No. 663,768. Patented Dec. 11, 1900.

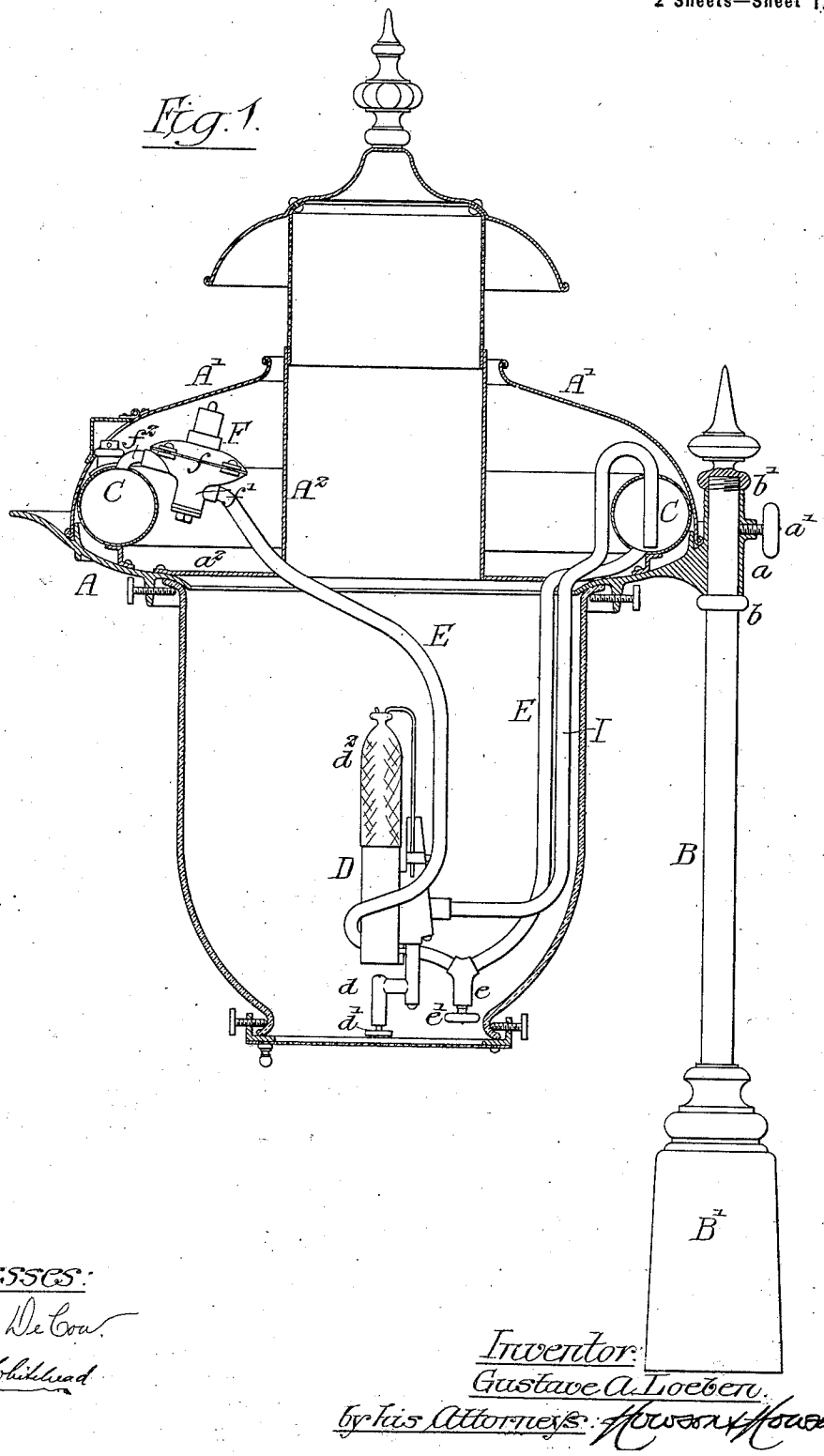
G. A. LOEBEN.

VAPOR BURNING LAMP.

(Application filed Nov. 27, 1899.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.



Witnesses:
Charles De Cou
Louis G. Whitehead

Inventor:
Gustave A. Loeben.
by his Attorneys: Howson & Howson

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 663,768. Patented Dec. 11, 1900.

G. A. LOEBEN.

VAPOR BURNING LAMP.

(Application filed Nov. 27, 1899.)

