W. F. FARMER.

ACETYLENE GAS GENERATOR.

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1,058,228.

Patented Apr. 8, 1913.

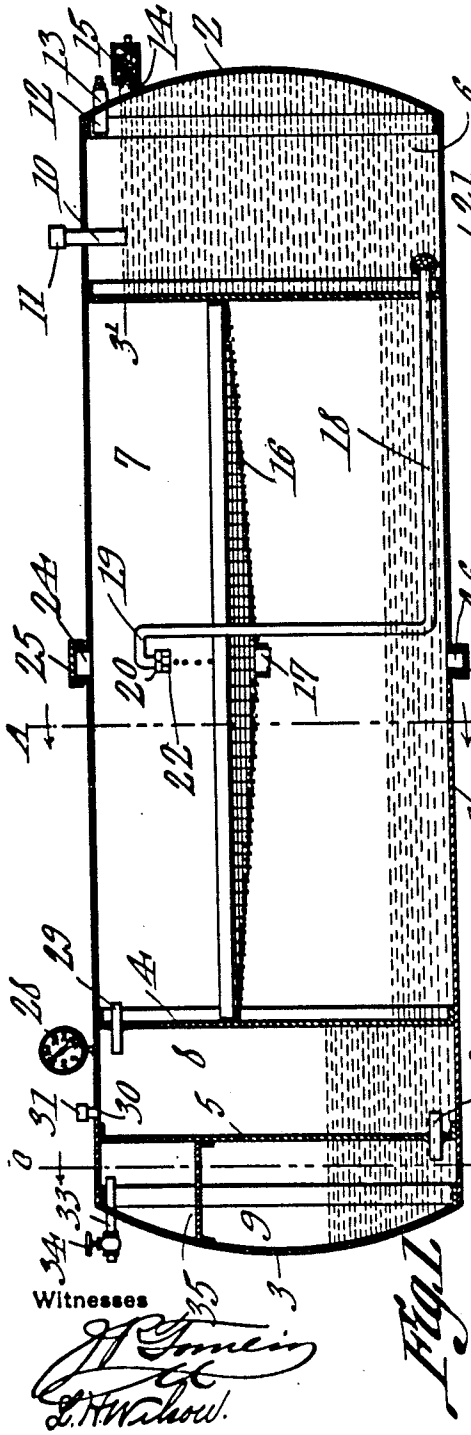


Fig. 1.

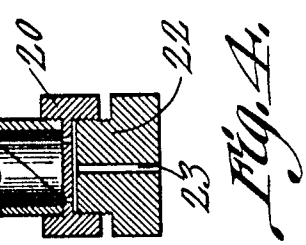


Fig. 4.

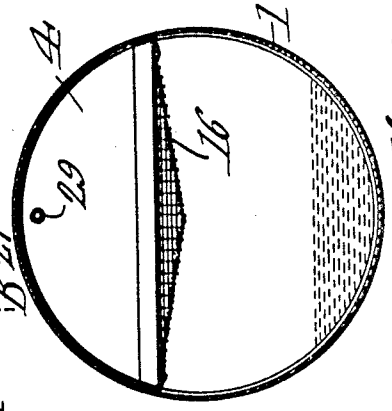


Fig. 2.

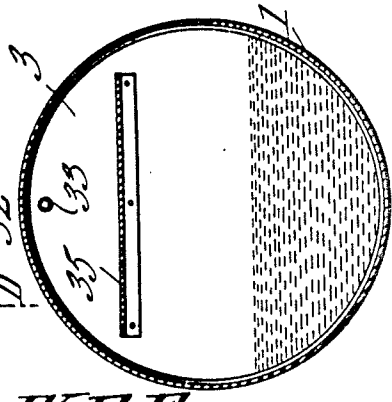


Fig. 3.

Witnesses

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UNITED STATES PATENT OFFICE.

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ACETYLENE-GAS GENERATOR.

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To all whom it may concern:

Be it known that I, WILLIAM F. FARMER, a citizen of the United States, residing at Cloverdale, in the county of Putnam and State of Indiana, have invented a new and useful Acetylene-Gas Generator, of which the following is a specification.

This invention relates to apparatus for generating acetylene gas, its object being to provide a simple, durable and compact structure of this character having means whereby the generation of gas is effected only at those times when gas is being withdrawn from the apparatus.

A further object is to provide apparatus of this character which is free of all danger of exploding and which can be easily charged and cleaned.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed can be made within the scope of what is claimed, without departing from the spirit of the invention.

In the accompanying drawings the preferred form of the invention has been shown.

In said drawings:—Figure 1 is a central vertical longitudinal section through the apparatus. Fig. 2 is a section on line A—B Fig. 1. Fig. 3 is a section on line C—D Fig. 1. Fig. 4 is an enlarged section through the adjustable nozzle of the water supply.

