

No. 676,616.

Patented June 18, 1901.

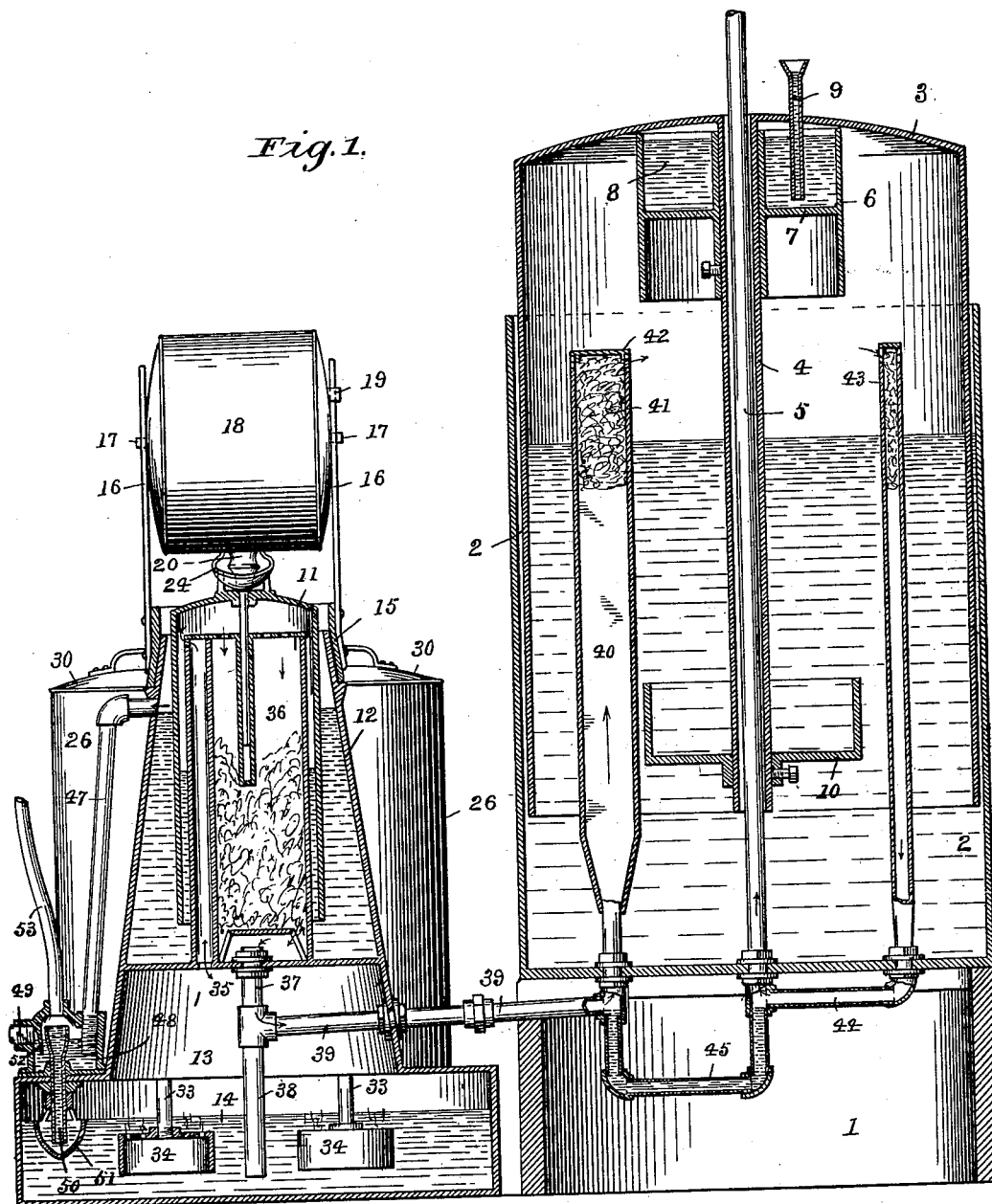
W. J. BAULIEU.
ACETYLENE GAS GENERATOR.

(Application filed June 27, 1900.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.



Witnesses

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2 Sheets—Sheet 2.

Fig. 2.

