No. 707,027. Patented Aug. 12, 1902.

F. SIMONSON.

CARBID HOLDER.

(Application filed Jan. 31, 1902.)

(No Model.)

Fig. 1.

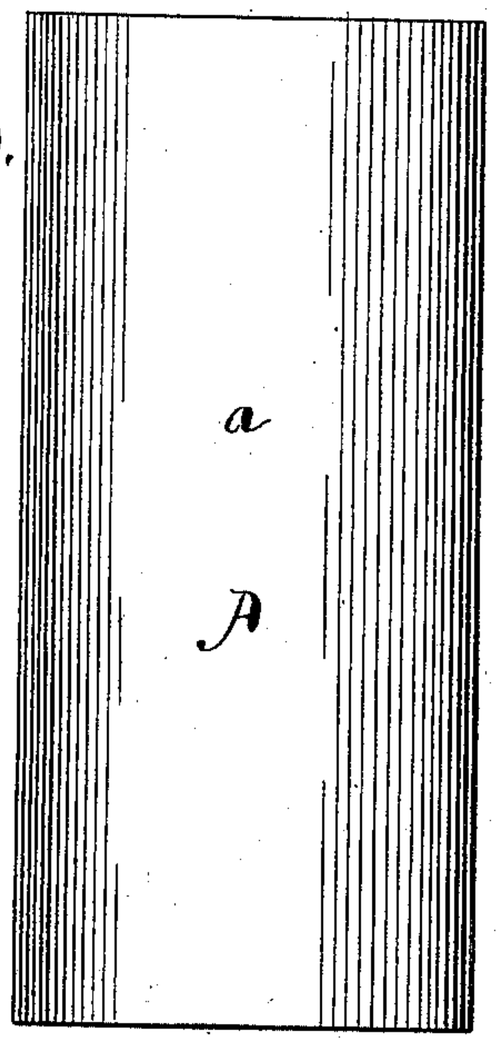

Fig. 2.

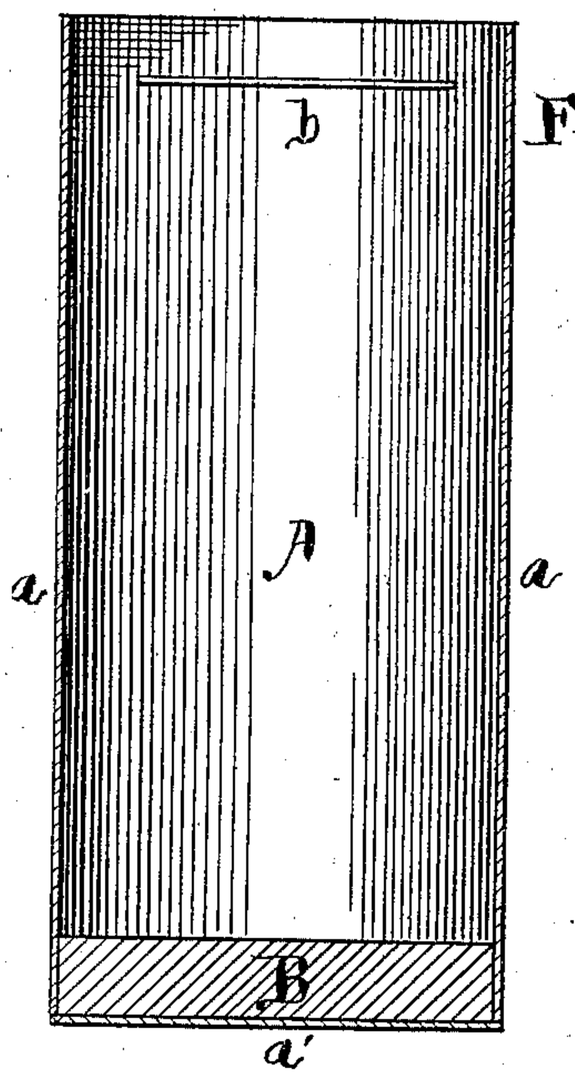

Fig. 3.

Witnesses.
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UNITED STATES PATENT OFFICE.

FLAVEL SIMONSON, OF STERLING, ILLINOIS.

CARBID-HOLDER.

SPECIFICATION forming part of Letters Patent No. 707,027, dated August 12, 1902.

Original application filed December 20, 1899, Serial No. 77,451. Divided and this application filed January 31, 1902. Serial No. 91,998. (No model.)

To all whom it may concern:

Be it known that I, FLAVEL SIMONSON, a citizen of the United States, residing at Sterling, in the county of Whiteside and State of Illinois, have invented certain new and useful Improvements in Carbid-Holders for Acetylene-Gas Generators, of which the following is a specification, the same being a division of my application, Serial No. 77,451, filed December 20, 1899.

The objects of this invention are to construct a carbid-holder having an open escape end for the gas and residuum and which will be self-clearing as to throwing off the residuum resulting from the slaking of the carbid in producing acetylene gas, which will prevent the residuum from settling and remaining upon the unslaked carbid to interfere with the action of the water thereon, which will present only a desired retricted area of carbid-surface for exposure to the action of the water, which when the holder is dropped into water for use will owing to the shape of its body cause the lime-water derived from the decomposition of the carbid to be forced by the pressure of gas accumulated between the interstices of the carbid upward and into the escaping bubbles of gas and act as a purifier for the gas, and which has an imperforate body, an open top, and a weighted bottom.

