

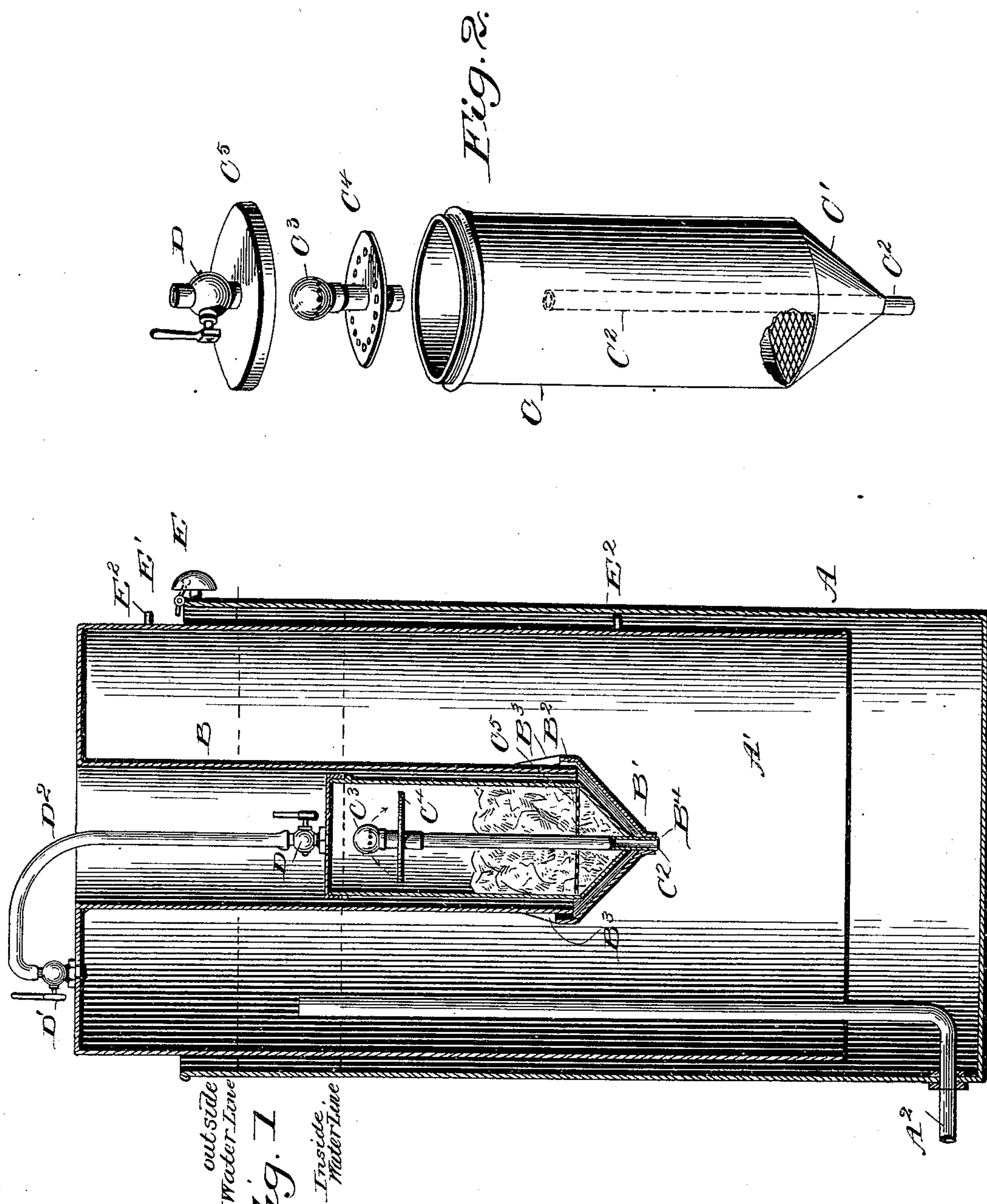
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Patented Feb. 21, 1899.

