

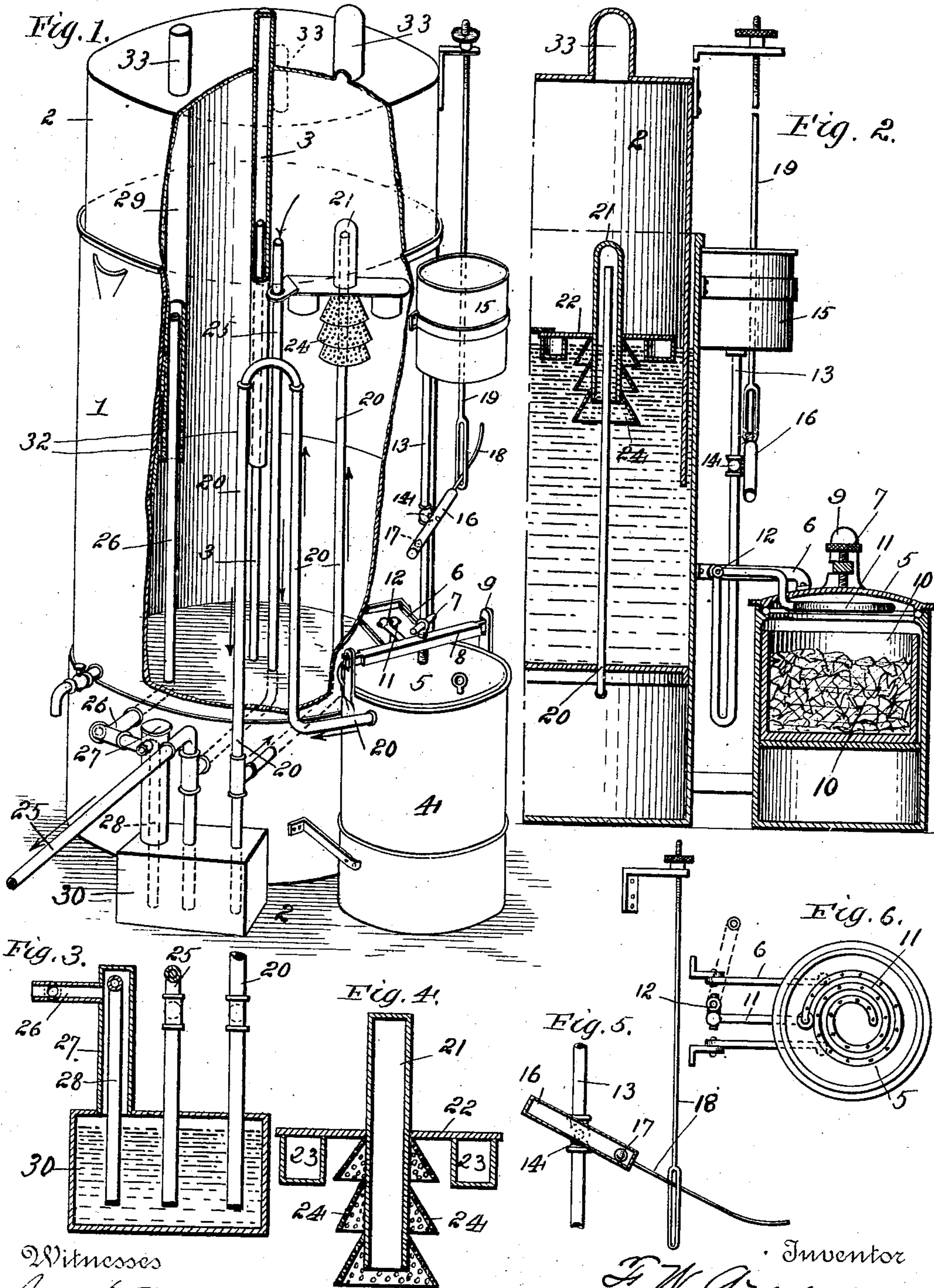
No. 633,258.

Patented Sept. 19, 1899.

F. W. ARNEY.
ACETYLENE GAS GENERATOR.

(Application filed June 16, 1898.)

