dry the gas produced in said chamber and pipe 20, prevent condensation, and cause the gas to circulate to the burners.

It is obvious that instead of locating the tank below the burners and depending upon air-pressure in the tank to elevate the liquid I may locate said tank at a higher level and obtain the requisite flow by hydrostatic pressure in the ordinary way.

I have shown in Fig. 1 a lever 26 and a ratchet 27, fixed on the wheel 15, for convenience in opening the valve. Said wheel is also provided with an index (not shown) which moves around a circular dial 28 to indicate the amount of gas passing through the valve; but I do not claim novelty for these features. By the operation of said valve the supply may

be regulated according to the number of burners in use in the distribution system, the dial and index showing at a glance the amount being consumed.

It is obvious that a plant constructed as herein described may be readily adapted to the purpose of furnishing gas for heating or cooking purposes in furnaces, stoves, and the like.

I preferably arrange my apparatus when used for illumination purposes so that the gas produced will consist of about five parts of the hydrocarbon gas to ninety-five parts of oxygen.

I claim as my invention and desire to secure by Letters Patent—

1. In a hydrocarbon-gas-generating apparatus, a tank for the hydrocarbon, a pipe leading therefrom to a burner, a burner, a supply-pipe leading from said tank to a generator, a generator mounted above the burner and having a central vertical passage immediately above the burner, circuitous vaporizing-passages formed in the walls of said generator and connecting with said supply-pipe, a mixing-chamber having an air-inlet in its upper portion, a pipe connecting said generator and mixing-chamber, a valve in said pipe, a nozzle, controlled by said valve, for ejecting gas into the mixing-chamber, a gas-discharge pipe leading from said chamber to the gas-main, said pipe having its open lower end near the bottom of said chamber and immediately above the orifice of said nozzle, substantially as set forth.

2. In a hydrocarbon-gas-generating apparatus, a tank for the hydrocarbon, a burner, a pipe connecting said tank and burner, a generator mounted above the burner, a pipe connecting said tank and generator, valves for regulating the supply to said burner and generator, said generator comprising a central tubular core or plug and an outer sleeve fitted thereto, said plug having formed, in its outer surface, a continuous series of circuitous grooves, adapted to form, when placed within said sleeve, a winding vaporizing-passage leading from the connection with the supply-pipe to an outlet at the end of said passage, the inner surface of said sleeve forming the outer wall of said passage, substantially as set forth.

3. In a hydrocarbon-gas-generating apparatus, a tank for the hydrocarbon, a pipe leading therefrom to a burner, a burner, a supply-pipe leading from said tank to a generator, a generator mounted above the burner and having a central vertical passage immediately above the burner, circuitous vaporizing-passages formed in the walls of said generator and connecting with said supply-pipe, a mixing-chamber having an air-inlet in its upper portion, a pipe connecting said generator and mixing-chamber, a valve in said pipe, a nozzle, controlled by said valve, for ejecting gas into the mixing-chamber, a gas-discharge pipe leading from said chamber to the gas-main,

said pipe having its open lower end near the bottom of said chamber and immediately above the orifice of said nozzle, a drum, of greater diameter than the discharge-pipe, 5 mounted near the mixing-chamber and surrounding said pipe, and flue-pipes connecting the top of the generator with said drum, substantially as set forth.

4. In a hydrocarbon-gas apparatus, a tank, 10 a pipe leading therefrom to a burner, a burner, a supply-pipe leading from said tank to a generator, a generator having a central, vertical passage located immediately above the burner, said generator comprising a cen- 15 tral tubular core or plug and an outer sleeve fitted thereto, said plug having formed in its outer surface a continuous series of circuitous grooves adapted to form, when placed within said sleeve, a winding vaporizing - passage 20 leading from the connection with the supply-pipe to an outlet at the end of said passage,

a mixing-chamber, a pipe leading from said outlet to said chamber, air-inlets in said chamber, a valve in said pipe, a nozzle controlled by said valve and adapted to eject gas com- 25 ing from the generator into said chamber, a discharge-pipe leading from said chamber to the gas-main, said pipe having its open lower end near the bottom of said chamber and immediately over the orifice of said nozzle, 30 a drum, of greater diameter than the discharge-pipe, mounted near the mixing-chamber and surrounding said pipe, and flue-pipes connecting the top of the generator with said drum, substantially as set forth. 35

In testimony whereof I affix my signature in the presence of two witnesses.

AMOS F. MOREY.

Witnesses:

F. A. SPENCER,
M. L. LANGE.