No. 827,348. PATENTED JULY 31, 1906.

F. P. CAVE.

ACETYLENE GAS MACHINE.

APPLICATION FILED JAN. 22, 1906.

Fig. 1.

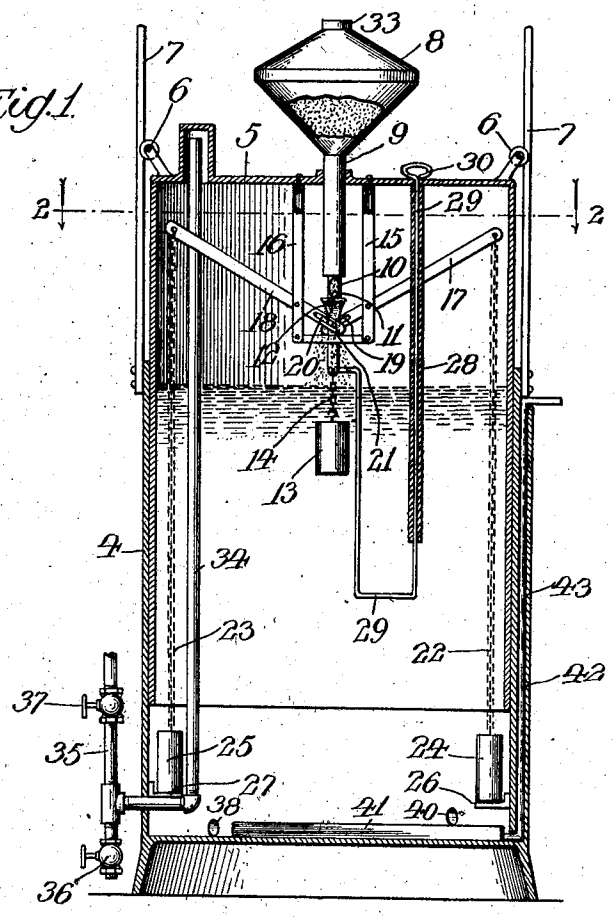


Fig. 2.

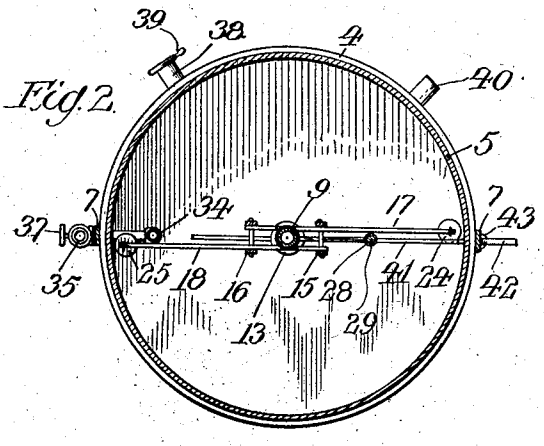
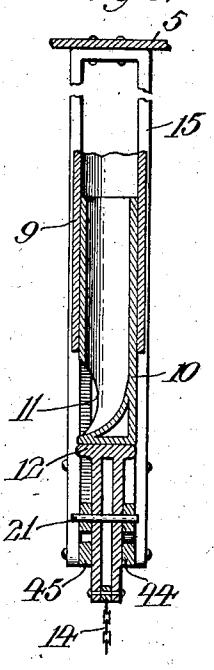


Fig. 3.



Witnesses.

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UNITED STATES PATENT OFFICE.

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ACETYLENE-GAS MACHINE.

No. 827,348. Specification of Letters Patent. Patented July 31, 1906.

Application filed January 22, 1906. Serial No. 297,350.

To all whom it may concern:

Be it known that I, FREDERICK P. CAVE, 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 the calcium carbid is dropped into the water; and the object of my invention is to produce a simple, compact, and efficient machine in which the supply of carbid will be fed into the water as fast as the gas is needed for use. I accomplish these objects by the machine described herein and illustrated in the accompanying drawings, in which—

Figure 1 is a central vertical section of my machine. Fig. 2 is a section on line 2 2 of Fig. 1. Fig. 3 is a detail of the feed-valve.

