

H. A. HOLMES.  
ACETYLENE GAS GENERATOR.

(Application filed May 13, 1899.)

(No Model.)

2 Sheets—Sheet 1.

FIG. 1

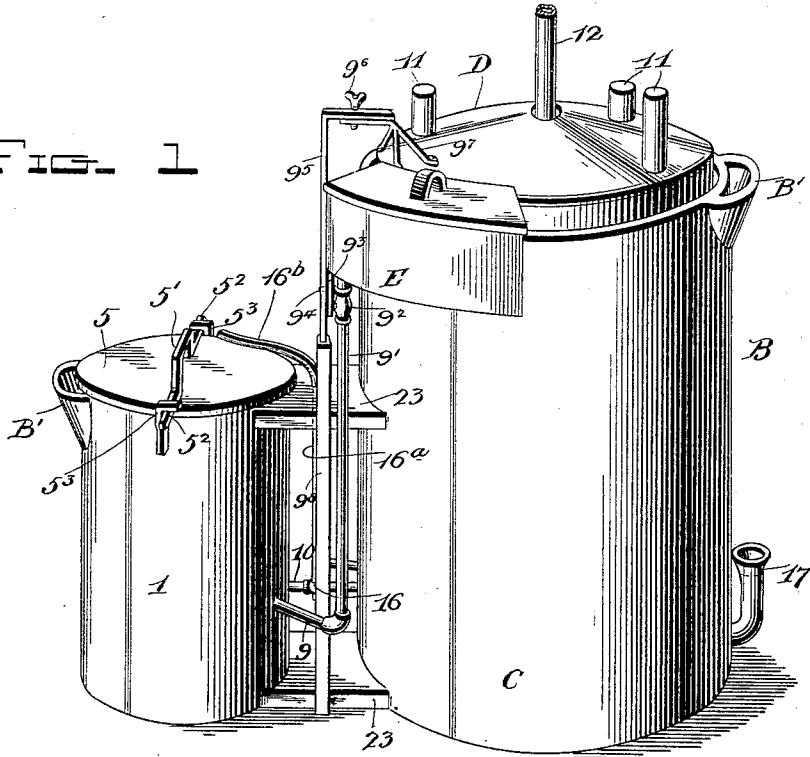
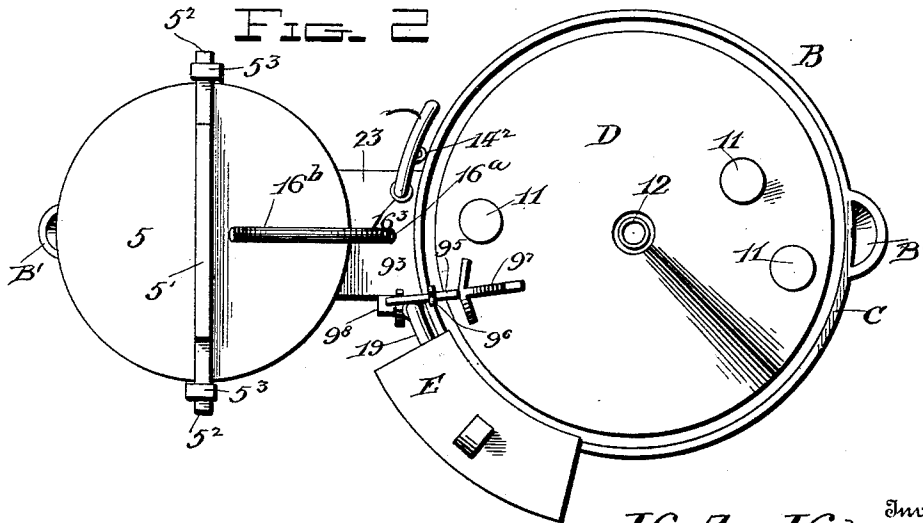


