

No. 627,303.

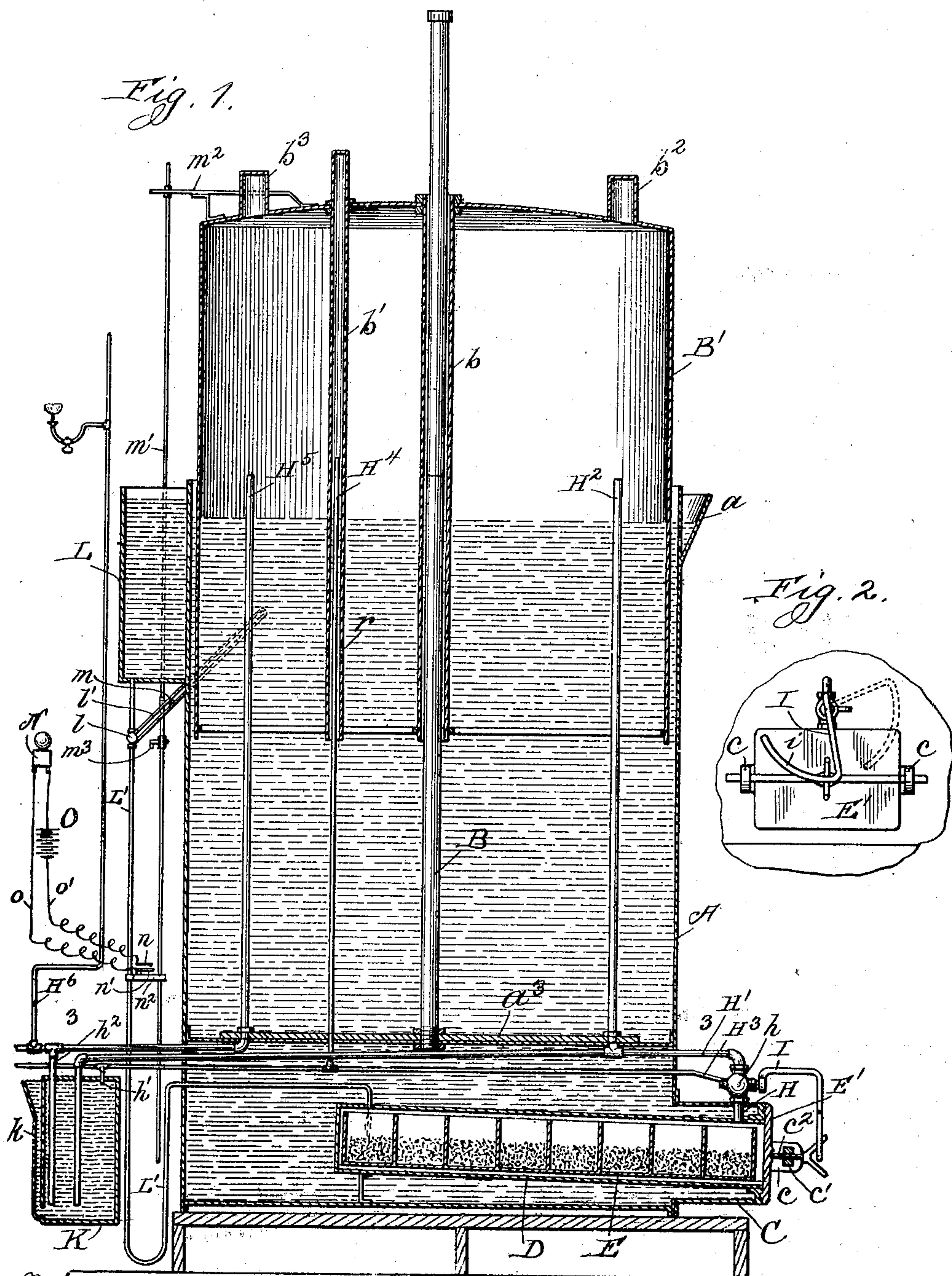
Patented June 20, 1899.

