No. 619,970. Patented Feb. 21, 1899.

D. N. LONG.

ACETYLENE GAS GENERATOR.

(Application filed June 29, 1896.)

(No Model.)

Fig. 1.

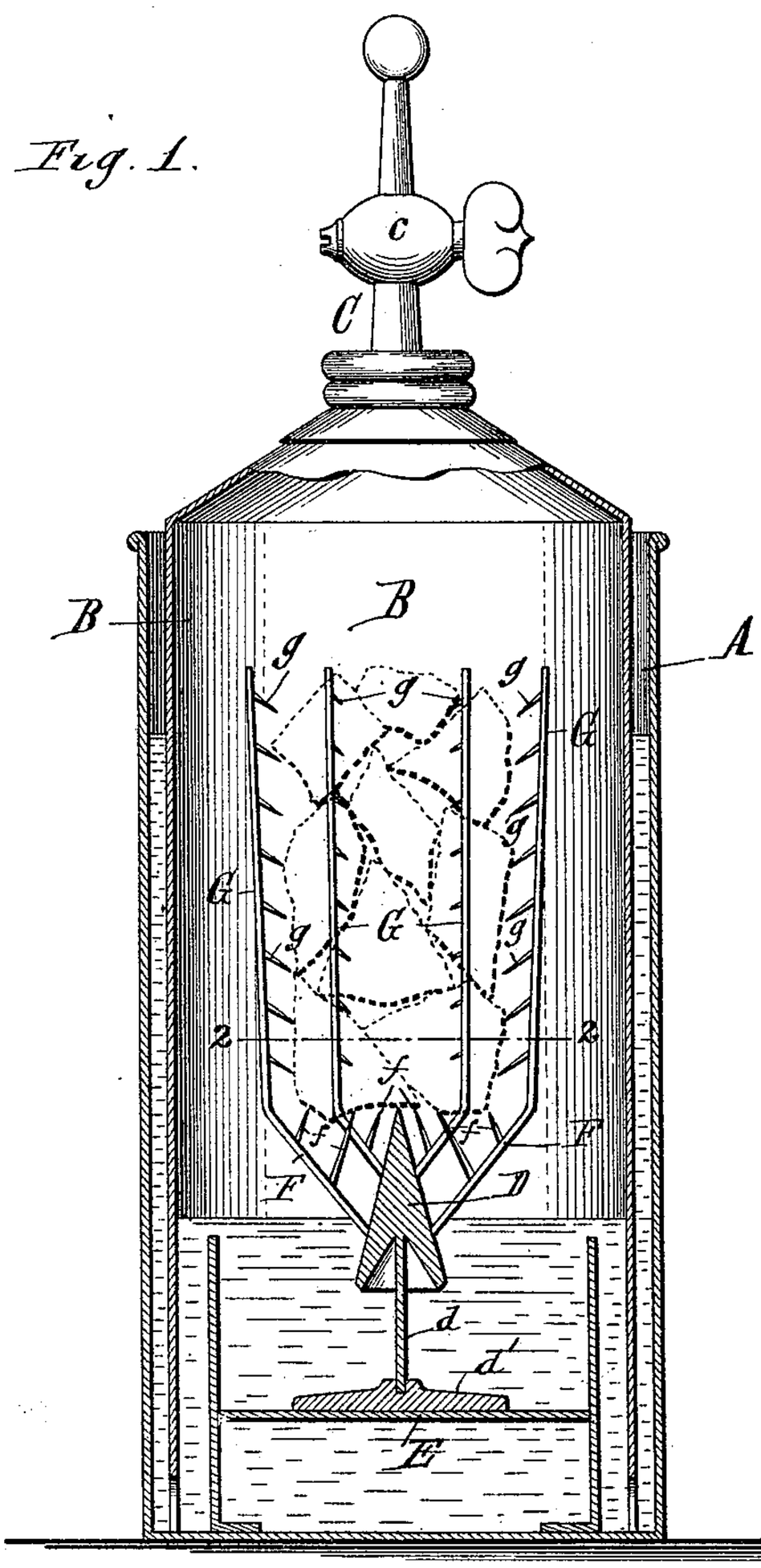
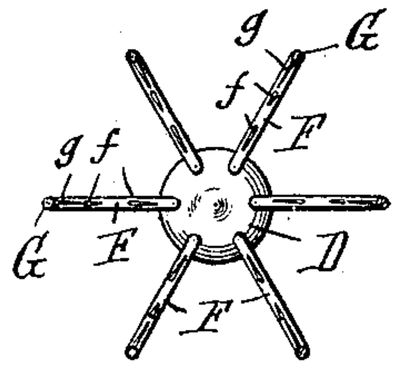


Fig. 2.



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ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 619,970, dated February 21, 1899.

Application filed June 29, 1896. Serial No. 597,403. (No model.)

To all whom it may concern:

Be it known that I, DAVID N. LONG, a citizen of the United States, residing at La Salle, in the county of Niagara and State of New York, have invented certain new and useful Improvements in Automatic Gas-Generators, of which the following is a specification.

