

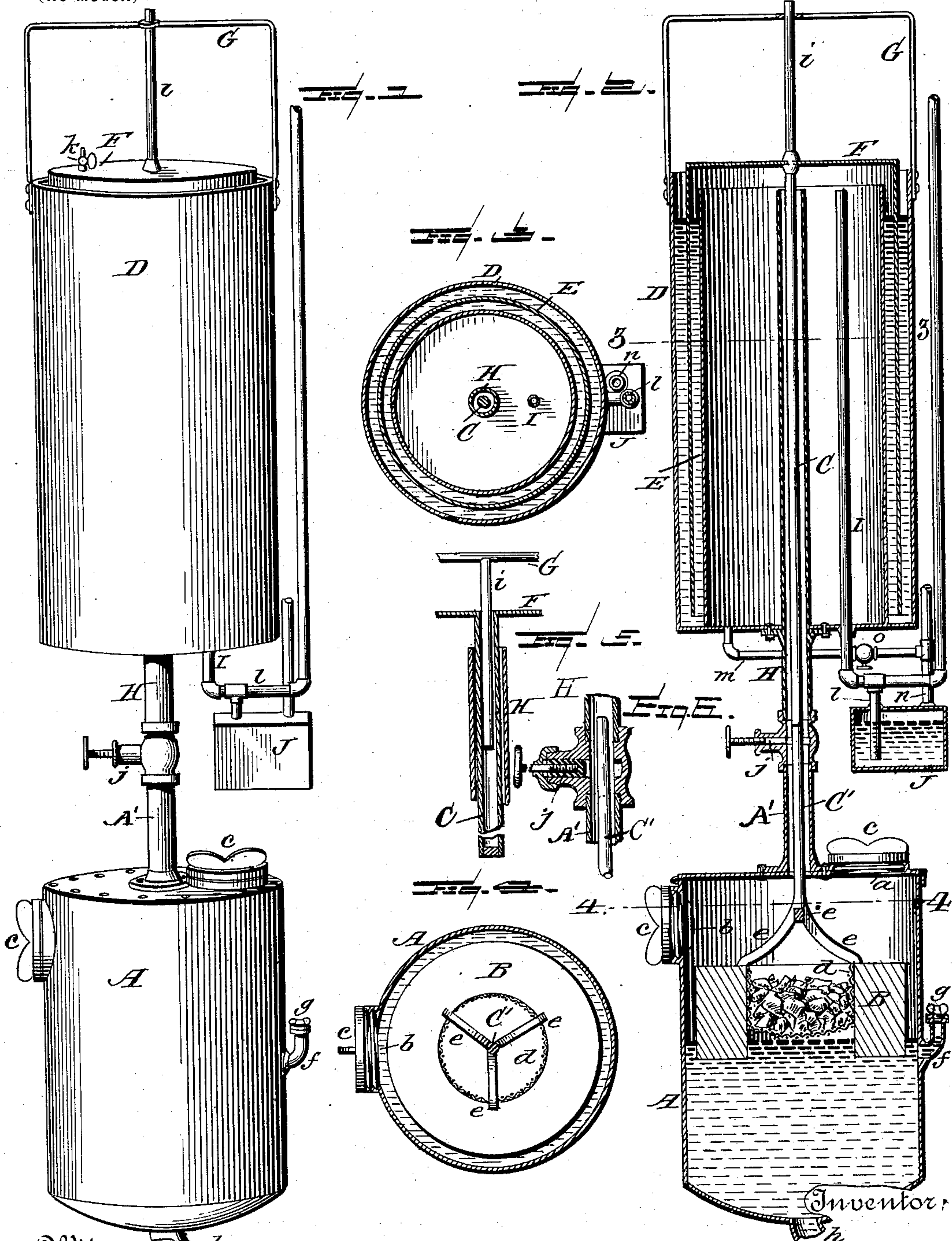
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Patented July 31, 1900.

H. E. GIFFORD.
ACETYLENE GAS GENERATOR.

(Application filed Dec. 19, 1899.)

(No Model.)



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ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 654,968, dated July 31, 1900.

Application filed December 19, 1899. Serial No. 740,876. (No model.)

