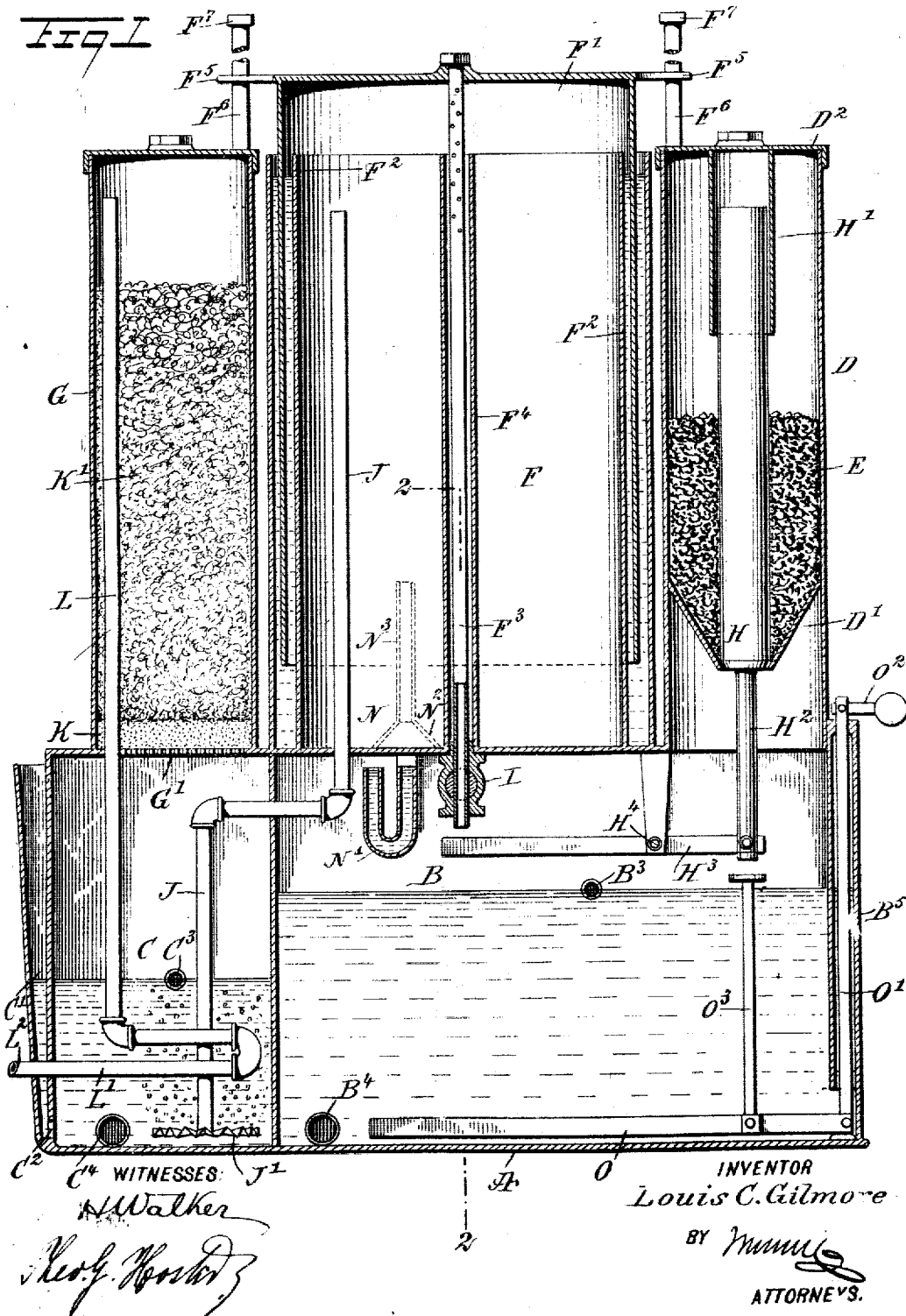


No. 816,976.

PATENTED APR. 3, 1906.