E. E. & H. W. LAUN.
ACETYLENE GAS GENERATOR.

(Application filed Oct. 17, 1898.)

(No Model.)

2 Sheets—Sheet 1.



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2 Sheets—Sheet 2.

Fig. 3.

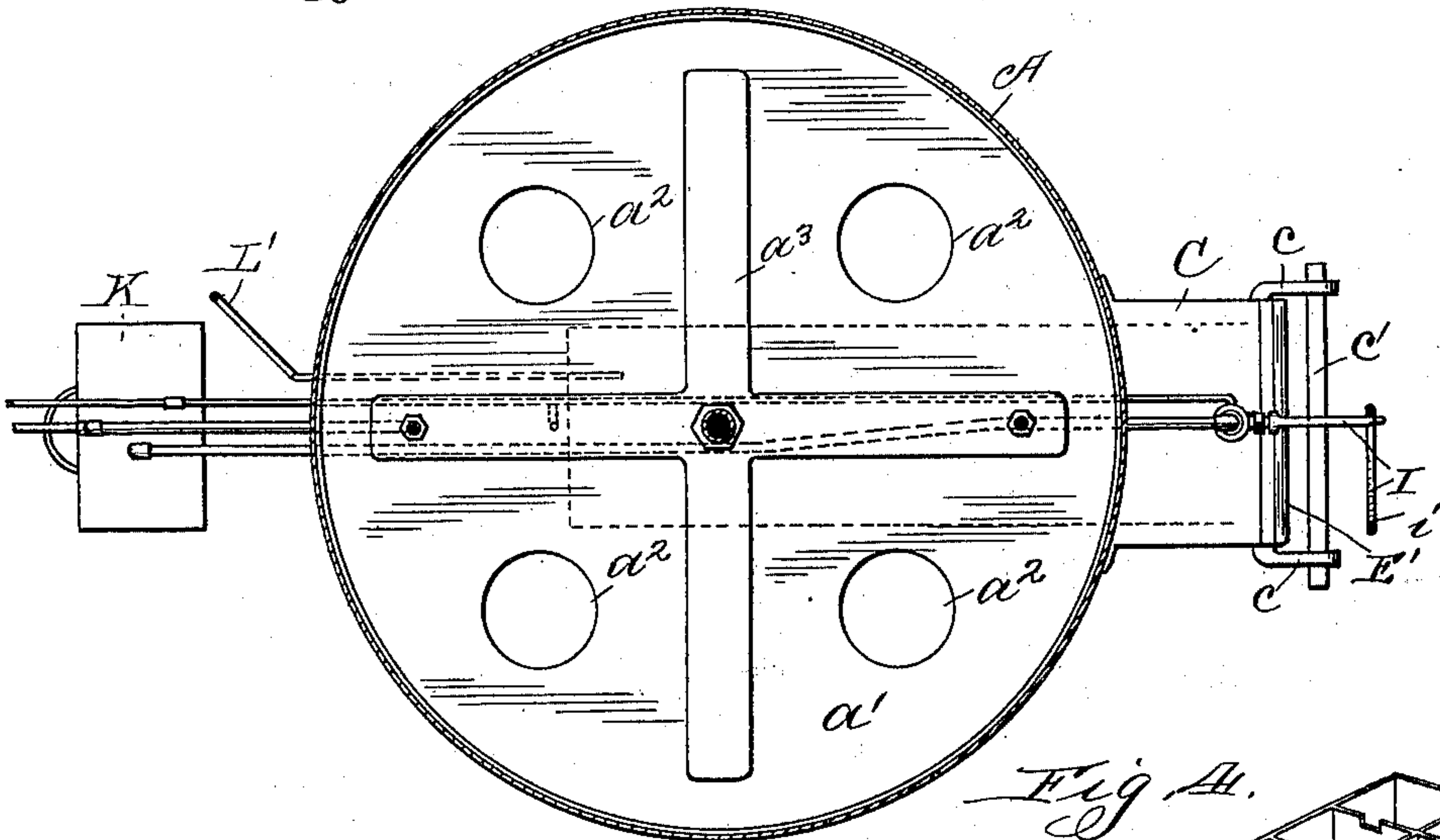


Fig. 4.