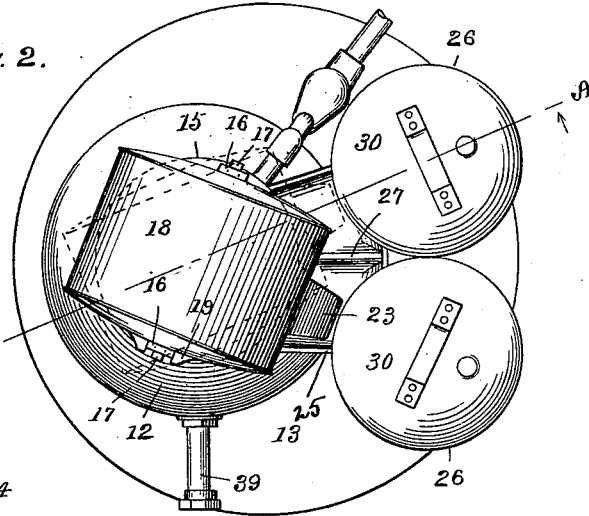


Fig. 3.

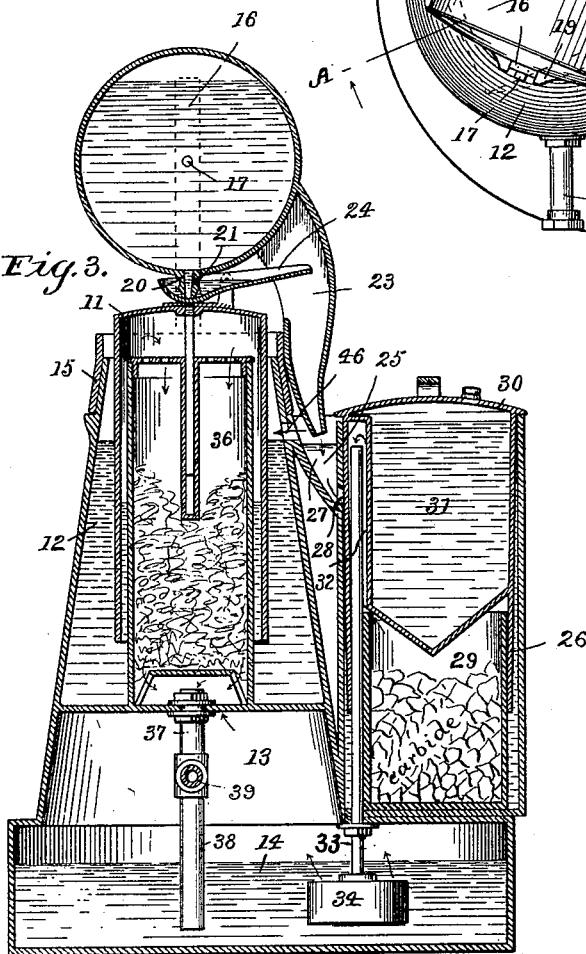
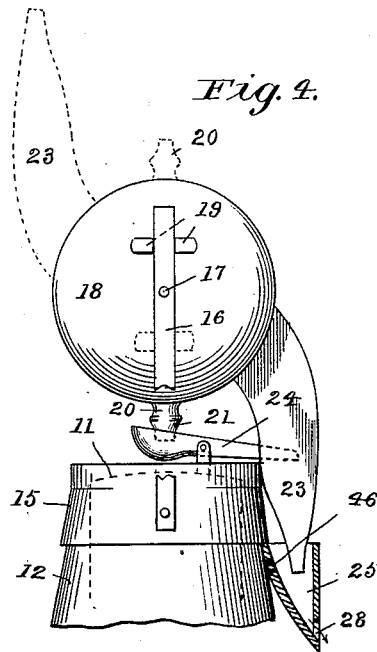


Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM J. BAULIEU, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR OF ONE-HALF TO JOHN D. CARPENTER, OF SAME PLACE.

ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 676,616, dated June 18, 1901.

Application filed June 27, 1900. Serial No. 21,796. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. BAULIEU, a citizen of the United States, and a resident of Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Acetylene-Gas Generators, of which the following is a specification.

My invention relates to new and useful improvements in acetylene-gas machines of the type known as "water-feed" or "dry-process" machines.