FIG. 2



Witnesses  
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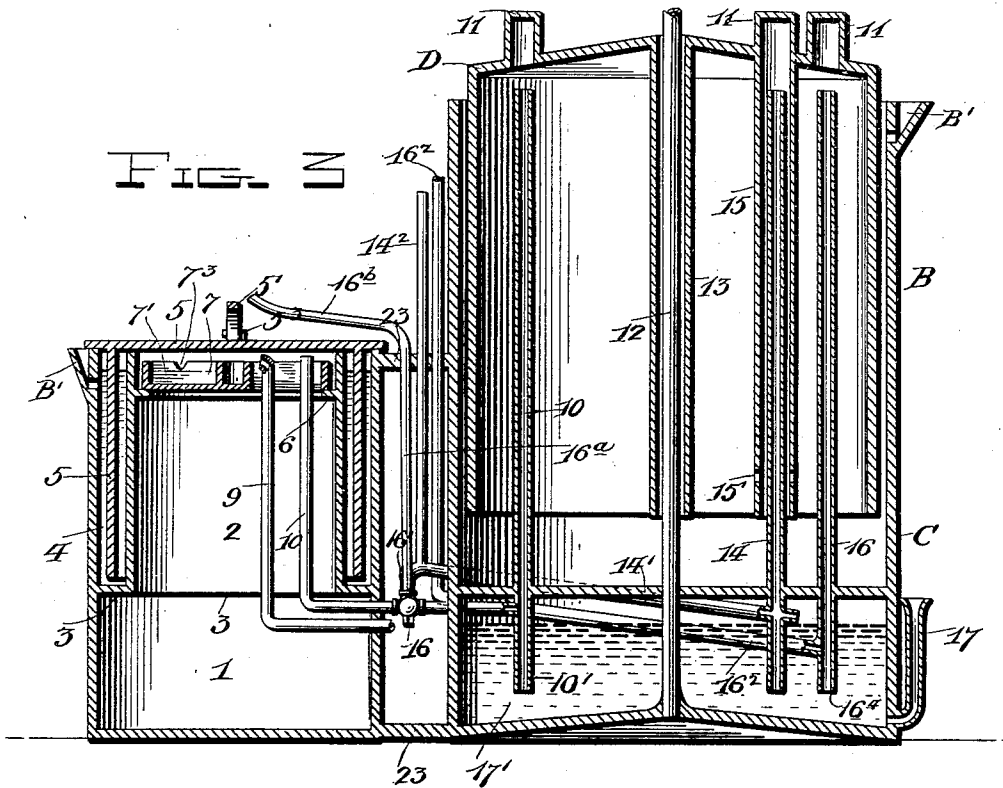


FIG. 4

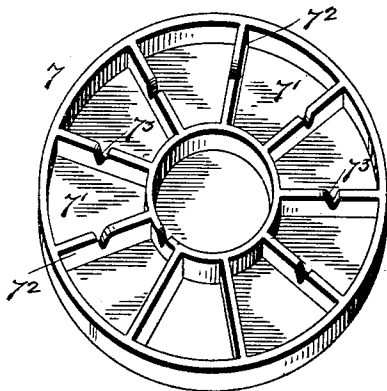
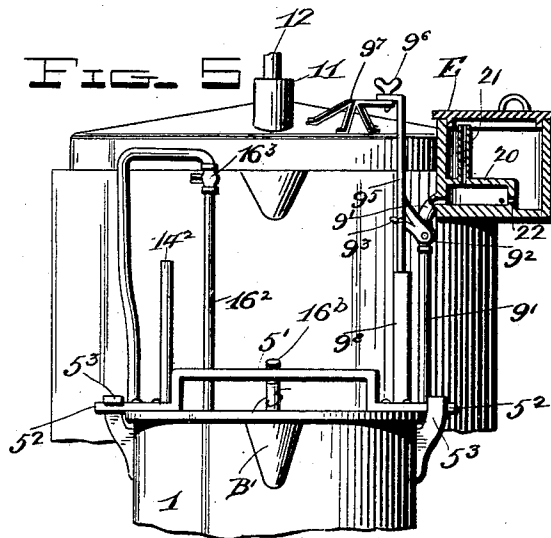


FIG. 5



Witnesses

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By

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# UNITED STATES PATENT OFFICE.

HORACE A. HOLMES, OF MANTON, MICHIGAN.

## ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 677,452, dated July 2, 1901.

Application filed May 13, 1899. Serial No. 716,628. (No model.)

*To all whom it may concern:*

Be it known that I, HORACE A. HOLMES, a citizen of the United States, residing at Manton, in the county of Wexford and State of Michigan, have invented certain new and useful Improvements in Acetylene-Gas Generators; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to certain novel improvements in automatic acetylene-gas generators; and the object is to simplify the construction and increase the efficiency of the device and provide a reliable, safe, and efficient automatic generator.

To this end the invention consists in certain features of construction and combination of parts which will be hereinafter fully described and claimed.

In the accompanying drawings, Figure 1 is a perspective view of an acetylene-gas generator embodying my invention. Fig. 2 is a top plan view of the same. Fig. 3 is a transverse section through the same. Figs. 4 and 5 are detail views.

In the drawings the generator consists of a cylindrical shell 1 and an inner concentric shell 2, provided with a bottom 3, forming a water-chamber 4 to receive the bell 5, which is provided with a handle 5', having extensions 5<sup>2</sup> 5<sup>2</sup>, which engage the keepers 5<sup>3</sup> 5<sup>3</sup> on the tank to retain the bell in place, and thus form a gas-tight joint between the cover and the shell 1.

6 denotes a horizontal shelf or bottom for the shell 2, and it supports the carbid-pail 7, formed with a concentric series of segmental pockets 7', one of which is bottomless to permit the passage of the vertical pipes 9 and 10. The partitions 7<sup>2</sup> between the pockets 7' are formed with notches 7<sup>3</sup> at their tops, so that as water is poured into the first pocket the water will flow into the next succeeding pocket as soon as the calcium carbid is slaked in the preceding one.

