

No. 623,998.

Patented May 2, 1899.

E. J. DOLAN.
ACETYLENE LAMP.

(Application filed Dec. 3, 1898.)

(No Model.)

FIG. 1.

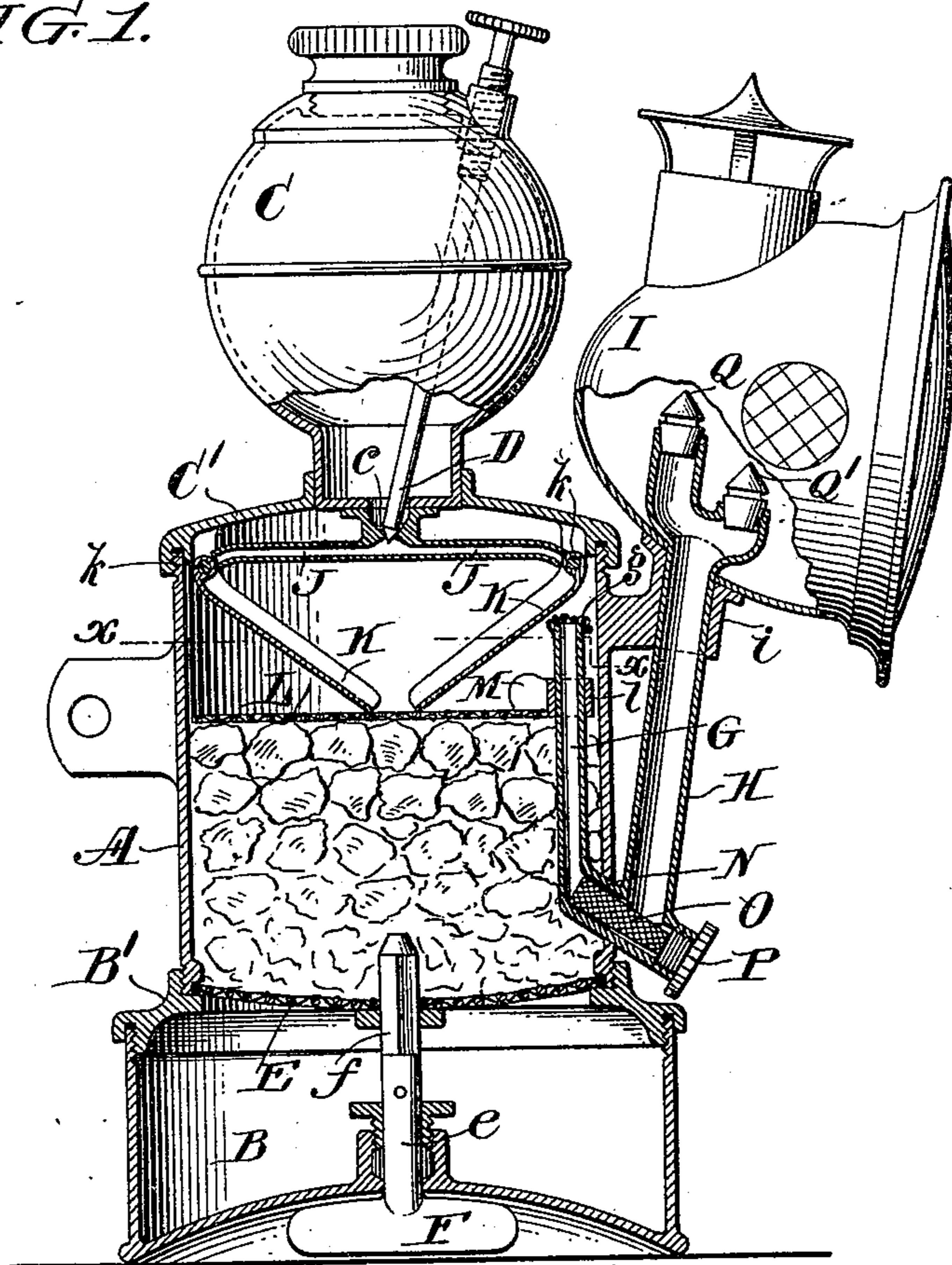


FIG. 2.