F. O. McQUEEN.  
ACETYLENE GAS GENERATOR.

(Application filed Apr. 19, 1898.)

(No Model.)



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# UNITED STATES PATENT OFFICE.

FRANK O. McQUEEN, OF SCOTTSBURG, INDIANA.

## ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 619,833, dated February 21, 1899.

Application filed April 19, 1898. Serial No. 678,160. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK O. McQUEEN, a citizen of the United States, residing at Scottsburg, in the county of Scott, State of Indiana, have invented certain new and useful Improvements in Gas-Generators, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to gas-generators, and particularly to a generator for the production of acetylene and similar gases in which the receptacle carrying the gas-producing material is supported by and travels with the expansible tank or dome.

The invention has for its object to provide an improved construction of carbid-receptacle in which the water will be applied upon the upper surface of the carbid and the receptacle retained in a cool state during operation.

It also has for an object to provide a construction of gas-holder adapted to receive and support the carbid-receptacle.

Other objects and advantages of the invention will hereinafter appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 represents a central vertical section through the gas-generator, and Fig. 2 is an enlarged perspective of the carbid-cell with parts separated.

Like letters of reference indicate like parts throughout both figures of the drawings.

The letter A designates a gas-tank, which is provided with an expansible gas holder or dome A', which fits within the tank and is supported in its elevated position by the pressure of gas beneath the same. The tank A is also provided with an outlet-pipe A<sup>2</sup>, extending toward the upper part thereof.

For the purpose of supporting a carbid-cell the gas-holder A' is provided with a downwardly-extending cylindrical portion B, which at its lower end is covered by a cap B', the upper edges B<sup>2</sup> of which are separated from the cylinder B, so as to permit the entrance of water therein. The cap B' is supported from the lower end of the cylinder by any suitable means—for instance, lugs B<sup>3</sup>—and the lower portion of the cap is provided with an opening B<sup>4</sup>. Within this cylinder B the

carbid-cell C is introduced, the lower portion C' of which is formed conical in shape to fit within the cap B'. Through the central portion of this cell extends a feed-pipe C<sup>2</sup>, which also projects from the lower portion of the cell and is seated in the aperture B<sup>4</sup> when the cell is in position for use. The upper portion of this feed-pipe is provided with a nozzle C<sup>3</sup>, of any suitable construction, but preferably provided with small apertures to insure a spray of water, and beneath this nozzle an apertured distributing plate or disk C<sup>4</sup> is provided, upon which the water from the nozzle C<sup>3</sup> will fall, and thus be evenly distributed to the surface of the carbid which is placed within the cell C and about the feed-pipe C<sup>2</sup>. The lower portion of the cell C is provided with an ash-grate C<sup>5</sup>, having suitable perforations therein, through which the finer particles of the slaked carbid will fall to leave the main body thereof in the best condition for use. This grate is removable for the purpose of cleaning the cell when desired. The upper end of the cell is closed by a suitable cap C<sup>6</sup>, which may be screwed thereon or otherwise secured to provide a gas-tight joint. Extending from this cap is a valve D of any desired construction, which communicates with a similar valve D', located upon the gas-holder, by means of a flexible connecting-pipe D<sup>2</sup>. This form of connection permits the carbid-cell to be readily removed from the gas-holder without the necessity of disconnecting any of the parts, and by closing the valve D' the carbid-cell may be opened for recharging or cleaning.

For the purpose of sounding an alarm when the gas is exhausted from the holder and also when too great a quantity of gas has been generated within the holder I have provided an alarm upon the upper portion of the gas-tank, which for the purpose of illustration may be a bell E, provided with a striker E', which will be engaged by stops or lugs E<sup>2</sup>, carried by the gas-holder. It is obvious that the striker E' may be used to establish electric connection when a bell of that character is used. As the carbid-cell is automatically lifted from the water within the tank, there is but little danger of an overcharge of gas accumulating within the tank, so that the principal object to be secured by the alarm is in case the carbid has become exhausted



within the cell and the tank has descended to its lowest position.

