Sept. 18, 1928. 1,684,979

A. VALENTOUR

ACETYLENE GAS GENERATOR

Filed May 10, 1927

Fig. 1.

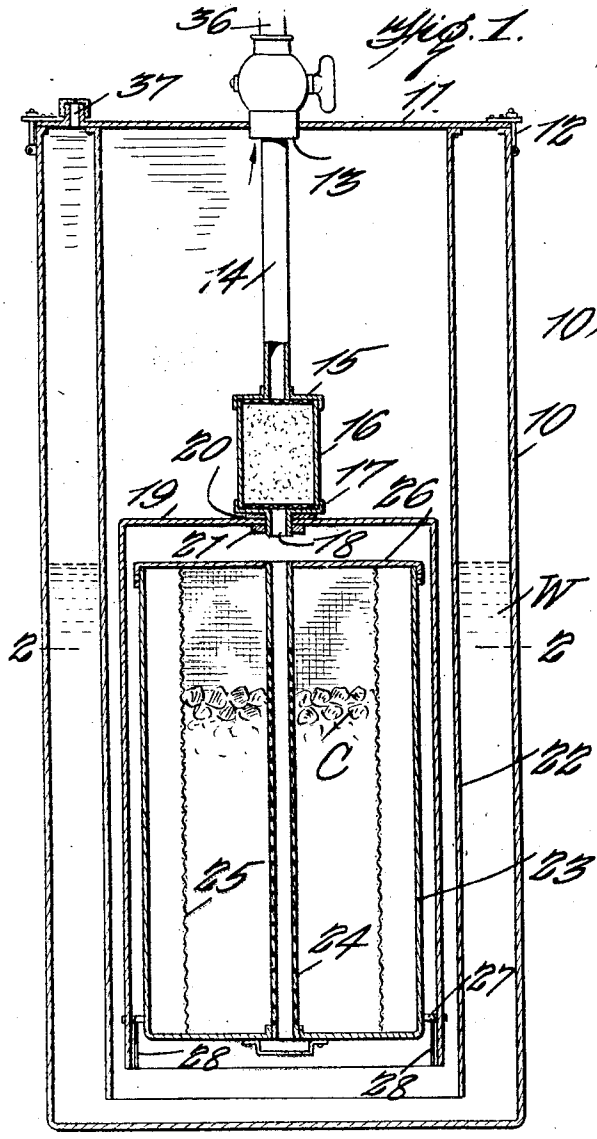


Fig. 2.

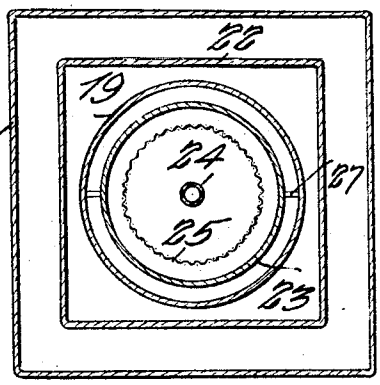


Fig. 3.

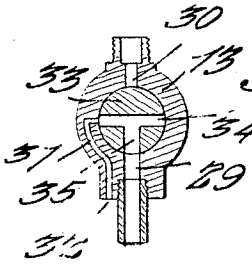


Fig. 5

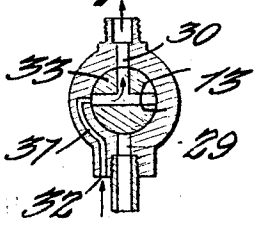
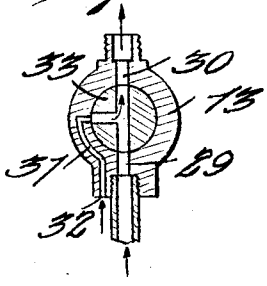


Fig. 4.



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UNITED STATES PATENT OFFICE.

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ACETYLENE-GAS GENERATOR.

Application filed May 10, 1927. Serial No. 190,290.

This invention relates to acetylene generators and has special reference to a generator of the ebb and flow type.

One important object of the invention is to improve and simplify the general construction of devices of this character, and in which the number of movable parts, valves and the like is reduced to a minimum.

A second important object of the invention is to provide an improved arrangement of nested bells which cooperates with a by-pass cock or valve.

