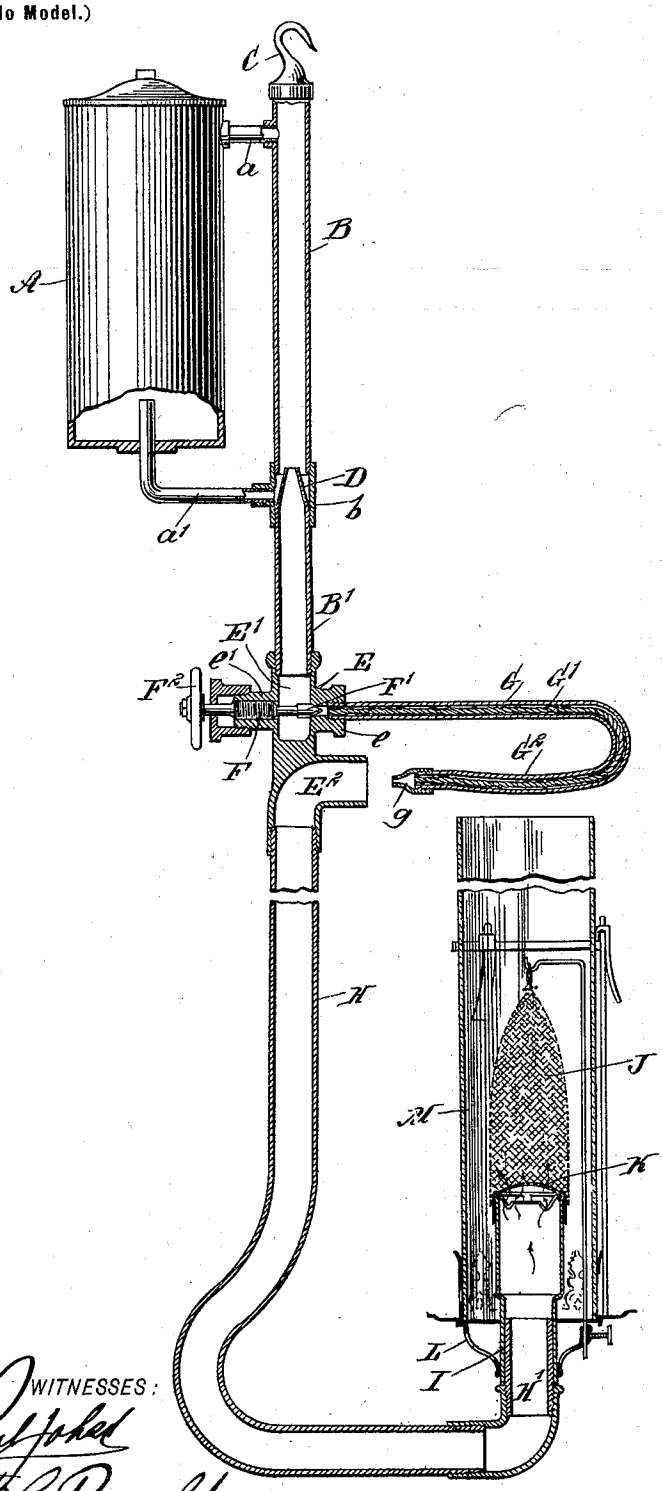
No. 624,283. Patented May 2, 1899.

J. A. YARTON.

INCANDESCENT VAPOR BURNER.

(Application filed June 15, 1898.)

(No Model.)



WITNESSES:

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JAMES ANDREW YARTON, OF KANSAS CITY, KANSAS, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE AUTOMATIC GAS LAMP COMPANY, OF OMAHA, NEBRASKA.

INCANDESCENT VAPOR-BURNER.

SPECIFICATION forming part of Letters Patent No. 624,283, dated May 2, 1899.

Application filed June 15, 1898. Serial No. 683,515. (No model.)

To all whom it may concern:

Be it known that I, JAMES ANDREW YARTON, of Kansas City, in the county of Wyandotte and State of Kansas, have invented a new and Improved Oil-Gas Lamp, of which the following is a full, clear, and exact description.

