

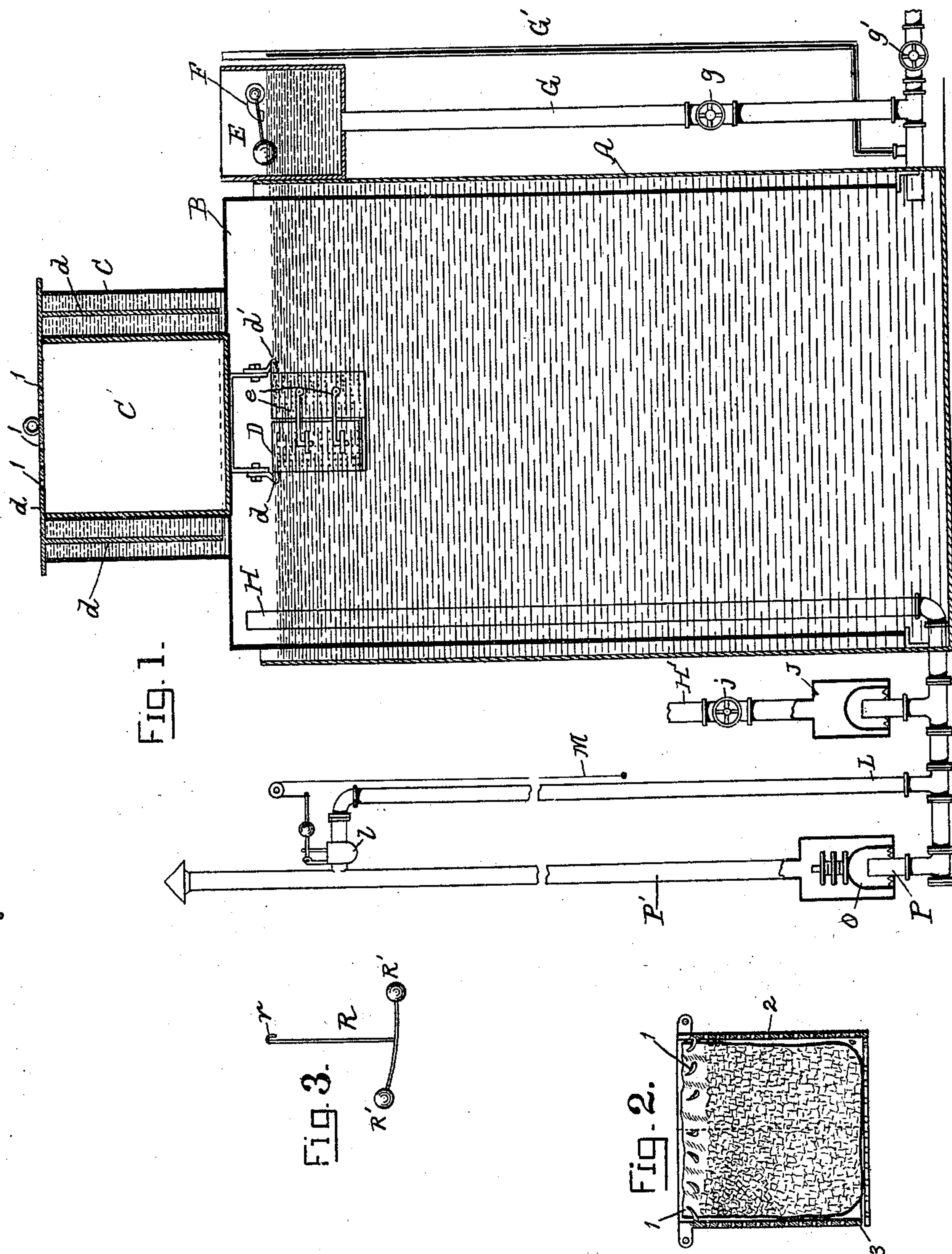
No. 684,794.

Patented Oct. 22, 1901.

M. D. COMPTON.
ACETYLENE GAS GENERATOR.

(Application filed Feb. 11, 1899.)

(No Model.)



Witnesses.

L. H. Latimer.
G. H. Stockbridge

Inventor.
M. D. Compton,
per Albert Stetson,
Att'y.

UNITED STATES PATENT OFFICE.

MELVIN D. COMPTON, OF ORANGE, NEW JERSEY, ASSIGNOR TO FRANK FULLER, TRUSTEE, OF NEW YORK, N. Y.

ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 684,794, dated October 22, 1901.

Application filed February 11, 1899. Serial No. 705,333. (No model.)

To all whom it may concern:

Be it known that I, MELVIN D. COMPTON, a citizen of the United States, and a resident of Orange, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Acetylene-Gas Generators, of which the following is a specification.

My invention relates to acetylene-gas generators, more especially of the kind in which the carbid-holder is automatically plunged into or raised out of the decomposing liquid.

The object of my said invention is to provide an air and gas tight seal for the gas-holder, so as to enable the carbid-receptacle to be removed from or inserted into the gas-holder with the minimum escape of gas and the least possible admission of air when the said receptacle is removed or inserted.

