No. 624,022. Patented May 2, 1899.

F. W. HEDGELAND.

ACETYLENE GAS GENERATING LAMP.

(Application filed Nov. 12, 1898.)

(No Model.)

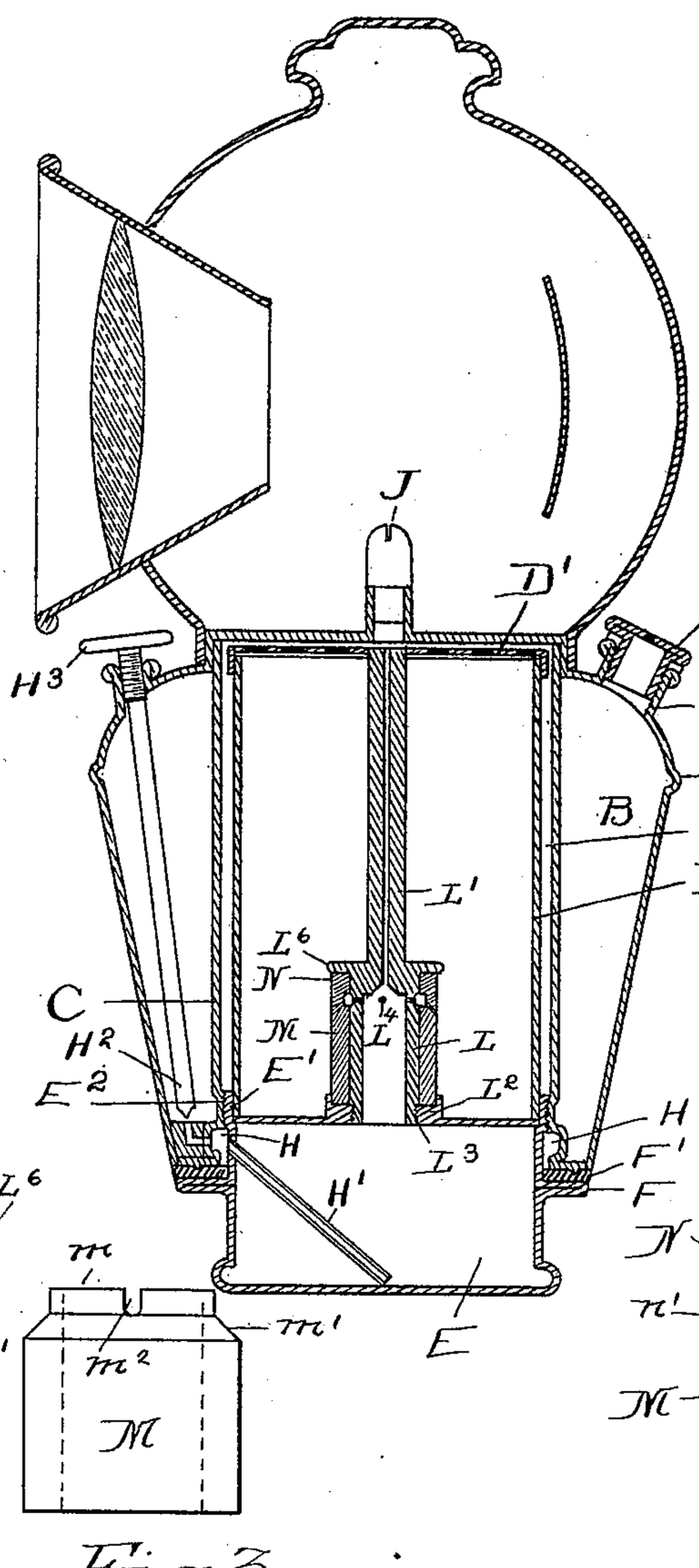


Fig. 1.

Fig. 2.

