(No Model.)

A. A. STROM.

APPARATUS FOR GENERATING ACETYLENE GAS.

No. 590,674. Patented Sept. 28, 1897.

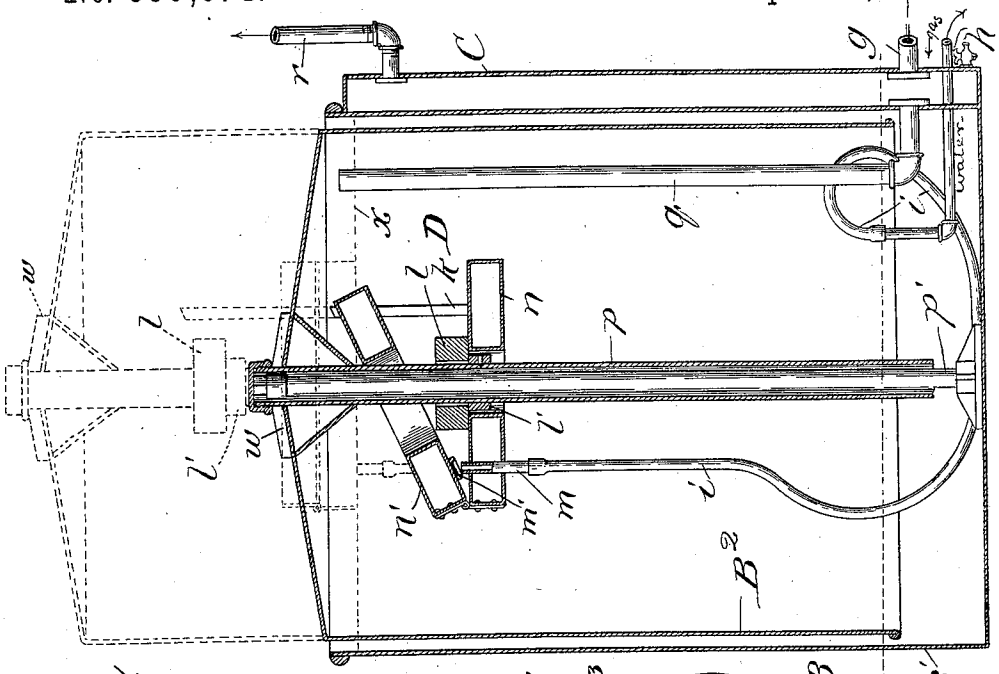


Fig. 1.

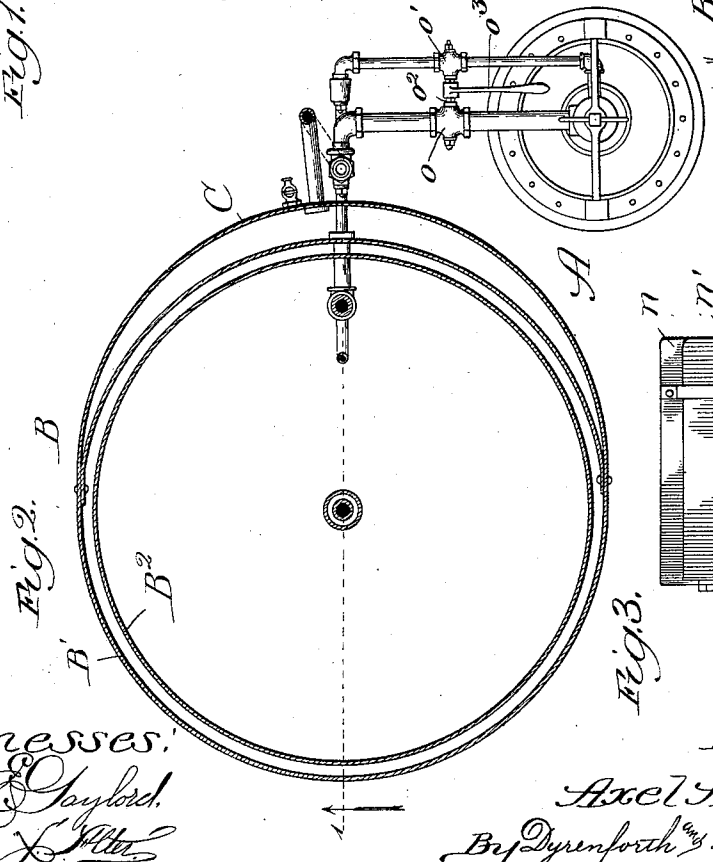


Fig. 2.