A third important object of the invention is to provide an improved means whereby the generated gas may be selectively drawn off from one or the other of such bells, or from both.

A fourth important object of the invention is to provide an improved construction of acetylene generator that will, unceasingly and without interruption, perform its illumination, at and during the shutting off, or main draw-off has been closed, until all the escaped gas from the wet carbide which still continues to generate after the water has been driven out of the generating bell, has been entirely consumed.

A fifth important object of the invention is to provide an improved acetylene generator wherein it will be safe to use and operate in a closed room or building with perfect safety from escape of gas.

With the above and other objects in view as will be hereinafter apparent, the invention consists in general of certain novel details of construction and combinations of parts hereinafter fully described, illustrated in the accompanying drawings and specifically claimed.

In the accompanying drawings like characters of reference indicate like parts in the several views, and:

Figure 1 is a vertical median section through a generator constructed in accordance with this invention.

Figure 2 is a section on the line 2—2 of Figure 1.

Figure 3 is an enlarged detail section through a special valve used herewith and showing the valve in closed position.

Figure 4 is a view similar to Figure 3 but showing the valve in fully opened position.

Figure 5 is a view similar to Figure 3 but showing the valve with the main draw-off closed and the by-pass opened.

In the embodiment of the invention here disclosed there is provided a main casing 10 preferably of rectangular form and closed at its top by a suitable lid or closure 11 which is firmly secured on top of the casing by clamping bolts 12. Centrally of the top 11 there is provided a suitable opening for the reception of the lower end of a valve body 13 into which is screwed the upper end of a pipe 14 being hermetically sealed in the opening. The pipe 14 depends from the valve a short distance and on its lower end is screwed the flanged cover 15 of a filter 16. This filter is likewise provided with a bottom 17 having a depending tubular neck 18 which passes through the top of an inner bell 19 preferably of cylindrical form. Between the top of the bell 19 and the bottom 17 is provided a lead washer 20 and on the lower end of the neck 18 is screwed a nut 21 which thus effects hermetically sealing of the neck 18 in the top of the bell 19. Riveted to the top 11 and depending therefrom below the bottom of the bell 19 a slight distance is a shell 22 of rectangular form, the lower end of the outer bell being spaced slightly above the bottom of the casing 10. Within the bell 19 and spaced from the side walls thereof is a carbide holder 23 through which extends a perforated water inlet pipe 24 surrounded by a reticulated screen 25 for the reception of the carbide C. This casing 23 is provided with a top 26 secured to the casing or carbide holder 23 by a bayonet catch of ordinary construction. Moreover, the casing 23 is provided with pins 27 at its lower end which set into suitable bayonet slot one of which is shown at 28 so that the carbide holder is supported in spaced relation to the side and top walls of the bell 19.

The valve body 13 is provided with a pair of vertically aligned inlet and outlet ports 29 and 30 respectively and in one side wall is a lateral by-pass 31 which opens at 32 through the bottom of the valve body 13 so that this by-pass communicates with the space within the shell 22 and below the top 11. Rotatably mounted in the valve body is a valve 33 having a diametrically disposed port 34 from which branches a radial port 35.

Now it will be seen from inspection of Figures 3, 4 and 5 that with the valve 33 in the position shown in Figure 3 there can be no passage of gases through the outlet port 30. With the valve in the position shown in Figure 4 both the inlet port 29 and the by-pass 31 are brought into communication with the

outlet port 30 and with the valve in the position shown in Figure 5 the inlet port 29 is cut off while the by-pass 31 remains in communication with the outlet port 30. In order to understand the operation we may suppose that a charge of carbide has been placed within the screen 25 in the holder and the parts assembled as shown in Figure 1. The outer receptacle is, of course, supplied with water W. Normally on charging the device the pressure of the air within the holder 23 is such as to prevent the water rising into the pipe 24 so that the carbide remains dry until the valve 33 is opened. Thereupon the water rises in the pipe 24 and passes through the perforations in said pipe to the carbide C. It is intended that only the lower part of the carbide receptacle shall be provided with carbide so that the gas generated may either pass up through the mass of carbide or out through the screen 25 into the space between this screen and the side wall of the holder 23 and then back through the screen and the perforations of the pipe 24 into the space within the bell 19. From here it may flow up through the neck 18, the filter and pipe 14 and through the valve into the main 36. When it is desired to shut off the generation of carbide the valve is first turned to the position shown in Figure 5. This stops further flow from the interior of the bell 19 through the pipe 14 but the carbide, being still wet, will continue to generate a certain amount of gas. If this gas is in excess of that which can be held in the bell 19 it will flow downward under the edges of the bell 19 and up within the shell 22, the by-pass 31 permitting escape to the main 36. At the same time the pressure due to the gas generated within the bell 19 will drive the water out of the bell at least to a point below the lower perforations of the pipe 24 and even entirely out of the bell in case sufficient gas is generated. When the generation of the gas entirely ceases the valve may, if desired, again be turned to the position shown in Figure 3. In order to provide for changes in the water level the usual vent 37 is arranged on top of the cover 11.

