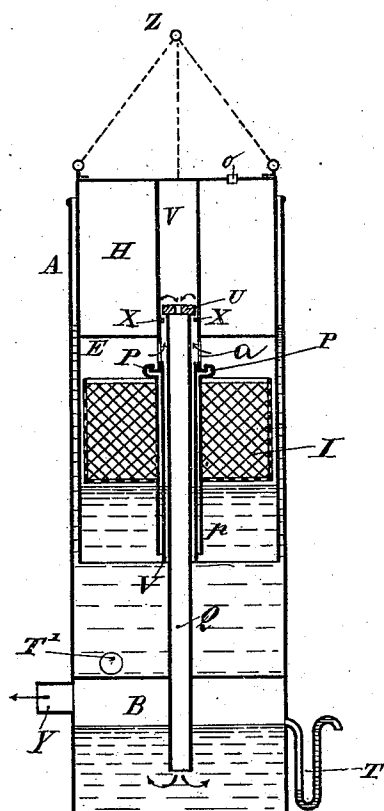


(No Model.)

M. C. A. FOURCHOTTE
APPARATUS FOR PRODUCING ACETYLENE GAS.

No. 575,884.

Patented Jan. 26, 1897.



Witnesses:-
Fred Haynes
George Barry Jr.

Inventor:-
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by attorneys
Brown & Sewall

UNITED STATES PATENT OFFICE.

MAURICE CHARLES ALFRÈDE FOURCHOTTE, OF PARIS, FRANCE.

APPARATUS FOR PRODUCING ACETYLENE GAS.

SPECIFICATION forming part of Letters Patent No. 575,884, dated January 26, 1897.

Application filed June 27, 1896. Serial No. 597,114. (No model.)

To all whom it may concern:

Be it known that I, MAURICE CHARLES ALFRÈDE FOURCHOTTE, a citizen of the Republic of France, residing at Paris, in said Republic, have invented a new and useful Improvement in Apparatus for the Production of Acetylene Gas, of which the following is a specification.

The apparatus which is the subject of this invention is intended to produce acetylene gas by means of the decomposition by water of carbide of calcium or other suitable acetylene-containing substance.

The object of the improvement is to provide effectually for the automatic regulation of the quantity and pressure of the gas produced.

The accompanying drawing represents in vertical section an example of an apparatus embodying my invention.

This apparatus comprises a principal reservoir A, containing water to serve for the decomposition of the carbide of calcium. In this reservoir dips a bell or inverted cup E, which is surmounted by a chamber H, in which may be introduced through a suitable hole *o* any suitable ballast to obtain the pressure at which it is desired the apparatus shall operate. Within this bell or cup is suspended by hooks P a grate or basket I, intended to contain the carbide of calcium. This basket has at its bottom a prolongation *p*, by which to take hold of it for the purpose of withdrawing it from the bell.

In the center of the principal reservoir is a fixed tube Q, open at top and bottom, and serving both as a guide for the bell in its ascending and descending movements and as a passage for the acetylene produced, as I will presently explain. The lower part of this tube Q enters into the water in a second reservoir B, arranged below the principal reservoir A. The level of this water is maintained constant by a siphon T. At the top of this fixed tube Q is a valve U, which slides freely in a guide-tube V, fixedly attached to the bell, during the ascent and descent of the latter, but which when the bell rises is raised by tappet projections X upon the interior of the guide-tube V. In this tube V there are lateral openings *a* under the crown of the bell

for the exit of gas from the bell toward the tube Q.

The operation of the apparatus is as follows: The bell having been removed from the principal reservoir A, the latter is filled with water up to a determined level. The carbide of calcium is then placed in the basket I, which is afterward fixed within the bell. Then the latter, suitably ballasted, is dropped into the principal reservoir, taking care to allow the escape from it by a special cock (not shown) of a portion of the air which it contains. The bell sinks in the reservoir until the carbide of calcium comes in contact with the water. The air-escape cock is then closed. As soon as the contact between the carbide of calcium and water is established the acetylene is disengaged and, passing through the openings *a* in the guide-tube V, enters the fixed tube Q and escapes by a tube Y, which debouches from the lower reservoir, and leads to a gas-holder or place whence the gas is to be distributed for use. To pass from the bell to the fixed tube Q, the acetylene is obliged to pass the valve U, through which are holes of an aggregate area too small to allow the passage of all the gas produced. The pressure then rises in the bell, which is raised, causing the emergence of the carbide of calcium from the water. Notwithstanding this emersion the production of the gas does not cease immediately and the bell continues to rise until the little projections X in the tube V meet the valve U. The latter is then raised by the upward movement of the bell, and the fixed tube Q is completely uncovered. As the section of this tube is such that it may give passage to all the acetylene that is formed, the pressure no longer rises under the bell, but the carbide is now out of the water. There then occurs a moment during which the production of the gas is diminished. The bell then redescends, leaving in its movement the valve U upon the tube Q and continuing to descend until the carbide of calcium is newly immersed in the water. From this time the same effects are reproduced until the complete exhaustion of the carbide, the production of the acetylene being thus automatically regulated by the raising and lowering of the basket con-

5 taining the carbid. The lower reservoir B serves as a hydraulic valve and prevents the return of the gas to this apparatus from the place where it is utilized or stored when the apparatus is no longer in operation.

10 To set the apparatus in operation again, the bell is raised from the principal reservoir by hand or by a chain lifting device Z and the basket is recharged with carbid. The reservoir may be washed and cleaned through a discharge-hole T'.

15 It being understood that I reserve to myself the right to vary the form, dimensions, proportions, and accessory parts of this apparatus and to employ for the construction such materials as I may judge suitable,

What I claim as my invention is—

20 1. In an acetylene-gas-generating apparatus, the combination of a water-reservoir, a bell entering the water in the said reservoir, a basket for the reception of carbid affixed in the interior of the bell in such manner as to rise and fall with it, a gas-exit tube debouching within the bell, a valve applied to
25 and partly closing the said tube when the bell

is lowered, and means for connecting the said valve with the bell for completely opening the tube when the bell is raised to a certain height, substantially as and for the purpose herein described.

30 2. In an apparatus for generating acetylene gas, the combination of a water-reservoir, a bell entering the water in the said reservoir, a removable basket for the reception of carbid suspended within the bell in such manner as
35 to rise and descend with it, a gas-exit tube serving as a guide to the bell, a perforated valve resting on the said tube to partly close it when the bell is lowered, a guide-tube affixed to the bell and sliding freely around the valve,
40 and tappets affixed to the latter tube to raise the valve during the rise of the bell, substantially as herein described.

In witness whereof I have hereunto set my hand in the presence of two subscribing witnesses. 45

MAURICE CHARLES ALFREDE FOURCHOTTE.

Witnesses:

EDWARD P. MACLEAN,
ALCIDE FABE.