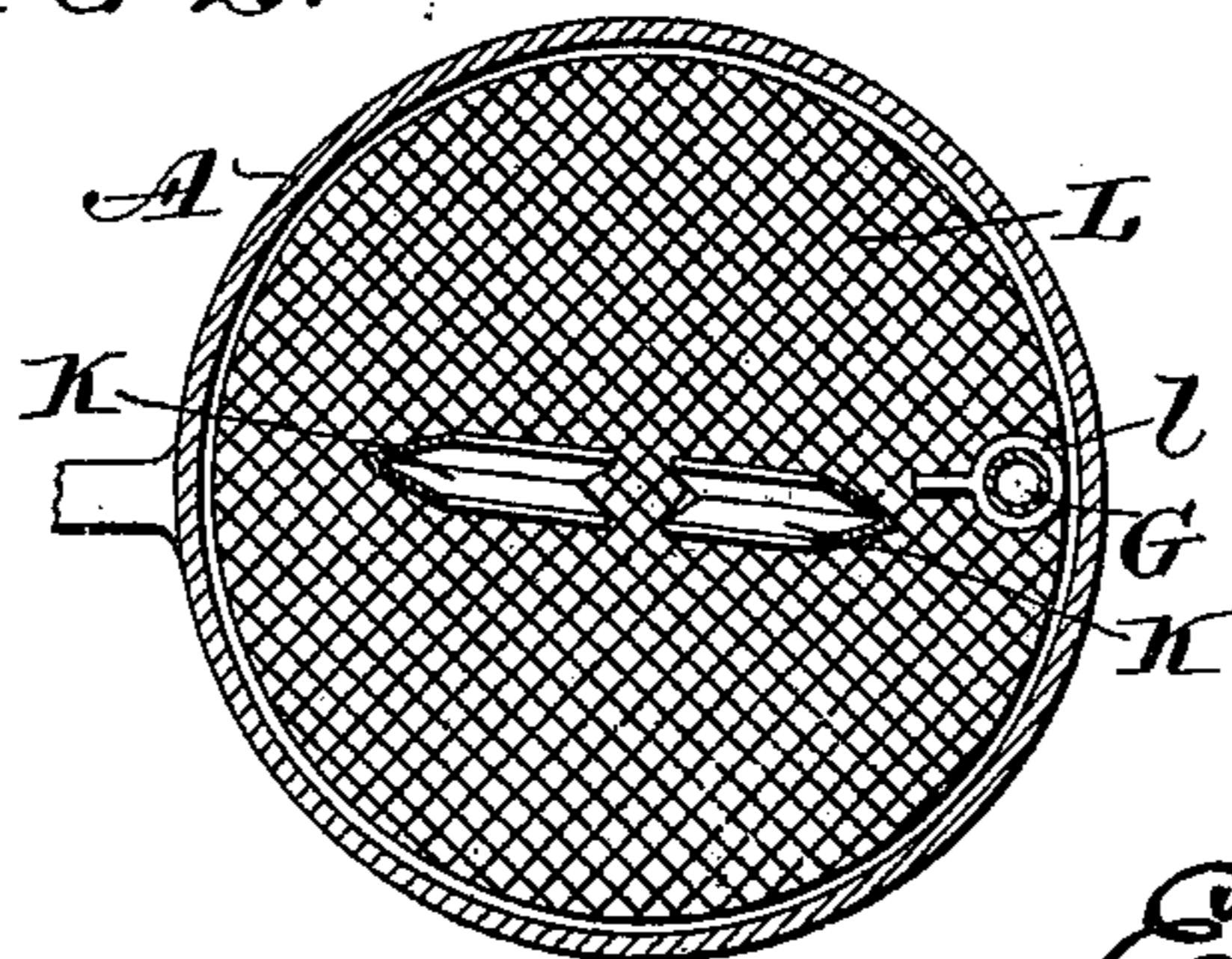
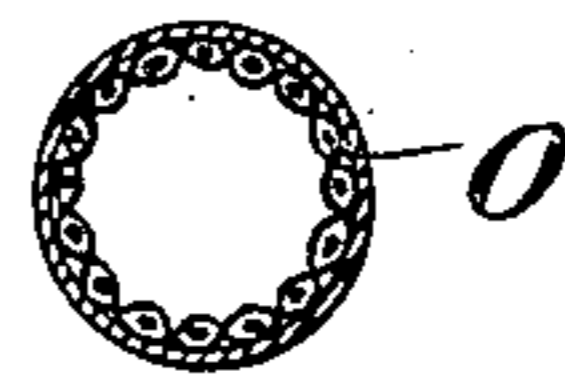


FIG. 3.



