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R. H. WALTER.

ACETYLENE GAS MACHINE.

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Fig. 1.

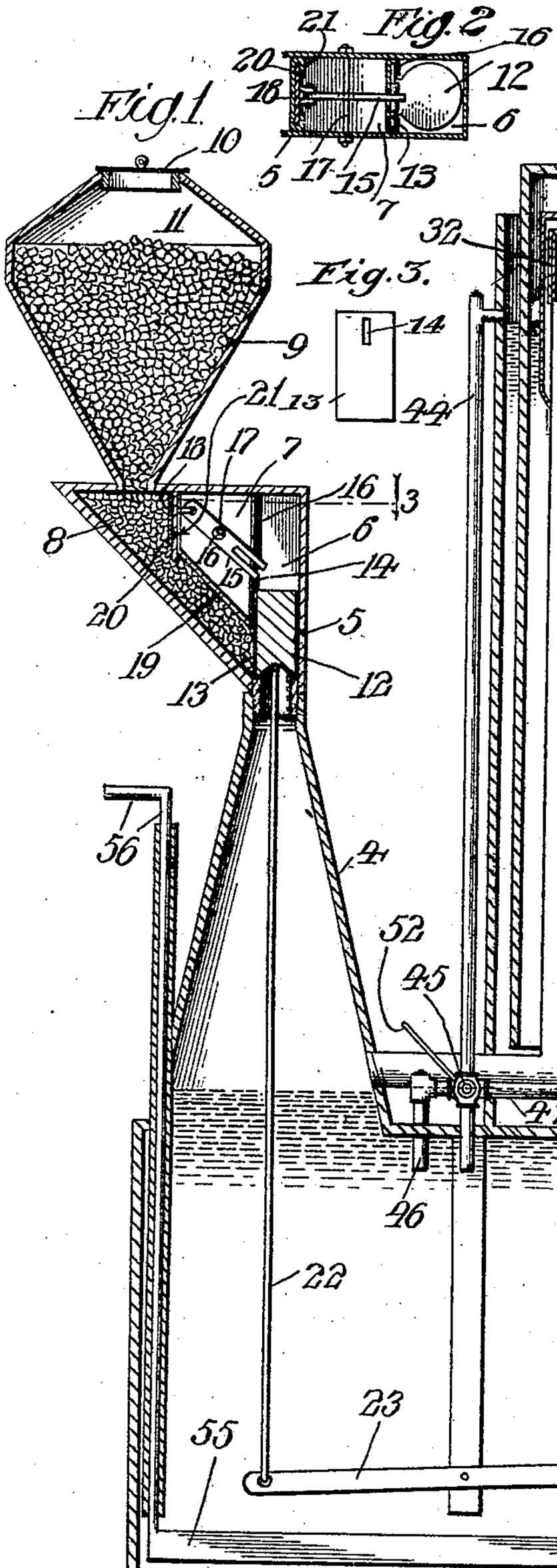

Fig. 2.

Fig. 3.

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UNITED STATES PATENT OFFICE.

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ACETYLENE-GAS MACHINE.

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To all whom it may concern:

Be it known that I, ROBERT H. WALTER, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Acetylene-Gas Machines, of which the following is a specification.

My invention relates to that class of acetylene-gas machines in which calcium carbid is dropped into water to produce a gas; and the object thereof is to provide a simple and compact machine in which the carbid-feed is automatically regulated and to provide means whereby all parts of the machine may be filled with water from one place. I accomplish these objects by the machine described herein and illustrated in the accompanying drawings, in which—

Figure 1 is a central vertical section, with parts shown in elevation, of my machine. Fig. 2 is a section on the line 3 of Fig. 1 looking in the direction of the arrow. Fig. 3 is a front view of the facing-plate of the carbid-valve.

