

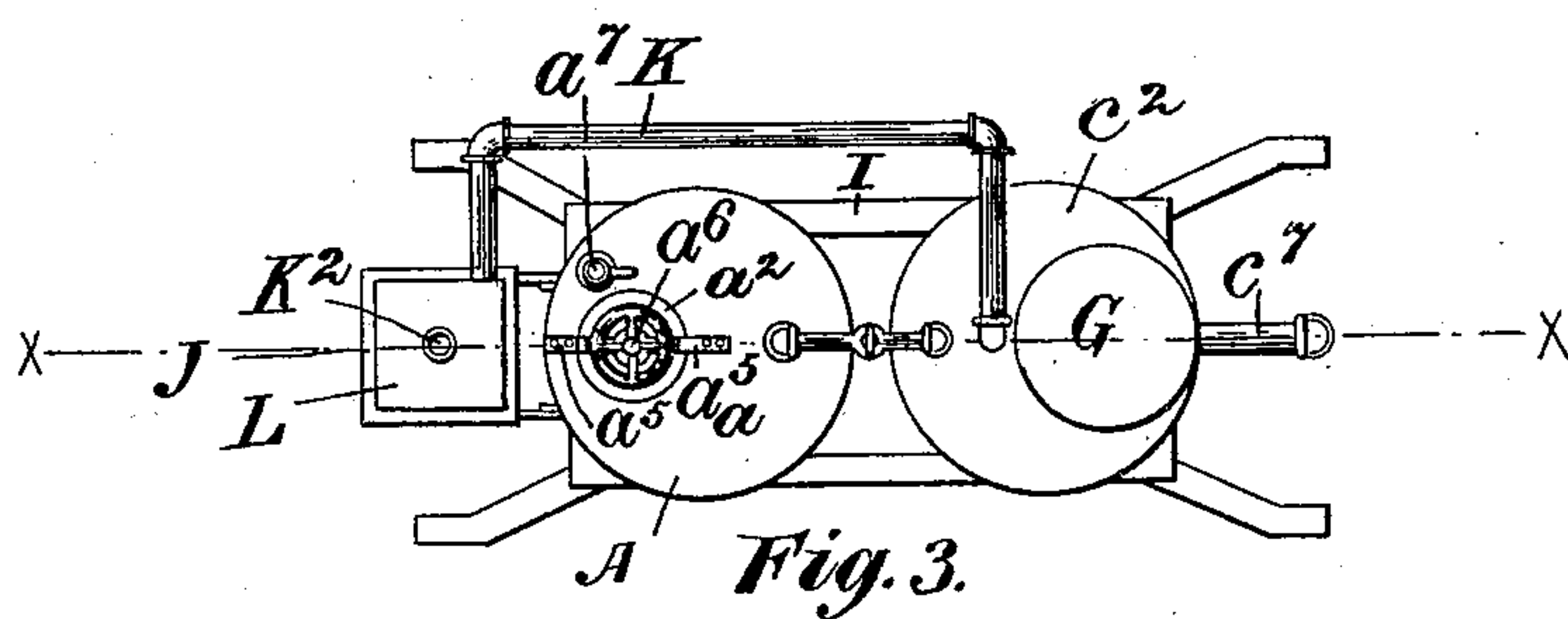
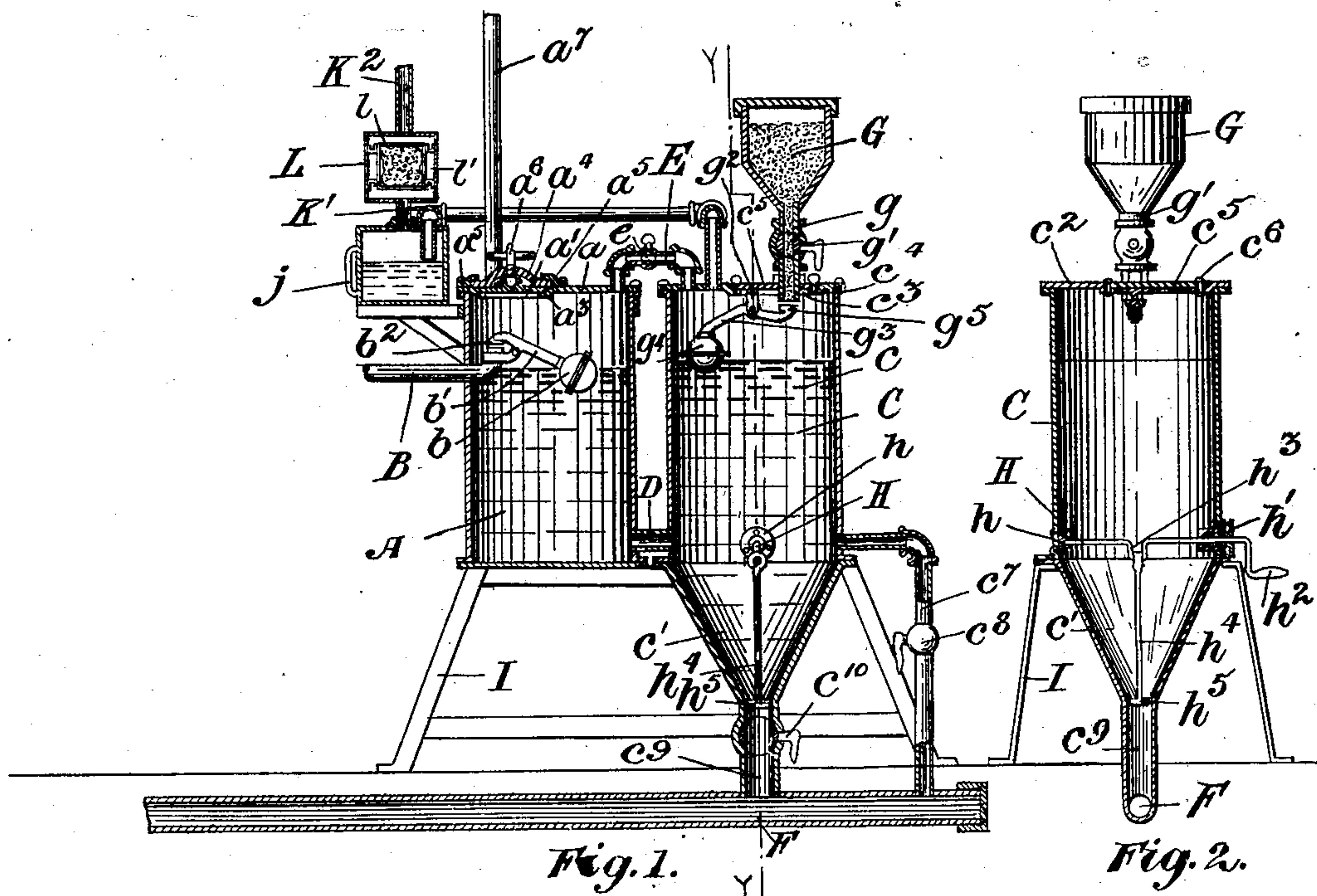
No. 713,291.

