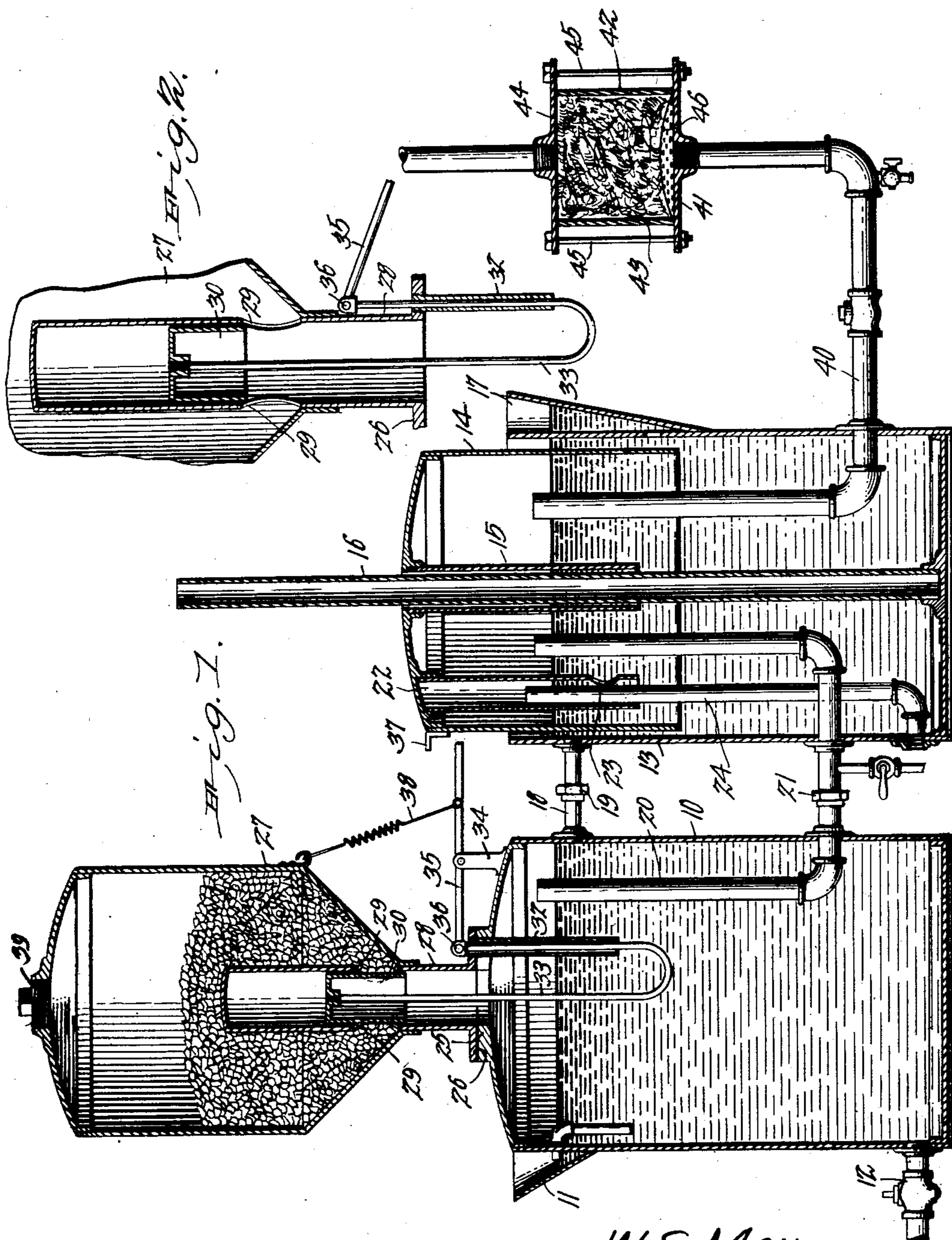


No. 750,674.

PATENTED JAN. 26, 1904.

W. S. MAY.
ACETYLENE GENERATOR.
APPLICATION FILED JUNE 21, 1902.

NO MODEL.



Witnesses
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UNITED STATES PATENT OFFICE.

WALTER S. MAY, OF CLIFTON, ARIZONA TERRITORY.

ACETYLENE-GENERATOR.

SPECIFICATION forming part of Letters Patent No. 750,674, dated January 26, 1904.

Application filed June 21, 1902. Serial No. 112,647. (No model.)

To all whom it may concern:

Be it known that I, WALTER S. MAY, a citizen of the United States, residing at Clifton, in the county of Graham and Territory of Arizona, have invented a new and useful Acetylene-Generator, of which the following is a specification.

This invention relates to certain improvements in acetylene-gas generators, and has for its principal object to provide an improved form of automatically-operated valve for effecting the delivery of carbid from the carbid-holder to the generator.

A further object of the invention is to provide an improved form of valve operating and connecting mechanism whereby the usual stuffing-boxes may be dispensed with and the operation of the valve rendered more certain and positive.

Further objects of the invention are to provide an improved form of strainer or purifier by means of which the moisture may be removed from the gas and to provide a novel form of automatic valve for permitting the escape of gas from the gasometer when the gas-bell has reached a predetermined height from the feed of an excessive quantity of carbid to the generator.

With these and other objects in view the invention consists in the novel construction and arrangement of parts hereinafter described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims.

In the drawings, Figure 1 is a sectional elevation of acetylene-gas-generating apparatus constructed in accordance with the invention. Fig. 2 is a detail sectional view of the carbid-valve drawn to a somewhat larger scale and illustrating the same in open or feeding position.