In the drawings, 1 is the generator-tank, upon which rests the water-tank 2, the top 3 of the generator forming the bottom of the water-tank. At one side of the water-tank the top of the generator rises in a cone-shaped dome 4, to which is secured the feed-valve chamber 5. This feed-valve chamber is divided into a valve-compartment 6, a lever-compartment 7, and a carbid-runway compartment 8. The carbid-hopper 9 is secured to the valve-chamber and opens into the carbid-runway. A plug 10 in the top of the carbid-chamber provides means for filling the carbid 11 into the chamber. A valve 12 is vertically movable in the valve-compartment and is provided with a facing-plate 13, which projects above the valve and has a slot 14 therein through which projects lever 15. This plate preferably moves in a guideway 16 at each side of the valve-compartment. Lever 15 has an aperture 16′ of some considerable size therein, through which passes a small bolt 17, that is secured in the sides of the lever-compartment. A partition 18 separates the top part of the lever-compartment from the top part of the carbid-runway, and partition 19 forms the bottom of the lever-compartment. A gate 20 is vertically movable into and out of the carbid-runway compartment by means of lever 15, to which it is flexibly secured. A guideway 21 is formed on the walls of the lever-compartment to hold said gate in its movement. The valve is operated by means of rod 22, which is pivotally connected to lever 23, and by rod 24, also pivotally connected to the other end of lever 23. Rod 24 passes upwardly through guide-tube 25, which last tube passes into a sealing-tube 26, secured to the gas-bell 27, which bell is vertically movable in the water-tank.

In the drawings the machine is shown filled with water and carbid ready for operation. In this condition rod 24 projects above the sealing-tube, and the carbid is first passed into the generating-chamber by pressing upon the projecting end of rod 24 to allow a sufficient quantity of carbid to drop into the water to generate sufficient gas to raise the gas-bell above the top of rod 24, when cap 28 (shown in dotted lines) is screwed upon the top of the sealing-tube, and thereafter when the gas is used out of the bell so that the cap contacts with the top of rod 24 the carbid-valve will be raised off its seat, thus permitting carbid to drop into the generating-chamber. The large aperture in lever 15 will permit the valve to be moved slightly before the gate operated by the other end of the lever begins to descend, so that if only a small quantity of light is being used a small quantity of carbid will drop into the generator, but if a considerable number of lights are lighted and the gas-bell descends rapidly the valve will be raised higher, thereby causing gate 20 to descend, and only so much carbid is permitted to fall into the generator as is contained in the carbid-runway below the gate. The raising of the valve will cause the gate to descend and cut off the flow of carbid. This quantity is always sufficient for the maximum efficiency of the machine, thereby preventing the machine from stalling and also preventing an excessive supply of carbid falling into the generator.

The gas produced in the generator passes therefrom through pipe 29, the top of which is covered by a hood 30, which hood is rigidly secured at its bottom to pipe 29. This hood projects below the water-line of the water-tank and is provided with ports 31, through which the gas escapes into the bell through the water in the water-tank, thereby causing the gas to be washed a second time, the first