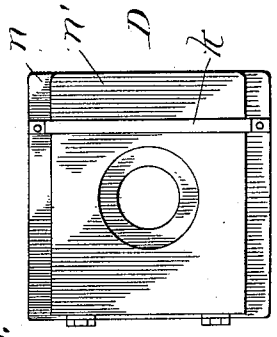


Fig. 3.

Witnesses:
Chas. E. Gaylord.
Lute L. Filter

Inventor.
Axel A. Strom.
By Dyrenforth & Dyrenforth,
Attys.

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UNITED STATES PATENT OFFICE.

AXEL A. STROM, OF AUSTIN, ILLINOIS, ASSIGNOR TO THE WALMSLEY & COMPANY, OF CHICAGO, ILLINOIS.

APPARATUS FOR GENERATING ACETYLENE GAS.

SPECIFICATION forming part of Letters Patent No. 590,674, dated September 28, 1897.

Application filed June 14, 1897. Serial No. 640,735. (No model.)

To all whom it may concern:

Be it known that I, AXEL A. STROM, a citizen of the United States, residing at Austin, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Apparatus for Generating Acetylene Gas, of which the following is a specification.

The object of my invention is to provide a novel and effective construction of float-valve device, for use in the gas-holder of apparatus for generating acetylene gas, to control, automatically, the supply from the gas-holder to the generator of water for attacking the calcium carbid in the generator.

Referring to the accompanying drawings, Figure 1 is a vertical sectional view, diagrammatic in its nature, of a gas-holder provided with my improvement, the section being taken at the line 1 on Fig. 2 and viewed in the direction of the arrow; Fig. 2, a section taken at the line 2 on Fig. 1 and viewed in the direction of the arrow, and Fig. 3 a plan view of the float-valve device.

A is a generator, which, though it may involve any suitable construction, is preferably that set forth in my application for Letters Patent, Serial No. 640,734, filed concurrently herewith on the 14th day of June, 1897.

B is a gas-holder composed of the outer fixed section B′, containing a body of water, and the inner inverted movable section B^2, which may carry a weight w on its top. On one side of the section B′ there is shown to be provided a condensing-chamber C, having an outlet-pipe r leading from near its upper end, and a pipe q leads from the lower portion of the chamber C upward through the gas-holder beyond the water-line x therein. A tube p is shown depending from the center of the top of the section B^2 and as telescoping with a tube p' or rod rising from the base of the section B′ to guide the inverted section in its movements. The generator A communicates, through its cover, with the condenser C and the interior of the gas-holder respectively through gas and water pipe connections having flexibly-jointed sections near the generator, as described in my aforesaid application, and containing shut-off valves o and o' on a stem o^2, operated by a handle o^3.

D is my improved float-valve device. It comprises the two box-shaped or hollow annular bodies n and n', hinged together at one side to open and close like a pair of jaws. A tube m extends entirely through the body n and coincides at its upper end with a cap m' on the under side of the body n', both bodies encircling the guide-tube p, about which there is also supported on a collar l' a weight l of greater diameter than that of the opening through the body n and of less diameter than that through the body n'. To limit the upward play of the section n', a yoke k extends about it from the section n. The tube m is connected at its lower end by a flexible tube i with the water-pipe h, which leads from the interior of the gas-holder to the generator A.

The purpose of my improved float-valve device is to admit water through the tubes m and i and pipe h into the generator A, for attacking the calcium carbid therein, whenever the supply of gas in the holder B becomes insufficient and causes the holder-section B^2 to fall to the position shown by the full-line representation in Fig. 1, and to shut off the supply of water to the generator when the supply of gas in the holder raises the movable section thereof, as to the position indicated by the dotted representation. When the holder-section B^2 is down, the weight l bears against the body n of the float device and depresses it, while the buoyancy of the body of water in the holder raises the body n' to lift the cap m' from and thereby uncover the inlet end of the tube m, through which, then, and the tube i and pipe h water from the gas-holder enters the generator to evolve from the calcium carbid therein gas, which enters through the pipe g the condenser C, and the holder B through the pipe q, raising the holder-section B^2. While the holder is filling with gas the rise of its movable section carries the weight l upward through the opening in the body n' of the float-valve device, thereby permitting the body n to rise by flotation until the inlet end of the tube m encounters and is closed by the cap m' to shut off the supply of water to the generator until the holder-section B^2 shall again fall by de-

pletion of its gas-contents, when the automatic water-supplying operation to the generator is repeated.