(No Model.)



Witnesses
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UNITED STATES PATENT OFFICE.

FREDERICK W. ARNEY, OF TERRE HAUTE, INDIANA.

ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 633,258, dated September 19, 1899.

Application filed June 16, 1898. Serial No. 683,604. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK W. ARNEY, a citizen of the United States, residing at Terre Haute, in the county of Vigo and State of Indiana, have invented certain new and useful Improvements in Acetylene-Gas Apparatus, of which the following is a specification, reference being had therein to the accompanying drawings, in which—

Figure 1 is a perspective view of the apparatus, parts being broken away to more clearly show its construction. Fig. 2 is a vertical sectional view of a portion of the apparatus. Fig. 3 is a detail sectional view of the drip-box. Fig. 4 is a detail of the muffler and washer. Fig. 5 is a detail of the valve for admitting water to the generator. Fig. 6 is a detail bottom view of the cover of the generator.

The object of this invention is to provide a simple apparatus which will produce a pure gas economically and which will be automatic in its operation inasmuch as the gasometer-bell controls by its movement the discharge of water into the carbid-holder.

A further object of the invention is to provide means for purifying the gas before it escapes into the gasometer, this washing or purifying device also serving as a valve or water seal for the upper end of the gas-pipe leading into the gasometer.

A further object of the invention is to avoid the use of valves in the gas-pipes.

The invention consists in the novel combination of parts hereinafter described, and particularly pointed out in the claims appended.

Referring to the various parts by numerals, 1 designates the water-tank of the gasometer, and 2 the movable part or bell thereof, which may be of the usual or any suitable construction and which is guided in its movements by a telescoping rod 3, one part of which is secured to the bottom of the tank, the other part being secured to the bell 2. The generator 4 is located in any suitable position, but is preferably secured to the side of the tank 1 and is provided with a gas-tight cover 5, which is hinged to the side of the tank 1 by pivoted arms 6. This cover is secured in place by a screw 7, carried by a removable cross-bar 8, whose ends fit notches in lugs 9, carried by the generator-tank. The carbid-

holder 10 fits within this tank, and to supply water to said holder a spiral 11 of perforated pipe is secured to the under side of the cover, its outer end being carried through the cover and connected by a hinge-joint 12 to the water-supply pipe 13. This hinge is between and in line with the pivots of arms 6 to permit the cover 5 to be easily raised. The pipe 13 is carried up to a water-can 15, secured to the tank 1, and a valve 14 is placed in said pipe. Connected to the stem of said valve is a small cylinder 16, and within the cylinder is a ball 17. Projecting from the end of the cylinder is a stem 18, which passes through a slot in the end of a rod 19, adjustably supported by the bell of the gasometer. It will be readily understood that by this means the valve 14 will be opened and closed at the proper instant by the movement of the bell 2 and that the weight 17 will move from end to end of the cylinder 16 and hold the valve in its open or closed position until shifted by the bell.

From the top of the generator a gas-pipe 20 extends, said pipe being carried up above the generator for a suitable distance and then down to near a drip-box 30 at the bottom of the gasometer. This drip-box contains water, and the lower part of the pipe 20 is connected to said drip-box by a short pipe, which is carried a suitable distance down into the water to form a water seal. Just above the drip-box pipe 20 is carried into the gasometer, its upper open end being carried a suitable distance above the water therein. By carrying pipe 20 above the generator and then down and connecting it to a drip-box any water which may be carried with the gas will be condensed by the pipe and led back to the generator or to the drip-box. The water seal in the drip-box will prevent any escape of gas from pipe 20 into said box.