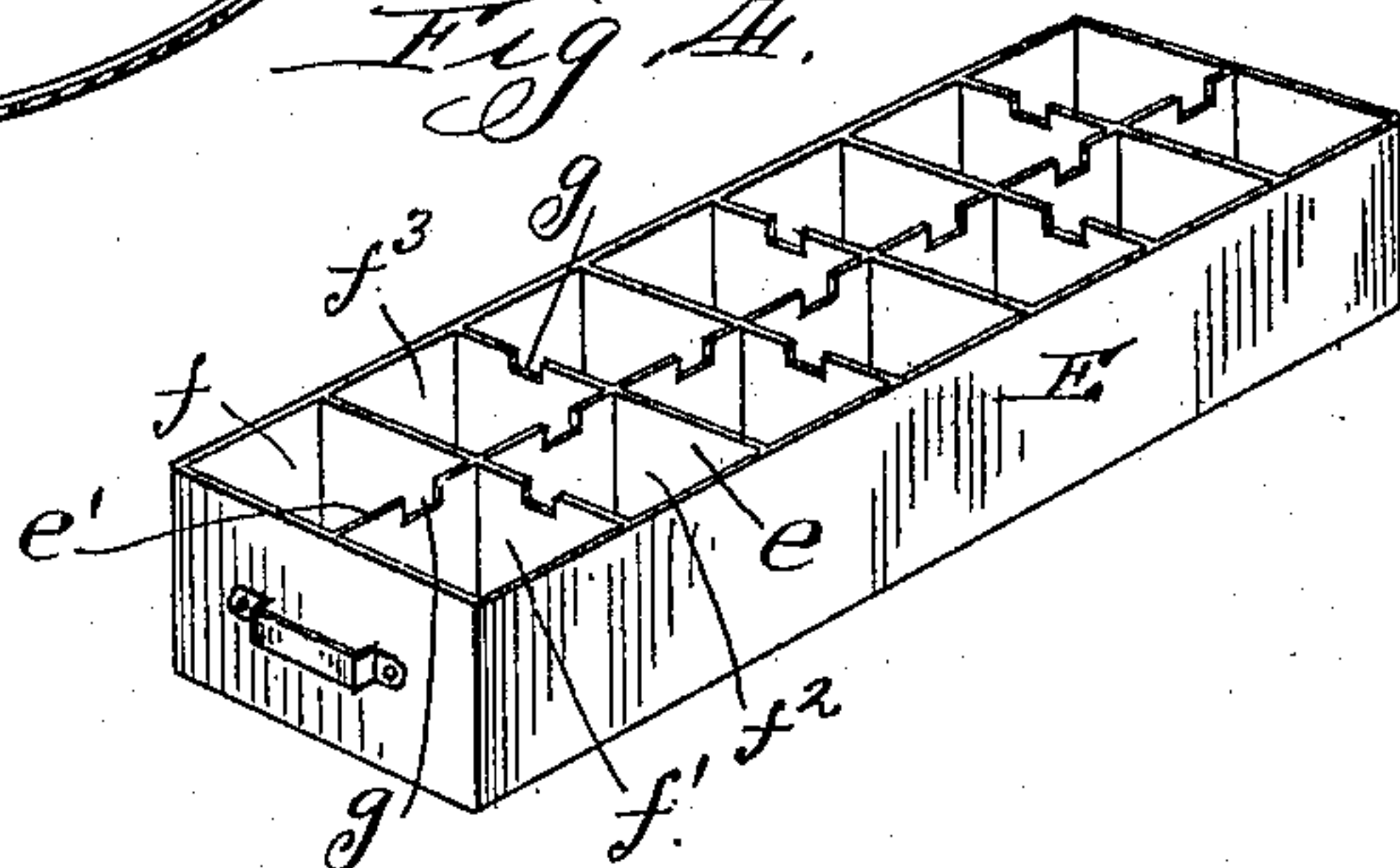