It is the object of my invention to improve upon machines of the above class by incorporating several improved features the use of which insures a better quality of gas, to produce a machine the water-feed action of which is quick and positive in its operation; further, to provide improved means for weighting the bell of the gasometer and checking its rising movement at a predetermined time. I finally provide an automatic blow-off or safety device which is indirectly connected with the generators and gasometer and whereby the gas contained therein is permitted to escape when it assumes an excessive pressure.

With the above objects in view my invention resides and consists in the novel combination of parts shown upon the accompanying two sheets of drawings, forming a part of this specification, upon which similar characters of reference denote like or corresponding parts throughout the several figures, and of which—

Figure 1 shows a sectional elevation through the gasometer and the feed-bell of my machine. Fig. 2 is a plan view of the generators and feed-bell which operates to feed the water to said generators. Fig. 3 is a central vertical cross-section taken on line A A of Fig. 2 and at substantially a right angle to the section shown in Fig. 1. Fig. 4 is a detail side elevation of the feeding mechanism shown in each of the preceding views, the parts in this figure being shown in a position for feeding the water to the generators.

My machine, as will be apparent to those skilled in the art, is capable of being supplied with one, two, or more generators, as may be required, in which instance they

would preferably be arranged in their successive order around the periphery of the feed-bell tank, as shown in Fig. 2, and wherein two generators are illustrated.

Referring in detail to the characters of reference marked upon the drawings, 1 indicates the base upon which the gasometer-tank 2 is preferably supported. This tank in practice contains water and is filled to substantially the height shown in Fig. 1. A bell 3 is mounted in the tank and its depending flange is submerged more or less, in accordance with the pressure of gas therein. A central pipe 4 projects downward from the top of the bell to a distance equal to that of the flange thereof and likewise is submerged more or less. The purpose of this, as will be obvious, is to form a sealed opening for the gas-pipe 5. In the use of gasometer-bells it is usually necessary to weight them more or less, and various contrivances have been devised for this purpose. In practice I find that my construction, which I will now describe, is particularly desirable, since it has several advantages, both in construction and manipulation. This weighting device is clearly shown in Fig. 1 and consists of a cylindrical body 6, having an intermediate bottom 7, forming an inclosed water-receptacle 8. Said receptacle is secured to the pipe 4, before mentioned, by means of a suitable set-screw, as indicated, and in practice is set up close to the top of the bell. When filled with water, as indicated, a weight is formed, which may be adjusted by simply varying the quantity of water therein. A filling-pipe 9 is situated in the top of the bell, the lower end being submerged, so as to prevent the escape of gas. The interior of the depending flange of this body in practice forms an air-cushion when it comes in contact with the water by the settling down of the dome. This insures a gradual and desirable operation for obvious reasons.

To the lower end of the pipe 4 is attached a cylindrical pan 10, which is carried up and down with the movement of the bell and in practice serves to afford additional weight thereto when the bell rises to an extreme upper position and the pan is being drawn from the water. The purpose of this weight

is to afford resistance and prevent the bell from rising far enough to allow the gas to escape, and as a consequence insures the pressure of gas being backed out through its pipes to the blow-off, to which I will later refer. By simply adjusting this pan up or down upon the pipe 4 the time for the blow-off to act can be regulated at will.

In connection with the gasometer and intermediate between it and the generators I preferably provide what I term a "feed-bell" 11. This bell is mounted in a suitable tank 12, the walls of which are preferably cone-shaped, being broader at the base than at the top, and beneath said tank I arrange a gas-chamber 13 with a water-wash 14 in the bottom thereof. Upon the tank of the water seal surrounding the feed-bell I provide a detachable ring 15, and to this ring are secured two yieldable spring-metal uprights 16, having suitable holes for the reception of the pivotal point 17 of the water-supply tank 18. Lugs 19 are also provided upon the side of this tank to engage the yieldable posts, before mentioned, and secure the tank against rotary motion when in either a raised or lowered position, as indicated in Fig. 4, it being apparent that in practice the post slips over their faces and drops in between them for engagement, and is withdrawn for further adjustment of the tank. The tank proper consists of a cylindrical body having a central nozzle 20, which contains a vent 21, (see Fig. 3,) and is further provided with a crooked spout 23. To the top of the feed-bell before referred to I pivot a trough 24, which is provided with an enlarged bowl-shaped butt and a reduced outer extremity. Referring to Figs. 3 and 4, it will be seen that when the feed-bell is filled with gas it is raised, together with its feed-trough, before referred to, which latter engages the nozzle 20 in a manner to be tilted thereby, raising the outer end and depressing the inner, reserving sufficient water in the bowl thereof to close the nozzle and its vent, thus preventing a further flow of water from the tank. When the feed-bell settles down into its seal, it necessarily draws away from the feed-tank, allowing the trough, whose outer end is the heaviest, to tilt back to the position shown in Fig. 4, whereupon the water contained therein runs out into the spout 23 and opens the nozzle of the tank, permitting a further flow of water through said trough and spout into a stationary trough 25, secured to the casing 26 of the generators, from whence the water is fed to said generators, as will now be referred to. This stationary trough 25 extends from one generator to the other and is provided with a division-wall 27, (see Fig. 2,) which is lower than the outer walls for the purpose of causing an overflow of water from one compartment of the trough to the other as the successive generators become filled. In the bottom of each of these compartments is an opening 28, which permits the water to flow into