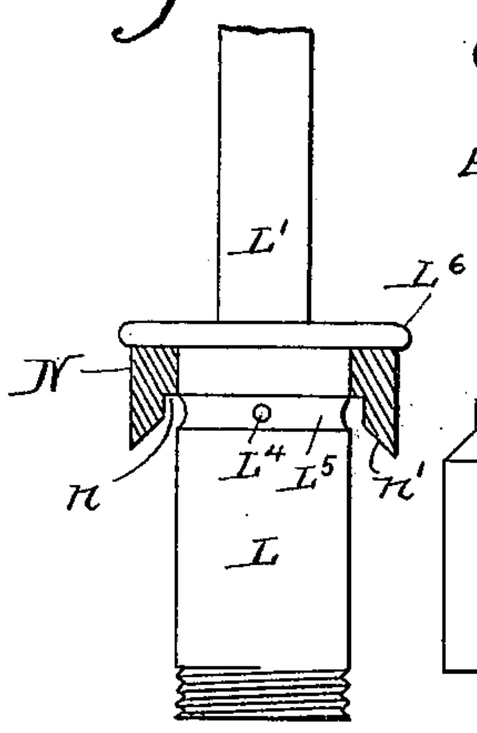
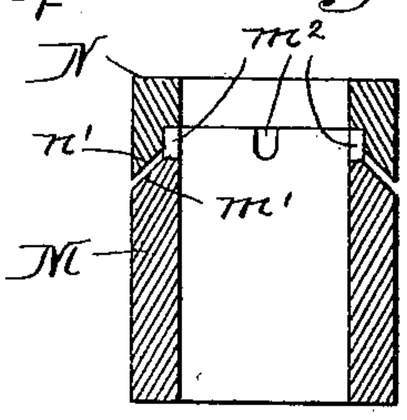


Fig. 3.

Fig. 4.



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UNITED STATES PATENT OFFICE.

FREDERICK W. HEDGELAND, OF CHICAGO, ILLINOIS.

ACETYLENE-GAS-GENERATING LAMP.

SPECIFICATION forming part of Letters Patent No. 624,022, dated May 2, 1899.

Application filed November 12, 1898. Serial No. 696,232. (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 is a modification and in some respects an improvement upon the construction of acetylene-lamp shown in my Patents Nos. 600,614 and 608,403.

One of the main objects I have had in view has been to render it easy to clean out the carbid residue and to avoid the presence of any projections or recesses in the carbid-chamber to or in which the residue would be apt to cling or lodge.

The nature of the invention is fully disclosed in the drawings accompanying this specification and forming a part thereof, and in which I give, at—

Figure 1, a central vertical section of my improved lamp; at Fig. 2, an elevation of the tube forming the upward water-passage and gas-pipe; at Fig. 3, an elevation of the rubber thimble, and at Fig. 4 a vertical section of the thimble and ring. Figs. 2 to 4 are enlarged.

In said drawings, A represents the body of the lamp, within which are the water-reservoir B and the generating-chamber C, the former occupying the outer and the latter the inner portion of the body. The chamber C is open at the bottom to permit the insertion of the removable carbid-holder D, which is a plain cylinder open at the bottom and provided with a removable gas-filtering cap D′ at the top. The equalizing-chamber, corresponding in function with the like chambers in both my said patented lamps, is shown at E and is provided with an upstanding flange E′, which is threaded on the outside at E^2 and engages a corresponding thread on the inside of chamber C. Said flange also corresponds to the exterior of the holder, and the latter is detachably seated therein, as plainly shown at Fig. 1. An outstanding flange F is provided on the exterior of chamber E, and a rubber packing F′ is clamped between it and the bottom of the reservoir B, so that no loss of water can occur at that joint. The reservoir is filled at the nozzle G, which is closed by a vented screw-cap G′, and the passage of the water from the reservoir to the annular passage H, connecting the reservoir with the inclined pipe H′, opening near the bottom of the equalizing-chamber, is controlled by the valve H^2, having a long stem projecting through the top of the reservoir and provided with an operating-button H^3. The burner is shown at J and receives the gas from the top of chamber C.

The water is admitted to the carbid through an upward passage leading from the equalizing-chamber up into the carbid-holder and having a lateral opening or passage above the bottom of the holder, through which the water may flow to the carbid. This upward passage is preferably located centrally of the carbid-holder and is also preferably constructed as shown—that is to say, a tube L L′, extending vertically through the holder, is threaded in the boss L^2, surrounding an opening L^3 in the top of the equalizing-chamber. The lower portion L of this tube is enlarged in diameter and forms the upward water-passage referred to, while the upper portion L′ is of small diameter and serves as a passage to conduct the gas from the upper portion of the lamp to the top of the water in the part L. Near its top the part L is provided with a number of small openings L^4, and it is also exteriorly grooved or recessed in the plane of said openings, as seen at L^5. For turning the tube in engaging and disengaging it from the carbid-holder the projecting flange L^6, serving the purpose hereinafter stated, may be milled on its edge. The water which passes from the interior of the upward passage L through the openings L^4 and into groove L^5 moves from the latter into contact with the carbid through a passage formed between a rubber thimble M and rubber ring N, which surround the part L and are confined vertically between the boss L^2 and flange L^6. The water-passage between the ring and thimble registers with groove L^5, so that the water will pass directly into it from the groove, and it is formed by giving the ring and thimble annular shoulders *m* and *n*, resting one upon the other, the shoulder *m* being notched at m^2, and by beveling the ends of the ring and thimble outward and downward from the shoulders, as seen at *m′* and *n′*, the shoulders acting to keep the bevel-

surfaces from contact with each other, but allowing them to come close enough together to prevent any large flow of water between them, and the notches m^2 permitting a flow from the groove L^5 into the opening between the bevel-faces.

