

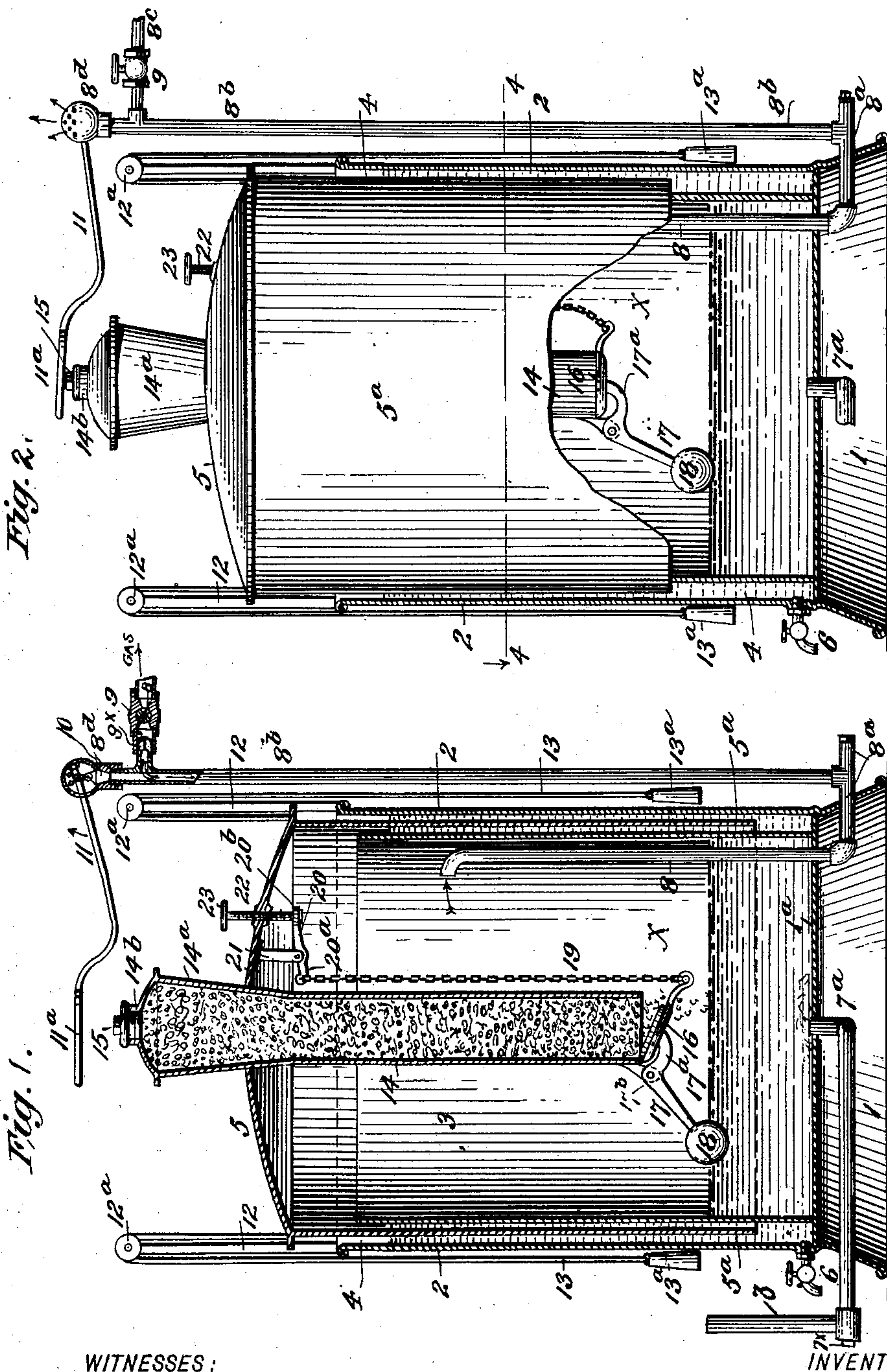
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Patented Apr. 29, 1902.

O. FALKENWALDE.
ACETYLENE GAS GENERATOR.

(Application filed Oct. 23, 1901.)

(No Model.)



UNITED STATES PATENT OFFICE.

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ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 699,106, dated April 29, 1902.

Application filed October 23, 1901. Serial No. 79,693. (No model.)

To all whom it may concern:

Be it known that I, OSCAR FALKENWALDE, residing at Baltimore city, State of Maryland, have invented a new and Improved Acetylene-Gas Generator, of which the following is a specification.

This invention is in the nature of an improved apparatus for generating acetylene gas, and primarily seeks to provide an apparatus of this character of a simple and economical construction in which the several parts are coöperatively arranged to operate automatically and in such manner that flickering of the lights before, during, and after feeding is avoided and the generated gas maintained at uniform pressure at all times.

