No. 794,079. PATENTED JULY 4, 1905.

L. S. BUFFINGTON.

ACETYLENE GAS GENERATOR.

APPLICATION FILED FEB. 6, 1904.

Fig. 1.

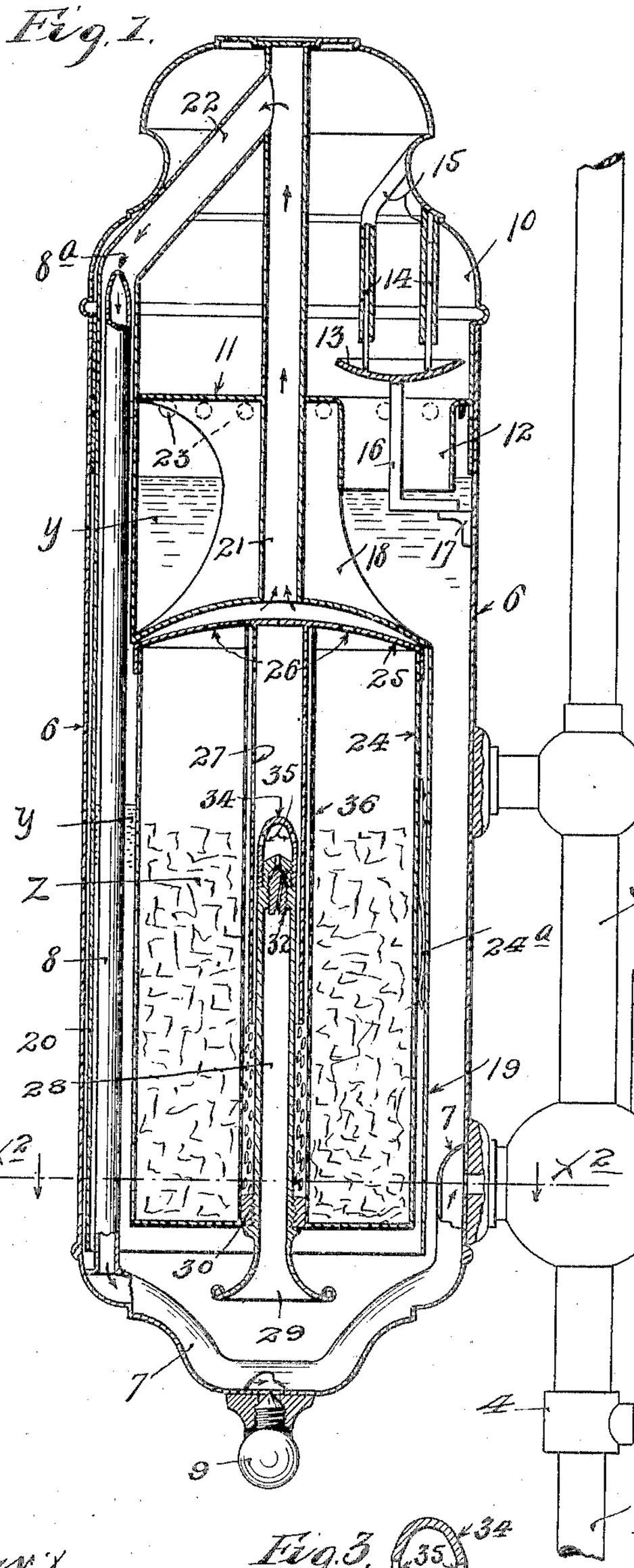


Fig. 2.

