

F. W. MARTIN.
ACETYLENE GAS GENERATOR.
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988,645.

Patented Apr. 4, 1911.

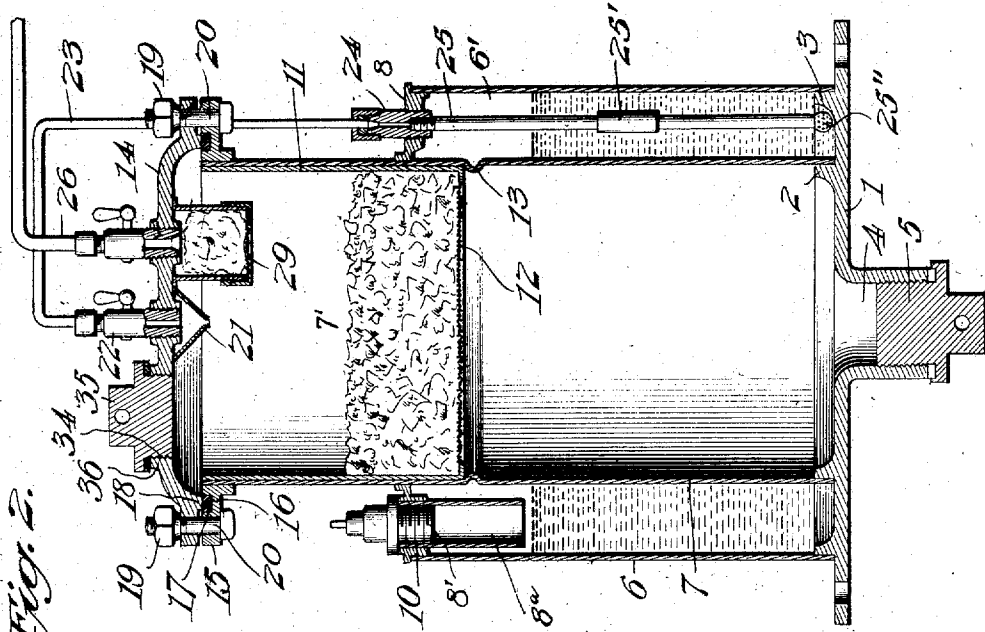


Fig. 2.

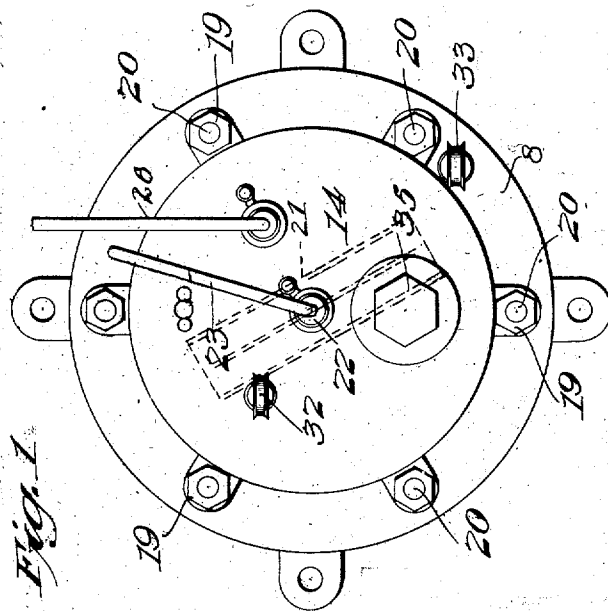


Fig. 1.

Fig. 4.

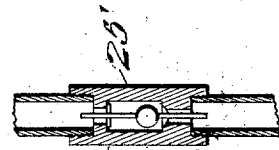
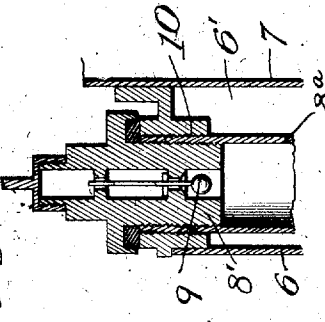


Fig. 3.



WITNESSES

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ACETYLENE-GAS GENERATOR.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FREDERICK WILLIAM MARTIN, a citizen of the United States, residing at Wichita, in the county of Sedgwick and State of Kansas, have invented certain new and useful Improvements in Acetylene-Gas Generators, of which the following is a specification.