My invention relates to an improvement in that class of lamps which burn gas, but make their own gas from oil. I have also herein shown it used in combination with a burner having an incandescent mantle.

My invention comprises the novel features hereinafter described and claimed.

Reference is to be had to the accompanying drawing, forming a part of this specification, in which is shown a vertical sectional view of my device.

The oil is contained in a tank or reservoir A, provided with two pipes *a* and *a'*, connecting, respectively, with the top and bottom thereof. These pipes also connect with a vertical pipe B, preferably provided with a hook C or other convenient means by which it may be suspended. The upper pipe *a* connects the pipe B and the tank A, permitting any gas which may collect in the pipe B to escape into the upper part of the reservoir, thus equalizing the pressure of the gases in each, and thereby maintaining uniform conditions as to pressure upon the oil flowing from the tank to the place of use. This pipe also acts as a support to the tank. It is to be understood that either the cover of the reservoir is not to fit air-tight on the reservoir or is to be provided with a relief-opening or vent, permitting air to enter as the oil is drawn out. The lower pipe *a'*, which is connected by a vertical extension to the bottom of the tank A, extends upward a short distance through and above said bottom, at which point the oil for use is taken in, leaving a place for settling of sediment on the bottom of the tank around the extended tube. This prevents any sediment from entering the pipe *a'*. This latter pipe *a'* is also connected at its other end to a T-fitting *b*, which forms a part of the vertical pipe B. Within the fitting is placed a hollow cone D, with its larger end down and connected to the fitting of the upper end of the pipe-section B', which screws into the lower end of said fitting. The upper end of the cone D, which is the smaller and is open, extends to some little distance above the pipe *a'*, leaving another settling-place for the sediment about it and at the same time securing uniformity of pressure upon the oil at the point of its entrance into the pipe B', and hence evenness and regularity of its movement or onflow into the valve-casing E.

The valve-casing E is of peculiar form and consists of a casting having a recess or chamber E' in its upper end adapted to receive the lower end of the pipe-section B'. It is also provided at one side with a lateral passage connecting with said chamber, adapted to receive a valve, said passage being a short distance above the bottom of the chamber, so that another settling-place for sediment therein is had. The stem F of the valve is threaded into a laterally-extending boss *e'* on the casting, at the other end of which is a stuffing-box to prevent leakage, the end of the stem being provided with a hand-wheel F^2 or other means by which the valve may be adjusted.

The valve proper consists of a head F' upon the inner end of the stem F. This head is of pointed or conical shape and enters one portion of the lateral passage before referred to, so as to close the same. The laterally-extending boss *e*, which is on this side of the casing and through which the lateral passage extends, has a tube G screwed therein, forming a part of a peculiarly-constructed gas-generator. This generator consists of a tube extending laterally and having its outer extremity bent in U shape, the return part being bent slightly upward over the point where heat is applied, terminating in a straight line as it approaches the entrance to the gas conveying and mixing pipe E^2. This upward bend acts as a dam across the pipe, holding back the oil in that portion of the tube where the heat is most intense until vaporization takes place. When the oil-supply is shut off from the generator, cutting off also the gas affording heat-supply to it, the surplus oil

left in the generator, if any, settles in the trap made by the dam and is here held until vaporized. This insures a condition making clogging of the nozzle or tip by flow of oil into it impossible. At this point the tube is preferably provided with a tip *g*, forming a nozzle to concentrate the gas-discharge. An important feature of this generator is a core G′, inserted in the tube and made of copper wire twisted and woven in such a manner as to bring as many of the wires as possible composing it into contact with the walls of the tube when so inserted. This core is twisted or woven and inserted in the pipe with such a degree of compactness as to regulate the onward flow of the oil, and at the same time all or nearly all of its wires coming in contact with the walls of the tube the heat will be disseminated throughout the mass to be vaporized. Copper wire is used most effectively because of its great conductivity of heat and also for its non-corrosive properties, two considerations of the utmost importance. This core-bearing tube is adapted to pivot upon the straight section G, which is attached directly to the valve-casing E, thus allowing the other section G^2 to be swung over the lamp or at one side thereof, as desired, so that the chimney or other parts of the burner may be readily placed thereon or removed. Without such provision it would be a difficult matter to remove the chimney from the ordinary burner if the generator is kept close down to the chimney, as the chimney must be raised to remove it from the burner.

