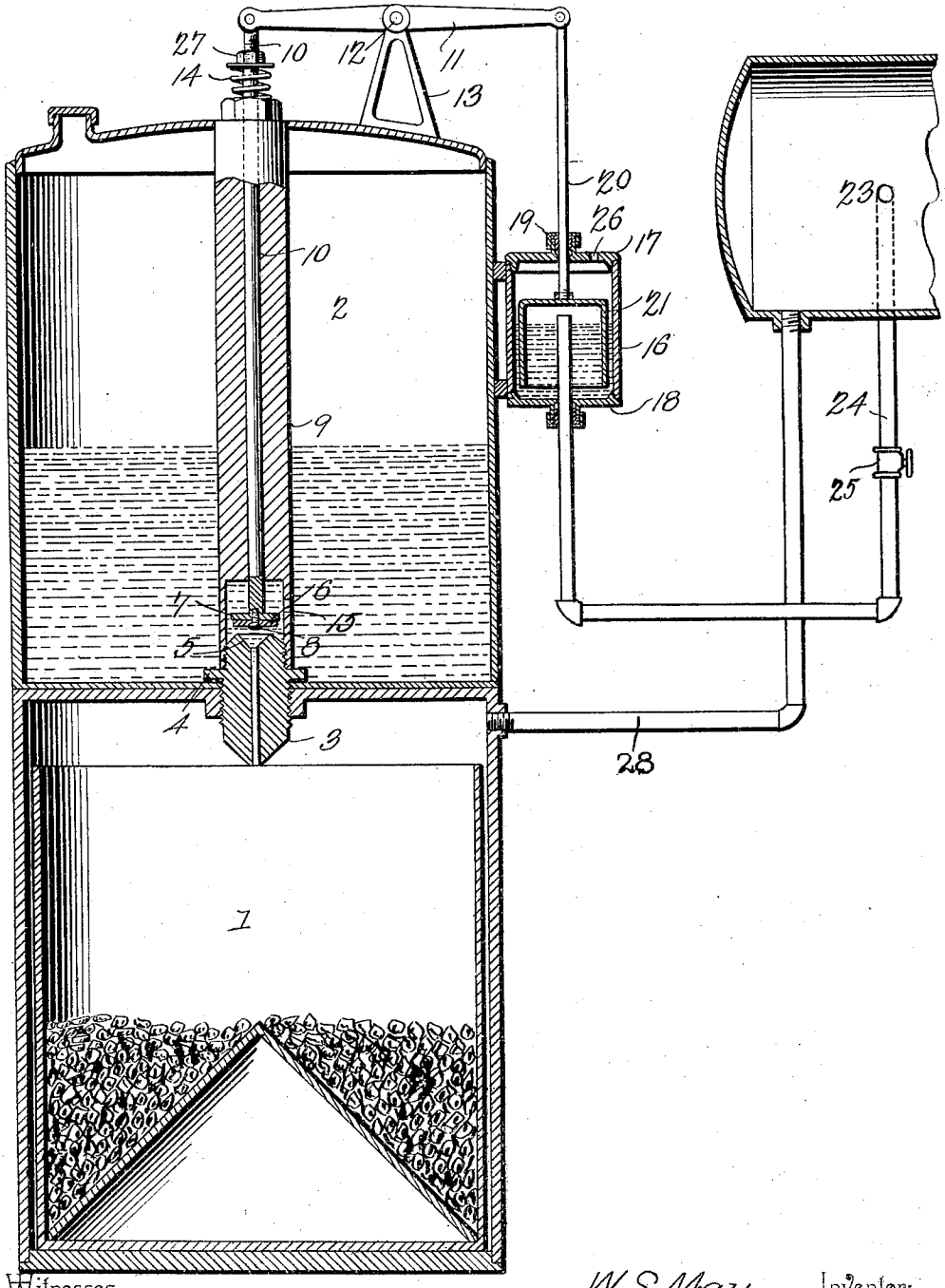
No. 738,827. PATENTED SEPT. 15, 1903.

W. S. MAY.

ACETYLENE GAS GENERATOR.

APPLICATION FILED FEB. 6, 1903.

NO MODEL.



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No. 738,827. Patented September 15, 1903.

UNITED STATES PATENT OFFICE.

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ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 738,827, dated September 15, 1903.

Application filed February 6, 1903. Serial No. 142,192. (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, Arizona Territory, have invented a new and useful Automatic Regulator for Acetylene-Gas Generators, of which the following is a specification.

This invention relates to certain improvements in acetylene-gas generators; and it has for its principal object to provide an improved mechanism for automatically regulating the quantity of water supplied to the generator in accordance with the quantity or pressure of gas manufactured.

A further object of the invention is to provide a simple form of regulating mechanism which may be readily applied to the gas-generators in common use and in which all of the parts, together with the water-controlling valve, are readily accessible should it become necessary to make repairs or renew any broken or worn parts.

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

The accompanying drawing represents in sectional elevation an acetylene-gas apparatus provided with a regulating device constructed and arranged in accordance with the invention.