L. C. GILMORE.
ACETYLENE GAS GENERATOR.
APPLICATION FILED JUNE 22, 1905.

2 SHEETS—SHEET 1.

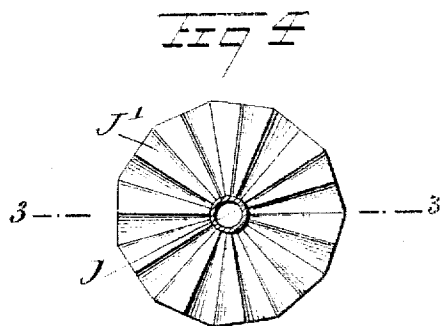
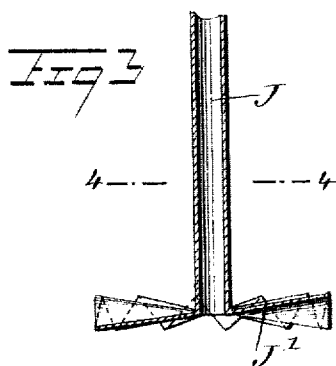
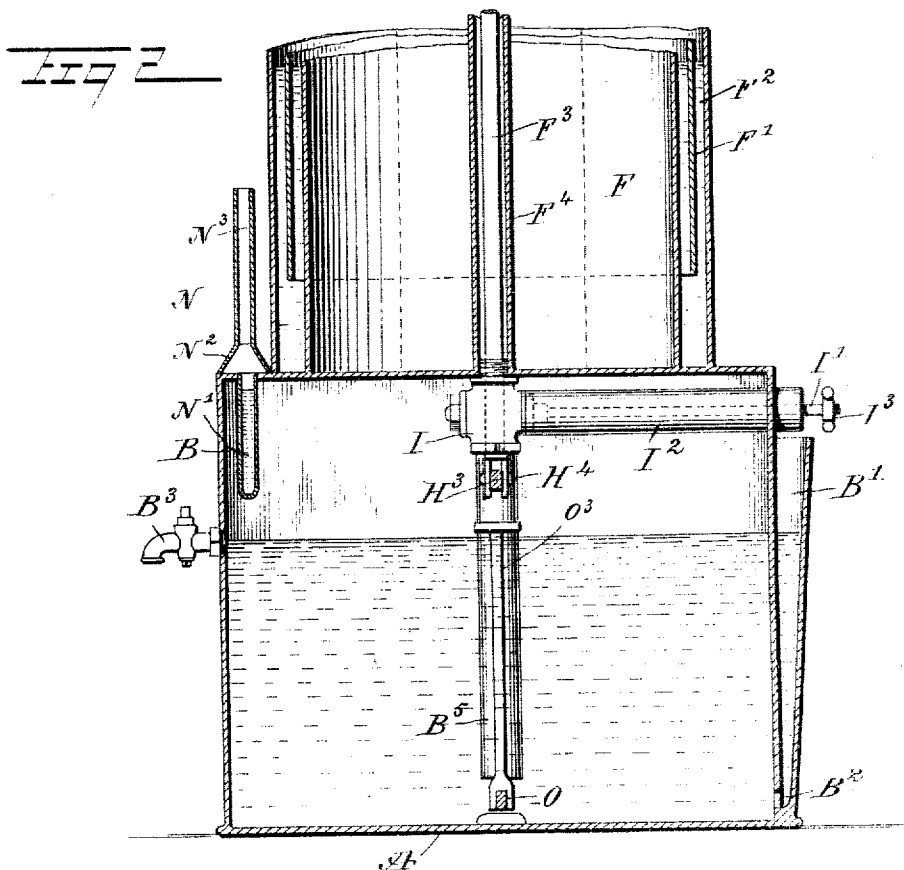


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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

LOUIS CARLTON GILMORE, OF SAN PEDRO, CALIFORNIA.

ACETYLENE-GAS GENERATOR.

No. 816,916.

Specification of Letters Patent.

Patented April 3, 1906.

Application filed June 22, 1905. Serial No. 266,529.

To all whom it may concern:

Be it known that I, LOUIS CARLTON GILMORE, a citizen of the United States, and a resident of San Pedro, in the county of Los Angeles and State of California, have invented a new and Improved Acetylene-Gas Generator, of which the following is a full, clear, and exact description.

The invention relates to acetylene-gas generators in which the carbide-magazine, the water-tank, the gas-holder, and the gas-purifier are combined in one single apparatus.

The object of the invention is to provide a new and improved acetylene-gas generator which is comparatively simple, durable, and compact in construction and arranged to insure periodic feeding of the carbide according to the consumption of the generated gas, to permit of agitating the carbide in the water-tank from the outside of the apparatus, to allow feeding of the carbide by hand to purify and cool the generated gas, and to provide a ready escape of the generated gas from the water-tank into the outer air whenever the gas is under excessive pressure.