The gas-holder B consists of a water-tank C and a floating bell D. The hoods 11 11 11 in the top of the bell are to allow the entrance of the open ends of the pipes 10 to 14 and 16, when the bell sinks to its lowest point.

12 denotes a central guide-pipe, and 13 a telescoping tube or sleeve sliding over the guide-pipe and insuring an easy vertical movement of the bell.

14 denotes the exhaust-pipe, over which the pipe 15 slides, and this latter pipe 15 is provided with a series of orifices 15' a few inches from its lower end, so as to prevent the escape of gas into the room should the bell receive an overcharge of gas, as under such circumstances the bell would rise until the orifices 15' were above the water-level in the tank C, and the excess of gas would then escape through said orifices and the exhaust-pipe 14, which communicates with the horizontal pipe 14', and this latter in turn with the vertical escape-pipe 14<sup>2</sup>, which opens into the atmosphere outside of the room or building in which the machine is located.

10 represents the intake-pipe leading from the generator to the holder, and it is provided with a three-way valve 16, which has a lateral connection 16' communicating with the escape-pipe 14<sup>2</sup>. In opening or closing the generator this valve 16 is first turned so as to close or cut off communication with the holder and open communication between the generator and the escape-pipe 14<sup>2</sup>, thus allowing any gas in the generator to escape out of doors and also giving a vent for opening and closing the generator. In order to insure this three-way valve or cock 16 being turned off so as to close all communication between the generator and the gas-holder when about to recharge the generator, I provide this cock 16 with a vertical stem 16<sup>a</sup>, which terminates in a lateral horizontal handle 16<sup>b</sup>, which when the cock is open extends across the top of the bell 5, so that this handle must be turned and the valve 16 closed before the bell can be removed. As the three-way valve 16 shuts off communication with the gas-holder, the generator can be safely opened at any time and recharged with calcic carbid while the lights are burning.

16<sup>2</sup> denotes the service-pipe provided with a controlling-valve 16<sup>3</sup>.

17' denotes the drip-chamber located beneath the tank C, and 10' and 16<sup>4</sup> denote extensions of the gas-pipes 10 and 16, which extend down into the drip-chamber six inches under water to conduct off the water of con-

denensation carried over from the generator by the gas.

As a means of safety the escape-pipe 14 remains open in the drip-chamber to conduct  
5 off any gas which may accumulate in the drip-chamber so that if the bell should be held down from any cause until a six-inch gas-pressure should result the gas would escape through the pipes 10' and 16<sup>4</sup> into the air-  
10 chamber above and reach the open air through the exhaust-pipe.

17 denotes the drainage and filling pipe for the drip-chamber, and by means of this open-ended pipe a uniform water-level is main-  
15 tained in the drip-chamber.

E denotes the water-tank for supplying water to the carbid in the generator, and for this purpose it is provided with a pipe 9', provided with a cock 9<sup>2</sup> and communicating with  
20 the pipe 9 leading into the generator. The cock 9<sup>2</sup> is provided with a bifurcated operating-lever 9<sup>3</sup>, which engages a lateral pin 9<sup>4</sup> on the vertical rod 9<sup>5</sup>, secured by the thumb-screw 9<sup>6</sup> to a bracket 9<sup>7</sup>, fixed on top of the  
25 bell D. The lower end of this rod 9<sup>5</sup> has a vertical movement in the fixed guide 9<sup>8</sup>, the operation being such that the bell in falling opens the cock 9<sup>2</sup> and admits water to the carbid and the resulting gas causes the bell to  
30 rise and automatically close the cock and shut off the supply of water.

In order to prevent flooding the generator, a measuring device is placed in the water-tank E. It consists of a pocket 20, holding  
35 enough water to fill only one or two of the compartments in the carbid-pail. This pocket is closed entirely, except the pipe 9', the vent-pipe 21, and the small orifices 22, formed in the pocket near its bottom and through which

the water in the tank finds its way into the  
40 pocket. It will thus be understood that when the bell falls and opens the cock 9<sup>2</sup> the vent-pipe 21 allows the entire contents of the pocket to be rapidly drawn off, after which the small orifices 22 in the pocket restrict the  
45 flow of water from the tank into the pocket until the bell sinks low enough to close the water-valve. The generator-tank is attached to the gas-tank by the usual bridge-straps 23 23, and the usual filling-lips B' B', as shown,  
50 are provided for both generator and gas tank.

It will of course be understood that various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacri-  
55 ficing any of the advantages of this invention.

Having thus described and ascertained the nature of my invention, what I claim, and desire to secure by Letters Patent of the United  
60 States, is—

In an acetylene-gas generator, the combination with the generator and gasometer having a movable bell; of a water-supply tank, a chamber or compartment within the same;  
65 a pipe leading from said chamber to the generator, and a valve in said pipe adapted to be controlled by the movement of the bell, said chamber having a small opening into the main tank, whereby it is gradually refilled when emptied, substantially as and for the  
70 purpose set forth.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

HORACE A. HOLMES.

Witnesses:

CHAS. UTTER,  
EZRA HARGER.