Patented Nov. 11, 1902.

T. H. DUNCOMBE.
ACETYLENE GAS GENERATOR.

(Application filed May 2, 1902.)

(No Model.)



Witnesses.

J. W. Smith.

M. Lyon

Inventor

T. H. Duncombe

By - Fetherstonhaugh & Co.
Attys

UNITED STATES PATENT OFFICE.

TYRRELL HUBERT DUNCOMBE, OF ST. THOMAS, CANADA.

ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 713,291, dated November 11, 1902.

Application filed May 2, 1902. Serial No. 105,664. (No model.)

To all whom it may concern:

Be it known that I, TYRRELL HUBERT DUNCOMBE, chemist, of the city of St. Thomas, in the county of Elgin, Province of Ontario, Canada, have invented certain new and useful Improvements in Acetylene-Gas Generators; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to improvements in acetylene-gas generators; and the objects of my invention are to devise an apparatus which shall be cheap to construct and all the parts of which shall be easy of access for cleaning and repairing, further objects of my invention being to make the machine entirely automatic in both its carbid and its water feed; and it consists, essentially, of a water-tank and separate generating-chamber, a water-inlet into said generating-chamber, said inlet being provided with a float-valve to automatically open or cut off the water-supply, as occasion demands, and a carbid-receptacle located above said generating-chamber and having a suitable automatic float-valve for regulating the supply of carbid, a water-outlet pipe located in the lower portion of said generating-chamber, and means for breaking the carbid crust in the lower portion of the generating-chamber, the various parts of the device being constructed and arranged in detail, as hereinafter more particularly described.

Figure 1 is a longitudinal section through the apparatus on the line X X, Fig. 3. Fig. 2 is a transverse section through the apparatus on the line Y Y, Fig. 1. Fig. 3 is a plan view of the machine.

In the drawings like letters of reference indicate corresponding parts in each figure.

A is the water-tank, which is cylindrical in form and is provided with a cast-iron top or head a , in which is formed a hole a' . A covering or lid a^2 is provided for the hole a' and is supported by the flange a^3 , formed around the hole. A yoke a^4 is provided, the ends of which are inserted under the holders a^5 , which are secured to the top of the tank. By means of a suitable screw a^6 passing through the yoke a^4 the covering a' may be firmly clamped down against the flanges. The es-

cape-pipe a^7 leads from the top of the water-tank A to the outer atmosphere.

B is a water-inlet pipe which enters the upper portion of the water-tank. A ball-float b is attached to a lever b' , at the other end of which is a suitable closure b^2 for the water-inlet. The lever b' is pivotally attached to the inlet-pipe or to the side of the tank, and by means of this arrangement the water is automatically admitted or cut off, according to the height of the water in the tank.