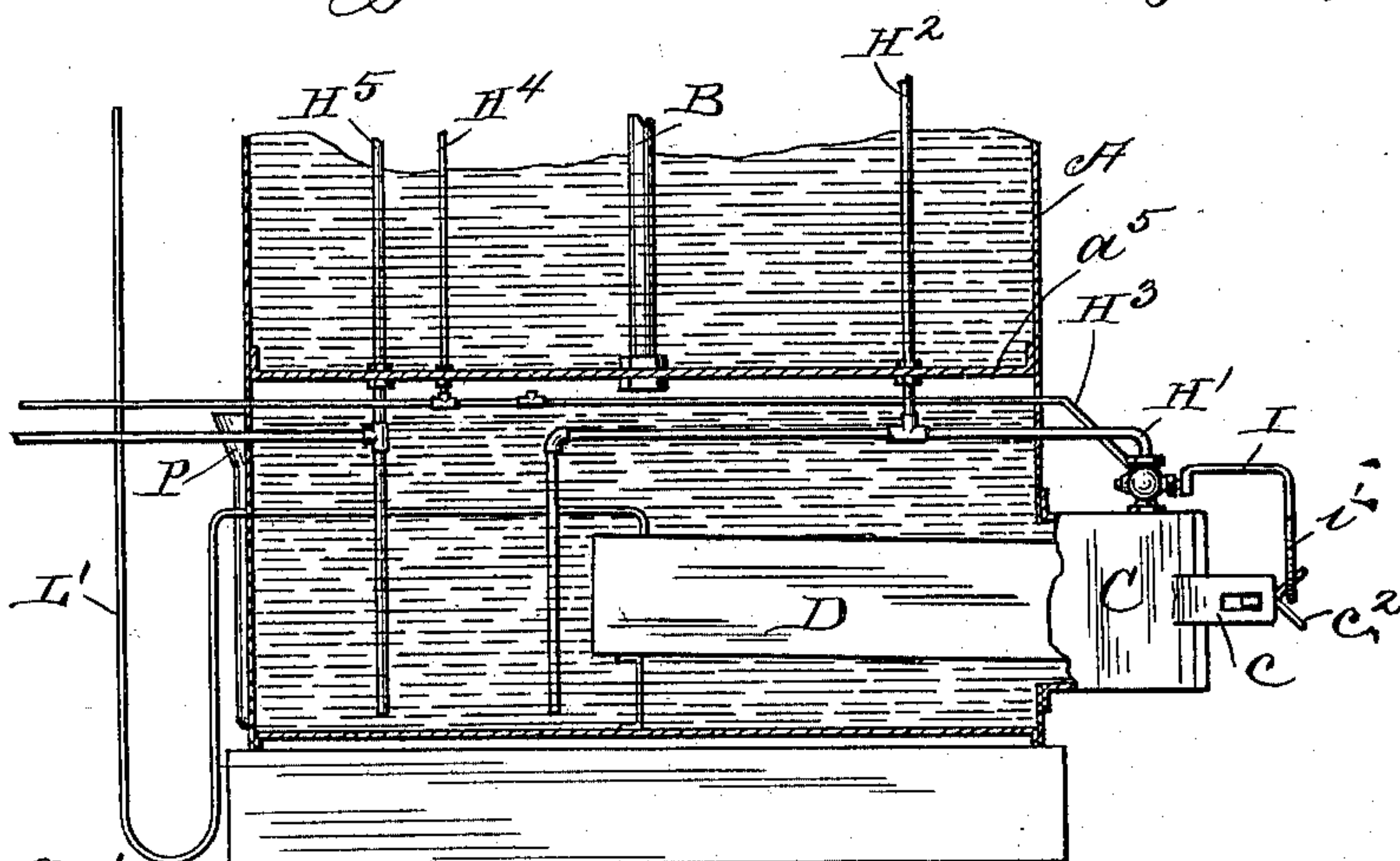