The invention consists of novel features and parts and combinations of the same, which will be more fully described hereinafter, and pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a sectional side view of the improvement. Fig. 2 is a transverse section of part of the same, the section being on the line 2 2 of Fig. 1. Fig. 3 is an enlarged sectional side view of the gas-distributor in the purifying-tank, the section being on the line 3 3 of Fig. 4; and Fig. 4 is a horizontal view of the same on the line 4 4 of Fig. 3.

A base A of the apparatus contains a water-tank B, in which the gas is generated, and a water-tank C, in which the generated gas is cooled and purified, and on top of the water-tank B is arranged a magazine D for containing the carbide E, and on the said top of the water-tank B is also arranged a gas-holder F, having the usual bell F' rising and falling in the water-tank F². On the top of the cooling and purifying tank C is arranged a filter G, in which the generated gas is filtered previous to conducting it to the place of consumption. The bottom of the magazine D is in the shape of a hopper D', the central opening of which

is normally closed by a valve H, extending up through the carbide E and having its upper end guided in a tube H', depending from a cap D², for closing the upper end of the magazine D, the cap when removed allowing the filling of the magazine with the carbide.

From the bottom of the valve H extends downwardly into the water-tank B a stem H², pivotally connected at its lower end with a lever H³, fulcrumed at H⁴ in the tank B, and the free end of this lever H³ is adapted to be engaged by the lower end of a tube F³, attached to and moving vertically with the bell F', so that when the bell moves into a lowermost position the tube F³ comes in contact with the lever H³ and imparts a swinging motion to the same, so that the valve H is lifted off its seat and some of the carbide contained in the magazine D can drop through the opening in the bottom D' down into the water contained in the tank B to generate the gas. The upper end of the tube F³ is perforated, and the lower end slides through a valve I, and the gas generated in the tank B passes by way of the said tube F³ into the gas-holder F, so that the bell F' immediately rises, and in doing so the tube F³ releases the lever H³ to permit the valve H to move back to its seat, thereby closing the opening in the hopper-shaped bottom D' of the magazine D and stopping the feeding of the carbide from the magazine into the tank B. The tube F³ extends loosely through a guide-tube F⁴, arranged on the holder F, and the bell F' is guided in its upward movement by lugs F⁵, held on the bell and slidingly engaging posts F⁶, provided at their upper ends with collars F⁷ for the lugs F⁵ to abut against whenever the bell F' reaches its extreme uppermost position, thereby preventing the lower edge of the bell from leaving the water in the tank F² and confining the gas within the holder.

The valve I is secured to the lower end of the guide-tube F⁴, and in the said valve slides the lower end of the tube F³, as before mentioned. Now when the bell F' rises, and with it the tube F³, then the lower end of the latter disengages the valve I, so that the gas in the tank B now passes by way of the valve I into the guide-tube F⁴ to pass from the upper end thereof into the holder F and its bell F'. Some of the gas rising in the guide-tube F⁴ may also pass into the holder F and its bell F' by way of the tube F³. As long as the lower end of the tube F³ is in engagement with the valve I the valve-plug thereof is held

against turning by the said lower end, and only when the lower end is disengaged from the valve I can the valve-plug be turned. Now the valve-plug of the valve I is manually controlled from the outside of the apparatus, and for this purpose the stem I' of the plug extends through a tube P², connected at its inner end with the casing of the valve I and passing with its outer end through the side wall of the tank B. (See Fig. 2.) In order to close the valve I, (when free of the tube P²), the operator simply manipulates a handle P³ at the outer end of the valve-stem I' to turn the valve-plug and close the valve in the usual manner, thus shutting off the connection between the tank B and the holder F. When the valve I is closed, the magazine D can be recharged, and the tank B can be readily refilled with water without escape of gas, it being understood that for refilling the tank B one side thereof is provided with a filling-tube B', (see Fig. 2,) connected at its lower end by an opening B² with the bottom portion of the tank B. The latter is also provided with a gage or vent cock B³ for maintaining a uniform level of the water in the tank B, and the lower end of the tank is provided with a draw-off cock B⁴ for drawing off the water and sediment whenever it is desired to clean the tank.

The gas in the gas-holder F is conducted by a conducting-pipe J into the water contained in the tank C, and this pipe J leads from the upper end of the gas-holder F and extends within a short distance of the bottom of the tank C. On the lower end of the pipe J is secured a distributing-disk J', preferably provided with radially-disposed corrugations, as plainly indicated in Figs. 1, 3, and 4, so that the gas passing from the holder F through the pipe J passes to the under side of the disk J' and along the corrugations thereof to finally rise from the edge of the disk up through the water in the tank C. By the arrangement described the gas is well distributed and brought into contact with a large amount of water contained in the tank C with a view to purify and cool the gas.