C is a generating-chamber, consisting of the upper portion c , which is cylindrical in form, and the lower portion c' , which is preferably funnel-shaped. The top of the generating-chamber consists of the cast-iron plate c^2 , which is riveted or otherwise firmly secured to the sides. An opening c^3 is formed in the top plate c^2 , and the edges thereof are formed with a flange c^4 . A cover c^5 is provided for this opening, and this covering is secured to the flanges by suitable bolts or rivets c^6 .

D is a connecting-pipe extending and forming a permanent communication between the tank A and the generating-chamber C.

E is a leveling-pipe which forms a communication between the upper portion of the tank and the generating-chamber, and a stop-cock e is provided on this leveling-pipe, whereby the communication may be made or cut off, for reasons hereinafter specified.

F is the waste or sewer pipe, and an outlet c^7 leads thereto from the portion of the generating-chamber immediately above the funnel-shaped portion c' . A waste-pipe c^9 leads to the sewer, and this pipe is also provided with a suitable stop-cock c^{10} .

G is the carbid-receptacle, which is located above the generating-chamber C, and a pipe or other suitable passage g connects this carbid-receptacle with the generating-chamber. A cut-off or stop-cock g' is provided on said pipe for completely stopping the flow of the carbid when the machine is to stop operating. A bearing g^2 is secured to the cover-plate c^5 , and in this bearing a lever g^3 is pivotally supported. To one end of the lever a ball or other suitable float g^4 is secured, and a valve or closure g^5 is secured to its opposite end in such a position as to close the opening of the

end of the pipe G when the ball-float drops sufficiently low.

In the lower portion of the cylindrical portion of the generating-chamber a crank-shaft 5 H is journaled in the bearing h at one end and passes through the stuffing-box h' at its other end to the outside of the chamber, where a crank-handle h^2 is provided. Intermediate of the ends of the said crank-shaft H a crank 10 h^3 is formed, and from this crank a rod h^4 depends, having an enlarged lower end h^5 , the object of this device being to stir up the carbid in the lower portion of the chamber or to break up the carbid crust which may form 15 therein.

I is a stand of any suitable form which supports the apparatus.

Having now described the construction of my invention, I will proceed to point out its 20 mode of operation and its advantages over previous devices of this class.

In starting my apparatus working the two tanks A and C are first completely filled with water, so as to drive out all air therefrom, 25 the air from the generating-chamber passing through the leveling-pipe E into the water-tank and thence into the open air by means of the escape-pipe a^7 . The stop-cock e is then closed. If the receptacle G be now filled 30 with carbid and the stop-cock g' be opened, the carbid will fall into the chamber C and generation of gas will commence. The stop-cock c^8 may now be opened for a few moments to allow of a certain amount of the 35 water to escape from the tanks, and it is then closed. The gas will now force down the water in the tank C till the float g^4 drops sufficiently to cause the supply of carbid to be cut off. Generation will then cease till sufficient gas has been drawn off to allow the 40 water to rise in the chamber C and open the carbid-feed again. The float b is adjusted to allow the water to enter the tank to compensate for the water that is used up in manufacturing the gas, and a further use of this 45 float cut-off is when a large number of lights are used on a small apparatus. In this case the water in the apparatus itself would very quickly heat up, owing to the rapid generation; but by lifting the stop-cock c^8 there 50 will be a continuous flow of water through the apparatus, owing to the automatic float-valve, and consequently a very small apparatus may be kept perfectly cool, even though

it may be generating gas to supply a large 55 number of lights.

It will now be seen that I have devised an apparatus which will manufacture gas and which may be readily cleaned and whose 60 parts will be very easily accessible and, further, an apparatus which is entirely automatic in both its carbid and its water feed arrangement.

Although in Figs. 1 and 3 a purifying attachment for the acetylene-gas machine is 65 shown, I do not desire to claim this part of the device in the present application, but reserve the right to apply for protection on this device at a later date.

What I claim as my invention is— 70

1. In an acetylene-gas apparatus the combination with the generating-chamber having an automatic carbid-feed located at the top thereof, of a water-tank, a pipe communicating between the lower portion of said water-tank and said generating-chamber, a leveling-pipe forming a communication between 75 the upper portions of said water-tank and generating-chamber a suitable stop-cock on said leveling-pipe and suitable water, air and gas inlets and outlets as and for the purpose specified. 80

2. In combination, a generating-chamber, a carbid-containing receptacle connected therewith, a water-tank communicating with said 85 generator, with means for maintaining a body of water in said tank at a constant height, and means controlled by the rise and fall of the water in the generator for controlling the feed of carbid into the generator, substantially as described. 90

3. In combination, a generating-chamber adapted to contain a body of water, a carbid-receptacle connected therewith, float mechanism within the generator adapted to control the feed of carbid to said generator, a 95 water-tank with float-controlled means for admitting water thereto, and connections between said generator and water-chamber whereby the water is normally maintained at the same level in said chamber, substantially as described. 100

Signed at the city of St. Thomas this 28th day of April, 1902.

TYRRELL HUBERT DUNCOMBE.

Witnesses:

WILLIAM LLEWELLYN WICKETT,
EDNA CAMPBELL.