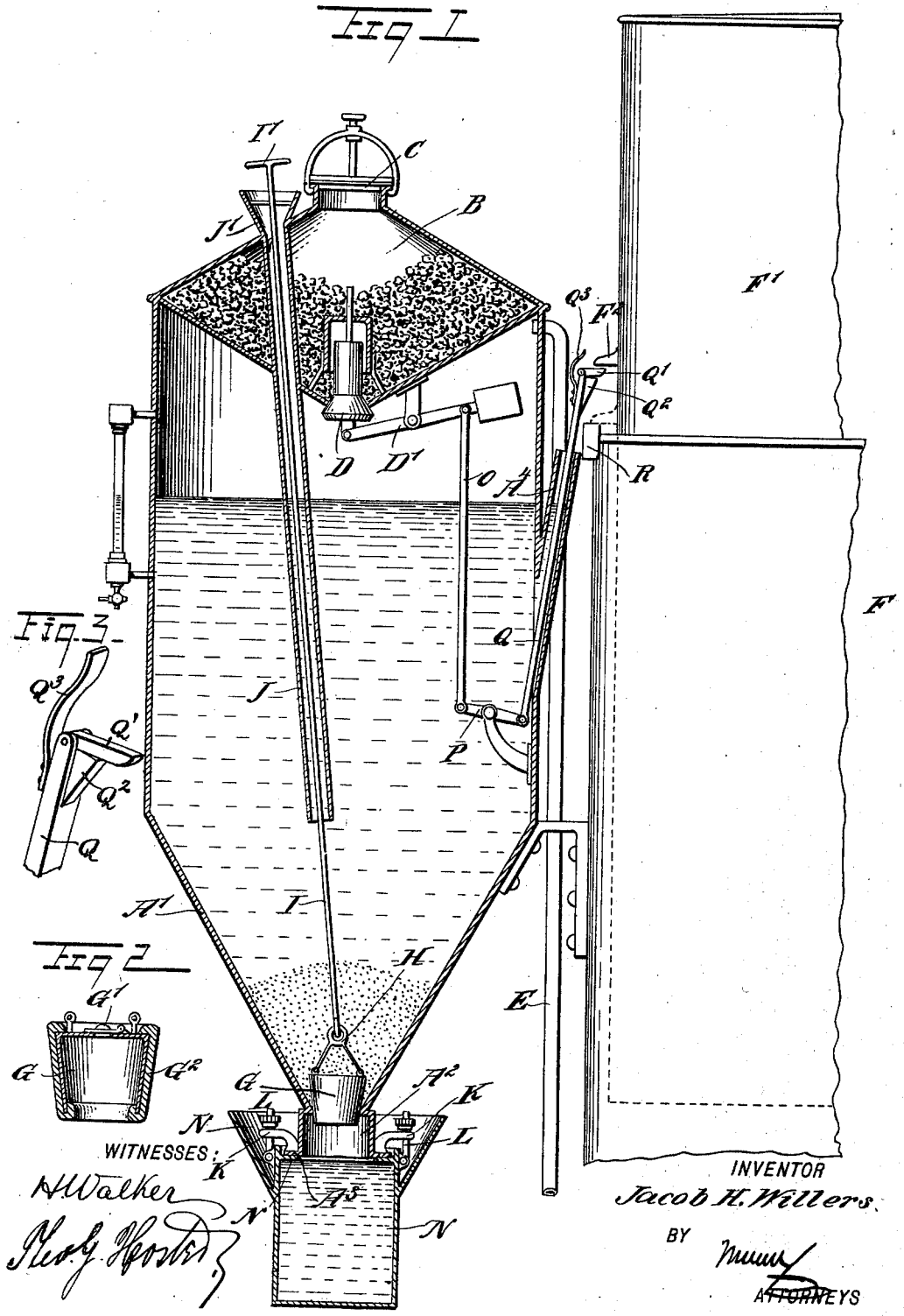
No. 670,696. Patented Mar. 26, 1901.

J. H. WILLERS.

ACETYLENE GAS GENERATOR.

(Application filed Sept. 18, 1900.)

(No Model.)



WITNESSES:

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UNITED STATES PATENT OFFICE.

JACOB H. WILLERS, OF NEW YORK, N. Y.

ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 670,696, dated March 26, 1901.

Application filed September 18, 1900. Serial No. 30,394. (No model.)

To all whom it may concern:

Be it known that I, JACOB H. WILLERS, a citizen of the United States, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Acetylene-Gas Generator, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved acetylene-gas generator arranged to automatically feed the carbid into the water, to generate gas in measured quantities according to consumption, and to permit convenient removal of the carbid residue without interrupting the working of the machine and without danger of air passing into the machine or gas escaping therefrom.

The invention consists of novel features and parts and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a sectional side elevation of the improvement. Fig. 2 is a sectional side elevation of the valve-plug, and Fig. 3 is a perspective view of the end of one member of the valve-operating lever mechanism.

The improved acetylene-gas generator is provided with a generator-casing A, having on its top a hopper B for containing the calcium carbid, placed in the hopper through a suitable filling device C. In the bottom of the hopper is arranged a valve D, periodically opened, as hereinafter more fully described, to allow a measured quantity of the carbid to pass from the hopper B into the water contained in the generator-casing A below the said hopper. The gas generated by the carbid coming in contact with the water in the generator-casing A is carried from the latter by a pipe E to the bell F′ of a gasometer F of any approved construction, and from this gasometer the gas is carried in the usual manner to the burners.

The bottom of the generator-casing A is formed with a hopper A′, in which accumulates the carbid residue, the outlet of the hopper being normally closed by a hollow tapering valve-plug G, held on a link H, attached to the lower end of a rod I, extending upwardly and through a tube J, forming part of the casing A and leading to the outside thereof at the top of the casing. The rod I is provided at its outer end with a handle I′, adapted to be taken hold of by the operator to pull the rod I upward and move the valve-plug G off its seat and allow the carbid residue to discharge from the hopper A′, as hereinafter more fully described. The upper end J′ of the tube J is preferably made funnel-shaped, as indicated in Fig. 1, to allow of using the tube J for filling the generator A with water.

The lower end of the hopper A′ is formed with a cylindrical extension A^2, carrying supporting-arms K for bolts L, hinged on a receptacle N, adapted to receive the carbid residue from the hopper A′ when the valve-plug G is unseated, as previously mentioned. The receptacle N has a funnel at its upper end and is provided with a horizontal flange N′, which fits upon a corresponding flange A^3 on the said extension A^2, so that the top opening of the receptacle registers with the bottom of the extension, and at the same time a tight joint is formed between the receptacle and the extension. Previous to securing the receptacle N in position on the extension A^2 by the means described said receptacle is filled with water, as indicated in Fig. 1, so that when the plug G is withdrawn and the carbid residue slides from the hopper A′ by its own gravity down through the hopper-outlet and through the hopper extension A^2 into the said receptacle then the water in the receptacle is displaced, and very little air, if any, can pass into the generator-casing and mix with the gas therein.

In order to permit convenient replacing of the valve-plug G on its seat in the outlet of the hopper A′, I provide the top of said plug with an upwardly-opening valve G′, so that when the rod I is pushed downward and the plug passes through the water in the hopper then the valve opens to allow convenient seating of the plug on its seat in the outlet of the hopper. In order to insure a tight fit of the plug in its seat, I prefer to cover the side of the plug with rubber, as indicated at G^2 in Fig. 2.

In order to periodically feed the carbid

from the storage-hopper into the casing A, the valve D is held on a weighted lever D′, fulcrumed at the under side of the hopper B, as is plainly shown in Fig. 1. This lever D′ is connected by a link O with a lever P, fulcrumed on the inside of the generator-casing A, and from this lever P extends upward a rod Q, reaching with its upper end to the outside of the generator-casing A by the rod passing through the tube A^4, attached to the side of the casing A. On the upper end of the rod Q is pivoted an arm Q′, adapted to rest on a wedge Q^2, carried by the rod Q, and said arm Q′ is adapted to be engaged by a projection F^2, secured to the side of the bell F′, so that when the latter sinks the said projection engages the arm Q′ and presses the rod Q downward to impart a swinging motion to the lever P, which by the link O imparts a swinging motion to the lever D′, so that the valve D is moved into an open position to allow some of the carbid in the hopper B to pass into the casing A and into the water contained therein to generate a new batch of gas. As this gas passes from the casing A by way of the pipe E into the bell F′ the latter rises and the projection F^2 moves out of engagement with the arm Q′, so that the weighted lever D′ swings back to its former position—that is, moves the valve D back to its seat—to close the lower end of the storage-hopper B.

