

No. 616,464.

Patented Dec. 27, 1898.

F. W. HEDGELAND.
ACETYLENE GAS GENERATOR LAMP.

(Application filed May 12, 1898.)

(No Model.)

FIG. I.

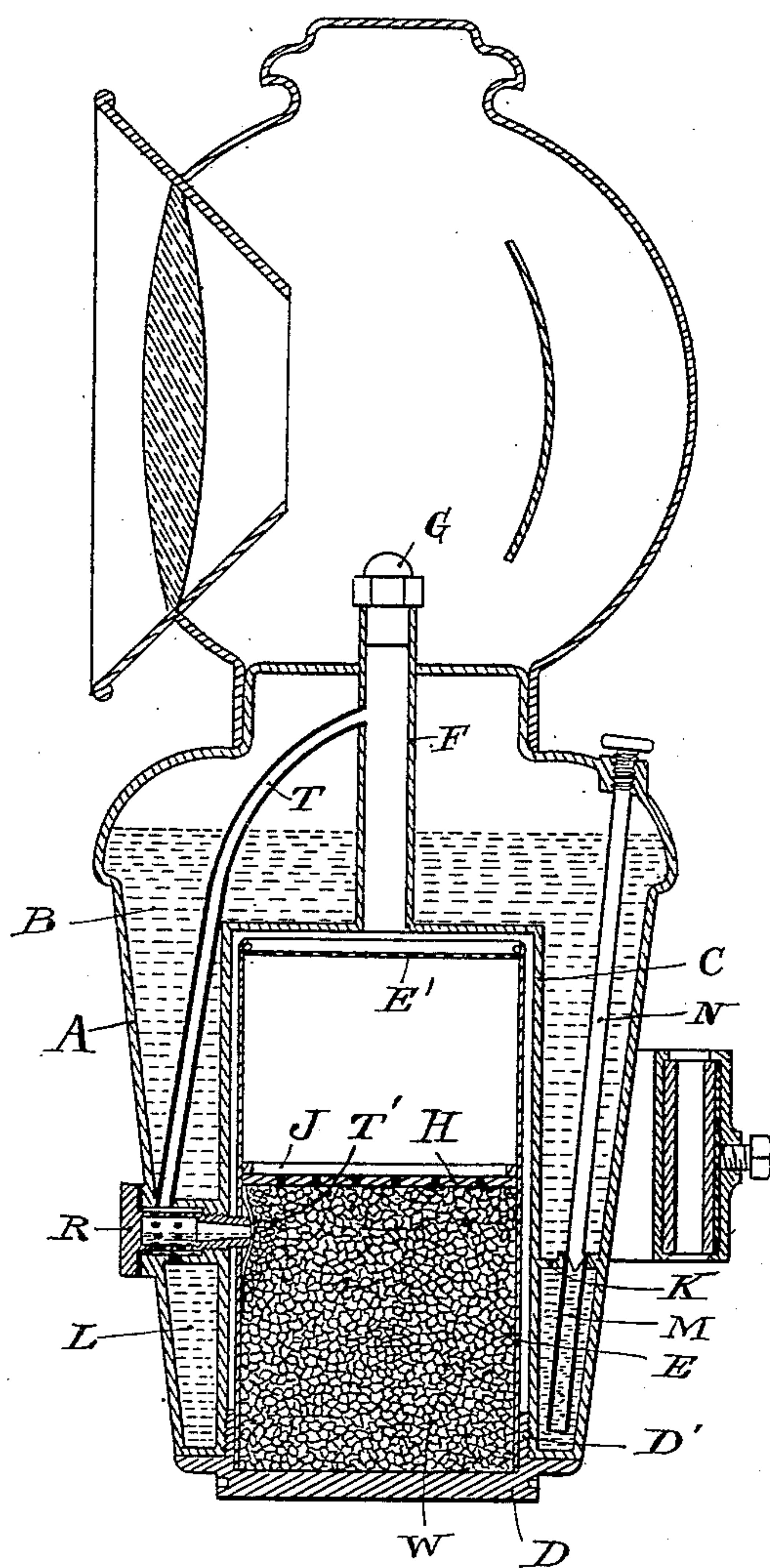
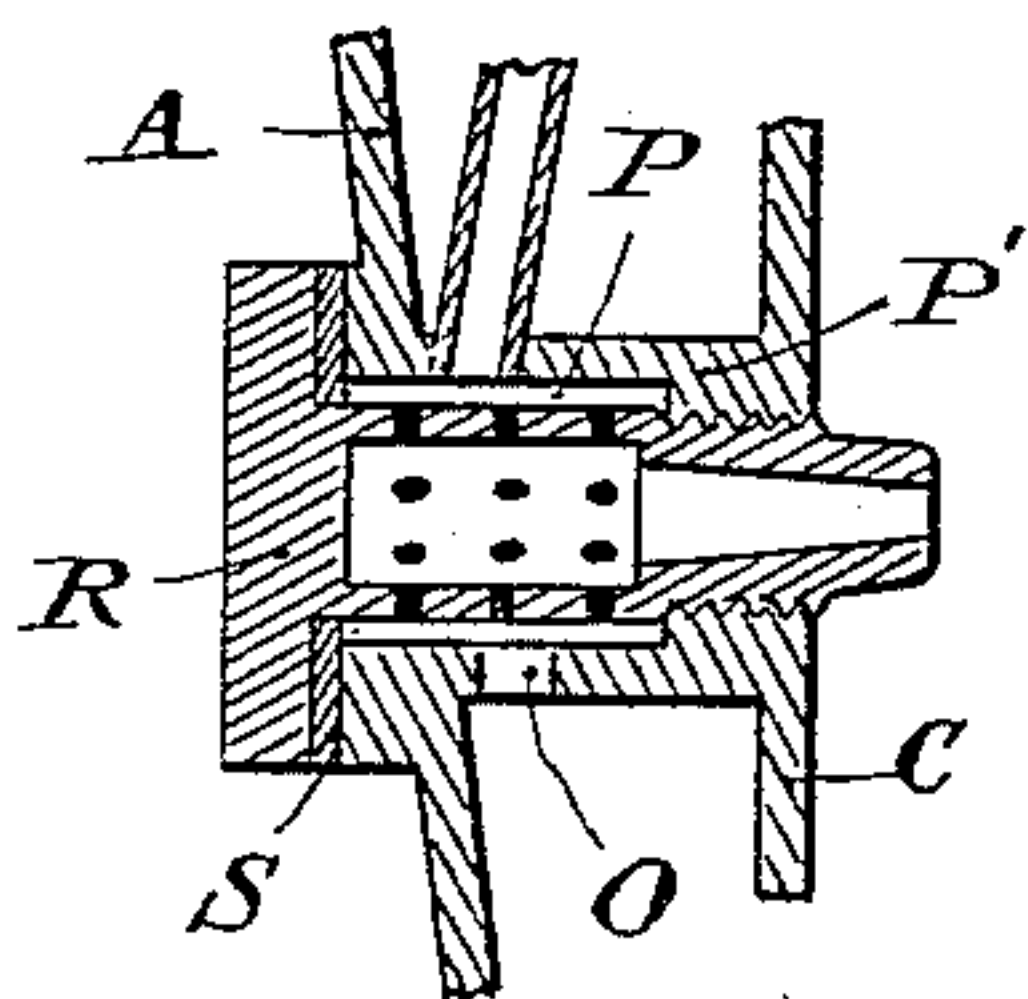