the generator-tank against its bell, where it passes down around it and flows over into the carbid-pot 29 of the generators. These generators are each provided with a bell 30, which is weighted down to a proper degree by a water-filled compartment 31 within the top of the bell, as clearly appears in Fig. 3. The construction of this water-weighted compartment is such as to contract the gas-space within the generator as much as possible, thus insuring a direct movement of the gas up through the pipe 32 and down through the leader 33 through the perforated diaphragm 34, which is submerged in the water seal, before mentioned. These generators are alike in construction, and, as before stated, any number of them may be employed. As arranged, either of said generators can be recharged without disturbing the other or the rest of the machine.

By reason of the loose attachment of the ring 15, which supports the water-supply tank, before mentioned, it can be turned upon its bearing in a manner to adjust the spout of the tank, so as to operate upon either one of the generators first, (see dotted lines, Fig. 2,) thus insuring their consumption in the respective order desired.

As the gas emerges from the water-wash it rises up through the pipe 35 (see Fig. 1) and emerges under the feed-bell (see arrows) passing down through the cotton-packed chamber 36, which serves to cleanse the gas, and into the pipe 37, which latter, as will be seen, has a water-seal drip-pipe 38, into the wash before referred to. The gas then passes across through the coupling-pipes 39 and up through the cooling-tubes 40, which in practice are almost wholly submerged in the water seal of the gasometer-bell and are preferably formed flat and very thin and wide. The upper extremities of these tubes are provided with a light cotton packing 41, and the tube is covered with a loose cap 42, which permits the gas to escape into the gasometer proper. As the gas is consumed it is taken out through a tube 43, which is similar in construction to the entrance-tube just mentioned, and designated as 40. In the drawings the section of this tube 43 is indicated through its narrow width, while the tube 40 is shown sectioned through its breadth. As will be apparent, the gas passes down through said flat tube 43 and is led into the main service-pipe 4 through coupling 44. The seal-drip 45 connects the several pipes in question in a manner to thoroughly drain them and has its overflow through the pipe 39 and the drip 38 to the water-wash, before referred to.

By reason of this construction it will be seen that a thorough washing, purifying, and cooling of the gas is insured, and, further, that all pipes from my machine are automatically drained into the water-wash through sealed connections.

I further provide a safety device for my machine which prevents the overflowing of wa-

ter should the carbid and its tank become exhausted, and the water-tank thus be permitted to feed on, which consists as follows: In the back of the trough 26 and from it into the

5 water seal for the feed-bell I provide an opening 46, which permits the water to run in said seal after it has risen above the division 27 by reason of the generators having become filled. From this tank it overflows (see Fig.

10 1) through a depending pipe 47 into a specially-constructed trap 48, and from this trap said overflow can be connected with the sewer or any suitable drain through pipe 49, of which there is but little shown in the drawings.

15 As before stated, I provide a blow-off, and this I combine with the water-trap above mentioned. It consists as follows: A vertical pipe 50 is mounted central of the trap 48, 20 with a depending end submerged below the line of the water-wash and into the cup 51, seated in said wash. This pipe 50 in practice is filled with water and forms a yieldable seal for the gas and water retained within 25 the chamber 13; but by reason of any undue pressure this water seal is blown out of the upper end of said pipe, from which said water overflows and escapes under a diaphragm 52 and out through the pipe 49, before mentioned. Thus while the water flows off through 30 the pipe 49 the gas is free to rise up through the exhaust-pipe 53, which of course has its outlet into the open air.

