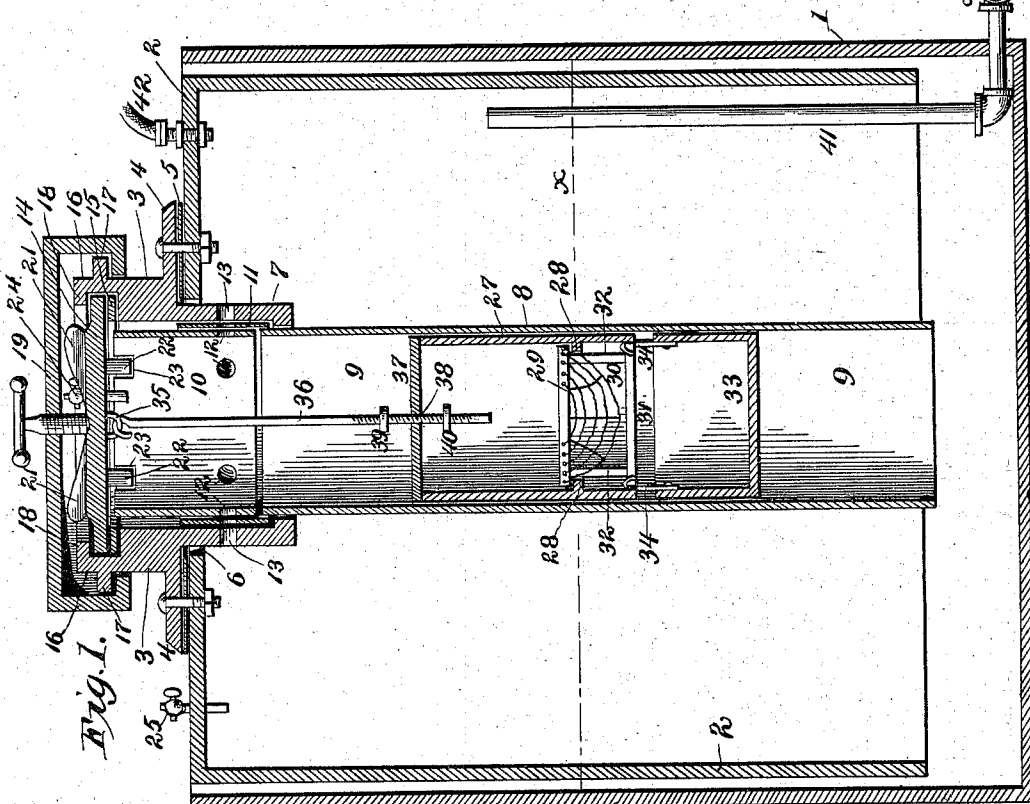
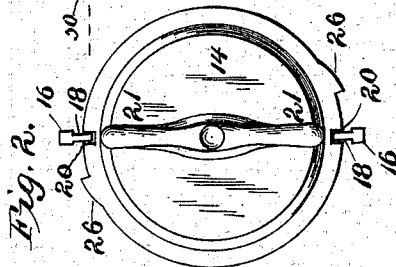
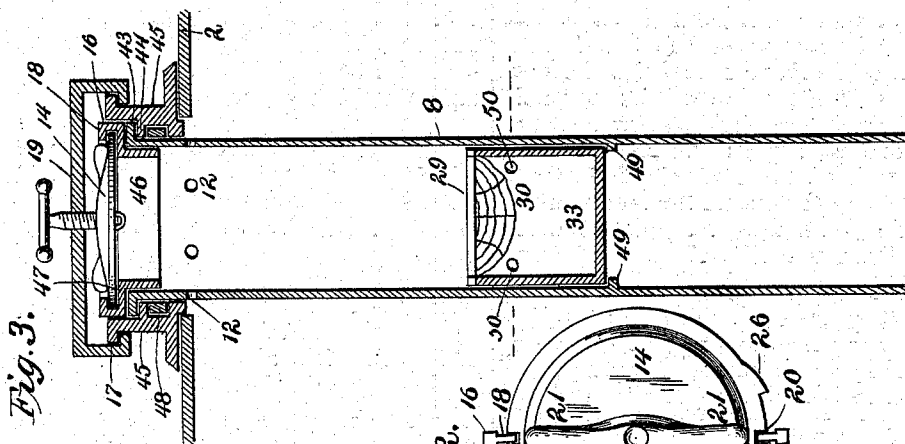


(No Model.)

J. H. WAITE.
ACETYLENE GAS GENERATOR.

No. 573,938.

Patented Dec. 29, 1896.



Witnesses:
John H. Waite
Max Abel

Inventor:
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UNITED STATES PATENT OFFICE.