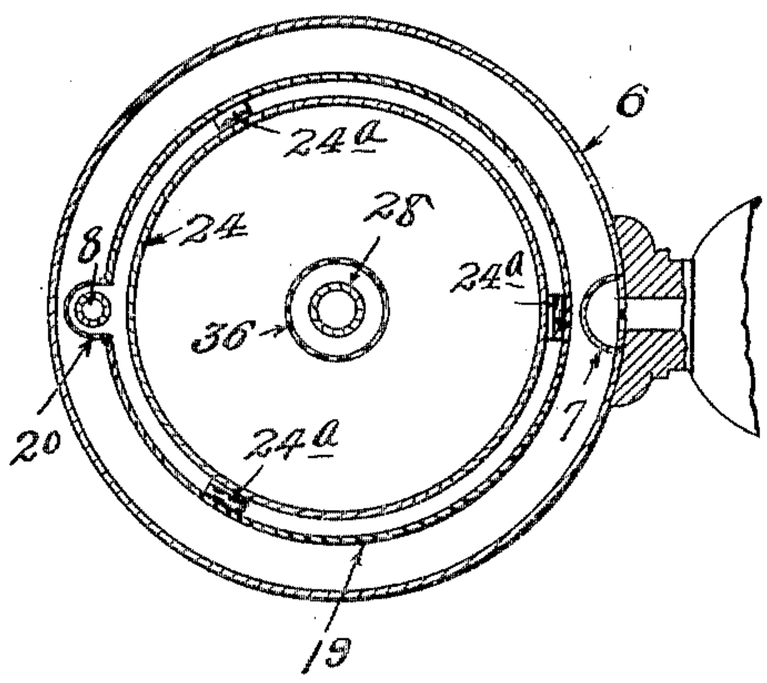
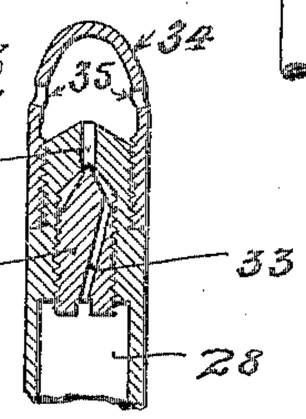


Fig. 3.



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UNITED STATES PATENT OFFICE.

LEROY S. BUFFINGTON, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR TO THE NORTHERN LIGHT COMPANY, OF MINNEAPOLIS, MINNESOTA, A CORPORATION OF MINNESOTA.

ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 794,079, dated July 4, 1905.

Application filed February 6, 1904. Serial No. 192,348.

To all whom it may concern:

Be it known that I, LEROY S. BUFFINGTON, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Acetylene-Gas Generators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My present invention relates to acetylene-gas generators, and has for its object to improve the same in the several particulars hereinafter noted.

To the above ends the invention consists of the novel devices and combinations of devices hereinafter described, and defined in the claim.

The invention is illustrated in the accompanying drawings, wherein like characters indicate like parts throughout the several views.

Figure 1 is a view, principally in vertical section, but with some parts shown in side elevation and some parts broken away, illustrating my invention applied to a lamp of the type generally designated as a "student's" lamp. Fig. 2 is a horizontal section on the line x^2 x^2 of Fig. 1; and Fig. 3 is a detail in a vertical section, showing the nozzle of the water-delivery tube sectioned on the same line as Fig. 1.

The numeral 1 indicates the rod of the lamp-supporting stand, the numeral 2 the gas-burner, the numeral 3 the sleeve mounted to slide on the rod 1, and the numeral 4 the collar working on the rod 1 and provided with a set-screw 5, holding it wherever set. The collar 4 supports the sleeve 3, and the said sleeve is rigidly attached at two points to a vertically-disposed cylindrical case 6. The stem of the burner 2 has an enlargement 2^a, which surrounds the sleeve 3 and opens into the gas-conduits 7, formed on the bottom of the cylinder 6. A gas-tube 8 extends upward from the receiving end of the conduit 7 through the cylinder 6 at one side thereof and terminates in a contracted nozzle 8^a. A plug 9 in the bottom of the cylinder 6 when removed permits the conduit 7 to be drained of any condensed water which may have accumulated therein.

An auxiliary water-chamber 10 telescopes into the upper end of the cylindrical shell 6 and is provided with a bottom 11, located above its lower edge. The bottom 11 is formed with a depending neck or sleeve-like water-passage 12, which is normally open, but is adapted to be closed by a valve 13 when the said auxiliary water-chamber 10 is raised vertically from working position. This valve 13 has stems 14, that work telescopically in guide-sleeves 15, secured to the top of the chamber 10. Said valve 13 is further provided with a depending foot 16, that engages with a lug 17 on the interior of the shell 6 and holds the said valve open when the reservoir or chamber 10 is in working position.