The tank C is provided at one side with a filling-tube C', similar to the tube B', and likewise connected at its lower end by an opening C² with the lower portion of the tank C. The latter is also provided with a gage or vent cock C³ and a draw off cock C⁴, similar to the cocks B³ and B⁴, above mentioned.

The gas rising in the tank C passes through the perforated bottom G' of the filter G into the latter and through a filtering material preferably in the shape of a layer of cotton K, resting on the perforated bottom G' and a quantity of excelsior K' on top of the cotton K. The top of the excelsior K' is a distance below the upper end of the filter G to provide a gas-chamber from which leads a gas-service pipe L, extending downward into the tank

C and provided with a coil L', disposed below the level of the water contained in the tank C, so that the gas passing from the top of the filter G, through the pipe L and its coil L', is cooled by the action of the water surrounding the coil L'. The end of the coil L' terminates in a pipe L², extending through the side wall of the tank C to the place of consumption of the gas.

In the bottom of the water-tank B is arranged an agitator O in the form of a longitudinally-extending bar, attached at one end to the lower end of a rod O', rising through a tube B⁵, arranged on one side of the tank B. The upper outer end of the rod O' is provided with a suitable handle O², which when taken hold of by the operator and turned sidewise causes a turning of the rod O' and a swinging of the agitator O, so as to stir up the carbide tending to settle in the bottom of the tank B. From the agitator O extends upwardly an arm O³, adapted to engage the lower end of the valve-stem H², so that when it is desired by the operator to feed carbide into the tank B then it is only necessary for the operator to lift the handle O², and with it the rod O' and agitator O and arm O³, so that the latter lifts the stem H² and the valve H to allow some of the carbide to feed by gravity from the magazine D into the tank B. This operation is desirable, for instance, when it is necessary to refill the tank B at the time the bell F' is in a lower most position and the valve I locked against turning by the tube F², as before explained, it being understood that in order to refill the tank B the latter is preferably cut off from the holder F to prevent escape of gas, and in order to allow closing of the valve I the bell F' has to be raised to disengage the lower end of the tube F² from the valve I.

In order to permit the escape of the gas from the tank B into the outer air in case the gas should be under excessive pressure, I provide a self-sealing trap N, arranged as follows: A U-shaped pipe N', filled with water, is located in the upper portion of the tank B, and one member of this pipe opens into a chamber N², from the top of which extends a discharge-pipe N³, opening into the outer air. The chamber N² is preferably in the form of a frustum of a cone, and as the pipe N' is normally sealed by the water contained therein it is evident that gas cannot pass from the tank B into the outer air by way of the self-sealing trap N; but when the gas-pressure in the tank B becomes excessive then the water in the pipe N' is forced up into the chamber N², thus allowing the gas to pass through the pipe N' and the chamber N² into the pipe N³, from which the gas can escape into the outer air. When the pressure within the tank B returns to normal pressure, then the water contained in the chamber N² returns into the pipe N', so as to seal the same.

The operation is as follows: Normally the

valve II is in a closed position, and when the gas in the holder F has been drawn off to allow the bell F' to sink then the tube F² by actuating the lever II² causes an unseating of the valve H, so that carbid is fed from the magazine B into the tank B to generate gas, which passes by way of the tubes F³ and F⁴ and valve I into the holder F, as previously described, to cause the bell F' to rise and release the lever II², as before stated. When the lever II² is released, the valve II immediately returns to its seat in the hopper-bottom D, it being understood that the valve II is sufficiently heavy to insure its prompt closing. The gas accumulating in the holder F passes by way of the pipe J and the distributing-disk J' into the water contained in the tank C to cool and purify the gas, which in rising in the tank C passes through the perforated bottom G' and through the cotton K and the excelsior K' to completely purify the gas. The purified gas is drawn from the upper end of the filter G by the pipe L, and the purified gas in its passage through the coil L' is cooled, so that the gas finally arrives at its place of consumption in a proper condition to insure a brilliant light.