To all whom it may concern:

Be it known that I, HARRY E. GIFFORD, a citizen of the United States, residing at Onset, in the county of Plymouth and State of Massachusetts, have invented certain new and useful Improvements in Gas-Producing Apparatus; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters of reference marked thereon.

The present invention has reference to that class of gas-producing apparatus in which a generator and gasometer are used and a gas-producing medium consisting of calcium carbide or other like material from which is manufactured what is known as "acetylene gas," and the object of the invention is to improve such class of machines in the several details of construction whereby the manufacture of gas is rendered less dangerous and its production materially simplified.

The invention consists in a gas generator or apparatus constructed substantially as shown in the drawings and hereinafter described and claimed.

Figure 1 of the drawings is a perspective view of a gas apparatus constructed in accordance with my invention; Fig. 2, a sectional elevation; Fig. 3, a horizontal section taken on line 3 3 of Fig. 2; Fig. 4, a similar view taken on line 4 4 of Fig. 2; Fig. 5, a detail modified view of the plunger and the guide-rods with their connections. Fig. 6 is an enlarged detail vertical section of the valve which controls the pipe between the generator and gasometer.

In the accompanying drawings, A represents the generator of any preferred construction, which is provided at its top and side with manholes *a* *b*, respectively, and closed by suitable screw-plugs *c*. This generator A contains a suitable float B, having a reticulated receptacle *d* entirely within it to receive the calcium carbide or like material, which rests on the grating or reticulated bottom of said receptacle, so that it will be supported in normal position just above the water below. Connected to this float B by arms *e* or other preferred means is a stem *C'*, which extends through the top of the generator and

is in line with and is acted upon by a plunger-rod C to hold the float, with its carbide, down in the water, when the end of the plunger-rod and stem of the float come in contact and the stem is depressed. The lower end of the plunger-rod C when brought in contact with the upper end of the stem *C'* of the float will force the latter down into the water to bring the carbide in contact therewith. The plunger-rod and the reticulated receptacle with its stem may be variously modified or changed as circumstances require without departing from the principle of the invention.

The generator A is supplied with water through an overflow-tube *f* of any suitable form and construction and located at any distance from the top of the generator, and said tube may be of any suitable length desired and provided with a screw-cap *g*, said tube serving as an indicator in ascertaining the amount of water required in supplying the generator. The tube *f* acts as an indicator in ascertaining or indicating when the necessary amount of water is supplied to the generator. In the employment of the tube *f* only a certain height of water can enter the generator, as when up to a level with the open end of the tube the water will flow out of the tube, thus indicating when the generator has its full supply. It is absolutely essential that the tube *f* be closed after the generator is supplied with water to prevent the pressure of the gas above from forcing the water out of the tube, and for this purpose the screw-cap *g* is employed.

At the bottom of the generator is a suitable discharge-pipe *h* of any preferred form and construction, whereby the slaked carbide and water may be removed when desired.

The reticulated receptacle *d* of the float B is supplied with the carbide through the manholes hereinbefore described when recharging, and the generator A may be attached to the other parts of the apparatus by any suitable and well-known means that will admit of the parts being easily separated for repairs or for other purposes as found necessary.

The gasometer is constructed with double walls D E, between which is a space for water or other liquid to seal the dome F, as shown in Fig. 2 of the drawings. To the upper or open end of the gasometer and connected to

the wall D is a suitable stop G, designed to limit the rising of the dome above a certain point, the dome coming in contact therewith when rising to its greatest limit. The stop G also serves as a guide to the guide-rod *i*, the end of the rod entering a hole in the stop, or, if desired, the guide-rod may be formed rigid upon the stop and its lower end enter a hole in the top of the dome F and into the hollow end of the plunger-rod C, the lower end of the rod or the base of the hollow portion thereof being closed to prevent the escape of gas, as shown in Fig. 5 of the drawings, and adapted to impinge on the stem C' when the dome falls. The former construction in having the guide-rod *i* rigidly connected to the top of the dome and moving therewith, as shown in Fig. 2 of the drawings, is deemed preferable, although either construction may be employed, or such further modifications may be made as would come within ordinary mechanical skill.