My invention relates to that class of gas-generators which are more especially designed for producing acetylene gas by the action of water upon calcium carbid, and particularly to such generators in which the water is automatically brought in contact with the carbid as nearly as possible to the exact extent which is required to produce the generation necessary for maintaining a uniform flow and pressure of gas under a varying consumption. Heretofore great difficulty has been experienced in gas-generators of this kind in this respect by reason of the generation of gas after its consumption had stopped and the supply of water to the carbid from the water-reservoir of the generator had ceased. This after generation is caused by the damp or wet residuum (hydrate of lime) remaining in considerable quantities in contact with the carbid and continuing to supply water to the same.

The object of this invention is to overcome this difficulty, and to that end I provide the generator with a carbid-support of peculiar construction, which causes the residuum to escape freely downward as fast as it is formed, thereby leaving the support and the undecomposed carbid resting thereon substantially free from the wet residuum.

In the accompanying drawings, Figure 1 is a sectional elevation of a gas-generator provided with my improved carbid-support. Fig. 2 is a horizontal section in line 2 2, Fig. 1.

Like letters of reference refer to like parts in both figures.

A represents the tank which contains the water, which is supplied to the tank by any suitable means.

B represents the generating-chamber, which is arranged within the tank A and is provided at its top with a gas-outlet C, controlled by a cock *c*.

D represents the supporting center piece of the carbid-support, conical or upwardly-tapering in form and arranged centrally in the lower portions of the tank A and chamber B, where it is supported by a standard *d* and base *d'* in any suitable manner. As shown in the drawings, the base *d'* rests upon a horizontal plate E, which is supported above the bottom of the tank.

F represents supporting bars or rods, which are secured at their inner ends to the center piece D between the lower large end of the same and its point or apex. These bars or rods extend obliquely from the center piece in a radial and upward direction and are provided with upward projections *f*, preferably pointed, whose upper ends or points are arranged about on a level with the upper end or point of the center piece D. These projections are preferably arranged obliquely, pointing inwardly, as shown.

G represents upright side bars or rods which extend from the outer ends of the supporting bars or rods F upwardly and are provided with inward projections *g*, which are preferably inclined downwardly, as shown.

The lower radial supporting-bars F and the upright side bars G form, with the center piece D, a basket or cage into which the lumps of carbid are placed. These lumps rest upon the projections *f* of the supporting-bars F, by which the lumps are held away from these bars. The lumps of carbid are confined on the sides of the side bars G, by which they are held out of contact with the sides of the generating-chamber B, and the projections *g* on the side bars hold the carbid away from these bars. The bars F and G and their projections *f* and *g* are arranged at such distances apart that the projections will properly support the lumps of carbid and that at the same time sufficient space is left between the bars and between the projections or points on the bars to allow the free escape of the hydrate of lime downwardly as fast as it is formed by the decomposition of the carbid. The oblique position of the supporting-cars F and of the upward projections on these bars and on the upright or side bars G also facilitates this downward escape of the hydrate of lime.

The water-level rises in the chamber B as the gas is drawn off through the outlet C and reaches the junctions of the projections *f* with the lower supporting-bars F before it reaches the lumps of carbid resting on these

projections. The junctions of the lower projections *f* with their supporting-bars are therefore immersed in the water when the latter is in contact with the carbid, whereby the hydrate of lime is prevented from lodging on or attaching itself to the projections and supporting-bars in its descent. When the water-level recedes from the carbid by an accumulation of the gas in the chamber B, the lumps of carbid resting on the projections *f* are held on these projections out of contact with the supporting-bars, and any moist residuum which may adhere to these bars is thereby prevented from coming in contact with the carbid. The after generation of gas is in this manner effectually avoided.

I claim as my invention—

1. In a gas-generator, a support for the gas-producing solid having upward projections on which the gas-producing solid is supported, substantially as set forth.

2. In a gas-generator, a support for the gas-producing solid having supporting-bars provided with upward projections on which the gas-producing solid is supported above said bars, substantially as set forth.

3. In a gas-generator, a support for the gas-producing solid consisting of a series of pointed rods arranged to support said solid upon the points thereof, substantially as set forth.

4. In a gas-generator, a support for the gas-producing solid having inclined supporting-bars and upward projections on said bars arranged to support said solid upon the upper ends of said projections, substantially as set forth.

5. In a gas-generator, the combination with a center piece, of supporting-bars projecting therefrom laterally and provided with upward projections upon which the gas-producing solid is supported, substantially as set forth.

6. In a gas-generator, a basket for supporting the gas-producing solid provided with side bars having inward projections, substantially as set forth.

7. In a gas-generator, a basket for supporting the gas-producing solid, said basket being provided with supporting-bars having upward projections and side bars having inward projections, substantially as set forth.

8. In a gas-generator, a basket for supporting the gas-producing solid, said basket being provided with supporting-bars having upward projections and side bars having inward projections which incline downwardly, substantially as set forth.

9. In a gas-generator, a support for the gas-producing solid composed of an upwardly-tapering center piece, supporting-bars extending laterally and upwardly from said center piece and having upward projections on which said solid is supported, and side bars extending upwardly from said supporting-bars and provided with inward projections, substantially as set forth.

10. In a gas-generator, a support for the gas-producing solid having an upwardly-tapering center piece and means whereby said solid is confined on the sides of said center piece, substantially as set forth.

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