It will be obvious that in the operation of the invention the water passes upward through the feed-pipe C<sup>2</sup> and is sprayed by the nozzle C<sup>3</sup> upon the carbid contained within the cell. The gas thus generated rises through the pipe D and is discharged into the upper portion of the gas-holder, from whence it may be withdrawn by the outlet-pipe A<sup>2</sup>. If either of the cocks D or D' should be closed and the generation of gas continued, the gas will find an outlet through the pipe C<sup>2</sup>, and thence through the liquid to the upper portion of the holder. The upwardly-extending flange B<sup>2</sup> of the cap B', in connection with the liquid contained therein, provides a water seal which prevents the gas passing upwardly through the cylinder B, while the body of water contained between the cylinder B and the cell prevents overheating of the cell, which is also obviated by the passage of the feed-pipe through the body of the carbid, as the water within said pipe maintains the same in a cool condition. This is a highly essential feature in the successful operation of a generator of this character, as in the slaking of the carbid a great deal of heat is generated, the presence of which prevents the most advantageous use of the carbid. It will also be observed that the water is fed upon the surface of the carbid in small quantities, so as to produce just the necessary amount of gas to supply the demand upon the generator. This is not the case where a carbid-basket is submerged in the water, as under those conditions an excess of gas is generated, which produces a varying pressure upon the service-pipes. When the carbid within the cell is all consumed, the reduction of the gas-pressure will permit the cell to descend until the same is flooded, which will drive all of the gas into the holder, when the stop-cock D' can be shut and the cell removed for recharging.

It is obvious that changes may be made in the construction and configuration of the various details without departing from the spirit of the invention as defined by the appended claims.

Having described my invention and set forth its merits, what I claim as new, and desire to secure by Letters Patent, is—

1. In a gas-generator, the combination with a gas-holder, of a closed carbid-cell carried thereby, an upwardly-extending feed-pipe within said cell, a perforated nozzle upon said pipe, and a removable perforated distributing-plate beneath said nozzle; substantially as specified.

2. In a gas-generator, the combination with a gas-holder provided with a depending ex-

tension having an apertured cap at its lower end, of a removable carbid-cell carried thereby, an upwardly-extending feed-pipe within said cell having a perforated nozzle at its upper end and extended at its lower end through said cap, and a flexible connection extending from the upper portion of said cell to the gas-holder; substantially as specified.

3. In a gas-generator, the combination with a gas-holder provided with a depending extension, of an annular cap extending above and below the lower end thereof and spaced therefrom to permit the entrance of water between said cap and said extension, and a carbid-cell located within said extension and supported by the cap; substantially as specified.

4. In a gas-generator, the combination with a gas-holder provided with a depending extension, of a cap extending above the lower end thereof and spaced therefrom to permit the entrance of water into said extension, a carbid-cell located within said extension, and a feed-pipe depending from said cell and extending through an aperture in said cap; substantially as specified.

5. In a gas-generator, a carbid-cell provided with a closed lower portion and a vertically-extending feed-pipe within the same, an ash-grate removably supported at the lower portion thereof, a nozzle at the upper portion of said feed-pipe, a distributing-plate removably mounted beneath said nozzle, and a closing-cap for the upper end of said cell; substantially as specified.

6. A gas-generator comprising a tank, a gas-holder therein provided with a depending cylindrical extension, a cap extended above the lower end of said extension and spaced therefrom for admitting water to said extension, a carbid-cell removably supported by said cap within said extension, and a flexible connection extending from said cell to said gas-holder; substantially as specified.

7. A gas-generator comprising a tank, a gas-holder therein provided with a depending cylindrical extension, a cap extended above the lower end of said extension and spaced therefrom for admitting water to said extension, a carbid-cell removably supported by said cap within said extension, a flexible connection extending from said cell to said gas-holder, and a feed-pipe extending to the upper portion of said cell and provided at its upper portion with a perforated nozzle and distributing-plate; substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK O. McQUEEN.

Witnesses:

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REASON D. SANDERS.