

UNITED STATES PATENT OFFICE.

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ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 723,092, dated March 17, 1903.

Application filed June 20, 1902. Serial No. 112,434. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM WEBB, a citizen of the United States of America, residing at Ypsilanti, in the county of Washtenaw and State of Michigan, have invented certain new and useful Improvements in Acetylene-Gas Generators, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to that class of acetylene-gas generators in which the carbide-holder is suspended in a vessel containing water and automatically rises and falls, thereby regulating the production of gas according to its consumption. The invention consists in the novel construction, arrangement, and operation of parts, as more fully hereinafter described, and shown in the accompanying drawings, in which—

20 Figure 1 is a vertical central section through the generator and the gas-receiver. Fig. 2 is a plan of the generator, and Fig. 3 is a section of the carbide-holder detached.

My gas-generator consists of a generator and a gas-holder separate from each other, the construction of which is as follows:

A represents the carbide-holder.

30 B represents legs supporting the holder, and C is an open-ended tube centrally secured in the carbide-holder and extending some distance above and below the bottom thereof, the portion above, extending to the top of the holder, being perforated.

40 D is a gas-bell in which the carbide-holder is removably supported in any suitable manner, preferably by means of cotter-keys *a* passing through corresponding holes formed in the lower ends of the legs and the adjacent wall of the gas-bell with which the legs are in contact and which support the carbide-holder out of contact with the bell.

45 The gas-bell D floats in a water-tank G, which is provided with a cover F, held in place by a cross-bar E, having a central aperture *b*, in which the gas-bell is vertically guided by means of a tube H, secured to the top of the gas-bell and communicating with the interior thereof. The tube H carries a check-flange *c*, which contacts the cover at the height to which the gas-bell may rise in the tank, and the upper end is closed and

provided with an air-cock I. The cross-bar E is hinged at *d* and provided with a clasp *e* or other suitable device for locking the same in place.

55 J is the gas-delivery pipe secured in the bottom of the tank and extends upwardly therein through the tubes C and H to about the height of the tank. There it communicates with the interior of the tube H and passing out through the bottom of the tank connects with the service-pipe K and with the gas-holder under control of a stop-cock L.

60 The gas-holder consists of the usual water-tank M and a gas-bell N, which is suitably guided to rise and fall vertically and carries a weight O. The gas-delivery pipe from the generator enters the tank through the bottom and extends up inside to above the level of the water.

70 P is a gas-escape pipe leading to the atmosphere. The inner end of this pipe extends through the bottom of the tank upward to above the height of the water within an outer and larger pipe Q, carried by the gas-bell and which is closed on the top but open at the bottom, all arranged in a known manner for the purpose of forming an escape for the gas from the holder in case the supply of gas should at any time exceed the capacity of the holder.

80 From this construction and arrangement of parts it will be seen that the gas-bell of the generator is free to drop down into its tank low enough to permit the water to find access into the carbide-holder through the perforations in the upper portion of the tube C, and gas will be generated if the holder is charged. The gas thus generated will accumulate in the bell D, and from there it has access through the tube H and the delivery-pipe J into the gas-holder. If the gas-bell of the holder is sufficiently weighted to have equal buoyancy with that of the generator (which carries the carbide-holder) or slightly less, the generation of gas will raise the bell of the generator, and thus prevent the further access of water to the carbide. The gas-bell will rise until the check-flange *c* strikes the under side of the cover F, and all gas generated will then flow into the holder until the generation ceases. If gas is drawn off through the serv-

ice-pipe, it will be delivered from the holder until it is exhausted, or nearly so, when the gas-bell of the generator will gradually fall until the water again flows into the holder, and the operation will be repeated.

If the generator needs recharging, it can be done at any time by first closing the stop-cock L and then opening the air-valve I. This lets the gas-bell D sink to the bottom, withdrawing the tube H sufficiently to allow the cover to be opened and the bell removed, and by drawing out the pins *a* the gas-bell can be lifted off from the carbid-holder, and the latter be cleaned and recharged. It is obvious that the cover F may be dispensed with, leaving the top of the tank open, and the cross-bar E will serve as the guide and stop for the bell.

Suitable safety devices to prevent an improper manipulation of the cocks and valves in recharging may also be provided, together with such other appliances—as drain-cocks, water-gages, &c.—necessary to safe and perfect operation; but as such devices are well known and their use with apparatus of this character is well understood they are not shown or described.

What I claim as my invention is—

1. In an acetylene-gas machine, the combination with the gas-holder, of a generator comprising a water-tank provided with an apertured cover, a gas-bell in said tank having a vertical tubular extension on top normally projecting through said aperture and adapted to guide the gas-bell in its vertical movement, a carbid-holder in the gas-space of the bell operatively carried by said bell into and out of

contact with the water in the tank by the movement of the bell and supplying the same with gas and a check-flange upon the tube restricting the buoyancy of the bell.

2. In an acetylene-gas apparatus, the combination of a generator and a gas-holder each comprising a water-tank and a gas-bell therein, a pipe through which the two gas-spaces of the two bells communicate with each other, a carbid-holder in the upper portion of the bell of the generator and supplying the same with gas, said carbid-holder removably supported in said gas-bell and provided with an open-ended tube extending above and below the bottom of the holder and having perforations for the admission of water into the holder in the portion extending above the holder.

3. In an acetylene-gas machine, the combination with the gas-holder, of a generator comprising a tank provided with an apertured guide at its upper end, a gas-bell in said tank having a vertical tubular extension on top normally projecting through said aperture and adapted to guide the gas-bell in its vertical movement, a carbid-holder removably secured in the gas-space of the bell and carried by the bell into and out of contact with the water in the tank by the movement of the bell and supplying the same with gas and a stop or projection upon the tube to limit the vertical movement of the bell.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM WEBB.

Witnesses:

FRED W. GREEN,
LOIS D. KILLAM.