T. VARNEY.

Carbureter.

No. 15,829. Patented Sept. 30, 1856.

Fig. 1.

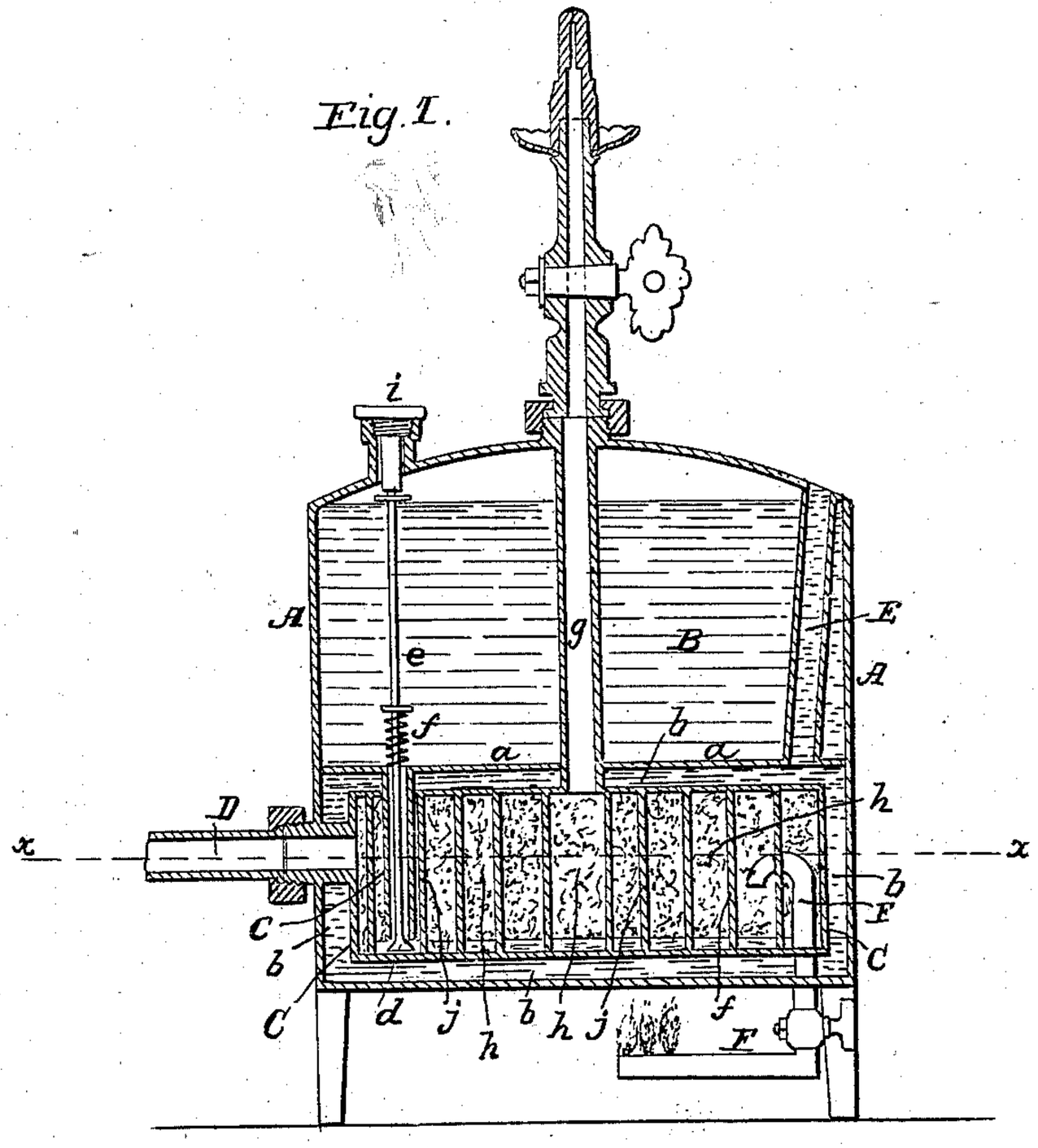
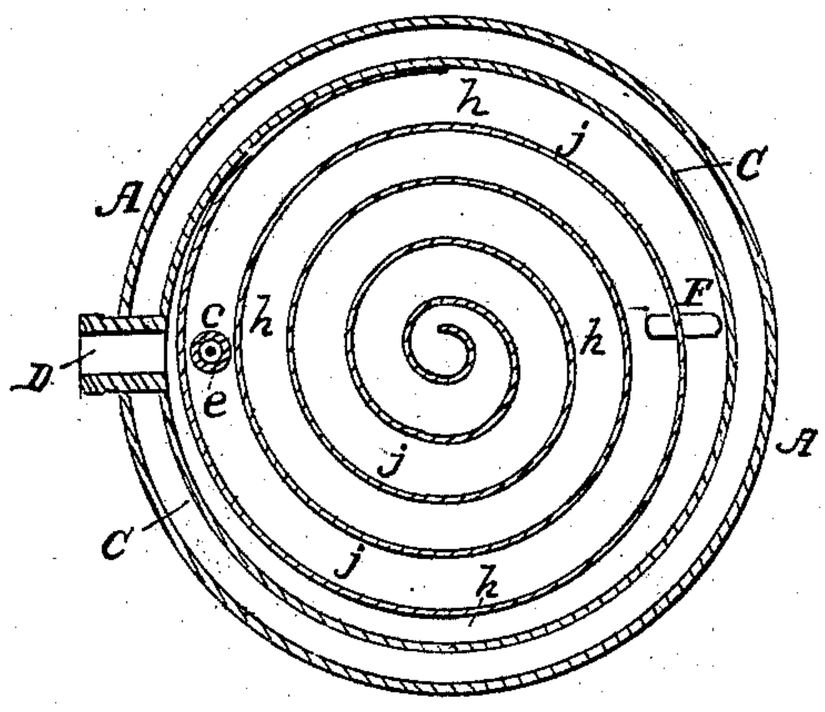


Fig. 2.