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ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 573,938, dated December 29, 1896.

Application filed September 12, 1896. Serial No. 605,607. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. WAITE, a citizen of the United States, residing at Rock Falls, in the county of Whiteside and State of Illinois, 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, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification:

My invention relates to acetylene-gas generators, and pertains specially to a novel construction whereby the manufacture of the gas within the gas-chamber is automatically regulated and provision made for renewing the carbide and removing the lime resulting from the chemical action, while the gas-chamber is filled without reducing the pressure of the gas therein.

In the drawings, Figure 1 is a central vertical section of my device. Fig. 2 is a plan view of the cover thereof. Fig. 3 is a central vertical section of my invention in modified form.

Similar figures refer to similar parts throughout the drawings.

1 is a water-tank, in which the gas-holder 2 has vertical telescopic movement.

3 is an annular casting secured to the generator by means of the flange 4, between which and the generator is the gasket 5, to prevent leakage of the gas between such parts. The casting 3 serves as a support or seat for the cover and is projected downward through a circular opening 6 in the top of the generator, forming the collar 7.

8 is a cylinder formed of two parts 9 and 10, the lower part 9 being rigidly secured to the collar 7 and the upper part 10 loosely seated upon the part 9. The cylinder 8 projects downward the same distance as the walls of the gas-holder, the lower end thereof being always below the water-line, (represented by the dotted line *x*), so as to prevent gas entering such cylinder from below.

11 represents a packing between the cylinder

8 and collar 7, extending below the junction of the two parts of said cylinder.

12 12 are apertures extending through the movable portion 10 of the cylinder. 13 13 are similar and corresponding openings through the collar 7 and the packing between it and the cylinder.

14 indicates a cover seated upon the support 3 and separated therefrom by an annular gasket 15. The casting 3 is further provided with two supports 16, having outwardly-formed lugs 17 and inwardly-formed lugs 18, which latter lugs project over the cover and prevent its removal. The cover 14 is secured tightly against its seat by means of an ordinary clamp-and-screw device 19, which engages the lugs 17. The cover is further provided with recesses 20, which permit a removal of such cover when they coincide in line and position with the lugs 18.

21 21 are handles on the upper side of the cover which assist in turning or lifting the same.

On the lower face of the cover 14 are one or more lugs 22, which engage corresponding recesses 23 in the movable portion 10 of the cylinder 8.

24 is a short pipe provided with a stop-cock to permit the escape of air from the cylinder when the gas is first being generated therein. A similar pipe 25 permits a similar escape of air from the gas-holder.

It will be readily apparent that when the cover 14 is in position a rotary movement of it will give to the movable portion 10 of the cylinder a similar movement and the apertures 12 therein be made to correspond with the apertures 13 in the collar 7 or not, as desired. The arrangement of the lugs 18 and recesses 20 is such that when they exactly coincide, as shown in Fig. 2, the apertures 12 and 13 do not coincide and all communication between the cylinder 8 and gas-holder 2 is completely cut off, so that the cover can be removed. When the cover is replaced and turned a certain distance, such apertures again correspond and communication is re-established between the two compartments. To preclude the danger of the cover and cylinder being turned too far, so as to reclose such

openings, I provide projections or stops 26 on the cover 14, which strike against the supports 16 and prevent further movement of the cover or movable part of the cylinder.

5 Within the cylinder 8 is the carbid-cylinder 27, having lugs 28, supporting the annular rim 29, to which is secured a hemispherical basket 30, constructed of open wirework.

31 is a bar secured to the rim 29 by means of braces 32 32, from which bar 31 is suspended the cylindrical refuse-pan 33 by means of hooks 34 34.

The rim 29 is recessed similarly to the cover 14, so that when such rim is turned until the recesses coincide with the lugs 28 the basket can be removed from the lower end of the cylinder 27.

On the lower face of the cover 14 is the ring 35, to which is hooked the rod 36. Secured to the top of the cylinder 27 is a cross-piece 37, having an aperture 38, in which the rod 36 has vertical play, such aperture being slightly larger than the diameter of said rod, which is threaded at this point and provided with 25 burs 39 and 40. It is evident that if the bur 40 is so situated on the rod 36 as to be in contact with the cross-piece 37 when the gas-holder is at its lowest point, when the gas is generated and the gas-holder 2 commences to rise the cylinder 27 will rise immediately with the gas-holder; but if the bur is placed at a lower point on the rod 36 as the gas-holder rises such rod will be drawn up through the aperture 38 until the bur 40 comes in contact 35 with the cross-piece 37, and the cylinder 27 will not be elevated until such contact takes place. By this construction the length of time of the contact of the water and carbid can be regulated or gaged and the manufacturing process prolonged or shortened, as desired.

