

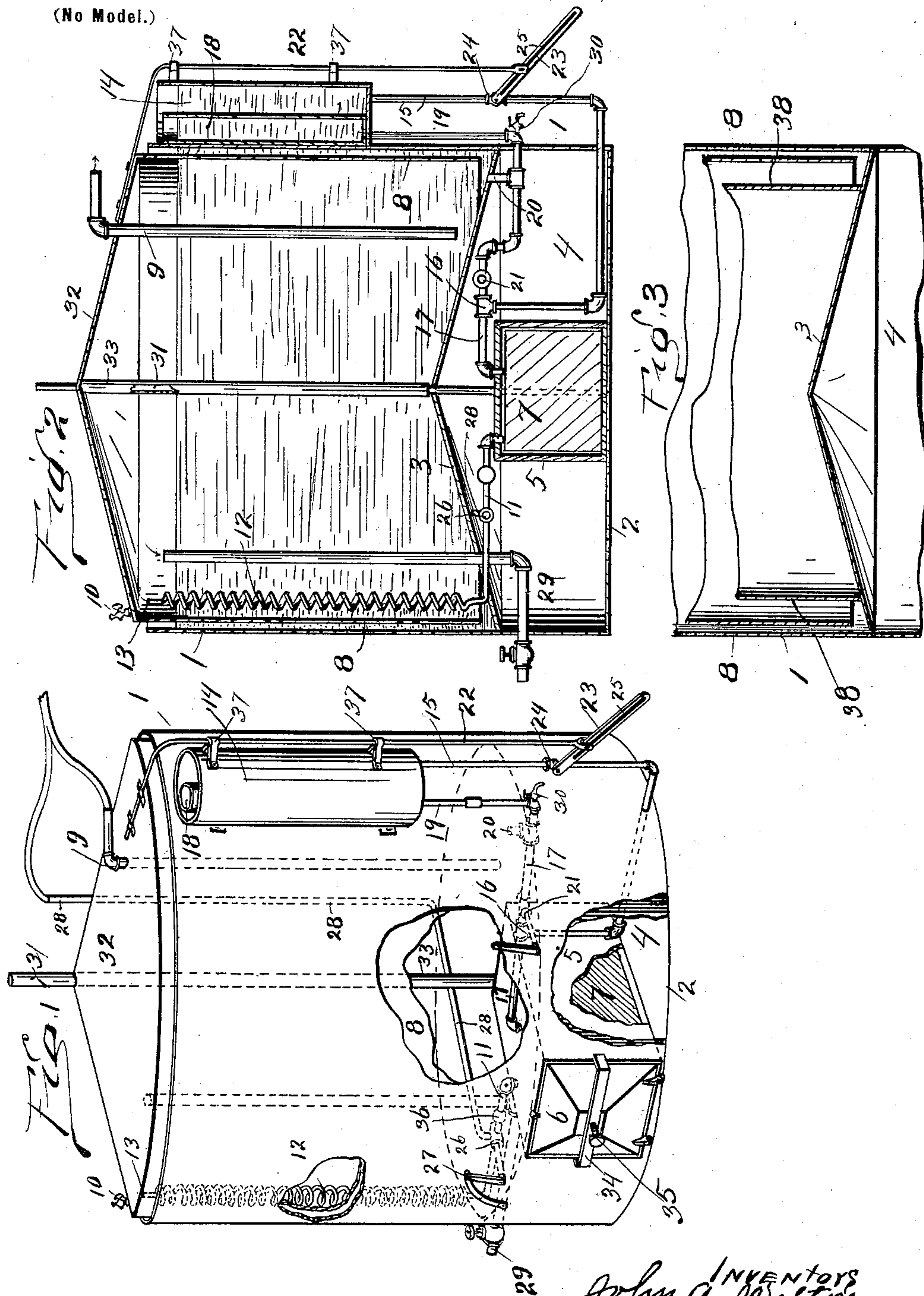
No. 609,313

Patented Aug. 16, 1898.

J. A. WELTON & J. V. PRICE.
ACETYLENE GAS GENERATOR.

(Application filed Dec. 28, 1897.)

(No Model.)



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN A. WELTON, OF CANAL DOVER, AND JESSE V. PRICE, OF GNADENHÜTTEN, OHIO.

ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 609,313, dated August 16, 1898.

Application filed December 28, 1897. Serial No. 664,139. (No model.)

To all whom it may concern:

Be it known that we, JOHN A. WELTON, a resident of Canal Dover, and JESSE V. PRICE, a resident of Gnadenhütten, in the county of Tuscarawas and State of Ohio, citizens of the United States, have invented certain new and useful Improvements in Acetylene-Gas Generators; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the figures of reference marked thereon, in which—

Figure 1 is a side elevation showing parts broken away. Fig. 2 is a vertical section. Fig. 3 is a view showing a modification.

