G. MILLER.

ACETYLENE GENERATING AND STORING APPARATUS.

APPLICATION FILED APR. 22, 1914.

1,106,885. Patented Aug. 11, 1914.

Fig. 1.

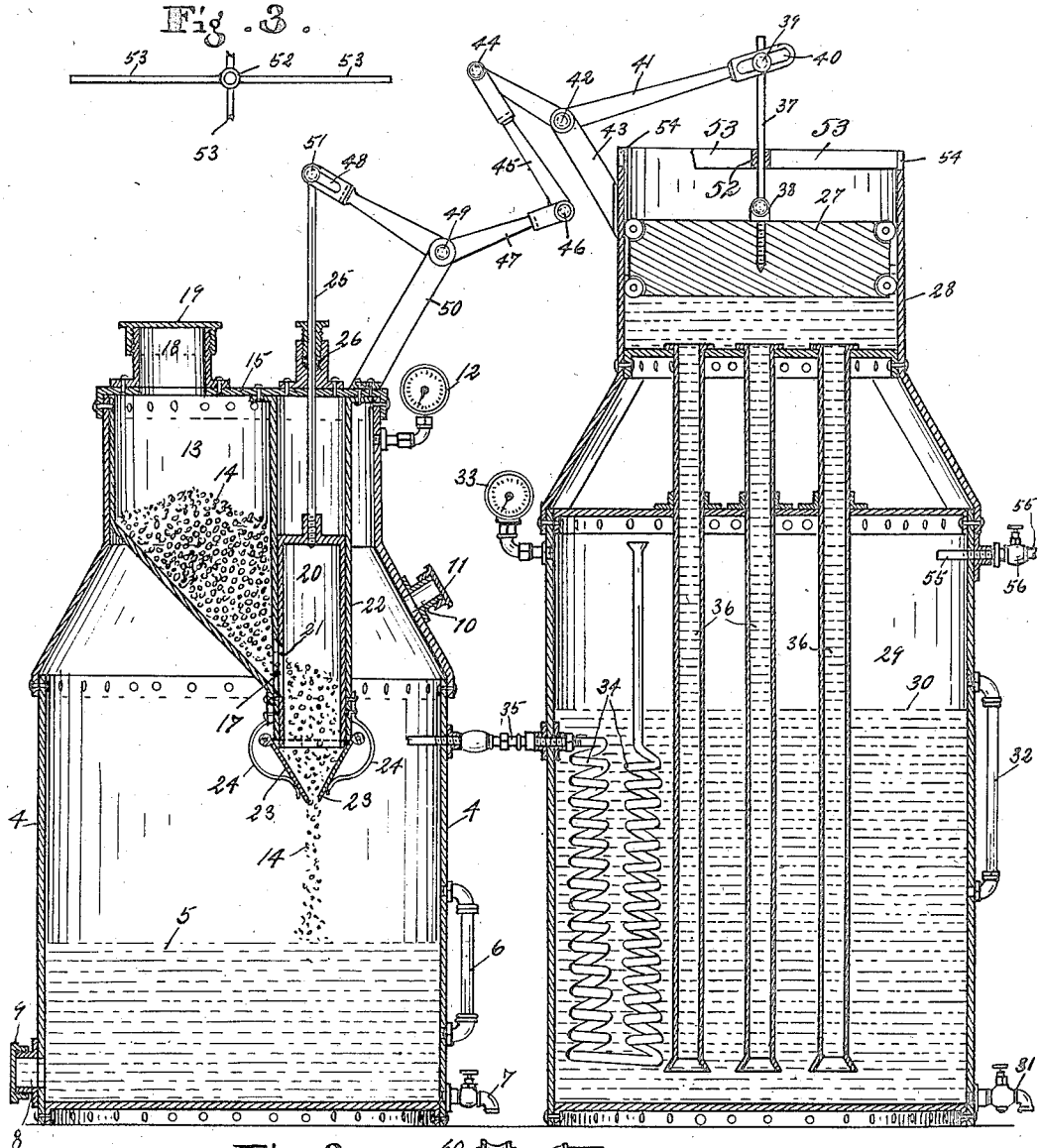
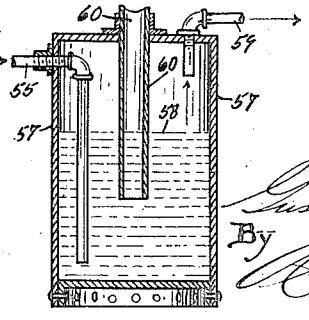


Fig. 3.