washing being caused by the passage of the gas through the water in the generator as it is evolved from the carbid that falls into the water. Within the hood and loosely resting upon the top of the pipe 29 is a cap 32, which acts as a check to prevent water siphoning out through said pipe. From the bell the gas is led through drier 33, filled with excelsior 34 or other drying material, and through pipe 35 to its place of use. A safety-pipe 36 extends upwardly into a sealing-tube 37, which is carried by the bell. This sealing-tube has ports 38 therein, and in case of accident to the valve-operating mechanism, so that the carbid would not be cut off, when these ports were raised above the water-line the gas would escape through the safety-pipe, which is connected up so as to lead the gas out of the building if the machine is installed within a closed room. A guide-rod 39 is secured to the top of the generator-chamber and passes through a sealing-tube 40, which is secured to the bell. On the top of this rod is stop 41, placed at such a height that it will stop the upward movement of the bell as soon as ports 38 of the safety sealing-tube get to the top of the water in the water-tank. The water-tank is provided with a filling-spout 42, connected by port 43 with the tank. A pipe 44 leads from the water-line of the water-tank downwardly and terminates in the generator. This pipe is provided with a cock 45. A pipe 46, provided with a cock 47, leads from the generator and terminates over a filling-spout 48, which is connected by pipe 49 with the condensing-chamber 50. A pipe 51 leads from the bottom of the drier and opens into this condenser-chamber. Cocks 45 and 47 are connected by a common stem, to which is secured operating-lever 52, whereby both cocks may be opened or closed at the same time. Pipe 53, provided with gate 54, provides means for discharging the sludge from the generator. A stirrer-paddle 55, having a handle 56, is used for stirring the sludge up and causing it to flow out of pipe 53 when cock 45 is opened. By this construction it will be seen that when it is desired to clean out the machine, cocks 45 and 47 and gate 54 are opened and water is turned into the filling-spout 42, and by means of the stirrer-blade the sludge is stirred up and flows out through pipe 53. As soon as the sludge is all washed out cock 45 is closed, and as soon as the generator-chamber is filled the water will run through pipe 46 and empty into spout 48 until the condenser-chamber is filled, when the further flow of water is cut off and cocks 45 and 47 are closed. The carbid-hopper is then filled and the machine is again started, as before described.

Having described my invention, what I claim is—

1. In an acetylene-gas machine, a carbid-hopper; a feed-valve chamber below said hopper and connected therewith, said feed-valve chamber being divided into a valve-compartment, a lever-compartment and a carbid-runway compartment; a generator below said feed-valve chamber and connected therewith; a valve vertically movable in said valve-compartment; a gate movable to close the runway-compartment near the center thereof; and a connection between said valve and gate whereby the movement in one direction of the valve causes the movement in the reverse direction of the gate, said movement when opening the carbid-runway being from the bottom up and when closing the same being down from the top.

2. In an acetylene-gas machine, a carbid-hopper; a feed-valve chamber below said hopper and connected therewith, said feed-valve chamber being divided into a valve-compartment, a lever-compartment, and a carbid-runway compartment; a generator below said feed-valve chamber and connected therewith; a valve vertically movable in said valve-compartment; a gate vertically movable to close the runway-compartment near the center thereof; a connection between said valve and gate whereby the movement in one direction of the valve causes the movement in the reverse direction of the gate, said movement when opening the carbid-runway being from the bottom up and when closing the same being down from the top; and means operated by the bell to open said valve on the descent of the bell.

3. In an acetylene-gas machine, a generator-chamber; a carbid-hopper above said generator-chamber; a runway connecting said hopper and generator; a valve and a gate controlling the passage of carbid through said runway; and mechanism to move said valve and gate simultaneously in reverse directions, said movement when opening the carbid-runway being from the bottom up and when closing the same being down from the top.

4. In an acetylene-gas machine, a generator-chamber; a water-tank located upon a portion of the top of said generator-chamber; a gas-bell vertically movable in said water-tank; a feed-valve chamber above said generator-chamber and opening thereinto, said feed-valve chamber being divided into a valve-compartment, a lever-compartment and a carbid-runway compartment, said carbid-runway compartment opening into the valve-chamber compartment at the bottom thereof; a valve in said valve-compartment vertically movable therein; a gate vertically movable from the valve-chamber into the carbid-runway; a lever in said lever-compartment connecting said gate and valve, whereby the movement of the valve in one direction causes the movement of the gate in the reverse direction; a carbid-chamber opening into said runway; a pivoted lever in

said generator; a rod pivotally connected at one end of said lever and terminating below the valve and in contact therewith; a guide-tube; a rod pivotally connected to the other end of said lever and extending upwardly through a guide-tube; a sealing-tube surrounding said guide-tube, said sealing-tube being connected to the gas-bell and having a removable cap thereon, which cap will engage said rod upon the descent of the bell to cause the opening of the valve in the valve-chamber.

In witness that I claim the foregoing I have hereunto subscribed my name this 20th day of January, 1906.

ROBERT H. WALTER.

Witnesses:
G. E. HARPHAM,
HENRY G. HAVARD.