Fig. 5.



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UNITED STATES PATENT OFFICE.

ERNEST E. LAUN AND HENRY W. LAUN, OF CHICAGO, ILLINOIS.

ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 627,303, dated June 20, 1899.

Application filed October 17, 1898. Serial No. 693,743. (No model.)

To all whom it may concern:

Be it known that we, ERNEST E. LAUN and HENRY W. LAUN, citizens of the United States, and residents of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Gas-Generators, of which the following is a specification.

This invention relates to improvements in that class of apparatuses known as "acetylene-generators," and it consists in certain peculiarities of the construction, novel arrangement, and operation of the various parts thereof, as will be hereinafter more fully set forth and specifically claimed.

The objects of our invention are, first, to provide a generator which shall be compact in form, automatic in its operation, and of such a construction as to render it safe against explosion, and, second, a generator of the above-named character in which the generating vessel or compartment will be kept at a low temperature and cannot be opened when it is filled with gas.

Another object of our invention is to so construct the apparatus that a signal will be given when the gas-pressure is at a low point, thus enabling the generator to be replenished and the generation of gas resumed without shutting off the supply to the service-pipes.

In order to enable others skilled in the art to which our invention pertains to make and use the same, we will now proceed to describe it, referring to the accompanying drawings, in which—

Figure 1 is a central vertical sectional view of our generator as it appears when in operation. Fig. 2 is a view in elevation of the front portion of the generating vessel or chamber, showing the regulating-valve thereon and the manner of securing the door thereto. Fig. 3 is a plan sectional view. Fig. 4 is a perspective view of the carbide-receptacle; and Fig. 5 is a vertical sectional view of the lower portion of the generator, showing a modification in its construction.

Similar letters refer to like parts throughout the different views of the drawings.

A represents a tank or vessel which may be made of any suitable size, form, and material, but preferably cylindrical, as shown in the drawings, and is usually provided at its up-

per portion with a spout *a*, by means of which water may be poured into the vessel. Located in the lower portion of the tank or vessel A is a partition *a'*, which is provided with a number of openings *a²* for the passage of water and which partition supports a casting *a³*, used for strengthening said partition and for the support of the supply and outlet pipes, as well as the guide-post B, which extends from the center of the casting *a³* and partition *a'* vertically and is usually made of two pieces, which may be screwed together at their meeting ends, yet may be taken apart when it is desired to ship the apparatus.

Located within the open upper end of the main tank or vessel A is the gasometer B', which is somewhat smaller than the vessel A, so as to move freely therein, and is provided with a central tube *b*, through which the guide-post B passes. To one side of the tube *b* and extending from the lower portion of the gasometer through its top is another tube *b'*, whose upper end is closed, as is shown, and is for the purpose presently to be explained. The top or cover of the gasometer is provided in its outer portion with tubular projections *b²* and *b³* for the reception of the upper ends of the supply and outlet pipes, respectively, when the gasometer is in its lowered position. The lower portion of the main tank or vessel A is provided with a hollow projection C, which extends horizontally and is provided at its outer end with a yoke comprising two arms *c*, through which is passed a bar *c'*, which is provided at about its middle with a screw *c²*, having its outer or handle end forked, as shown in Fig. 1 of the drawings. Located within the lower portion of the main tank A is a generating-chamber D, which may be made of any suitable form and size and is supported in a slightly-inclined position, with one of its ends located within the hollow projection C, said end being open to admit of the insertion and withdrawal of the carbide-holder E, which may be of a form to correspond with the form of the generating-chamber, both of which are preferably rectangular in shape. The end of the chamber D, as well as that of the projection C, is closed with a door E', which is held in position by means of the screw *c²* of the yoke described above, as will be clearly understood by ref-