FIG. 2.



WITNESSES:

Sec. C. Curtis

H. S. Weston

INVENTOR:
FREDERICK W. HEDGELAND

BY *Monday, Warts & Alcock.*

HIS ATTORNEYS.

UNITED STATES PATENT OFFICE.

FREDERICK W. HEDGELAND, OF CHICAGO, ILLINOIS.

ACETYLENE-GAS-GENERATOR LAMP.

SPECIFICATION forming part of Letters Patent No. 616,464, dated December 27, 1898.

Application filed May 12, 1898. Serial No. 680,477. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK W. HEDGELAND, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Acetylene-Lamps, of which the following is a specification.

This invention relates to improvements in acetylene-lamps, and is a modification of the construction of such lamps shown in my Patent No. 600,614, of March 15, 1898, and in my application, Serial No. 654,651, since patented in Patent No. 608,403, of August 2, 1898.

My object in the invention has been to produce a very practical form of lamp which is economical in cost and equally as durable and as sensitive in its self-regulation while in use as those shown in my said patents, and at the same time to provide means whereby to insure the bringing of the water into direct and immediate contact with the carbid, and to provide against any imperfect charging of the lamp, as well as the unsatisfactory results which would attend imperfect charging.

The invention consists in the details of construction and the novel combinations of parts and devices hereinafter specified, and pointed out in the claims.

In the accompanying drawings, forming a part of this specification, Figure 1 is a vertical section of my improved lamp, and Fig. 2 is an enlarged detail section.

In said drawings, A represents the body of the lamp, which may be of cylindrical or any other suitable shape. I prefer to make it cylindrical and also tapering in form, as shown at Fig. 1. The outer and upper parts of the body form a water reservoir or tank B, and in the center is arranged a shell C, closed at the bottom by a removable plate D, this plate having an upstanding annular flange D', which is threaded exteriorly and engages a corresponding thread upon the interior surface of the shell C. The shell forms the generating-chamber of the lamp, and it is adapted to receive and the bottom D is adapted to support a carbid-holder E. Communicating with the top of the shell C is a gas-conduit F, leading to the burner G. The top of the carbid-holder is formed of perforated metal or

wire-cloth E', so as to afford the gas ready exit into the conduit F.

The carbid-holder is made large enough to permit the expansion of the carbid W, and in order to keep the latter compact I provide the holder with a yielding diaphragm H and temporarily hold it in position by means of the ledge J, formed upon the interior of the holder and located as shown, this ledge merely engaging the edges of the diaphragm without being fastened thereto in any way. By this diaphragm the carbid will be kept compact until the plug R is inserted, as hereinafter described, and the carbid immediately around it has become moist and converted into residue. The diaphragm is perforated to permit the gas to pass through it, and I prefer to make it of reasonably stiff card or paper board or similar material, so it will bend sufficiently at the center under the pressure of the carbid to allow it to move above the ledge. While I have specified card or paper board as a desirable material, it will be understood that I do not wish to be limited thereto, as obviously any material which will accomplish the result stated in a similar manner may be used in its stead.

The lower portion of the body A is separated from the upper portion by a horizontal partition K, thus forming a lower chamber L, which I call the "equalizing-chamber" and which is similar to the equalizing-chamber shown in my said patents. It communicates with the reservoir B by means of a passage M, open at its bottom and controlled at the top by a valve N, the stem of which extends to the top of the reservoir and is threaded thereto, as plainly shown. This valve is opened when the lamp is started and closed when it is desired to stop its operation. The water rises from equalizing-chamber L through an opening or passage O into a chamber P, formed in a short tube P', extending from the outside of the lamp to a junction with the shell C. In this chamber P a plug R is inserted, and said plug is hollow except at its outer end, and that portion of it lying within the chamber P is perforated, and from this perforated portion to its inner end its bore tapers decreasingly, and its inner end is threaded in the tube P', all of which will be

understood from Fig. 2. A packing S is inserted between the head of the plug and the body of the lamp, so that when the plug is inserted it may be made to compress said packing, and thus prevent any escape of gas or water. It is necessary to the successful operation of the lamp that this joint be made absolutely tight, as otherwise the water will be wasted instead of entering the plug or seeking the carbid. The chamber P is connected with the gas-conduit F by a pipe or passage T, as shown.