In the drawings, 4 is the usual water-tank, which in my machine I utilize as a generator-chamber. Vertically movable in the water-tank is the gas-bell 5, which is provided with guide-pulleys 6, which engage guide-bars 7, secured to the tank, thereby guiding the bell. The carbid-chamber 8 has a downwardly-projecting delivery spout or tube 9, which projects through the center of the top of the gas-bell and is secured to said bell. This spout forms the outer casing of the feeding mechanism. Within the lower end of this spout and vertically movable therein is the feed-valve 10, which consists of a hollow tube open at the upper end and closed at the lower end and having elliptical opening 11 in one side thereof. To the lower end of the tube is secured a stem 12, and to the lower end thereof is secured a weight 13 by means of chain 14, or the weight could be directly attached thereto. Secured to the top of the gas-bell and projecting downwardly therefrom are yokes 15 and 16. In these yokes are pivotally mounted the valve-operating levers 17 and 18, which have longitudinal slots 19 and 20 in their lower ends. One of these levers is on one side of the valve-stem and the other lever is on the other side of the valve-stem, and pins 21 pass through the slots in these levers and through the valve-stem. To the outer ends of these levers are secured chains 22 and 23, upon the lower ends of which are carried weights 24 and 25, which weights rest upon supports 26 and 27 when the valve is fully opened, as shown in the drawings. A guide and sealing tube 28 is secured to the top of the gas-bell. A U-shaped valve-closing rod 29 is secured to the lower end of the valve-stem at one end and passes upwardly in guide-tube 28 and to the upper end thereof handhold 30 when refilling the machine.

I first close the valve by pulling on rod 29. I then take cap 33 off the carbid-chamber and fill the same with carbid. I then replace cap 33 and then gradually open the valve by lowering the same until the gas-bell is raised, so that weights 24 and 25 will close the valve. I then release the rod, when the machine is ready for use. The gas generated therein is led by pipe 34 out of the bell, passing downwardly and out near the bottom of the tank, where it is connected with a service-pipe 35, which leads the gas to its place of use. On the lower end of this service-pipe is a cock 36, through which any moisture may be drawn from the pipe. A cock 37 on the service-pipe is closed whenever it is desired to cut off the gas from the place of use. To clean out the ash, I have provided a pipe 38, which is provided with gate 39, and water may be supplied to the water-tank through the pipe 40. A stirrer-blade 41 has an operating-handle 42, which projects upwardly through a sealing-tube 43. When the waste-pipe is opened, the stirrer-blade is operated to stir up the ash, which flows out through the waste-pipe. As soon as the ash is all out the gate on the waste-pipe is closed and the tank is filled with fresh water.

The power of weights 24 and 25 acting upon the ends of levers 17 and 18 will always operate to close the valve, and thereby shut off the flow of carbid into the water. It will be observed that as soon as weights 24 and 25 are supported the further movement of the gas-bell downwardly will enable weight 13 to open the valve to permit the carbid to flow into the water.

Cross-bars 44 and 45 connect the lower end of the supporting-yokes together and form a guide for the lower end of the stem which passes through them and at the same time forms a stop to prevent the inner ends of the levers from moving downwardly after the valve-tube opening has passed below the delivery-spout, as shown in Figs. 1 and 3.

As the opening in the valve-tube is preferably elliptical, it will be seen that a very small quantity of carbid will first escape and that as the valve is opened wider a greater quantity will be permitted to flow into the

water. This is particularly important, as if a single light is being used the valve will only open sufficiently to permit enough carbid to fall into the water to generate sufficient for this single light, and if more lights are used more carbid drops into the water, and at all times no more carbid is generated into gas than is required for use at that particular time. I have provided, however, a surplus of gas-space in the bell, so that it will furnish gas for the lights for some little time after a supply of carbid is exhausted. It will be observed that by feeding into the water only the amount of carbid necessary to produce the gas required for use at that particular time the pressure on the gas is kept even and the lights do not flicker. It will also be observed that I have provided a machine of very compact form and simple construction.

Having described my invention, what I claim is—

1. In an acetylene-gas machine, a water-tank; a gas-bell vertically movable therein; guides for said gas-bell; a carbid-hopper upon the top of the bell and having a delivery-tube projecting into the bell; a tubular valve having an open top, a port in the side thereof and a closed bottom vertically movable within said delivery-tube; a weight connected to the bottom of said valve; levers carried by the bell and operatively connected to said valve; and weights operatively connected to the outer ends of said levers.

2. In an acetylene-gas machine, a water-tank; a gas-bell vertically movable therein; guides for said gas-bell; a carbid-hopper upon the top of the bell and having a delivery-tube projecting into the bell; a valve on said delivery-tube comprising a tube open at the upper end and vertically movable in said delivery-spout, said tube being closed at its lower end and having an opening in one side thereof; a stem secured to the lower end of said tube; supports secured to the top of the gas-bell and projecting downwardly therefrom one on each side of said delivery-spout; levers having slots in the ends thereof pivotally secured to said supports; a pin passing through said slots and through the stem secured to said valve; weights secured to the outer end of said levers; a weight secured to said valve-stem; and a stop to hold the inner ends of said levers against too great downward movement.

In witness that I claim the foregoing I have hereunto subscribed my name this 13th day of January, 1906.

FREDERICK P. CAVE.

Witnesses:
G. E. HARPHAM,
HENRY T. HAZARD.