The present invention has relation to acetylene-gas generators; and it consists in the different parts and combination of parts hereinafter described, and particularly pointed out in the claim.

The similar numbers of reference indicate corresponding parts in all the figures of the drawings.

In the accompanying drawings, 1 represents the tank, which is preferably formed cylindrical and may be of any desired size, reference being had to the capacity of the generator designed to be constructed. The tank 1 is provided with the ordinary bottom 2. A short distance above said bottom is located a secondary bottom 3, which is preferably formed conical, so as to better resist the downward pressure brought to bear upon said bottom 3. By providing the bottoms 2 and 3 the space or chamber 4 is provided, which chamber provides a space for placing the receptacle 5, which receptacle is formed of a size to correspond substantially with the size of the machine or generator—that is to say, in proportionate size—and may be fixed to the bottom 2 in any convenient and well-known manner and should be provided with the door 6, which door may be hinged, as illustrated, or it may be otherwise attached, as it will be understood that the manner of attaching the door forms no particular part of our invention, except that a door must be provided. Within the receptacle 5 is placed the carbid-container 7, which is formed open upon its upper side and is so formed for con-

venience in placing the carbid or carbids in said container, and when the container is placed in position for use it is located as illustrated in the drawings. Within the tank 1 is located the gasometer 8, which gasometer is so constructed that it can move up and down in conformity with the amount of gas contained therein. To the top or upper end of the gasometer 8 is attached the pipe 9, which pipe moves up and down with the gasometer and is for the purpose of providing a water seal, which is broken when the bottom or lower end of said pipe comes above the level of the water in the tank 1, thereby providing a safety device and allowing the gas to escape at a time when the gasometer reaches the highest point it is designed to move or go upward, by which arrangement any displacement of the gasometer is prevented, it being understood that the moment the pipe 9 is disconnected from the water the gas is allowed to escape into the atmosphere by means of any suitable conveyance. It will be understood that a flexible connection should be provided and attached to the top or upper portion of the pipe 9. To the top or upper end of the gasometer 8 is attached the ordinary water-cock 10 and is for the purpose of allowing the air to escape from the gasometer during the time the tank is being filled with water.

The receptacle is formed of metal and should be so formed that it will hold the gas-generator, as hereinafter described, from whence the gas is taken to the gasometer through the pipe 11 and through the condensing and cooling coil 12, said condensing and cooling coil being preferably located as illustrated in Fig. 2, and as illustrated it is principally located in the water contained in the tank 1 and is provided with the ordinary open end 13 for the escape of the gas.

The carbid-container 7 is formed of metal and open at its top or upper portion and in which is placed any desired amount of carbid, after which the receptacle 7 is closed, which places the carbid in position to produce gas, as hereinafter described.

To the tank 1 is attached the small tank 14, which is located above the top of the carbid-container 7 and is formed of a size to hold a

sufficient amount of water to exhaust the carbide put into the carbide-container, or, in other words, the tank 14 is formed of a size to correspond substantially with the size of the carbide-container.

To the bottom or lower end of the tank 14 is connected the pipe 15, which pipe leads from said tank 14 to the T 16, located in the pipe 17, and is for the purpose of conveying water onto the carbide, as hereinafter described. Within the tank 14 is located the filling-tube 18, which filling-tube is provided with the tube 19, which tube leads to and connects with the filling-pipe 20, said filling-pipe being connected with the bottom 3.

When it is desired to commence the generation of gases, after a sufficient amount of water has been placed in the tanks 1 and 14 the valve 21 is opened by means of an ordinary knob or handle, which allows water to enter the carbide-container 7 and come in contact with the carbide contained in said container, which starts the generation of gas, after which the valve 21 is closed, and as the gasometer moves upward it will carry with it the rod 22, which rod is securely connected to the top or upper portion of the gasometer 8, said rod 22 being pivotally connected at its lower end to the valve-lever 23, and as the rod 22 moves upward it will carry with it said lever 23 and open the valve 24, said valve 24 being fully opened when the lever 23 reaches a horizontal position or a position at right angles to the pipe 15, and as the gasometer continues to move upward it will continue to carry the rod 22 and the lever 23 upward until the valve 24 is closed, thereby automatically cutting off the supply of water from the tank 14 to the carbide-container, by which arrangement the generation of gas is stopped, and when the gas is taken from the gasometer said gasometer is free to move downward and again automatically open the valve 24 and start the generation of gas, as before.

For the purpose of providing a differentiated movement between the gasometer and the valve-lever 23 said valve-lever is provided with the slot 25, thereby allowing the rod 22 and the gasometer 8 to go up and down with reference to said valve-lever 23 without moving said valve-lever in unison with the rod 22, except when said valve-lever is in a horizontal position or when its extreme upper or lower point of movement is reached.