It will be understood that the water rises and falls in the upward passage described in accordance with the varying gas-pressure existing in the lamp, and which the pipe L′ admits to the top of the water in the passage, and it will also be seen that a restricted and preferably annular passage is formed in the construction shown leading from the upward passage to the carbid and between the ring and thimble. It will also be seen that this passage is lateral to the upward passage, and hence the supply of water to it is cut off very soon after the gas-pressure becomes preponderating, because the water needs to be forced down only a very short distance to carry it below the lateral passage. It will also be seen that the upward passage may be of small diameter, as shown, because in that case the amount of water to be displaced is correspondingly small, and the lamp is thereby rendered more sensitive to the gas-pressure. Further features of the construction shown which may be noticed are that the lateral opening distributes the water at all sides to the surrounding carbid, that it delivers the water in a downward direction, thus preventing any entrance of the carbid residue within the passage, and that the inlet to the passage is limited in height and that all parts of it are located in the same horizontal plane, so that the water is shut off from all sides at the same time.

In one sense the passage L may be said to be an upward extension of the equalizing-chamber, as it receives its supply of water from the latter and the water ebbs and flows through both in obedience to the varying gas and water pressures.

No screen or filtering medium is interposed between the carbid and the inlet by which water is admitted to it, because with a downwardly-discharging inlet no precautions against the entrance of the carbid within the inlet are necessary.

To clean the lamp, the equalizing-chamber and carbid-holder are unscrewed and removed from the body of the lamp. The carbid-holder is then detached from the equalizing-chamber, and the screen-cap taken off the holder. Both ends of the latter being now open, it becomes a very easy matter to dislodge the carbid residue, and any residue clinging to the central regulating gas and water passage may also be removed easily, as the passage is exposed for its whole length upon the removal of the carbid-holder.

I have mentioned hard rubber as suitable material from which to make the ring and thimble, because that material is the best known to me to resist the action of the carbid. Other suitable material may be used, however, if preferred.

I claim—

1. In an acetylene-lamp a carbid-holder in combination with a gas and water tube or pipe for regulating the generation, such pipe being located centrally of the holder and surrounded by the carbid and having an annular side or branch passage or opening located above the bottom of the holder and serving to admit the water to the carbid, the entrance to such side passage being of limited height so the water in the regulating-pipe may be quickly shut off from the carbid, substantially as specified.

2. In an automatically-controlled acetylene-lamp, an equalizing-chamber having an upward portion extending upward into the body of carbid in the carbid-holder, the top of such upward portion having a lateral opening for the passage of the water to the carbid, said carbid-holder, and a gas-passage connected to the gas-holding parts of the lamp and joined to the top of said upward portion of the equalizing-chamber immediately above the lateral opening, substantially as specified.

3. The self-controlled acetylene-lamp having an upward water-feeding device extending into the carbid and having a surrounding ring and thimble, and also provided with a lateral passage discharging the water downwardly, and formed by beveling the adjacent ends of the ring and thimble, substantially as specified.

4. The acetylene-lamp having an equalizer-chamber E detachably joined to the bottom of the generator-chamber and connected both with the reservoir and the gas-holding parts of the lamp by passages through which the water and gas may enter the chamber, substantially as specified.

5. The acetylene-lamp having an equalizer-chamber E detachably joined to the bottom of the generator-chamber and connected both with the reservoir and the gas-holding parts of the lamp by passages through which the water and gas may enter the chamber, said chamber also supporting the carbid-holder, substantially as specified.

6. The combination in an acetylene-lamp of a water-reservoir, a generating-chamber located centrally of said reservoir, an equalizing-chamber threaded in the generating-chamber and closing the bottom of the same, and also having a connection to the reservoir, a carbid-holder supported upon the equalizing-chamber, and a regulating gas and water pipe receiving water from the equalizing-chamber and gas from the upper part of the lamp and having a lateral opening to the carbid, substantially as specified.

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Witnesses:

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