Rigidly secured to the bottom 11 of the reservoir 10 by flanges 18 is a depending cylindrical generating-chamber 19, which is bulged at one side, as shown at 20, to afford a passage for the gas-tube 8. A gas-delivery tube 21 leads upward from the top of the generating-chamber 19 through the water-reservoir 10 and is provided with a downturned branch 22, which telescopes over the upper end of the gas-tube 8 and unites with the bulged portion 20 of the generating-chamber. The depending peripheral flange of the reservoir 10, just below the bottom 11, is formed with air-passages 23, which admit air into the primary water-compartment formed within the shell 6. It will be understood that there will be leakage of air between the telescoping parts of the shell 6 and reservoir 10.

The carbid-holder is provided by a cylindrical cup 24, having a telescopically-removable top 25, formed with gas-escape passages 26 and with a centrally-depending sleeve 27. The cap 24 has one or more spring-fingers 24^a, that frictionally engage the walls of the chamber 19 to hold said cap in working position against the action of gravity. A water-

distribution pipe or tube 28 opens through the bottom of the cup 24 and extends vertically upward on the axis thereof and telescopes into the sleeve 27. The lower end of said tube 28 is open and preferably is bell-mouthed, as shown at 29. The bottom of the cup 24 is shown as provided with a hub portion 30, with which the tube 28 has screw-threaded engagement. The upper end of the tube 28 terminates in a nozzle having a contracted passage 31 and a larger passage leading thereto and into which is mounted, with screw-threaded engagement, a conical pointed valve 32, having a longitudinal passage 33. By adjustments of the valve 32 the contracted passage 31 may be opened more or less, so as to give a restricted passage of the exact desired water-conducting capacity. Preferably a nozzle-cap 34, having perforations 35, is screwed onto the extreme upper end of the tube 28. A perforate tube 36 is placed axially within the cup 24, surrounding the sleeve 27 and telescoping at its lower end over the hub 30. This perforate tube 36 holds the carbid *z* within the generating-chamber out of contact with the sleeve 27 and tube 28, and thus prevents the water-delivery passages from becoming clogged by the carbid residue.

The generating-chamber or cup 24 and parts attached thereto are of course removed from working positions with the auxiliary water chamber or reservoir 10, and while they are removed the shell 6 is partly filled with water, (indicated by *y* in Fig. 1.) This water when the removable parts are again placed in working position will rise around the generating-chamber 19, substantially as indicated in Fig. 1, and it will also rise within the water-tube 28 and will overflow through the water-passages 33, 31, and 35, and from thence will run down the outer side of said tube 28 and through the perforations of the perforate sleeve 36 into contact with the carbid. Whenever the gas-pressure within the generating-chamber exceeds the pressure of the feed-water, it will of course drive downward the column of water in the tube 28 and temporarily stop the generation of gas. The gas generated passes first upward through the perforations 26, thence through the tubes 21 and 22, thence through the contracted nozzle 8^a and tube 8 into the conduit 7, and from thence through the stem of the burner to the burner proper. The burner 2 is provided with a valve 2^b. The generating action is started by opening the valve 2^b so as to reduce the gas-pressure within the generating-chamber, and the generating action is stopped by closing said valve so as to permit an increase of pressure in said generating-chamber.

The auxiliary reservoir or chamber 10 is of course filled while it is removed from working position and turned upside down, so as to cause the valve 13 to open up the passage 12. When the said auxiliary reservoir is in working position, as shown in Fig. 1, water will be supplied therefrom to the primary water-chamber whenever the water in the latter is lowered so as to open the lower end of the sleeve or passage 12.

From the foregoing description and statements made it will be understood that the devices described are capable of modification within the scope of my invention as herein set forth and claimed.

What I claim, and desire to secure by Letters Patent of the United States, is as follows:

In a generator of the character described, the combination with a shell adapted to contain water, of an auxiliary water-reservoir fitting the upper end of said shell and communicating therewith through its bottom, a generating-chamber secured to the bottom of said auxiliary reservoir and normally submerged in the water contained in said shell, a carbid-holder removably held within said generating-chamber, a water-supply tube opening through the bottom of said carbid-holder from the lower portion of said shell, and a gas-outlet tube formed of telescoping sections, one section of which is secured to said shell and the other to said auxiliary reservoir and generating-chamber, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

LEROY S. BUFFINGTON.

Witnesses:

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