Referring to the figures by characters of reference 1 designates a casing which can be of any desired cross sectional contour, this casing being closed at its ends by heads 2 and 3. Partitions 3', 4 and 5 are secured within the casing and sub-divided into a water compartment 6, a generating compartment 7, and storage compartments 8 and 9 respectively. The water compartment 6 is preferably located within one end portion of the casing while the storage compartments 8 and 9 are located in the other end portion of the casing, the generating compartment being disposed between the compartments 6 and 8. The water compartment 6 has a filling tube 10 extending downwardly thereinto and normally closed by a screw cap 11 or the like. This compartment is also provided, near its top, with an air inlet tube 12 normally closed by means of a check valve 13. This tube 12 is adapted to be coupled to a suitable pump whereby air can be directed under pressure into the compartment 6. An exhaust port 14 is carried by the head 2 and is normally closed by a spring pressed valve 15. This valve is adapted to open automatically when the pressure within the casing 1 becomes too great.

A tray 16 preferably formed of metal fabric is supported within the generating compartment 7, the bottom of this tray being inclined downwardly toward a cup-like extension 17 formed at the center of the tray. A pipe 18 extends through the partition 3 close to the bottom thereof and has its inlet located in the lower portion of the compartment 6. This pipe extends upwardly through the tray 16 and terminates in a goose neck 19 the outlet end of which is supported directly above the cup-like portion 17. The discharge end of the pipe 18 is preferably provided with a screw cap 20 having minute openings 21 therein through which water is adapted to escape. This screw cap carries an adjustable nipple 22 which is screwed into the cap and is adapted to move against and close the apertured portion thereof. Said nipple has a central passage 23 through which water is free to escape when the nipple is moved away from the apertured portion of the cap, as will be apparent by referring to Fig. 4.

An opening 24 is formed in the top portion of the casing 1 directly above the outlet end of the pipe 18 and is normally closed by a screw cap 25. An outlet opening 26 is formed in the bottom portion of the casing 1 directly under the cup-like portion 17 of the tray, this outlet opening being normally closed by a screw cap 27 or the like.

A pressure gage 28 is mounted on the casing 1 and communicates with the interior of the compartment 8. A tube 29 extends through the upper portion of the partition 4 and communication is established through this tube between the two compartments 7 and 8. A water inlet opening 30 is formed in the top of the compartment 8 and is normally closed by means of a screw cap 31 or the like.

A tube 32 extends through the lower portion of the partition 5 and communication between the two compartments 8 and 9 is established through this tube. An outlet

pipe 33 extends from the upper portion of the compartment 9 and may be provided with a suitable valve 34. This pipe is to convey gas to the point of use. A baffle plate 35 is extended transversely of the compartment 9 below the pipe 33 and serves as a means for preventing water from splashing upwardly into the pipe 33.

In using the apparatus, the compartment 6 is partly filled with water and compartments 8 and 9 are likewise partly filled with water, the water entering compartment 8 being adapted to flow through the pipe 32 into compartment 9 so that the water in the two compartments is maintained normally at the same level. The water inlets 10 and 30 are then closed by means of their caps 11 and 31. Carbid is then introduced into the generating chamber 7 through the opening 24 and is supported by the tray 16. Cap 25 is then placed in position and air under pressure is introduced into the upper portion of the chamber 6 through the valved tube 12. Water will be forced by this compressed air through the pipe 18 so as to discharge drop by drop from the nipple 22 and onto the carbid. Generation of gas will thus take place, the gas escaping through tube 29 into compartment 8 and downwardly through the water within the compartment 8 and upwardly through compartment 9, the water thus thoroughly washing the gas. As soon as the pressure of gas within the compartments 7, 8 and 9 becomes equal to the pressure of air within the compartment 6, further discharge of water from the nipple 22 will cease. As soon as valve 34 is opened so as to permit the generated gas to escape through pipe 33, the pressure within the compartments 7, 8 and 9 is reduced and the air confined within the compartment 6 will thus push the water downwardly within said compartment so as to force it to escape drop by drop onto the carbid, thus generating an additional supply of gas, the generation obviously ceasing as soon as the pressures become equalized.

It will be obvious that the discharge of water onto the carbid can be regulated by adjusting the nipple 22 toward or from the apertured portion of the cap 20. The slaked or waste carbid will gravitate from the tray 16 onto the bottom of the compartment 7. The waste can be removed through the opening 26 by detaching cap 27.

What is claimed is:—

Acetylene gas generating apparatus including a horizontally disposed cylindrical casing, partitions therein dividing the casing into a central generating compartment, an end compartment constituting a water container, and another end compartment constituting a combined gas storage and washing compartment, a partition within the gas storage compartment and dividing said compartment into separate chambers, said chambers communicating solely close to their bottoms, means for directing gas from the upper portion of the generating compartment into the upper portion of one of said chambers, means for conveying gas from the upper portion of the other chamber to the point of use, a baffle disposed within said chamber and directly below said conveying means, means for directing water into the chamber next to the generating compartment, for gas washing purposes, the water in the chambers being adapted to extend above the port through which the chambers communicate, means within the generating compartment for supporting carbid, means for directing water from the water compartment to a point above said carbid supporting means, a valved inlet in the wall of the water compartment for receiving air under pressure, means for directing water into the water compartment, and an exhaust valve connected to the water compartment to permit the escape of excess pressure within the casing.

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

WILLIAM F. FARMER.

Witnesses:
F. L. McKee,
Theo. McKarney.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."