For the purpose of preventing the gas contained in the generator and gasometer from escaping through the pipe 15 when the valve 24 is open and the tank 14 is empty the pipe 15 is brought down below the top of the generator 7, thus forming a seal or trap by reason of the water contained in that portion of the pipe 15 located below the generator 7.

The pipe 11 is provided with the valve 26, which valve is provided with the operating-lever 27, said valve 26 being for the purpose of cutting off the gas contained in the gasometer, or, in other words, preventing the

gas contained in the gasometer from entering the generator 7 at the time the door 6 is opened, and for the purpose of removing the gas contained in the generator 7 after the valve 26 has been closed the pipe 28 is provided, which pipe leads to the open atmosphere. It will be understood that the valve 26 should be so arranged that when it closes the pipe 11 it will open the pipe 28, it being understood that that portion of the pipe 11 between the valve 26 and the generator 7 is the portion closed.

The pipe 29 is located and arranged in the ordinary manner and is for the purpose of providing a means for conveying the gas to the place or places where it is to be consumed.

For the purpose of providing a means for removing the water from the tank 1 the faucet 30 is provided and may be located as shown in Fig. 2.

To the bottom of the tank 1 is securely attached in any convenient and well-known manner the rod 31, which rod extends upward through the bottom 3 and through the top 32 of the gasometer, said rod being located at about the center of the tank 1 and also at the center of the gasometer. To the top 32 is attached the tube 33, which tube surrounds the rod 31 and is formed of such a length that when the gasometer reaches its lowest point its bottom or lower end will come close to or onto the bottom 3, by which arrangement the tube 33 will never be elevated to a height so as to bring its bottom or lower end above the water-line. The rod 31 and the tube 33 are for the purpose of forming a guide for the gasometer independent of the tank 1.

For the purpose of providing a means for securely closing the gas-generator 7, and thereby preventing the escape of gas, the arch or crab 34 is provided and is located over the door 6, as illustrated in Fig. 1, after which the screw 35 is turned so as to securely clamp or press the door against the end of the gas-generator 7.

If in the event a gas-generator of large size is desired to be constructed, and in order to provide room for said gas-generator, the rod 31 may be attached to the top of the gas-generator 7 instead of to the bottom 2; but it will be readily seen that this change can be easily made without departing from the nature of our invention.

If desired, a check-valve 36 may be located in the pipe 11 between the gas-generator 7 and the valve 26, said check-valve being for the purpose of automatically cutting off the flow of gas from the gasometer to the generator and is employed only as a safety device.

For the purpose of guiding the rod 22 and holding the same in a true vertical position the guides 37 are provided, which guides may be connected to the auxiliary tank 14, or they may be attached to any other fixed object.

The filling-tube 18 is located within the

auxiliary tank 14 and is so located for the purpose of producing a compact machine and at the same time protecting said filling-tube, said filling-tube being open at its top or upper end for the purpose of determining the water-line in the tank 1, as it will be understood that the water-level at all times will be the same in the tank 1 that it is in the filling-tube.

10 For the purpose of providing a means for removing the surplus gas, whether it comes from the generator or from the gasometer, the pipes 9 and 28 are flexibly connected together at their top or upper ends, as illustrated in Fig. 1, by which arrangement a single passage is required to the open atmosphere.

20 In Fig. 3 we have illustrated a portion of the tank and gasometer and also an open-ended cylinder located within the gasometer and so arranged that the shell of the gasometer will come between the inside of the outer tank and outside of the open-ended tube or cylinder. The open-ended cylinder 38 is for the purpose of providing a water-space between said cylinder and outer tank, thereby forming a water seal without filling the tank, or, in other words, having in said tank a large body of water.

30 In Figs. 1 and 2 this open-ended cylinder is not illustrated. It will be readily seen that by the use of the open-ended cylinder 38 much

less water will be required, by which arrangement the machine proper will be much lighter and can be more readily transported from place to place.

Having fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

The combination of the tank, provided with a bottom, and the conical secondary bottom 3, a chamber formed between said bottoms, a gasometer located within the tank and above the conical bottom, the receptacle 5 located in the chamber between the bottoms having located therein the carbid-box 7, an auxiliary tank, the pipe 15 leading from the auxiliary tank to the T 16 and extended below the top of the carbid-box, the pipe 17 connecting the T and the carbid-chamber, the valve 24 provided with a slotted lever, a rod connected to the lever and to the gasometer, the pipe 11 leading from the carbid-receptacle to the cooling-coil and provided with a valve, and the pipes 19 and 20, substantially as and for the purpose set forth.

In testimony that we claim the above we have hereunto subscribed our names in the presence of two witnesses.

JOHN A. WELTON.
JESSE V. PRICE.

Witnesses:

J. A. JEFFERS,
F. W. BOND.