The generator and gasometer are connected by a strong central pipe H, said pipe at its lower end connecting and communicating with the top of the generator and extending up centrally into the gasometer, as shown in Fig. 2 of the drawings.

A' is a short central pipe secured to the top of the generator and surrounding the stem.

Between the central pipes A' and H is located a suitable gate-valve *j*, to be closed whenever the generator is to be charged, and thus prevent the escape of gas.

When the carbid is to be renewed, the water is drawn off from the generator, which operation will lower the float B, and also the stem C' thereof is carried with it until the upper end is below the valve *j*, which will admit of the valve being closed. The manhole *a* is now opened by removing the plug therefrom and sufficient water introduced into the generator to bring the float nearly into place, after which new carbid is supplied to the reticulated receptacle and the manhole closed and the valve opened and any additional water needed being supplied through the tube *f* at the side of the generator.

The pipe H, that connects the generator and gasometer, extends into the latter to a point near the top thereof, said pipe being of sufficient size to carry the gas generated from the generator to the gasometer in addition to guiding the plunger-rod in its vertical movement.

The gasometer is provided with a suitable air-outlet, which is controlled by a valve *k*, which outlet may be at the top of the gasometer, as shown in Fig. 1 of the drawings, or a suitable pipe *m* may connect with an air-outlet at the bottom of the gasometer and also with the blow-off pipe *n*, leading out of doors, as shown in Fig. 2 of the drawings, said pipe *m* having a suitable valve *o* and the blow-off pipe connecting with the water-trap J. This latter construction enables the gas rising to the top of the gasometer when the machine

is first charged and the gasometer full of air to force this air down and out from the lower part of the gasometer through the pipe *m* and pipe *n*, thereby carrying the mixture of offensive air and gas out of doors. The gas after being generated passes to the consumer through a supply-pipe I, which extends into the gasometer and communicates therewith at or near the top thereof and extends down through the bottom of the gasometer, at which point it connects with a T-coupling and short pipe *l*, which latter extends down into a water-trap J of any preferred construction. Through this trap the gas will escape should the gas generate in a greater volume than the capacity of the gasometer and that needed for consumption.

The supply-pipe I may communicate with any suitable system of house-pipes found necessary to convey the gas to the consumer as circumstances may require.

When gas is generated, the dome F rises and the plunger-rod C is carried with it, and as gas is used the dome falls, and when nearly down the end of the plunger-rod strikes the end of the stem C' of the float B, and thus pushes the float down, so that the water will come in contact with the carbid in the reticulated receptacle *d*. As the gas is generated by the contact of the carbid with the water the dome will at once rise and remove the pressure of the end of the plunger-rod C from the end of the stem C', thus admitting the float B to rise, carrying with it the carbid in the reticulated receptacle *d* above the water until gas is again consumed, when the operation will be again repeated.

It should be understood that the end of the stem C' does not in any manner extend through the valve, and in order to close said valve the upper end of the stem must be below the valve.

The construction of the valve is not essential to the successful operation of the apparatus, and, if desired, the usual rotary plug-valve may be used, the end of the stem in such a case extending through the port in the valve-plug.

It is evident that many changes and modifications may be made in the several parts comprising the apparatus without in any manner affecting the general principle upon which the same operates or the essential features which combine to render the apparatus successful in its operation.

Having now fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

A gas-producing apparatus comprising a generator, a float, a reticulated receptacle within the float, supported normally out of contact with the water in the generator, a stem extending upwardly through the top of the generator, having arms whereby it is secured to the float, a lower gas-pipe section, secured to the top of the generator, through which the stem extends, a gas-valve sur-

mounting the lower gas-pipe section, and secured thereto, through which the stem normally extends, an upper gas-pipe section surmounting the valve and secured thereto, 5 having an open upper end, a gasometer concentric with the upper gas-pipe section and secured thereto, a gas-receiver into which the upper gas-pipe section discharges upwardly, and a plunger-rod extending through 10 the upper gas-pipe section, normally in con-

tact with the stem, and secured to and supporting the receiver thereon.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

HARRY E. GIFFORD.

Witnesses:

E. G. PARSONS,
JOS. K. NYE.