Witnesses.

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EDWARD J. DOLAN, OF PHILADELPHIA, PENNSYLVANIA.

ACETYLENE-LAMP.

SPECIFICATION forming part of Letters Patent No. 623,998, dated May 2, 1899.

Application filed December 3, 1898. Serial No. 698,148. (No model.)

To all whom it may concern:

Be it known that I, EDWARD J. DOLAN, of the city and county of Philadelphia, State of Pennsylvania, have invented an Improvement in Acetylene-Lamps, of which the following is a specification.

My invention relates to acetylene-lamps; and it consists of certain improvements, which are fully set forth in the following specification and are shown in the accompanying drawings.

While my improvements may be used in acetylene-lamps generally, they are especially adapted for bicycle-lamps, in which, because of the constant jolting and movement to which they are subjected, considerable difficulty in providing a perfectly satisfactory lamp has been experienced.

A part of my improvements relate to the employment of means for overcoming the agitation or disturbance of the carbid in the generating-chamber of the lamp by reason of the shaking or jolting to which the lamp may be subjected. For this purpose I employ a follower or diaphragm resting upon the surface of the body of the carbid, which acts to maintain it at all times in compact condition and prevents it from being materially disturbed. In my preferred construction the follower is perforated or reticulated, so that the water or liquid to be supplied to the carbid may pass freely through it.

Another part of my invention relates to the employment of means for supplying the liquid to the carbid directly in a minute form instead of in the form of large drops. For this purpose I employ a movable feeding device, receiving the liquid from the inlet and supplying it directly and slowly in the form of a film or of minute particles to the carbid. In my preferred construction I employ hinged feeding-troughs, which are sustained at their outer ends by the surface of the body of carbid or by the follower carried thereby, when that is employed, and thus descend with the carbid as its mass is reduced by consumption and maintain a direct delivery thereto.

Another part of my invention relates to the interposition of a dust-screen in the gas-supply pipe from the generating-chamber to the burner for the purpose of preventing particles of matter passing to the burner and clog-

ging it up. In my preferred construction this dust-screen is formed of gauze-wire enveloped in a covering of textile material.

Still another part of my improvements relates to the employment of an auxiliary or secondary burner so arranged and constructed that in case one burner is put out by an unusual jolt or by any other cause the lamp will not be totally extinguished.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a vertical sectional view of a lamp embodying my invention. Fig. 2 is a horizontal sectional view of the same on the line xx of Fig. 1; and Fig. 3 is a cross-sectional view, enlarged, of the screen in the gas-supply passage.

A is the entire casing of the lamp, which may be of any suitable shape and construction and constitutes the generating-chamber, in which the gas is generated.

B is the base of the lamp formed as a closed chamber and constituting the refuse-pan.

C is the reservoir to contain water or other liquid to be supplied to the generating-chamber. It is located above the generating-chamber and is provided with an outlet c , controlled by a suitable valve D.

In the construction shown the reservoir C is carried by a cap C' , screwed or otherwise secured to the top of the casing A by a gas-tight joint, and the base B, which has a closed bottom, is carried by a ring B' , similarly secured to the casing A by a gas-tight joint. The base B is made removable, so that refuse material may be emptied as occasion may require.

E is a grate or reticulated diaphragm located in the base of the generating-chamber A, adapted to support the carbid and to permit the refuse material to fall through into the pan B. To assist the passage of the refuse, the grate E may be agitated or shaken, and suitable devices may be employed for this purpose. I have shown the grate E connected with the stem f of a key F, extending up through the base of the pan B and passing through a stuffing-box e to prevent the escape of gas. By turning the key F back and forth the grate E may be turned and shaken to a sufficient extent to precipitate the refuse.

G is a gas-passage extending from the up-

per part of the generating-chamber A and communicating with the supply-pipe H to the burner.