There has thus been provided a simple and efficient device of the kind described and for the purpose specified.

It is obvious that minor changes may be made in the form and construction of the invention without departing from the material spirit thereof. It is not, therefore, desired to confine the invention to the exact form herein shown and described, but it is desired to include all such as properly come within the scope claimed.

Having thus described the invention, what is claimed as new, is:

1. In an acetylene generator, an outer casing having a cover, a shell fixed to the cover and depending within the casing in spaced relation to its side walls, a valve body having its lower end fixed in said casing, a pipe depending from the lower end of the valve body, an inner bell spaced within the shell and having a top fixed to the lower end of the pipe for support thereby, said valve body having an inlet port, an outlet port and a by-pass leading from the lower end of the body to the space between said ports, and a three way valve in said body arranged to close the outlet port, place both the inlet port and by-pass in communication with the outlet port and the by-pass alone in communication with the outlet port with the outlet port selectively, and a carbide holder within the inner bell and having an opening in its lower wall for the admission of water and an outlet in its top wall for the passage of generated gas into the inner bell.

2. In an acetylene generator, an outer casing having a cover, a shell fixed to the cover and depending within the casing in spaced relation to its side walls, a valve body having its lower end fixed in said casing, a pipe depending from the lower end of the valve body, an inner bell spaced within the shell and having a top fixed to the lower end of the pipe for support thereby, said valve body having an inlet port, an outlet port and a by-pass leading from the lower end of the body to the space between said ports, and a three way valve in said body arranged to close the outlet port, place both the inlet port and by-pass in communication with the outlet port and the by-pass alone in communication with the outlet port with the outlet port selectively, a filter interposed in said pipe, and a carbide holder supported in the bell and having an opening in its lower wall for the admission of water and an outlet in its top wall for the passage of generated gas into the bell.

3. In an acetylene generator, an outer casing having a cover, a shell fixed to the cover and depending within the casing in spaced relation to its side walls, a valve body having its lower end fixed in said casing, a pipe depending from the lower end of the valve body, an inner bell spaced within the shell and having a top fixed to the lower end of the pipe for support thereby, said valve body having an inlet port, an outlet port and a by-pass leading from the lower end of the body to the space between said ports, and a three way valve in said body arranged to close the outlet port, place both the inlet port and by-pass in communication with the outlet port and the by-pass alone in communication with the outlet port with the outlet port selectively, and a carbide holder within the inner bell, said carbide holder having a central perforated pipe extending through the carbide holder vertically and communicating at its lower end with the water in the casing and at its upper end with the space within the bell and a screen surrounding the pipe to provide a carbide space.

4. In an acetylene generator, an outer casing having a cover, a shell fixed to the cover and depending within the casing in spaced relation to its side walls, a valve body having its lower end fixed in said casing, a pipe depending from the lower end of the valve body, an inner bell spaced within the shell and having a top fixed to the lower end of the pipe for support thereby, said valve body having an inlet port, an outlet port and a by-pass leading from the lower end of the body to the space between said ports, and a three way valve in said body arranged to close the outlet port, place both the inlet port and by-pass in communication with the outlet port and the by-pass alone in communication with the outlet port selectively, said carbide holder having a central perforated pipe extending through the carbide holder vertically and communicating at its lower end with the water in the casing and at its upper end with the space within the bell, a screen surrounding the last pipe to provide a carbide space and a filter interposed in said pipe.

In testimony whereof I affix my signature.

AUGUST VALENTOUR.