erence to the drawings. The carbid-holder E (see Fig. 4) has a substantially rectangular body with a number of transverse and longitudinal partitions e and e' , which divide it into a series of compartments f, f', f^2 , and f^3 for the reception of a quantity of carbid. The upper edges of some of the said partitions are provided with recesses g to allow the water to pass from one compartment to the other at the desired time. Passing upward through the projection C from and communicating with the generating-chamber D is the main feed-pipe H, which is provided outside the projection C with a valve h , preferably of the kind known as a "three-way" cock or valve. Secured to the stem of said valve and extending outwardly and downwardly therefrom is an arm I, whose lower portion is bent to form a projection i , which normally lies between the forks of the handle of the screw c^2 and prevents the same being turned until desired. Connected to the top of the chamber of the valve h and communicating therewith is what we will call the "connecting-pipe" H', which extends in an inclined position through the tank A below the partition a' therein and has its other end opening into a drain vessel K, which may be located at any suitable point and is provided with a spout k for the purpose of filling the same with water. Communicating at its lower end with the pipe H' is an inlet-pipe H², whose upper end is open at about the top of the main tank or vessel. Communicating with the side of the chamber of the valve h is an exhaust-pipe H³, which extends in an inclined position through the lower portion of the main tank A and has its other end open at a point outside of the room in which the generator is located. This pipe is preferably provided with a short nozzle h' , discharging into the drain vessel K, and is for the passage of the moisture of condensation which may accumulate in said pipe. Communicating with the exhaust-pipe H³ and extending upwardly therefrom into the tube b' is another or escape pipe H⁴, whose upper end is open and extends somewhat higher than the upper end of the inlet-pipe H² and outlet-pipe H⁵, the latter of which communicates with the service-pipe H⁶ and has a short nozzle h^2 leading into the drain vessel K for the purpose of conducting the moisture of condensation from said pipe. Located at a point above the generating vessel or tank A is a reservoir L, which has a water-pipe L' leading therefrom to the rear upper portion of the generating vessel. This pipe is provided with a valve l , to whose stem is secured a slotted arm l' , which engages a projection m on the rod m' , which is secured to the upper portion of the gasometer by means of a bracket m^2 and moves therewith. Just below the projection m the rod m' is provided with another projection m^3 , which in the descent of the gasometer and rod will contact with a spring-key n , which will thereby be pressed against the contact-plate n' , located

on a bracket or projection n^2 , secured to the pipe L', which conveys water from the reservoir to the generating vessel, or supported in any other convenient means.

Located at a suitable point is a bell or alarm N, which is connected by means of wires o and o' with a battery O and to the spring-key n and contact-plate n' , so that when the spring-key is pressed against said plate the electric circuit will be completed and a signal given through the medium of the bell or alarm.

In Fig. 5 of the drawings we have shown a modification in the construction of our apparatus, which consists in dividing the main tank or vessel A into two compartments by means of a horizontal partition a^5 , in which construction the lower compartment of the said tank or vessel is employed as a drain vessel—that is to say, the pipes H', H³, and H⁵ will drain into said compartment instead of into a separate drain vessel K, as shown in Fig. 1 of the drawings. When this modification is used, the lower portion of the main tank or vessel is provided with a spout P for supplying water thereto.

From the foregoing and by reference to the drawings it will be seen and readily understood that as the generating-chamber D is located in the lower portion of the main tank or vessel it will always be surrounded by water and thus kept at a low temperature, and as it is in an inclined position the carbid-holder E, which is located therein, will also lie in an inclined position. Hence the water from the pipe L' is discharged into the compartment f of the carbid-holder until said compartment is filled, when the water will pass therefrom through the recess g in the partition e' into the next compartment, and so on from one compartment to another until the carbid in each compartment shall have been acted on, when the holder may be removed, emptied, replenished, and again inserted into the generator.