Referring to the drawings, Figure 1 shows a vertical section of a combined generator and holder provided with a dome containing a liquid seal to which the carbid-receptacle is attached. Fig. 2 shows a vertical section of the separable carbid-holder and illustrates the manner in which the carbid is retained within the perforated holder. Fig. 3 shows a cork float for indicating within a limited range the amount of liquid present in the generator.

In Fig. 1, A designates the water-tank; B, the gas-holder; C, the dome-seal, provided at the top with perforations 1 1 1 for the exit of the heated air; D, the carbid-holder; E, the water-reservoir, controlled by the float-valve F; G, the water-supply pipe, controlled by the valves *g* and *g'*; G', the water-gage for showing the height of the water in A; H, the gas-delivery pipe; J, an upwardly-acting liquid-valve in the gas-outlet; *j*, a valve for controlling the gas-outlet; P P, the safety-pipe, controlled by a weighted liquid safety-valve O. L is a pipe adapted for holding a predetermined quantity of gas in free communication with the gas-holder. *l* is a valve situated in the pipe L and is normally closed. M is a means for operating the valve *l*.

In Figs. 2 and 3 is the perforated carbid-receptacle, within which is suspended, by means of the hooks or a spring-ring 1 1, the absorbent carbid-bag 2.

The reason for the construction illustrated in Fig. 2 is the following: If the carbid be placed directly in the perforated receptacle 3 without the interposition of the carbid-holder 2, some of the decomposed carbid will fall through the perforations, and thereby pollute the liquid in A and tend to clog the pipes leading thereto; but the greater portion of it will be deposited on the sides and bottom of the perforated receptacle 3, thereby rendering the renewal of the carbid charged difficult and disagreeable. By the arrangement shown in Fig. 2 these inconveniences are avoided, and the exhausted carbid can be removed by simply detaching the bag 2 from the hooks 1 1. Another object of the absorbent carbid-holder 2 is to admit the liquid gradually to the carbid instead of directly through the perforations.

The combined generator and holder works in the usual manner.

The renewal of the carbid charge is in the ordinary construction of generators a source of annoyance and danger, because when the carbid-holder is removed there is an escape of acetylene gas into the surrounding atmosphere and an entrance of air into the generator. It is desirable to avoid both these results. It is for this purpose that I have invented my improvement shown at the top of the gas-holder in Fig. 1.

Upon the top of the gas-holder B there is constructed a liquid seal C' in the form of a cylinder partially or wholly filled with liquid. Into this plunges the valve *d d*. This valve has as its body part a cylinder C, exactly filling the space between the internal walls of the seal C', and to its under part is suspended the carbid-receptacle D. The valve rests on the top of and closes there the seal C'. Referring now to the pipe L, this when the generator is working will always be filled with gas, and its size is so proportioned that its cubical contents shall exceed that of the cylinder C for a purpose which is now to be explained.

If it were desired to renew the carbid in the holder and the valve were raised out of the seal, a suction would be produced and air by means of a valve or otherwise would be admitted to the gas-holder; but in my arrange-

ment when the valve $d \bar{d}$ is to be removed from the seal C' the valve l in the pipe L is opened by means of M , thereby relieving the suction-pressure; but the amount of gas in L on account of the construction of the latter exceeding in cubical contents the contents of the space left by removing the cylinder C the gas from L will entirely fill that space, and although there will be air in the top of the pipe L none of it will enter the gas-holder. As this gas at the time of changing the carbid-holder is under simple atmospheric pressure, little or no gas will escape into the air and little or no air will enter the top of the holder during the short interval required for inserting a fresh carbid-holder. When the carbid-holder is inserted, the pipe L is connected with the safety-pipe P' by the valve l being opened, and both the air and gas in the dome-seal will be driven out.

As a means of telling how the liquid stands in A , I place in the top, hung over the edge thereof by the hook r , the device shown in Fig. 3, consisting of two cork balls $R' R'$, hung as represented. These cork balls will float the device, so that the rod R will project above the tops of A . When the water falls, so that the hook r rests upon the rim of A , it shows by properly adjusting the length of the rod R that the level of the water is below

the bottom of the carbid-receptacle D . When the water-gage G' , Fig. 1, is employed, the float may be dispensed with.

Having thus fully described and illustrated my invention, what I claim is—

1. In an acetylene-gas generator, the combination with the gas-holder and the delivery-pipe therefrom, of a cylindrical liquid seal at the top of the generator, a safety-pipe, a normally closed branch pipe extending from the delivery-pipe to the safety-pipe, said branch pipe being proportioned to the capacity of the cylindrical seal, for the purpose of preventing access of air and the escape of gas, substantially as set forth.

2. In an acetylene-gas generator, the combination with the liquid seal of the gas-holder and gas-delivery pipe of a safety-pipe, a normally closed branch pipe proportioned to the capacity of the liquid seal and leading from the delivery-pipe to the safety-pipe, and a manually-operated valve, as and for the purpose set forth.

Signed at New York, in the county of New York and State of New York, this 10th day of February, A. D. 1899.

MELVIN D. COMPTON.

Witnesses:

C. L. BELCHER,
W. LEMIEN.