Fig. 2.



WITNESSES:

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ACETYLENE GENERATING AND STORING APPARATUS.

1,106,885. Specification of Letters Patent. Patented Aug. 11, 1914.

Application filed April 22, 1914. Serial No. 833,819.

To all whom it may concern:

Be it known that I, GUSTAVE MILLER, a citizen of the United States of America, residing at Los Angeles, county of Los Angeles, State of California, have invented a certain new and useful Acetylene Generating and Storing Apparatus; and I do hereby 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.

This invention relates to acetylene generating and storing apparatus; and it may be said to consist in the provision of the novel and advantageous features and in the novel and improved construction, arrangement, and combination of parts and devices as will be apparent from the description and claims which follow hereinafter.

One object of the invention is to provide novel and improved means for automatically feeding the calcium carbid in the acetylene generator.

Another object of the invention is to provide a novel and improved construction for the storage tank or gas holder whereby a fluid medium therein is forced to a higher level by pressure of the gas so that its gas-holding space changes to suit changes in the volume of gas delivered by the generator without materially changing the pressure of the gas.

Further objects of the invention are to provide novel and improved apparatus of the class specified in which the gas generated is cool and clean and may be of comparatively large volume at low pressure, and which apparatus is simple in construction, strong and durable, easy to operate and regulate, effective in action, adapted to work automatically, and liable to comparatively little damage in case of accidental explosion.

Other objects and the advantages of the invention will be apparent from a careful consideration of the following description of one form of apparatus embodying it and illustrated in the accompanying drawings in which—

Figure 1 is a partly broken longitudinal sectional view of the apparatus; Fig. 2 is a partly broken longitudinal sectional view of the safety blow-off; and Fig. 3 is a broken plan view of the guide frame or spider.

The generator consists of a casing or tank 4 adapted to contain water 5 in the lower part thereof, and it may have thereon the water gage 6, the drain cock 7, the mudhole 8 which has a cover 9 suitably secured thereon, the handhole 10 which has a cover 11 suitably secured thereon, and a suitable pressure gage 12. A hopper or magazine 13 for calcium carbid 14 is arranged in the upper part of the casing 4. It preferably has its upper part suitably secured to the top plate 15 of the casing, and has its bottom 16 sloping downwardly to an outlet opening 17 at its lower end. The hopper 13 may be charged with calcium carbid through the passageway 18 which has a cover 19 suitably secured thereon. A hollow valve 20 is slidably arranged adjacent to the hopper 13 and it is open at its lower end and provided with an opening 21 adapted to register with the opening 17. The valve 20 is preferably cylindrical and arranged in a guideway 22 which may have the top thereof suitably secured to the top plate 15 and have at its lower open end the hinged doors 23 which are pressed toward each other by any suitable means such as the springs 24 which latter have one end portion thereof suitably secured to the guideway and have the other end portion thereof bearing against the doors 23. A rod or stem 25 is suitably secured to the valve 20 and adapted to pass movably through the top plate 15 and through a stuffing box 26 suitably affixed on the top plate. The stem 25 and consequently the valve 20 is operatively connected with a float 27 which is arranged in the basin 28 which is suitably mounted above the storage tank or gas holder 29.

The storage tank 29 is adapted to contain water 30 in the lower part thereof, and it may be provided with a drain cock 31; water gage 32, and pressure gage 33. A suitable conduit or coil 34 is disposed in the lower part of the gas holder 29 to be immersed in the water 30, and it has one end thereof disposed in the upper part or gas space of the gas holder and has the other end thereof connected with suitable piping 35 which is in communication with the upper part or gas space of the generator tank 4. Passageways 36 are arranged in the gas holder 29 and lead from the lower part of the gas holder to the lower part of the basin 28.