It is preferable to expose but a small part of the carbid to the water at one time and the hemispherical shape of the basket assists greatly in accomplishing this, as a very small 45 area or larger one may be exposed, as desired, but in receptacles having flat bottoms this cannot be regulated.

By locating the basket 30 above the bottom of the cylinder 27 the gas generated cannot 50 pass outward and up between the cylinders 8 and 27, but must pass up through the carbid in the carbid-cylinder, keeping the same free from steam.

41 is a pipe by means of which the gas can 55 be conveyed from the gas-holder to other gasometers, if desired, or the gas-holder can be provided with a pipe 42 and the gas used directly therefrom.

In operation the cylinder 27 is filled with 60 calcic carbid and suspended in the cylinder 8, so that the carbid comes in contact with the water. The cover is secured in position and clamped down. As the gas forms it passes upward through the cylinder 8, through the apertures 12 and 13, into the gas-holder 2. 65 The operation is automatic, as in most machines of this class, the manufacture of the gas

ceasing as the reservoir rises and commencing again as it falls, subject, however, in my invention to the vertical adjustability of the carbid-cylinder. The residuum or lime resulting from the chemical operation falls into the pan 33, designed therefor.

When it is desired to renew the carbid or empty the pan 33, the clamp 19 is first removed and the cover turned to a position where it can be removed. The same operation cuts off the communication between the cylinder and gas-holder and confines the gas in the latter. As the pressure of the gas in the cylinder is the same as that in the gas-holder the small amount of gas therein can be let out through the pipe 24 just before the cover is released. The cover is then removed and the cylinder 27 and pan 33 drawn out, 8 when the pan can be unhooked and dumped and the cylinder refilled. If necessary for repairs or otherwise, after the pan is detached the basket 30 can be removed from below, using the bar 31 as a handle. After all necessary matters are attended to the parts are again placed in position, the cover replaced, communication with the gas-holder restored, and the operation proceeds as before. As is customary in machines of this nature the pressure of the gas may be increased by weighting the gas-holder.

Fig. 3 represents a modified construction of my machine, wherein the cylinder 8 is formed in one piece, the apertures 12 communicating immediately with the gas-holder 2. At the upper end the cylinder is provided with a flange 43, resting on the annular rim 44 on the support 45. 46 is a collar rigidly secured to the cylinder 8 and having a flange 47, upon which are two supports 16 and lugs 18 for securing the cover, which is substantially the same as in Figs. 1 and 2, except that it has no lugs 22 or stop 26. The cover is clamped down, as in Fig. 1, by a clamp 19 engaging lugs 17. In operation, in order to cut off the communication between the cylinder and gas-holder, the clamp 19 is first removed and the cover raised vertically, drawing with it the collar 46 and cylinder 8, attached thereto, until the apertures 12 are covered by packing in the annular recess 48 in the support 45, confining the gas in the gas-holder and permitting the cover to be removed.

In Fig. 3 the refuse-pan 33 is made deeper and rests upon lugs 49 on the inner face of the cylinder 8, the rim 29 of the basket resting upon the upper edge thereof. 50 50 are perforations in the pan 33, which permit the water to enter such pan and come in contact with the basket 30 and carbid therein. In this construction the cylinder 8 serves also as a receptacle for the carbid, which can be placed therein to any desired height. To clean the pan 33, the basket 30 is removed when 13 empty and the residuum in the pan taken out with a long-handled scoop or by other suitable means.

The two constructions of carbid-holders

can be used interchangeably with either construction of the cylinder 8.

What I claim as my invention, and desire to secure by Letters Patent of the United States, is—

1. In an automatic gas-generator the combination of the cylinder 8, formed of the stationary part 9 and movable part 10; the collar 7 embracing such cylinder; apertures penetrating such movable part 10 and collar 7; and the cover 14 engaging the movable portion of the cylinder 8, substantially as shown and set forth.

2. In a gas-generator the combination of the cylinder 8, composed of the sections 9 and 10; apertures 12 in the movable section 10; and the cover 14 provided with handles 21, lugs

22, recesses 20, and stops 26, with the supports 16, having lugs 18; the relative position of the recesses 20, lugs 18, supports 16, and stops 26 being such, when the cover 14 is in engagement with the movable part of the cylinder 8, as to open the communication between the cylinder 8 and gas-holder 2 when the stops 26 are in contact with the supports 16; and cut off such communication when the recesses 20 coincide with the lugs 18, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN H. WAITE.

Witnesses:

JAMES C. WINTERS,

JOHN W. ALEXANDER.