In the construction illustrated, in which my improvements are shown embodied in a bicycle-lamp, the passage G is an upright tube extending down to the lower portion of the generating-chamber, where it communicates with an external supply-pipe H, leading to the burner. I is the usual reflector, carried by a bracket i on the body of the lamp.

It is desirable in generating acetylene gas that the water should be supplied in a film directly to the carbid instead of being allowed to fall thereon in the form of drops. For this purpose I employ means for maintaining the flow of a film of water directly upon the carbid notwithstanding the decrease in the mass by consumption in generation.

Leading from the water-outlet c are one or more water-conducting passage-ways or conduits J, extending outward toward the walls of the generating-chamber and terminating adjacent to the upper ends of one or more hinged water feeders or troughs K, the lower ends of which are adapted to rest upon the surface of the carbid. These troughs are shown hinged at k to lugs in the top of the generating-chamber. When the chamber is charged with carbid, these troughs will assume an inclined position, as shown, with their outer ends resting on the surface of the carbid, and as the surface of the carbid falls by reason of its consumption these troughs will swing on their pivots with their outer ends maintaining contact with the lowering surface. The ends of the conduits J are preferably brought into direct contact with the hinge-joints k to avoid any dropping of the water.

Owing to the agitation to which a bicycle-lamp is subjected, there is liability of the carbid being shaken up and becoming more or less displaced in the generating-chamber. To avoid this, I employ a perforated or reticulated follower L, resting on the top of the mass of carbid and adapted to hold it in place. This follower descends with the surface of the carbid as it lowers. To hold the follower in place and to guide it, I may employ an upright guide, extending through the follower. I prefer, however, to employ the gas-pipe G within the chamber A as the guide, and in the construction shown the follower is provided with a collar l, loosely fitting the pipe G. As the follower is guided upon the upright tube G greatly to one side of its center of curvature, it is evident that the said follower may readily descend as the supporting carbid is lowered under the normal operation of the lamp, but is always held against rising by the clamping operation upon the tube G, since any upward pressure on this follower will cause the sleeve l to bind upon its guide. In this manner the refuse of the carbid must pass downward through the screen E into the receptacle B.

M is a lug by which the follower may be

lifted up and removed when the chamber A is to be charged with carbid.

I prefer to locate the point at which the follower is guided upon the guide or pipe G substantially away from the center, preferably at the outer edge, as shown. The agitation to which the lamp is constantly subjected will cause the follower to travel down as the carbid is consumed; but upward movement will be prevented by reason of this eccentric location of the guiding-point, which will cause the bearing of the follower to bind upon the guide or pipe G. When this follower L is employed, the feeding-troughs K will rest upon it instead of directly upon the surface of the carbid.

To avoid the passage of particles of carbid to the burner, I employ a screen located in the supply-pipe, and for purposes of cleaning this screen is preferably made removable. In the construction shown the connection between the pipes G and H is made through a short section N, into which the pipe H opens. A tubular screen O, of gauze or other suitable material, is inserted in this section N, so as to fit therein. The gas from the pipe G enters this screen O and must pass through it to enter the pipe H. The screen is carried by a small threaded plug P, screwed into an opening in the section N. By this means the screen may be easily removed when desired for purposes of cleaning. The screen is preferably formed of gauze-wire wrapped in textile material. A screen q may also be arranged over the entrance of the tube G to prevent the entrance of particles into the tube.

To prevent the total extinguishment of the lamp by a sudden jolt or similar cause, I employ two burners Q Q', preferably located one at a lower level than the other, so that if one burner is extinguished the light is not entirely put out. With the burners thus located at different levels there is less draft. If only one burner is extinguished, the flame from the other burner will ignite the gas escaping from the extinguished burner, thus restoring the full light of the lamp.

While I prefer the details of construction that have been shown, they may be varied without departing from my invention.

What I claim as new, and desire to secure by Letters Patent, is as follows:

1. In an acetylene-lamp, the combination of a generating-chamber adapted to contain carbid, a reservoir adapted to supply water to the generating-chamber, and a movable metallic water-feeder receiving water from the outlet of the reservoir pivoted at one end and having its free or movable end supported by the body of carbid and adapted to descend therewith as it is consumed and thereby change its position.