In the drawing, 1 designates a portion of an ordinary form of acetylene-gas generator, into which carbid may be introduced in any manner. Above the generating-tank is a water-supply tank 2, and for the sake of convenience the two vessels are coupled together by a nipple member 3, having an enlarged flange or collar 4 fitting within the lower portion of the water-tank, the periphery of the nipple being threaded and adapted to a threaded opening in the top of the generator. The nipple is provided with a central water-passage and at its upper end is turned down to form a valve-seat 5 for the reception of a valve 6, having an ordinary form of washer 7, held in position by a small screw 8, which may be removed when it becomes necessary to renew the washer. The periphery of the upper portion of the nipple is threaded for the reception of the internally-threaded lower end of a valve-casing 9, which extends up through the top of the water-tank and at its upper end is provided with a rectangular or polygonal wrench-engaging face in order to permit the convenient removal of the valve-casing whenever it becomes necessary to renew the washer or to make an examination or repairs. The valve-casing serves as a guide for a valve-stem 10, carrying the valve 6, and the upper end of said valve-stem is pivotally connected to one end of a lever 11, fulcrumed at 12 on a standard 13 at the upper portion of the water-tank. Between the top of the valve-casing and the lever 11 is a helical compression-spring 14, which normally serves to elevate the valve to the position shown in the drawing, thereby allowing the water entering through port 15 to flow from the water-tank through the nipple to the generating-chamber. When the valve is depressed against the action of the spring, the port is closed and the supply of water cut off.

At one side of the water-chamber is secured a small cylinder 16, having removable upper and lower heads 17 and 18, preferably threaded in order that they may be conveniently removed and replaced, and the upper head is provided with a stuffing-box and gland-nut 19 of the ordinary type, forming a guide for the passage of a piston-rod 20, to the lower end of which is secured a plunger 21. The upper end of the rod is pivotally connected to one end of the lever 11 and serves to transmit vertical movement to the valve-rod 10. The plunger 21 is in the form of an inverted bell, guided loosely within the cylinder, and the lower open end of the bell is immersed in a body of light oil in order to lessen the danger of freezing at low temperatures, and, further, to serve as a lubricating medium for the plunger.

At a convenient point is placed a gasometer or gas-holder 23 of any ordinary construction, and from the gasometer leads a pipe 24, extending through the lower head 18 of the cylinder and having an outlet at a point im-

mediately above the oil-level in the cylinder, and said pipe is provided with a valve 25, which may be closed whenever it becomes necessary to recharge the generating-chamber or to temporarily shut off the supply of gas for the purpose of examining or making repairs to any of the parts.

In the operation of the device gas is manufactured in the generating-tank in accordance with the quantity of water passing through the nipple. This gas passes through a pipe 28 to the gasometer or gas-holder and is thence led off to a point of consumption in the ordinary manner. A portion of the gas is led through a pipe 23 to the lower portion of the plunger 21, and as the pressure of gas increases the plunger is elevated and gradually compresses the spring 14 and depresses the valve-stem and valve, cutting off the supply of water, either wholly or in part, in accordance with the quantity or the pressure of the gas. When the supply of gas in the gasometer is reduced or exhausted, the spring in expanding forces the plunger down and at the same time raises the valve and permits the water to again flow to the generating-chamber. In the top of the plunger-cylinder is an opening 26 to permit the free ingress and egress of air in order not to interfere with the free movement of the plunger in either direction and at the same time permit the escape of any gas which may leak through the oil-seal in the cylinder.

The apparatus is entirely automatic in its action, and the construction is simple; economical, and as it is disposed in convenient position outside of the tank all of the parts being readily disassembled should it become necessary at any time to repair or renew any of the parts.

To renew a valve-washer, it is merely necessary to disconnect the lever 11 and the valve-stem and then after removing the spring 14 to apply a wrench or other suitable tool to the upper end of the valve-casing and unscrew the valve-casing, removing the same, together with the valve-stem, so that the screw 8 at the lower end of the stem is accessible.

In order to permit the accurate adjustment of the mechanism for operation at any predetermined pressure, the upper portion of the valve-stem may be threaded for the reception of an adjusting-nut 27, bearing upon the upper end of the spring in order to adjust the tension of the spring, and thus render the valve operative at a greater or less pressure, as may be desired.

Having thus described the invention, what is claimed is—

1. In acetylene-gas apparatus, the combination with a gas-generator, of a water-tank, a valve for controlling the flow of water from the tank to the generator, a valve-casing containing said valve, an elongated valve-stem passing through the casing to a point outside the water-tank, a liquid-containing cylinder having a vent-opening at its upper end, a plunger arranged within the cylinder and comprising an open-bottom vessel having its lower end immersed in the liquid, a gas-holder having a piping connection with the cylinder, and a lever pivoted at an intermediate point and having its opposite ends connected respectively to the plunger and the valve-stem.

2. In acetylene-gas apparatus, a gas-generator, a water-tank arranged above the same, a nipple connecting the tank and generator and provided with a water-passage, a valve-seat arranged at the upper end of the nipple, a valve-chamber having a lower threaded portion adapted to a threaded portion of the nipple, said valve-chamber extending up through an opening in the upper portion of the water-tank, a valve adapted to the valve-seat, a valve-stem guided by the valve-chamber and extending above the top of the same, a liquid-containing cylinder, a bell-like plunger disposed within the cylinder, a plunger-rod, a lever fulcrumed at a point intermediate of its length and having its opposite end portions connected respectively to the plunger and to the valve-stem, a spring extending between the top of the valve-casing and the lever and surrounding the valve-stem, a gas-holder, and a valved pipe leading from the gas-holder to the cylinder and opening thereinto at a point above the liquid-level.

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,
E. H. DOOLITTLE.