UNITED STATES PATENT OFFICE.

THOS. VARNEY, OF SAN FRANCISCO, CALIFORNIA.

HYDROCARBON-VAPOR LAMP.

Specification of Letters Patent No. 15,829, dated September 30, 1856.

To all whom it may concern:

Be it known that I, THOMAS VARNEY, of the city of San Francisco, in the county of San Francisco and State of California, have invented a new and Improved Apparatus for the Vaporization of Benzol and Volatile Hydrocarbon Liquids to be Used as Gas for Illumination; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical section of the apparatus, and Fig. 2, a horizontal section in the line *x*, *x*, of Fig. 1.

Similar letters of reference indicate corresponding parts in both figures.

This invention consists in a vaporizing apparatus of a novel construction, by which all moving parts are dispensed with, and therefore it is simplified, and a very large evaporating surface is obtained.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A, is an upright closed cylindrical vessel, having a horizontal partition *a*, extending all across it, to form a reservoir B, for the hydro-carbon liquid, in its upper part, separated from the lower part.

C, is an upright closed hollow cylinder placed in the lower part of the vessel A, below the partition *a*, and being of such diameter and depth, and so arranged within the vessel A, as to leave a space *b*, *b*, around, above, and below it. This cylinder C, which constitutes the vaporizer, contains an upright convolute partition *j*, *j*, extending from top to bottom, so as to form a passage *h*, *h*, of convolute form, and of great length, leading from its periphery to its center. The vaporizer C, thus constructed, is supplied with liquid from the reservoir B, by an upright tube *c*, leading from the bottom of the reservoir to within a short distance (say one inch) from its own bottom, said pipe being fitted at its lower end with an upwardly closing valve (*d*), which has a stem *e*, passing upward through the tube *c*, and through the reservoir into a small screw cap *i*, which is only removed for the purpose of filling the reservoir. The valve stem *e*, is fitted with a spring *f*, by which to close the valve to exclude the liquid from the vaporizer when the cap is removed to fill the reservoir, but when the cap is put on it bears on the top of the valve stem and opens the valve, to allow the liquid to pass into the vaporizer, but as the reservoir when the cap is on has no communication with the atmosphere except through the vaporizer and the main pipe *g*, through which the gas is supplied from the vaporizer to the burner or burners, the liquid is prevented rising in the vaporizer much above the bottom of the tube *c*, as what is contained in the vaporizer serves as a seal to the said tube.

D, is a tube through which air is forced into the vaporizer by means of any suitable forcing apparatus driven by a weight, spring, or other motive power, the supply of such air being regulated by some suitable device. The convolute passage *h*, is filled with some substance of very porous character, and possessing great capillary attraction, as wicking or cotton cloth, so that the air entering the said passage near its outer extremity, and being forced through it to the central extremity becomes saturated with the vapor of the liquid before passing to the outlet and into the pipe *g*.

E, is an open pipe leading from the top of the vessel A, down into the space *b*, *b*, to fill the said space with water.

F, is a pipe leading from the interior of the vaporizer under the bottom of the vessel A, where it is perforated or fitted with a burner to supply a small flame when necessary to raise the temperature of the liquid within the vaporizer to the required degree for vaporization.

The object of the water is to serve as a conductor to the heat from the burner to prevent any too sudden change of temperature by evaporization or by the flame of the burner. The vaporizer should be kept at a temperature not lower than 70° Fahrenheit, which is the vaporizing temperature of benzol, or if any other fluid be used the temperature will require to be kept not lower than its vaporizing point.

The operation of the apparatus is as follows: The air is forced with a gentle pressure by any suitable forcing apparatus such as has been used for a similar purpose in the vaporizer through the pipe D, and circulating through the passage *h*, *h*, takes up the vapor from the liquid and passes up the pipe *g*, to the burner or burners. The liquid is supplied from the reservoir to the vaporizer, just as fast as it vaporizes and is consumed, by the escape of air up the tube *c*,

as the level of the body of liquid at the bottom of the vaporizer falls below the said tube *c*, but it can never rise above the bottom of said tube, and therefore the quantity of liquid in the vaporizer always remains the same and there is the same area of passage for the air to pass through to be brought into contact with the liquid which is drawn by capillary attraction into the porous material with which the passage *h*, *h*, is filled. By this means not only is the air diffused over a very large surface of liquid, but the surface over which it passes is always the same, which causes the air to be saturated to a uniform degree and makes the gas of a uniform illuminating quality.

I do not confine myself particularly to the convolute arrangement of the passage *h*, *h*, in the vaporizer, as there are other forms in which a passage or passages may be arranged to cause the air to take a circuitous route through the liquid; but

What I claim as my invention, and desire to secure by Letters Patent, is,

The combination of the reservoir B, by means of a seal pipe *c*, with the stationary vaporizer C, containing a circuitous passage under any arrangement substantially such as herein described.

THOMAS VARNEY.

Witnesses:
ALFRED RIX,
G. P. FOBES.