To remove the door E', so that the carbid-holder may be removed, the arm I is turned to the position shown by dotted lines in Fig. 2 of the drawings, thus removing the portion i thereof from between the forks of the screw-handle and allowing the screw to be loosened. When the arm I is turned to the position shown by dotted lines in Fig. 2, the connecting-pipe H' will be closed, and the exhaust-pipe H³ opened, so that the gas remaining in the generator may pass through the exhaust-pipe out into the open air without loss of any of the gas or reduction of the pressure within the gasometer B''. As the gas is generated in the chamber D, it will pass through the pipes H' and H² into the gasometer B', which will thereby be raised, and as the gasometer carries with it the rod m' , said rod, through the projection m , engaging the slot in the arm l' , will raise said arm and close the valve l , thus shutting off the supply of water to the generating-chamber and preventing the further generation of gas until a sufficient quantity of gas

shall have been used to allow the gasometer to descend, when the valve *l* will be opened and water again supplied to the carbid in the generating-chamber. When the gasometer is in its downmost position, the valve *l* will be closed to prevent flooding of the generator and waste of water. Should the pressure within the gasometer become too great, the gas contained therein may escape through the opening *r* in the tube *b'* when said opening has been raised above the water-line within the main tank and will pass down through the escape-pipe *H⁴* and exhaust-pipe *H³* and out into the open air. In the event of the pressure becoming very low the gasometer will descend until the projection *m³* on the rod *m'* strikes the spring-key *n*, when a signal will be given in time to allow the generator to be replenished with carbid before the gas is completely exhausted, thus preventing the lights going out.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination with the main tank or vessel; of a generating-chamber located in an inclined position in its lower portion, a carbid-holder within the generating-chamber and having a series of compartments provided with recesses in the upper portion of some of the partitions forming said compartments, a gasometer movably located in the upper portion of the main tank, a main feed-pipe communicating with the generating-chamber and leading to a valve, a connecting-pipe leading from the top of the valve-casing, an inlet-pipe leading from the connecting-pipe into the gasometer, an exhaust-pipe leading from the side of the valve-casing, an escape-pipe leading from the gasometer to this exhaust-pipe, and an outlet-pipe leading from the gasometer to the service-pipe, all substantially as and for the purpose set forth.

2. The combination with the main tank or vessel; of a generating-chamber located in an

inclined position in its lower portion, a carbid-holder located within the generating-chamber, a gasometer movably located in the upper portion of the main tank, a main feed-pipe communicating with the generating-chamber and leading to a valve, a connecting-pipe leading from the valve-casing into a drain vessel, an inlet-pipe leading from the connecting-pipe into the gasometer, an exhaust-pipe also leading from the valve-casing and having a nozzle delivering into the drain vessel, an escape-pipe leading from the gasometer into the exhaust-pipe, a tube covering the escape-pipe, said tube being closed at one end and having openings in its body below the top of the escape-pipe, and an outlet-pipe leading from the gasometer to the service-pipe and also having a nozzle leading into said drain vessel, all substantially as and for the purpose set forth.

3. The combination with the main tank or vessel, having near its lower end a projection *C*, a generating-chamber *D* fixed therein with its end flush with the mouth of said projection, a carbid-holder *E* removably contained within said chamber, and a water-pipe *L* delivering into one end of such holder; of a door *E'* removably closing the mouth of the projection and the chamber, a yoke and screw for holding the door in place, the handle of the screw being forked, a main feed-pipe *H* leading from the top of the chamber near its other end through the upper side of said projection, a valve *h* therein above the projection, a connecting-pipe leading from the valve-casing and indirectly to the service-pipe, an exhaust at another point in the valve-casing, and an arm *I* on the valve-stem engaging said screw only when said exhaust is closed, as and for the purpose set forth.

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