The plug when forced home passes not only through the shell, but into the carbid-holder and preferably enters a short distance within the latter, as illustrated, so that it is brought immediately against the carbid, and the latter is kept packed closely around the plug by the diaphragm until after the lamp is started, when the moisture quickly changes the carbid, so that it no longer needs any extraneous restraint. The carbid-holder should be provided with a piece of cloth T', covering the mouth of the plug and preventing the carbid from entering thereat.

When it is desired to start the lamp, the valve N is opened, and the water then flows from the tank or reservoir B into the equalizing-chamber L, and as soon as it has filled the latter it rises through the passage O and chamber P and enters the plug, and from thence flows laterally and horizontally through the plug into the carbid. The gas generated rises through the carbid-holder into the passage F, and thence to the burner. It also fills the pipe T, and whenever the pressure becomes excessive the gas will move down through the pipe T and expel the water from the plug, and thus almost instantly stop the generation. As soon as the gas-pressure relaxes the gravity of the water in the reservoir again forces the water in the equalizing-chamber through passage O into the plug, so that generation will be resumed. In these movements the water ebbs and flows through the equalizing-chamber, and the equilibrium of pressure between the gas and the water is quickly established.

To charge the lamp with carbid, the holder is most conveniently removed and inverted, a diaphragm H is positioned therein, and the carbid is put in. The bottom D, also inverted, is now placed over the end of the holder, so that the latter can be righted without danger of losing any carbid. After the charged holder has been secured in the lamp the plug R is screwed home, so as to force its nose or inner end into the carbid and so as to tighten the joint between the plug and its seat upon the body A.

I claim—

1. The combination in an acetylene-lamp, of the generator-chamber, water-reservoir B, equalizing-chamber L, a valved water-passage M, the hollow plug extending into the carbid, and the chamber surrounding the plug

and communicating both with the equalizing-chamber and the gas-holding part of the lamp, substantially as specified.

2. The combination with the carbid-holder, the gas-passage T and the equalizing-chamber, of a removable hollow plug connecting said chamber with the carbid, and receiving the gas under pressure from said passage, substantially as specified.

3. The combination in an acetylene-lamp, with the carbid-holder, the water-passage whereby the water is fed to the carbid, and the gas-passage whereby the feeding of the water is controlled, of a removable hollow plug connecting said passages with the interior of the holder, substantially as specified.

4. The combination in an acetylene-lamp, with the carbid-holder, the water-passage whereby the water is fed to the carbid, and the gas-passage whereby the feeding of the water is controlled, of a chamber P into which said passages open, and a hollow plug inserted in said chamber and having openings in its sides, said plug also connecting said chamber with the interior of the carbid-holder, substantially as specified.

5. The combination with the gas and water passages and the carbid-holder, of a hollow plug receiving the gas and water from said passages, and movable so as to force its end into the body of carbid in the holder, substantially as specified.

6. The combination in an acetylene-lamp of a carbid-holder, a gas-supply pipe T, a water-passage O and a hollow plug R open at its inner end and connecting said pipe and passage with the carbid and also projecting inside the wall of the holder and into the side of the body of carbid therein, substantially as specified.

7. The combination with the carbid-holder and the gas and water supply passages, of the chamber P uniting said passages, and the hollow plug connecting said chamber with the carbid-holder, substantially as specified.

8. The combination with the carbid-holder and the gas and water supply passages, of the chamber P uniting said passages, and a removable hollow plug connecting the chamber and the carbid-holder, and means for effecting a tight joint between the plug and the outside of the lamp, substantially as specified.

9. The combination in an acetylene-lamp, of the carbid-holder and the gas and water supply passages, the removable, perforated hollow plug R establishing communication between said passages and the carbid-holder, and carrying the water horizontally through the wall of the holder, substantially as specified.

FREDERICK W. HEDGELAND.

Witnesses:

EDW. S. EVARTS,
H. M. MUNDAY.