Beneath the portion of the valve-casing last described is an extension which is provided with a curved passage E^2. At its lower end it is connected with the mixing-pipe H, and its upper end is adapted to receive the discharge of gas from the generator. The pipe H extends downwardly, then horizontally, and then upwardly, terminating in the nipple H′, adapted to receive a nipple or socket-piece I, which is large enough to slip over the outside of the nipple H′. This socket-piece I is provided with arms L, extending outward therefrom and adapted to support the chimney M and the other parts of the burner. This construction provides a large draft area between the burner proper and the chimney. The socket-piece I extends upwardly within the burner, and at its upper end is provided with a cap K, composed of gauze or a perforated metal plate. An incandescent mantle J is also suspended in any convenient manner over the cap K.

In operation the gas-generator is heated by an alcohol-torch or other means, and then the valve F is opened, so that the oil can pass into the generator. The heated generator will then vaporize the oil, and the gas thus formed will be discharged through the nozzle *g* into the passage E^2. It will be conveyed thence through the tube H to the burner and will be ignited at the mantle J. Once ignited the heat from the lamp will provide a continuous heating of the generator, so as to effectually vaporize the oil as it passes through the generator-pipe, thereby furnishing a perpetual supply of gas for illumination.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A valve-casing for oil-gas lamps, comprising a body having a chamber formed therein adapted to receive an oil-supply pipe, and a lateral intersecting passage adapted to receive at one end a valve and its stem, and at the other a gas-generator, said casing-body also having a separate passage therein adapted to receive the mixing-pipe at one end and the discharge from the generator at the other.

2. In an oil-gas lamp, a valve-casing, comprising a body having a chamber formed therein adapted to receive an oil-supply pipe and having a laterally-intersecting passage adapted to receive at one end a valve and its stem, and at the other end a gas-generator, a threaded bar in the lateral passage, carrying a valve, said casing-body also having a separate passage therein adapted to receive the mixing-pipe at one end and the discharge from the generator at the other, and said mixing-pipe being attached at one end to the casing, a burner attached to the other end of the mixing-pipe, and a gas-generator connected at one end with the lateral passage in the casing and discharging at its other end into the mixing-passage in the casing, the body of said generator extending over the lamp and being heated thereby.

3. A gas-generator for oil-gas burners, comprising a tube having a slight downward bend immediately over the burner or at the point of greatest heat whereby a pocket is formed to which the oil drains and is thus vaporized, substantially as described.

4. In a vapor-burner, the combination with a valved supply-tube, of a recurved generator extending from and revolubly held within said supply-tube, said generator being provided with a drop or bend forming a settling-chamber which is located immediately over the burner, an open-ended mixing-pipe, the upper end of said pipe forming an interrupted continuation of said recurved generator, and a burner secured to the lower end of said mixing-pipe, said burner being positioned adjacent to and below said generator, substantially as described.

5. The combination with a generator, and a tank having a vent, of a pipe leading from the generator and connected with the tank at top and bottom, whereby the gases escaping from the generator can pass into the tank at top without impeding the flow of the oil, as set forth.

6. The combination with a generator, and a tank, of a pipe connected with the generator and having a chamber around its upper end, a pipe leading from the tank to said chamber, and a pipe in direct communication with the upper end of the pipe connected with

the generator and into which the gas escaping from the generator passes, as and for the purpose set forth.

7. The combination with a generator, and a tank having a vent, of a pipe leading from the generator and connected with the top and bottom of the tank, said pipe having within it an annular wall extending above the connection of the pipe with the bottom of the tank and forming a settling-chamber, as and for the purpose set forth.

8. The combination with a generator, and a tank having a vent, of a supply-pipe leading from the generator and having a reduced upper end, a fitting on the end of the supply-pipe, a pipe leading from the fitting to the bottom of the tank, a pipe secured in the fitting in line with the supply-pipe and into the lower end of which the reduced end of the supply-pipe projects, and a pipe leading from said pipe into the top of the tank, substantially as described.

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