It is within my invention to employ as the float-valve merely the body n, which will shut off the water-supply by flotation when the upper end of the tube m is above the water-level in the gas-holder. The primary object of the body n' is to close the tube m to prevent, then, the escape therefrom of water contained in it. Nor need the body n or the body n' necessarily be hollow.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a gas-generating apparatus, the combination with a gas-holder and a generator intercommunicating through a water-pipe connection, of a float-valve device in said holder having a body provided with a tubular passage coupled to said water-pipe connection, substantially as described.

2. In a gas-generating apparatus, the combination with a gas-holder and a generator intercommunicating through a water-pipe connection, and a telescoping guide in said holder extending between its fixed and movable sections, of a float-valve device on said guide having a body provided with a tubular passage coupled to said water-pipe connection, substantially as described.

3. In a gas-generating apparatus, the combination with a gas-holder and a generator intercommunicating through a water-pipe connection, of a float-valve device in said holder having a body provided with a tubular passage connected by a flexible tube in said water-pipe connection, substantially as described.

4. In a gas-generating apparatus, the combination with a gas-holder and a generator intercommunicating through a water-pipe connection, and a telescoping guide in said holder extending between its fixed and movable sections, of a float-valve device on said guide having a body provided with a tubular passage connected by a flexible tube in said water-pipe connection, and a weight carried by said guide above said body, substantially as described.

5. In a gas-generating apparatus, the combination with a gas-holder and a generator intercommunicating through a water-pipe connection, of a float-valve device in said holder comprising two bodies hinged together, one having a tubular passage coupled to said water-pipe connection and the other carrying a cover for the open end of said passage, and means for separating said bodies by the fall of the movable section of said gas-holder, substantially as and for the purpose set forth.

6. In a gas-generating apparatus, the combination with a gas-holder and a generator intercommunicating through a water-pipe connection, and a telescoping guide in said holder extending between its fixed and movable sections, of a float-valve device comprising two bodies hinged together and surrounding said guide, one of said bodies having a tubular passage coupled with said water-pipe connection and the other carrying a cover for the open end of said passage, and means for separating said bodies by the fall of the movable section of said gas-holder, substantially as and for the purpose set forth.

7. In a gas-generating apparatus, the combination with a gas-holder and a generator intercommunicating through a water-pipe connection, of a float-valve device in said holder comprising two bodies hinged together, one having a tubular passage and the other carrying a cover for the open end of said passage, a flexible tube connecting the tubular passage in said water-pipe connection, and means for separating said bodies by the fall of the movable section of said gas-holder, substantially as and for the purpose set forth.

8. In a gas-generating apparatus, the combination with a gas-holder and a generator intercommunicating through a water-pipe connection, and a telescoping guide in said holder extending between its fixed and movable sections, of a float-valve device comprising two annular bodies hinged together and surrounding said guide, one of said bodies having a tubular passage and the other carrying a cover for the open end of said passage, a flexible tube connecting the tubular passage in said water-pipe connection, and means for separating said bodies by the fall of the movable section of said gas-holder, substantially as and for the purpose set forth.

9. In a gas-generating apparatus, the combination with a gas-holder and a generator intercommunicating through a water-pipe connection, of a telescoping guide in said holder extending between its fixed and movable sections, a weight l carried by said guide, and a float-valve device D comprising the annular bodies n and n' hinged together and surrounding said guide, the body n having a tube m extending through it and connected by a flexible tube i in said water-pipe connection and the body n' carrying a cap m', and a stop k for the body n', the whole being constructed and arranged to operate substantially as described.

AXEL A. STROM.

In presence of—
M. J. FROST,
R. T. SPENCER.