(No Model.) 2 Sheets—Sheet 2.

Fig. 2.

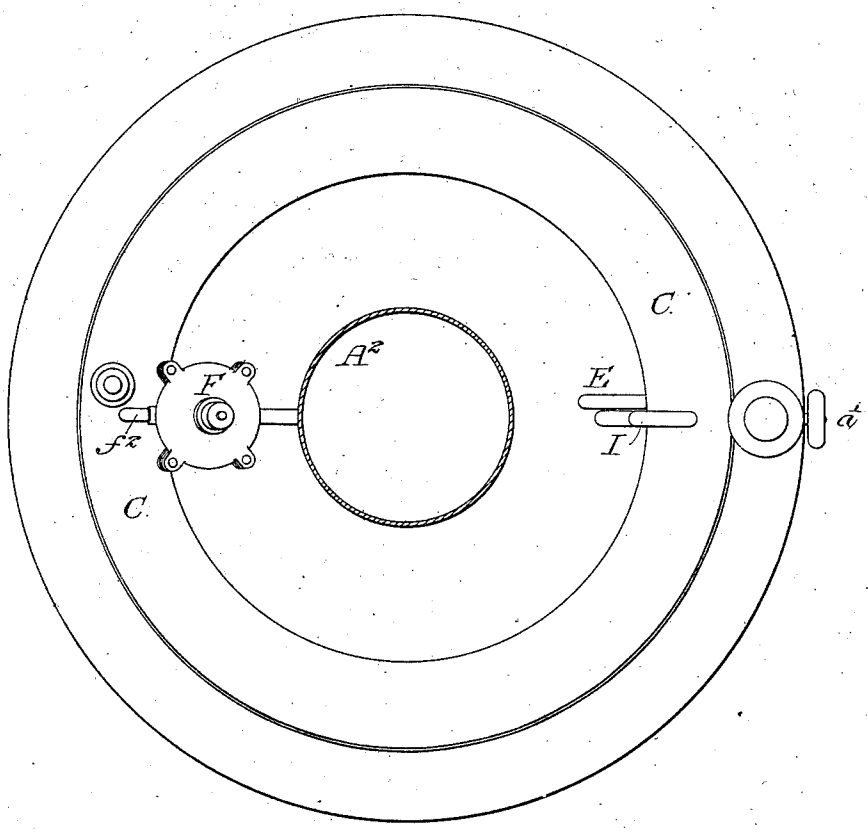
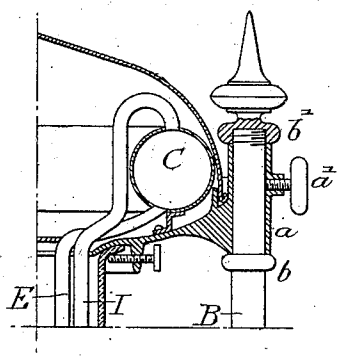


Fig. 3.



Witnesses:-
Charles DeBow
Louis M. Holtzhead

Inventor:-
Gustave A. Loeben
by his Attorneys:
Howson & Howson

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

GUSTAVE A. LOEBEN, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO ALBERT L. A. TOBOLDT, OF SAME PLACE.

VAPOR-BURNING LAMP.

SPECIFICATION forming part of Letters Patent No. 663,768, dated December 11, 1900.

Application filed November 27, 1899. Serial No. 738,414. (No model.)

To all whom it may concern:

Be it known that I, GUSTAVE A. LOEBEN, a subject of the Emperor of Germany, and a resident of Philadelphia, Pennsylvania, have invented certain Improvements in Vapor-Burning Lamps, of which the following is a specification.

The object of my invention is to dispense with all valves except the burner-valve commonly used in vapor-burning lamps in which the burning fluid is vaporized by radiated heat from the lamp itself. This object I attain in the following manner, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical sectional view of my improved lamp. Fig. 2 is a plan view, and Fig. 3 is a view of a modification.

In the drawings I have shown the lamp-frame A supported on a standard B, attached to a post B'. The lamp-frame has a socket *a*, adapted to the standard, and rests upon a flange *b* and held in place by means of a screw-cap *b'*.

a' is a set-screw for securing the casing in any position on the standard.

Other means of supporting the lamp-casing may be used without departing from the main feature of my invention.

Mounted on the casing is a tubular ring C, which is the reservoir for the liquid to be vaporized. Above this tubular reservoir is a casing A', which serves to protect the reservoir.