The invention consists in the carbid-holder hereinafter described and claimed.

In the drawings, Figure 1 is a side elevation of the carbid-holder of the invention; Fig. 2, a sectional elevation of the same, and Fig. 3 an end elevation of the carbid-holder looking at the open end thereof.

The carbid-holder is preferably of a cylindrical shape in cross-section, but can be of an oval or other shape in cross-section. The holder A has a wall or body *a* and a closed end or bottom end *a'*, which may be formed integral with the wall or body or be united thereto in any suitable manner, so as to be, in effect, integral therewith. The top end of the holder is left open and clear, making a holder having a closed bottom and open top. The body or wall of the holder is imperforate and is of a greater length than diameter, forming a holder having an imperforate body or wall with a closed bottom and an open top, with the body or wall of an increased length as compared with the diameter or width, making a deep and narrow closed chamber with an open top for receiving the carbid. The diameter or transverse dimension of the body or wall of the carbid-holder should bear a proper proportionate relation to the quantity of carbid which is to be deposited in the holder, so as to present a predetermined desired restricted area of upper surface for exposure to the action of the water. The diameter or transverse dimension, in conjunction with the length, is such that as the carbid is slaked and the gas generated the residuum resulting from the slaking of the carbid will be carried out at the top of the holder with the escaping gas, leaving the unslaked carbid clear of any deposit or settling of the residuum thereonto which would interfere with the action of the water, thus presenting at all times a surface of fresh carbid for the action of the water thereon. The elongated holder having an imperforate body or wall of increased length compared to its diameter or width enables a maximum quantity of carbid to be used, and at the same time a comparatively small area of carbid-surface will be presented to the action of the water, which by reason of the removal or carrying off of the residuum of the slaked carbid results in the presentation of a top surface of fresh carbid continuously for action of the water, thereby insuring the entire mass of carbid being acted upon and the residuum being carried away in the generation of the gas.

The carbid-holder when filled is to be dropped into position for the water to enter its open end and act on the presented upper surface of the carbid, and it is essential and necessary for the operation of generating gas and keeping the holder clear of the residuum that the carbid-holder should be held in a positive vertical position in order to enable the residuum as it is formed to rise and flow out and pass away from the carbid-holder. The insurance of the retention of the carbid-holder in a vertical position is attained in the construction shown by a weight B at the bottom of the carbid-holder, which weight may be lead or other suitable weighty material.

The weight should be sufficient to insure the descent of the carbid-holder and to maintain it in its descended position against the action of the evolved gas, which, if the holder were not weighted, would tend to overcome the inertia of an unweighted holder and carry the holder upward for its open end to be above the top of the water, preventing the admission of the water to act on the carbid. The weighted carbid-holder of the invention insures the retention of the carbid-holder in a vertical position, with its open end below the water for the water to act on the carbid and generate gas and clear the holder from the produced residuum. The body of the carbid-holder, near its upper end in the arrangement shown, has a cross-wire *b* at one side of the center, by which wire and a hook or other suitable device adapted to engage with or catch under the cross-wire the carbid-holder can be lifted or raised out of the water when fully discharged.

The benefits and advantages of the carbid-holder of the invention are an elongated body having a proportionate less diameter or width than length, presenting a restricted area of carbid-surface for exposure to the action of the water; a positive release of the residuum of the slaked carbid by the action of the generated gas which carries off and discharges the residuum from the interior of the holder; leaving an exposed surface of fresh carbid for the continuous action of the water thereon without any liability of interference from the depositing or settling of the residuum of the slaked carbid on the exposed surface of the fresh carbid, causing the upward projection of the lime to act on the escaping generated gas and purify the gas; dropping of the carbid-holder positively beneath the water by reason of the weighted bottom, thus insuring the admission of the water into the carbid-holder at the top; maintaining the carbid-holder in a vertical position by the weighted bottom, thus obviating the tendency of the generated gas to overcome the inertia of the holder and carry the holder up for its top to project above the water; assurance of the water always acting on an exposed area of fresh carbon, which assurance is insured by having the carbid-holder weighted at its bottom, and employing an imperforate body and weighted bottom for the carbid-holder, by which assurance is given that the water will act only at the top on the exposed area of fresh carbid. These several advantages and characteristics are pertinent to the carbid-holder of the invention and are of great utility and value in the operation of carbid-holders in generating gas by the action of water on the carbid.

What I regard as new, and desire to secure by Letters Patent, is—

1. A weighted carbid-holder for an acetylene-gas generator, formed of an imperforate body, an open top and a closed bottom with the body of greatly-increased length as compared with its width making a deep and narrow closed chamber with an open top for receiving the carbid and maintained by the weight in a vertical position when dropped for use, for presenting a small area of live carbid for surface exposure to the action of the water; clearing the holder of the residuum from the slaked carbid and maintaining the holder beneath the water, substantially as described.

2. A carbid-holder for a gas-generator, formed of an imperforate body, an open top, and a closed and weighted bottom with the body of greatly-increased length as compared with its width making a deep and narrow closed chamber with an open top for receiving the carbid and weighted at the bottom for maintaining the holder in a vertical position when dropped, presenting a small area of surface exposure for the live carbid to the action of the water, maintaining the holder beneath the water and clearing the holder from the residuum of the slaked carbid, substantially as described.

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Witnesses:
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