Since I have explained the operation of my machine while describing its construction, it is thought that a further and more general description of the operation is not necessary, and it will accordingly be omitted.

Having thus described my invention, what I desire to secure by Letters Patent is—

40 1. In an acetylene-gas machine, the combination with one or more generators, of a water-weighted bell therefor, a feed-bell adapted to receive the gas from said generators, a tank situated above the bell and having a depending nozzle, a pivotal trough secured to the bell and adapted to be engaged by the nozzle in a manner to open and close the same in accordance with the position of said bell, 50 a spout secured to the tank and communicating with the trough in a manner to direct the flow of water from said tank and trough into the generators, substantially as shown and described.

55 2. In a gas-machine of the class described, the combination with one or more generators, a trough connecting said generators and provided with suitable partitions, a feed-bell adapted to receive the gas from the generators, a support adjustably secured to the water-seal tank of said bell and provided with yieldable uprights, a tank pivotally secured to said uprights and provided with a nozzle having a vent in its side, a trough pivotally 60 secured to the feed-bell and provided with an enlarged cup-shaped end, a spout to receive the outer end of said trough and convey the water therefrom to the troughs of the generators before mentioned, substantially as described.

70 3. The combination with a generator, of a feed-bell communicating therewith, a water-tank adjustably and pivotally secured above said bell, a trough pivotally secured to the bell in a manner to automatically open and close the tank and alternately convey the water to the generator, a gasometer connected with said feed-bell by a suitable pipe connection, flattened tubes situated in the water seal of the gasometer for the purpose of cooling 80 the gas as it passes into and out of said gasometer, a water-seal trap in the pipe connections between said tubes and means whereby the condensation of the entire machine is drained into a single receptacle as and for the 85 purpose set forth.

4. A gas-machine of the class described, comprising suitable generators and water-tank, a feed-bell carrying a pivotal trough to automatically engage and successively open 90 and close the tank in a manner to feed water from the latter to the generators, a water seal for said bell having an opening 46 communicating with the generator-tank whereby the overflow of water therefrom is permitted to 95 enter said seal, a pipe 47 connected with said seal in a manner to drain off the surplus water and prevent the machine from overflowing, substantially as shown and described.

5. A gas-machine comprising a generator, 100 an expansible bell, a pivotal trough secured to said bell, a water-tank mounted above the trough and having a depending nozzle to be engaged, opened and closed by said trough for the purpose of automatically feeding the 105 water to the generators, an opening from the generator-tank to the water seal of the bell, a pipe from said seal for drainage, a wash for the gas located in the base of the machine, a blow-off communicating with said wash comprising a vertical pipe the lower end of which is submerged in said water, a chamber into which the upper end of said pipe projects and containing a water seal, a drain and exhaust pipe connected with said chamber, substantially 115 as shown and described.

6. A gas-machine comprising a generator, a feed-bell communicating therewith and carrying a pivotal feed-trough, a water-tank located above said feed-trough and provided 120 with an opening leading into said trough, connections from the trough to the generator whereby water is automatically fed thereto from the tank by the rise and fall of the bell, connections for conveying the gas from the 125 generators, a water-wash intermediate of generator and bell, connections from the bell to the gasometer whereby the gas is fed thereto, a flat tube located in the water seal of the gasometer through which the gas is passed for 130 cooling and provided with a cotton packing, a second tube through which the gas is conveyed from the gasometer, a trap located between the two tubes and means whereby con-

densation of all the gas tubes and pipes is drained back into the water wash of the machine, substantially as shown and described.

7. In a gas-machine of the class described,
5 the combination with the generators, of a bell therefor having a water-weighted compartment therein to retain the bell in place, a water-tank to supply water to said generators,
10 a feed-bell carrying a pivotal trough to engage, open and close the tank in a manner to feed water from the latter to the generators, a water seal for said bell having an opening

46 communicating with the generators whereby the overflow of water therefrom is permitted to enter said seal, a pipe 47 connected with said seal to drain off the surplus water and prevent the machine from overflowing, substantially as shown and described.

Signed at Bridgeport, Fairfield county, Connecticut, this 19th day of June, 1900.

WILLIAM J. BAULIEU.

Witnesses:

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