The generating-tank 10, which may be of any desired size, is provided at its upper portion with a water-filling spout 11 and at its lower portion with a valved outlet 12, through which the sludge and water may be discharged when necessary. At a short distance from the generating-tank is a gasometer comprising a water-tank 13 and a gas-bell 14, the gas-bell having a centrally-disposed depending

tube 15, which fits around a vertical tube or standard 16, extending from the bottom of the water-tank. The water-tank has a filling-spout 17, and it is connected to the generator by a brace 18, in which is an ordinary form of union or coupling 19, which may be readily disconnected for convenience in shipping the apparatus. The gas-space of the generating-tank and the similar space of the gasometer are connected by a pipe 20, having a union or coupling 21.

Depending from the top of the gas-bell is a tube 22, the lower end of which extends below the water-line in the tank, and in one side of this tube is formed an opening 23, disposed at a short distance above the bottom of the tube, said opening being normally below the water-line during the ordinary operation of the apparatus, but being raised above the water-line when the quantity or pressure of gas is abnormally increased. Within the tube 22 is the upper end of a discharge-tube 24 in communication with the outer air, the upper open mouth of said tube being normally water-sealed to prevent the escape of gas. When the opening 23 is raised above the water-line, the gas in the gasometer escapes through the pipe 24 until the pressure is reduced to a point of safety, the bell descending and automatically cutting off the escape in order to prevent waste of an excessive quantity of gas.

At the top of the generating-tank is a flanged opening 25, and on such flange is bolted the lower flange 26 of a carbid-holder 27, the tapering bottom portion of the carbid-holder being connected to the flange 26 by a vertically-disposed tubular neck portion 28, which projects upwardly within the carbid-holder and is closed at its upper end in order to prevent the entrance of carbid therein. In the tubular portion 28 are formed a number of ports or passages 29, which are normally closed by a cylindrical valve 30, adapted to slide vertically within the tube, said valve being automatically raised to the open position shown in Fig. 2 when the quantity of gas in the gasometer is reduced below a predetermined point. To the flange 25 is secured a depending tube 32, open at both top and bottom,

and its lower end extending far enough below the water-line in the generator to prevent the escape of gas. Through this tube extends one arm of a U-shaped bar 33, the opposite
 5 parallel arm of which is secured to the valve 30. For convenience in assembling the parts the tube 32 is rigidly secured to the flange 26, and the flanged wall of the opening 25 is provided with a slot to permit the ready inser-
 10 tion and removal of the tube 32 with the carbide-holder. On the upper portion of the gas-generator is mounted a standard 34, to which is pivoted an operating-lever 35, having one end pivotally connected, as at 36, to the bar
 15 33, the opposite end of said lever extending into the path of movement of a projecting finger or bracket 37, carried by the gas-bell, so that when the gas-bell descends and the quantity of gas is decreased this lip or finger
 20 will engage with the lever and will raise the valve 30 to the position shown in Fig. 2 and permit the passage of a quantity of carbide from the holder to the generating-tank. As the gas-bell rises under the pressure of the
 25 newly-formed gas the lever 35 is raised by means of a tension-spring 38, extending between the lever and a fixed point, and the valve is gradually returned to closed position. The supply of carbide may be renewed at any time
 30 by unscrewing the top or plug 39 at the top of the carbide-holder. This form of valve is found in practice to operate without sticking and with the exertion of but little power, and in all cases the quantity of carbide admitted is
 35 in proportion to the downward movement of the bell, the valve being kept in open position until a sufficient quantity of gas has been formed to raise the bell and permit the closing movement of the valve under the influence
 40 of the spring 38.

From the gasometer leads a service-pipe 40, which is coupled to one head 41 of a gas purifier or strainer 42, said purifier comprising a
 45 cylindrical or other vessel 43, having a lower head 41 and an upper head 44, the two being connected together by bolts 45, which may be readily removed when it becomes necessary to renew the straining or purifying material. The purifier is filled with a fibrous material,
 50 such as cotton, which will absorb and retain the water and other impurities while the entrance of any of the straining material to the service-pipe is prevented by a plate 46, formed of perforated sheet metal or wire-gauze placed
 55 at the bottom of the purifier and preferably slightly arched in order to permit the spreading of the gas.

While the construction herein described, and illustrated in the accompanying drawings,

is the preferred form of the device, it is obvious that various changes in the form, proportions, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

Having thus described the invention, what I claim is—

1. In an acetylene-gas generator, the combination of the generating-tank, a carbide-holder, a tube forming a passage for the carbide from the holder to the tank, said tube extending upward within the holder and having a closed upper end and the side walls of the tube being provided with a plurality of ports to permit the passage of carbide from the holder to the tube, and a cylindrical valve in the form of an inverted cup fitted snugly within the tube and guided thereby, the valve when in open position being wholly above the ports and permitting the unobstructed flow
 80 of carbide through the tube to the generating-tank, said valve being balanced by the weight of carbide to which it is exposed through the plurality of ports.

2. The combination in an acetylene-gas generator, of the gas-generating tank having a top opening, a vertically-disposed ported tube having a lower flange secured to the top of the generator, a holder surrounding the upper portion of the tube and supported thereby, a valve guided within the tube and movable to an open position wholly above the port to thereby permit the unobstructed flow of the carbide through the tube.

3. The combination in an acetylene-gas generator, of the generating-tank having a flanged opening, a carbide-holder, a carbide-discharge tube having a closed upper end within the holder and provided with a lower flange adapted to be secured to the generating-tank, there being carbide ports or passages in said tube, a depending tube secured to and removable with the tube-flange and having its lower end extending below the water-line of the generating-tank, a vertically-movable valve arranged within the carbide-discharge tube, a U-shaped valve-operating bar having one end or arm extending through the depending tube and the other arm secured to the valve, a lever pivotally connected to said rod, and a movable gas-bell adapted to operate on said lever.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WALTER S. MAY.

Witnesses:

J. LAUDER,
 JAMES S. CROMB.