Over the upper end of pipe 20 is placed a long tubular cap 21, whose lower end extends a sufficient distance down into the water to form a water seal for the said pipe. Carried by this cap is a cross-bar 22, to which are secured floats 23, which when the cap is in its lowest position rest upon the water and support the cap. Secured to the cap below bar 22 are a series of perforated cones 24. When gas is forming and the pressure in the generator is greater than in the gasometer, gas

escapes under the lower end of cap 21, and when the pressure in the generator is reduced the cap or valve prevents the passage of the gas back to the generator. As the gas escapes from under the cap it will be forced into the water within the lowermost cone and will then escape up through the perforated cones, being divided into many small streams by the perforations therein. In this way the gas will be thoroughly washed and relieved of all its heavy particles and will pass into the gas-space a very pure gas. The cones also act as a muffler and prevent the noise that would otherwise be caused by the gas bubbling up through the water. The floats hold the cap at the proper depth in the water and prevent the upper end of the cap from contacting with the open end of pipe 20. By supporting the cap 21 by floats it moves up and down with the water and the seal is maintained at a predetermined length without regard to the height of the water in the gas-holder. This is of importance, as this water is sometimes used to supply the generator, and in that case varies considerably in height, and if a fixed pipe were employed the water seal could not be maintained of a certain length. Even in those machines where the water in the gasometer is not used to supply the generator there is considerable change in the height of the water due to its rapid evaporation and to the rising and falling of the bell. It will therefore be seen that in order that the water seal shall be constant and uniform the device forming the water seal must be a device automatically regulated by the rise and fall of the water in the gasometer. The cap 21 is of course extended above the floats a sufficient distance to permit a considerable range of up-and-down movement of the cap with the water and yet not contact with the upper end of the pipe 20.

From the gas-space of the gasometer the service-pipe 25 extends, and this pipe is connected by a branch pipe to the drip-box, the lower end of the branch pipe being sealed in the water therein. A safety-pipe 26 extends from the gasometer to the atmosphere and is also connected to a dome 27 on the drip-box, and from the top of this dome to near the bottom of the drip-box extends an open-ended filling-pipe 28, whose upper end opens into the atmosphere. Secured to the bell 2 is a tube 29, whose upper end is closed and within which the safety-pipe 26 telescopes. The lower end of this pipe is perforated, as shown at 32. When the pressure in the bell has reached the blow-off point, the bell is raised until some of the perforations in the lower end of the tube 29 are raised above the water in the gasometer and permits the gas to escape into pipe 26. When the pressure has been reduced to a normal point, the bell descends until the perforated lower end of the tube 29

enters the water and seals the end of the safety-pipe. A suitable guide is carried by the bar 22 and encircles the service-pipe and guides the cap in its movements. As the guide-rod 3, tube 26, pipe 25, and cap 21 extend somewhat above the water-level in the tank 1 it is necessary in order to permit the top of the bell 2 to reach the normal water-level in the tank that domes 33 should be formed on the top of the bell to receive the upper ends of said pipes. By this means there will be practically no air in the gasometer when starting the machine, and all the gas may be used from the gasometer.

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

1. In a gas apparatus the combination of a gasometer containing a sealing liquid, a generator, a gas-pipe connecting the generator to the gasometer, said pipe extending up through the sealing liquid into the gas-space of the gasometer, a tubular cap over the end of this pipe, the lower end of this cap extending into the sealing liquid to form a constant water seal, a float carried by this tube and adapted to limit the downward movement of the cap into the sealing liquid and maintain the seal of a uniform depth, and a submerged screening device surrounding the submerged end of the cap and through which the gas will pass as it issues from the cap and moves up through the sealing liquid to the gas-space, whereby the gas will be caused to pass through the sealing liquid in minute bubbles, substantially as described and for the purpose set forth.

2. In a gas apparatus the combination of a gasometer containing a sealing liquid, a generator, a gas-pipe connecting the generator to the gasometer, said pipe extending up through the sealing liquid into the gas-space of the gasometer, a tubular cap over the end of this pipe, the lower end of this cap extending into the sealing liquid to form a constant water seal, a float carried by this tube and adapted to limit the downward movement of the cap into the sealing liquid and maintain the seal of a uniform depth, and a submerged screening device carried by the submerged end of the cap and through which the gas will pass as it issues from the cap and moves up through the sealing liquid to the gas-space, whereby the gas will be caused to pass through the sealing liquid in minute bubbles, substantially as described and for the purpose set forth.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 14th day of June, 1898.

FREDERICK W. ARNEY.

Witnesses:

BYRON McNARY,
JOHN F. BAIR.