The objects of my invention are to provide a special combination of stationary tank formed of an outer and an inner shell, means for feeding the water therein and for carrying the gas therefrom, and a vertically-movable bell or gas-collector having fixedly connected therewith a carbide-magazine, an automatically-operating cut-off for regulating the carbide-droppings, and adjusting means for regulating the action of the cut-off, said bell, with its attached parts, having such coöperative connection with the stationary tank whereby the rise and fall of the bell or holder operates to automatically control the feed of the carbide; and in its more subordinate features my invention consists in certain details of construction, all of which will hereinafter be fully described, and particularly pointed out in the appended claim, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical longitudinal section of the same, illustrating the bell or gas-holder at its lowered position with the carbide-feed regulator open to permit the dropping of the carbide into the water body. Fig. 2 is a similar view, the bell or holder being elevated and the cut-off shifted to close off the carbide-feed.

In the practical construction my gas-generating apparatus comprises a suitable base 1, made up of sheet metal, preferably steel sheets, and said base has a flared or other ornamental shape and includes a top plate 1^a, which forms the bottom of the generating-compartment of the apparatus. 2 designates an outer

tank or shell, its lower end having a watertight connection with the base 1, its upper end being open and projected above the open upper end of an inner shell 3, which is also made fast to the base 1^a, and said inner shell is of sufficiently less diameter than the outer shell or tank 2 to provide an intervening annular space 4 to receive the pendent portion 5^a of the bell or gas-holder 5, and to prevent escape or leakage of gas generated or held within the bell or holder space 4 during operation of generation is filled with water, as clearly shown in Fig. 1, which can be drawn off at will through drawing-off cock 6.

The generating-chamber (indicated by *x*) is formed by the inner shell 3, the bell or holder, and the water-seal connection for said bell, and water is fed into said chamber through a filling-tube 7, that projects upward outside of the tank or chamber *x* to a point above the normal water-line and connects with a laterally-extending member 7^a at a point below the bottom of the chamber *x*, which opens up through the bottom 1^a and which acts as the outlet-tube for drawing off the water and residuum from the chamber *x*.

To resupply the tank or chamber *x* with water, the outlet-plug 7^x in the outer end of the pipe-section 7^a is removed to allow the refuse in tank to run out, after which the plug 7^x is returned and water poured into the pipe 7, which can be conveniently done with a garden-hose or funnel. By arranging the filling-tube and outlet-pipe as described the tank can be conveniently washed out and all refuse removed by keeping plug 7^x out of pipe 7^a as water is forced into the pipe 7 under pressure, which can be accomplished by attaching the filling-hose to an ordinary house-supply spigot.

8 designates the gas-offtake pipe, that extends up into the chamber *x* into the collecting part thereof and passes down through the bottom 1^a and out through the base and has a drain-plug 8^a in its lower portion, as shown.

8^b designates the service or distributing pipe, that connects with pipe 8, extends up adjacent the tank 2 above said tank, and connects with the house-supply pipe 8^c, in which is located a valve 9 and nipple 9^x, the latter being disposed between the valve 9 and pipe

8^b for reducing the flow of gas in either direction into a condensed jet, and thereby assist in producing a vacuum when the gas is drawn back, as will hereinafter appear. The upper
 5 end of pipe 8^b terminates in what I term a "blow-off" pipe 8^d, in which is located a valve 10, normally held closed by the gravity-lever 11, having a screen or wing-like member 11^a extended inward and centrally over the gen-
 10 erator, the reason for which will also be presently explained.

Projected upward from the outer tank 2 are a number of standards 12, in the upper ends of which are rollers 12^a, over which pass the
 15 cords or cables 13 13, carrying weights 13^a 13^a at one end, their other end being made fast to the bell or holder 5, the construction of which with its attached carbid-feed maga-
 20 zine, the automatically-operating cut-off, and the cut-off-adjusting devices forms an essential feature of my invention. The bell 5 is counterbalanced and suspended by the cables 13 13, so it will easily rise and fall by the
 25 varying quantities of gas under it.

Fixedly connected to the bell 5 and centrally thereof is a carbid-holding magazine or tube 14, which extends down into the cham-
 30 ber α , said tube being of such length that when the bell is at its lowermost point and the carbid-feed cut off the discharge end of said tube will be in a plane above the normal
 35 water-line and refilling-tube 7. The upper end of the tube 14 extends above the bell and terminates in a flared or magazine end 14^a, having a feed-opening 14^b, normally closed
 40 by a screw-plug 15.