2. In an acetylene-lamp, the combination of a generating-chamber adapted to contain carbid, a reservoir adapted to supply water to the generating-chamber, and a hinged gravity-

actuated feeding-trough receiving water from the outlet of the reservoir and having its outer or free end supported by the body of the carbid and descending therewith so that it changes its position with the consumption of the carbid.

3. In an acetylene-lamp, the combination of a generating-chamber adapted to contain carbid, a reservoir adapted to supply water to the generating-chamber, a movable gravity-actuated metallic water-feeder having its outer or free end supported by the body of the carbid and inclined from substantially the level of the water-outlet of the reservoir to the outer or free end of the movable water-feeder and having its said outer or free end supported by the body of the carbid and descending therewith.

4. In an acetylene-lamp, the combination of a generating-chamber adapted to contain carbid, a reservoir adapted to supply water to the generating-chamber, conduits J leading from the outlet of the reservoir, and feeding-troughs K hinged at their upper ends adjacent to the outer ends of the conduits.

5. In an acetylene-lamp, the combination with a generating-chamber adapted to contain carbid, of a movable perforated follower extending over and resting upon the upper surface of the carbid, and means to lock the follower against rising while at the same time permitting it to descend under the action of gravity.

6. In an acetylene-lamp, the combination with a generating-chamber adapted to contain carbid, of a movable perforated follower extending over and resting upon the upper surface of the carbid, and an upright guide for guiding said follower arranged to one side of the center of the follower so that an upward pressure upon the middle of the follower will make it bind upon the guide whereby it may fully descend but be locked against rising.

7. In an acetylene-lamp, the combination with a generating-chamber adapted to contain carbid, of a grate at the bottom of the chamber through which the refuse may pass, an upright gas-supply pipe extending through the generating-chamber, and a movable perforated follower extending over and resting upon the upper surface of the carbid and guided on said gas-supply pipe.

8. In an acetylene-lamp, the combination with a generating-chamber adapted to contain carbid, of a movable follower resting on the upper surface of the carbid, consisting of a reticulated screen L, and a lock to hold the follower against rising but permit of its descending.

9. In an acetylene-lamp, the combination

of a generating-chamber adapted to contain carbid and having a water-inlet, and a movable water-feeder receiving water from the water-inlet and having its outer end supported by the body of the carbid and moving therewith.

10. In an acetylene-lamp, the combination of a generating-chamber adapted to contain carbid and having a water-inlet, a movable perforated follower extending over and resting on the surface of the carbid, and a movable water-feeder receiving water from the water-inlet and having its outer end resting on the perforated follower.

11. In an acetylene-lamp, an acetylene-generator comprising a generating-chamber to contain carbid of calcium, a water-receptacle, and a valve to control the flow of water to the generating-chamber, combined with a gas-supply pipe leading from the generating-chamber to the burner, and a tubular dust-screen arranged in said supply-pipe at a point between the generator and the burner.

12. In an acetylene-lamp, an acetylene-generator comprising a generating-chamber to contain carbid of calcium, a water-receptacle, and a valve to control the flow of water to the generating-chamber, combined with a gas-supply pipe leading from the generating-chamber to the burner having a lateral outlet, and a removable tubular dust-screen located in said supply-pipe over the lateral outlet and interposed between the generating-chamber and burner.

13. In an acetylene-lamp, an acetylene-generator comprising a generating-chamber to contain carbid of calcium, a water-receptacle, and a valve to control the flow of water to the generating-chamber, combined with a gas-supply pipe leading from the generating-chamber to the burner and having an angular section N, and a dust-screen located in said section N and consisting of a tubular gauze-piece.

14. In an acetylene-lamp, an acetylene-generator comprising a generating-chamber to contain carbid of calcium, a water-receptacle, and a valve to control the flow of water to the generating-chamber, combined with a gas-supply pipe leading from the generating-chamber to the burner and having an angular section N, a dust-screen located in said section N and consisting of a tubular gauze-piece covered with textile material.

In testimony of which invention I have hereunto set my hand.

EDWARD J. DOLAN.

Witnesses:

ARTHUR E. NITZSCHE,
E. V. SUDELL.