The means for operatively connecting the float 27 with the stem 25 preferably consists of the rod 37 which has the lower end there-

of provided with a knuckle 38 and suitably secured to the float 27, and has on the other end thereof a pin 39 fitted in a slot 40 in one end of a bell crank 41 which latter is mounted on a pivot 42 on the arm 43 suitably secured to the basin 28. The other end of the bell crank 41 is connected by pivot 44 to one end of a link 45 which latter has its other end connected by a pivot 46 to one end of a bell crank 47 which latter has the other end thereof provided with a slot 48 and is mounted on a pivot 49 on the arm 50 which is suitably secured to the top plate 15. A pin 51 on the upper part of the rod 25 is fitted in the slot 48. The rod 37 may pass through a guide frame or spider 52 which has the end portions of the arms 53 thereof fitted in notches 54 provided in the upper end of the basin 28.

A safety blow-off is preferably connected to the gas holder 29, and it may consist of the pipe 55 which is provided with a valve 56 and leads from the gas space of the gas holder 29 to the lower end of a casing 57 adapted to contain water 58 therein. The acetylene gas may be conducted to the place of use through a suitable conduit 59 which leads from the upper part of gas space of the casing 57. In case of accidental explosion of the gas the resulting pressure in the tank is relieved by having it force the water 58 upwardly through a pipe 60 of suitable size and which has its lower end portion immersed in the water 58 and leads to the outside of a building or other desired discharge point.

From the foregoing description of the apparatus, the mode of operation and the advantages thereof will be readily understood by those skilled in the art, and it will be evident that it is well adapted to accomplish the objects of the invention. The calcium carbid 14 passes from the hopper 13 through the openings 17 and 21 to the valve 20 and thence drops between the doors 23 to the water 5 wherein the acetylene gas is evolved and rises to the upper part of the casing 4 and thence passes through the piping 35 and conduit 34 to the gas space in the gas holder 29. Increase in the amount of acetylene gas in the gas holder 29 results in pressure on the water 30 which forces the water upwardly through the passageways 36 and thereby provides increased gas space in the gas holder without material increase in the pressure of the gas. When the water 30 and consequently the float 27 rises in the basin 28, the rod 37 moves upwardly and moves the bell crank 41; link 45, bell crank 47 to raise the rod 25 and consequently the valve 20. As the valve 20 rises the doors are brought together by the springs 24. On decrease in the volume of gas in the gas holder 29, the water rises in the gas holder and the float 27 and consequently the rod 37 moves downwardly and thereof the bell crank 41, link 45, and bell crank 47 are moved to move downwardly the rod 25 and valve 20 and cause the latter to move the doors 23 apart to feed the calcium carbid into the water 5. In case of accidental explosion of the gas in the gas holder 29, the resulting pressure causes the water 30 to rise in the basin 28 and the water may move the float 27 and guide frame 52 out of the basin 28 without much damage to the apparatus.

The apparatus which has been particularly illustrated and described admits of many minor changes and modifications—wherefore the right is reserved to all such changes and modifications as do not depart from the spirit and scope of the invention which is defined in the appended claims.

I claim:

1. In apparatus of the class specified, the combination of a hopper provided with an opening, a guideway, doors hinged on the guideway, yielding means for pressing the doors toward each other, a hollow valve slidably arranged in the guideway and adapted to move against the doors, said valve provided with an opening adapted to register with the first mentioned opening, a float, and operative connections between the float and the hollow valve.

2. In apparatus of the class specified, the combination of a casing adapted to contain water in the lower part thereof and provided with a hopper in the upper part thereof, said hopper provided with an opening, a guideway, doors hinged on the guideway, yielding means for pressing the doors toward each other, a hollow valve slidably arranged in the guideway and adapted to move against the doors, said valve provided with an opening adapted to register with the first mentioned opening, a gas holder adapted to contain water in the lower part thereof, a basin mounted above the gas holder, passageways leading from the lower part of the gas holder to the lower part of the basin, a float arranged in said basin, and operative connections between the float and the hollow valve.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses at Los Angeles, county of Los Angeles, State of California, this 15th day of April A. D. 1914.

GUSTAVE MILLER.

Witnesses:
A. H. LIDDERS,
ELLA SCOTT.