Upon the lower end of the tube 14 is suspended an automatically-operating cut-off mechanism, which consists of a lid 16, hinged
 45 to close over the discharge end of the tube 14 and connected with the end 17^a of a weighted lever 17, fulcrumed at 17^b to a bracket held pendent from the lower end of tube 14
 50 and carrying at its outer end an air-ball 18. The outer or free end of lid 16 connects with a chain or rod 19, that extends up and joins with the end 20^a of a lever-arm 20, fulcrumed
 55 on a bracket 21 on the under side of the bell-top, its end 20^b having engagement with an adjusting-screw shank 22, that extends up through the bell-top and carries a hand or
 60 turn wheel 23, by proper manipulation of which the drop of the lid 16 can be regulated to suit the character or amount of carbid to be dropped from the holder 14, it being understood the lower the lid is permitted to drop the greater will be the supply of carbid-droppings into the water in the bottom of the
 65 generating-chamber α .

From the foregoing description, taken in connection with the drawings, it is thought the general operation and advantages of my invention will be readily understood.

It will be noticed the carbid-feed is automatically accomplished by reason of the peculiar correlative arrangement of the bell with the cut-off devices. Assuming the parts

to be in the position shown in Fig. 1, gas as it generates fills the chamber α , and as it accumulates it gradually lifts the bell or holder, 70 and in doing so the cut-off devices rise with it. As soon as the air-ball is above the water it acts as a weight and causes the lid 16 to close over the discharge end of tube 14 to her-
 75 metically close the carbid-feeder until the gas accumulated in the bell is consumed, when the bell or holder will gravitate to its lowermost position, and in doing so the air-ball as it strikes the water will again cause
 80 the lid 16 to drop and permit the carbid to again drop from the holder, the adjustment devices at the top of the holder serving to regulate the amount of drop of the lid 16 and consequent quantity of carbid to be fed. Thus in my construction of generating appa- 85
 90 ratus the amount of carbid to be fed can be controlled so as to produce a certain quantity of gas and no more, according to the number of lights it is desired to supply, and by proper adjustment of the regulating devices the gen-
 95 erator can be cut off entirely, if desired. By arranging the carbid-holder as shown the generator can be recharged at any time without trouble and without loss of gas or carbid and refuse can be drawn out of the bottom 95
 of tanks and a fresh water-supply turned in without loss of gas.

By providing a blow-off pipe in the offtake having a lever-equipped gravity-held valve and arranging the lever member over the top 100 of the generator and in the path of the upward movement of the bell 5 it follows that said lever or valve extension can be adjusted relatively to the bell so that when the bell rises above a predetermined height by an ex- 105
 110 cess accumulation of gas within the holder or bell said bell as it rises above the predetermined point will engage the screen end of the lever 11^a and turn the valve in the blow-off to an open position to permit enough of
 115 the gas to blow off to bring the pressure to be maintained in the holder to its normal condition. It will thus be seen that in case the consumption is approximately equal to the generation the pressure will be maintained 115
 120 at a substantially uniform degree; but should the consumption be less than that generated the excess pressure would automatically through the extra lift of bell 5 cause the blow-off to open to cut down the excess pressure 120
 and restore the pressure to normal.

The blow-off devices *per se* are not a positive element of my generating means, as generation is effected without the same. I prefer, however, to use the same as a coöpera- 125
 130 tive part of my complete apparatus, as it in many instances tends to fill the requirement of fire-insurance companies to guard against excess accumulations and explosions.

By placing the blow-off devices in the gas- 130
 offtake or house-service pipe said devices, in connection with the valve 9, that controls the house-pipe, also serve another and desirable function, explained as follows: In case

of an emergency—such as accident, leakage of the house-pipes, or fire in the house—by instantly closing the carbid-cut-off regulator to stop further generation and opening the blow-off slightly and at same time turn the valve 9 to almost entirely close off house-pipe, gas escaping through the blow-off will produce a vacuum at the entrant end of the house-pipe, and thereby cause all the gas in the house-pipes to draw back through the valve 9 into the blow-off pipe. When not using any gas, the valve 9 can be entirely closed to stop the flow from generator into house-pipes.

Another and advantageous feature of my invention is that the cut-off devices act quickly and automatically at all times to regulate the feed of the carbid. Thus after the air-ball 18 touches the water as the bell 5 descends and the cover 16 is opened to drop the carbid the bell 5 by reason of the quick generation of gas is almost instantly caused to rise swiftly, and as it does the regulator or cut-off devices will immediately cut off the carbid-supply until the last charge has

been consumed and the bell 5 drops again, the regulator operating to hermetically seal the magazine at each lift of the bell above the predetermined point.

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

In a gas-generating means of the character described, the combination with the water-holding tank, the bell or collector movable therein, a water seal for said bell, a carbid-feeding magazine carried by the bell, a carbid cut-off controlled by the rise and fall of the bell, and an adjusting means for said cut-off, including a screw-shank, mounted on the bell-top, having an operating-handle outside the bell-top, a lever within said bell, connected with the screw-shank, and a flexible connection joining said lever and the cut-off devices, substantially as shown and for the purposes described.

OSCAR FALKENWALDE.

Witnesses:

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