A^2 is the lamp-chimney, connected to the frame A by a plate or flange a^2. The upper portion of the chimney above the casing A' is perforated, and a suitable ornamental cap is provided, as shown in Fig. 1. A globe is suspended from the casing A', and within the globe is a burner D, which can be of any ordinary type. The burner I prefer to use is that illustrated in my application for patent, Serial No. 731,091, filed September 20, 1899, in which the liquid as it comes from the reservoir is vaporized by passing within the heat zone of the burner before escaping through the outlet-opening *d*.

d' is a valve in the present instance simply to regulate the flow of vapor to the burner.

Connected to the bottom of the reservoir C is a pipe E, extending to and around the burner D and within the heat zone of the burner. I have shown in the drawings a burner having a mantle d^2; but this is not absolutely necessary in carrying out my invention. The pipe E is coupled to the regulator F of the diaphragm type, having a diaphragm *f*, to which is attached a valve *f'*, adapted to a seat in the casing. This regulator F is coupled to the upper portion of the reservoir C by a short tube f^2, so that there is simply a loop of pipe leading from the bottom of the reservoir through the heat zone of the burner to the top of the reservoir, and in the pipe is a regulator for cutting down the pressure and making it uniform in the reservoir C. I have provided a clean-out opening *e* with a plug *e'*. On removing this plug the tube E can be cleansed. Extending from the bottom of the reservoir up to a point above the upper surface of the reservoir and then down to the lamp is a pipe I, connected to the burner in the ordinary manner. By extending the tube above the reservoir, as described, I prevent the flow of liquid to the burner when the lamp is not in use, since there must be sufficient pressure in the reservoir to force the fluid up to a given point above the same before it will flow to the burner. This prevents the dripping of fluid from the burner after the reservoir has been filled and before the lamp is lighted.

In some instances, as shown in the modification, Fig. 3, I may connect the pipe I with the top of the reservoir instead of the bottom, as shown, and in this case I simply use the vapor under pressure in the reservoir, relying upon the liquid in the tube E, which is vaporized by the heat of the burner, supplying sufficient vapor for burning or illuminating purposes; but I prefer the construction shown in Fig. 1, as in this case the liquid vaporized in the pipe E is simply used for pressure. Thus I dispense with all valves except the burner-valve, which is simply set in the proper position to allow a sufficient quantity to pass to the burner.

The device is entirely automatic and will give an even illumination until the liquid in the reservoir is entirely exhausted.

By having the loop in close proximity to the burner I am enabled to heat the burner

and loop simultaneously when lighting the lamp.

I claim as my invention—

1. The combination in a vapor-burning lamp, of a reservoir, a burner below the reservoir, a tube leading from the bottom of the reservoir to the top of the same and extending within the heat zone of the burner, a regulator in said tube, and a tube leading from the reservoir to the burner and extending above the liquid-level in the reservoir, so as to prevent the escape of liquid through the said pipe when the lamp is not in operation, substantially as described.

2. The combination of a burner, a reservoir above the burner, a tube leading from the reservoir to the burner, a pipe having a loop in it, one end of the pipe connected to the bottom and the other to the top of the reservoir, said loop extending in close proximity to the burner so that both the loop and burner can be heated, simultaneously, substantially as described.

3. The combination in a vapor-burning lamp, of a reservoir, a burner, a tube connecting said reservoir and burner, a tube extending from the top to the bottom of said reservoir and extending into the heat zone of the burner, a pressure-regulator in said tube for controlling the pressure on the surface of liquid in the reservoir, said regulator being situated in said tube between the section of the tube in the heat zone of the burner and the section entering the top of the reservoir, substantially as described.

4. The combination of a reservoir for liquid under pressure, a burner, a pipe leading from the bottom of the reservoir to a point within the heat zone of the burner and to the reservoir again, a regulator in said pipe, a pipe leading from the bottom of the reservoir and connected to the burner, said pipe extending above the level of liquid in the reservoir so as to prevent the liquid from escaping when the pressure is reduced, substantially as described.

5. The combination of a standard, a circular frame pivoted to the standard so as to swing thereon, a circular reservoir carried by said frame, a cap inclosing said reservoir, a chimney supported by the frame, a globe suspended from the frame, a burner within the globe, a pipe leading from the reservoir and coupled to the burner, and a pipe in the form of a loop having both ends connected to the reservoir and extending within the heat zone of the burner, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GUSTAVE A. LOEBEN.

Witnesses:

WILL. A. BARR,

JOS. H. KLEIN.