In case the carbid has all passed from the hopper B into the casing A and the hopper needs refilling and no gas is generated, then the bell F′ sinks and the valve D is opened, as previously explained, and upon further withdrawal of the gas from the bell F′ the latter sinks down still farther and in doing so presses the arm Q′ and rod Q downward to such an extent that the wedge Q^2 slides off on the fixed part R, whereby the rod Q is moved inward and the arm Q′ slips out of engagement with the projection F^2, so that the weighted lever D′ immediately returns the valve D to its seat and moves the rod Q back to its uppermost position. When this takes place, it is an indication that the hopper B is empty, and the operator now refills the hopper with calcium carbid by charging the hopper with carbid through the filling device C. During this recharging the hopper is closed at its lower end by the valve D, and in order to again start the machine it is necessary for the operator to press the rod Q, so as to open the valve and allow a quantity of carbid to pass into the generator A to generate a fresh batch of gas. When this takes place, the gas passes into the bell F′, whereby the latter rises, and in doing so the projection F^2 comes in contact with the arm Q′ and swings the same upward against a spring Q^3, which when the projection F^2 has passed the arm Q′ forces the latter back to its normal position. (Shown in Fig. 1.) The several parts of the machine are then again in working position.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. An acetylene-gas generator, comprising a generator-casing having a hopper bottom for the accumulation of the carbid residue, a valve-plug for normally closing the outlet of said hopper bottom, a rod for manipulating said plug, and a tube in said casing, and through which extends said rod, said tube serving as a guide for the rod and as a filling-tube for the generator-casing, as set forth.

2. In an acetylene-gas generator, the combination with a gasometer-bell provided with a projection, and a carbid-storage hopper in the upper part of the generator, of a valve for closing the bottom of the hopper, a weighted lever mechanism for normally holding the valve closed, an arm pivoted to one member of the lever mechanism and adapted to engage the projection on the gasometer-bell, and a wedge-shaped projection on said member of the lever mechanism below the pivoted arm and upon which the said arm rests, substantially as described.

3. In an acetylene-gas generator, the combination with a gasometer, having its bell provided with a projection, a generator, and a carbid-hopper at the upper end of the generator, of a valve for closing the bottom of the hopper, and a lever mechanism for normally holding the valve closed, one member of the said mechanism being provided with a pivoted arm for engaging the projection of the gasometer-bell and with a wedge-shaped projection below the said arm, said wedge-shaped projection serving to hold the pivoted arm in a horizontal position and to engage a fixed part of the gasometer to move the arm out of the path of the projection, substantially as described.

4. In an acetylene-gas generator, the combination with a gasometer having its bell provided with a fixed projection, a generator, and a carbid-hopper from which the carbid is fed to the generator, of a valve for closing the outlet of the hopper, and a lever mechanism for normally holding the valve closed, one member of the said mechanism being provided with a pivoted arm for engaging the fixed projection of the gasometer-bell, a wedge-shaped projection below the pivoted arm, said wedge-shaped projection serving to hold the pivoted arm in a horizontal position and to engage a fixed part of the gasometer to move the arm out of the path of the projection, and a spring for returning the arm to its normal position after it has been swung upward by the projection of the gasometer-bell, substantially as described.

5. In an acetylene-gas generator, the combination with a gasometer provided with a projection on its bell, and a carbid-storage hopper in the upper part of the generator, of a valve for closing the bottom of the hopper, a weighted lever to which the valve is pivoted, a link having one end pivoted to the weighted

lever, a lever to one end of which the other end of the link is pivoted, a rod pivoted to the other end of the lever, an arm pivoted to the upper end of the rod and adapted to engage the projection on the gasometer-bell, and a wedge-shaped projection on the said rod below the pivoted arm, said projection being adapted to support the arm and to engage a fixed part carried by the gasometer to move the said arm out of the path of the projection, substantially as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JACOB H. WILLERS.

Witnesses:
THEO. G. HOSTER,
EVERARD BOLTON MARSHALL.