By having an agitator in the tank B the residue of the carbid dropped into the water can be readily stirred up when washing or cleaning the tank B. By having the valve H, extending through the carbid E, contained in the magazine D and by having the upper end of the valve II guided into the tube II' it is evident that a proper closing of the valve is insured whenever the lever II² is released on the rising of the bell F'. By arranging the magazine D, the gas-holder F, and the filter G on the top of the base containing the tanks B and C an exceedingly compact apparatus is provided which takes up very little room.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. An acetylene-gas generator comprising a base having a water-tank, a carbid-magazine on top of the said water-tank and having a valve for allowing the carbid to feed by gravity into the said water-tank, a gas-holder arranged on top of the said water-tank and having a bell provided with a tube for the passage of the gas from the said water-tank to the gas-holder, the said tube controlling the said magazine-valve, a manually-controlled valve for closing the communication between the said water-tank and the gas-holder, and a gas-conducting pipe leading from the said gas-holder.

2. An acetylene-gas generator, comprising a water-tank, a carbid-magazine connected with the water-tank and having a valve for allowing the carbid to feed by gravity into the said water-tank, a gas-holder having a bell provided with a tube for the passage of the gas from the water-tank to the gas-

holder, a lever connected with the valve of the carbid-magazine, the said tube being adapted to actuate the lever to move said valve from its seat, and means for conducting the gas from the said gas-holder.

3. An acetylene-gas generator comprising a base having a water-tank, a carbid-magazine on top of the said water-tank and having a valve for allowing the carbid to feed by gravity into the said water-tank, a gas-holder arranged on top of the said water-tank and having a bell provided with a tube for the passage of the gas from the said water-tank to the gas-holder, the said tube controlling the said magazine-valve, a manually-controlled valve for closing communication between the said water-tank and the gas-holder, a gas-conducting pipe leading from the said gas-holder, and an agitator in the said water-tank and manually controlled from the outside of the gas-generator, the said agitator being arranged to actuate the magazine-valve.

4. An acetylene-gas generator comprising a base having a water-tank, a carbid-magazine on top of the said water-tank and having a valve for allowing the carbid to feed by gravity into the said water-tank, a gas-holder arranged on top of the said water-tank and having a bell provided with a tube for the passage of the gas from the said water-tank to the gas-holder, the said tube controlling the said magazine-valve, a manually-controlled valve for closing communication between the said water-tank and the gas-holder, a gas-conducting pipe leading from the said gas-holder, and an agitator in the said water-tank and manually controlled from the outside of the gas-generator, the said agitator having a member adapted to engage the stem of the said magazine-valve to lift the latter off its seat.

5. An acetylene-gas generator provided with a magazine, a water-tank, a gas-holder provided with a bell, a gas-tube attached to the bell and moving with the same, and a valve in the said water-tank and adapted to be opened and closed from the outside of the water-tank, the said valve being engaged by the lower end of the said tube to lock the valve against turning until the bell has risen.

6. An acetylene-gas generator, comprising a base having a water-tank, a carbid-magazine on top of the said water-tank and having a valve for allowing the carbid to feed by gravity into the said water-tank, a gas-holder arranged on top of the water-tank and provided with a bell, a gas-tube attached to the bell and moving with the same, a valve in the said water-tank and adapted to be opened and closed from the outside of the water-tank, the said valve being engaged by the lower end of the said tube to lock the valve against turning when the bell is in the lowermost position, the said tube when the bell is

in the lowermost position controlling the magazine-valve.

7. An acetylene-gas generator comprising a base having a water-tank, a carbid-magazine on top of the said water-tank and having a valve for allowing the carbid to feed by gravity into the said water-tank, a lever pivotally connected at one end with a stem extending from the magazine-valve, a gas-holder arranged on top of the water-tank and provided with a bell, a gas-tube attached to the bell and moving with the same, and adapted to engage the said lever to open the magazine-valve, and a manually-controlled valve for closing communication between the water-tank and the gas-holder.

8. In an acetylene-gas generator, a water-tank, a carbid-magazine connected with the water-tank and having a valve for allowing the carbid to feed by gravity into the said

water-tank, the valve having a stem extending into the water-tank, a gas-holder for receiving the gas from the water-tank and provided with a bell, a manually-controlled valve for closing communication between the water-tank and the gas-holder and an agitator in the water-tank and having an operating member extending to the outside of said tank, the said agitator being provided with an upwardly-extending arm adapted to engage the end of the stem of said magazine-valve to lift the valve from its seat.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

LOUIS CARLTON GILMORE.

Witnesses:

SWAN GUSTAF SWANSON,
LOU HOWERY.