This invention relates to an improvement in acetylene gas generators, and more particularly to that type of generators wherein the water is fed to the carbide in order to cause generation of the gas.

One of the main objections to the acetylene gas generators now in use, has been the failure to provide means whereby a sufficient pressure of gas is maintained to cause the gas to flow steadily to the lamps.

The present invention overcomes the above-named objection by providing a water supply chamber wherein air pressure is maintained to a sufficient degree to cause continuous feeding of the water to the carbide until the pressure of the generated gas overcomes the air pressure maintained in the water chamber, at which time the pressure of the generated gas will automatically cut off the feeding of the water.

A further object of the present invention resides in the simplicity and compactness of construction, whereby the expense of primarily constructing and subsequently maintaining the generator in operative condition is reduced to a minimum.

Further objects and advantages will appear in the following description with reference to the accompanying drawings wherein:

Figure 1 is a plan view of my improved generator. Fig. 2 is a view in vertical section of the same. Fig. 3 is a detail sectional view of the water inlet plug, together with the valve for permitting the entrance of the pressure medium into the water chamber. Fig. 4 is a detail view of the gas actuated valve.

Referring to the drawing wherein like reference characters indicate like parts throughout the different views, the numeral 1 designates a base plate provided with two concentrically arranged annular projections 2 and 3 respectively, while adjacent to the center of said base plate an opening 4 is formed which is normally closed by means of the plug 5, a packing being interposed between a flange formed on the said plug

and the wall surrounding the opening 4. This base plate is adapted to support cylindrical casings 6 and 7 which are of a sufficient diameter to fit snugly over and abut against the annular projections 3 and 2 respectively. It will be noted that the casing 6 is of a less height than the casing 7 but by being of a greater diameter than the casing 7 an annular chamber 6' is formed therebetween, this chamber being adapted to receive the water supply which is under sufficient pressure to cause a continuous feeding of the water to the carbide. This water chamber is normally closed by means of the top 8 which is secured to the casings 6 and 7 in any suitable manner.

In order to allow the chamber 6' to be supplied with water and also to permit air pressure to be injected therein, a suitable opening is formed in the top 8 of the chamber which is closed by means of a screw threaded plug 8', this plug having a rubber gasket interposed between the flange formed on said plug and the wall of the cover 8 surrounding the said opening 10. This plug 8' is provided with a central aperture which permits communication with the interior of the chamber 6', a small check valve being located in said aperture and while permitting the introduction of air, by means of a suitable pump, prevents any escape or leakage of the air from the chamber 6'. In the construction of the plug 8' through which fluid pressure is introduced into the water chamber 6', it should be noted, that a depending tube 8" projects down into the water chamber for a short distance.

Within the casing 7 a suitable carbide receptacle is positioned, which consists of a cylindrical wall 11 provided with a wire mesh bottom 12 which seats upon an annular bead 13 formed integrally with the casing 7, the gas chamber formed by the casing 7 and the carbide receptacle which is positioned within the gas chamber, are maintained closed by means of a cover 14 which is secured to an outwardly extending flange 15, formed at the top of the casing 7, this flange 15 being provided with an annular depression 16, which receives a packing 17 whereon the annular depending flange 18 of the cover 14 will rest. By this structure it will be seen that while a gas tight joint will be formed between the cover 14 and the casing 7, the cover may be quickly and easily

removed by loosening the nuts 19 from the bolts 20 which comprise the means for holding the cover 14 securely in position.

On the under face of the cover 14 a trough or funnel 21 is secured directly below the water inlet plug 22. This inlet plug 22 communicates with a pipe 23 which extends down to and is connected with an internally apertured plug 24 which in turn communicates with another pipe 25 within the water chamber 6', the last named pipe intermediate its two ends having a small valve 25', the function of which will be more clearly set forth hereinafter. In order that no impurities may be forced through the pipe 25, a filter or screen 25' is secured to or formed on the lower end of the pipe 25.

From the above description it will be seen that when the chamber 6' is supplied with water and air pressure is introduced through the valve 9, the water will be maintained under a continuous fluid pressure. Supposing the air pressure within the water chamber to be substantially 25 pounds it will be seen that the water will be forced through the pipes 25, 23, and the plug 22 into the funnel or trough 21 through which it will fall upon the carbid contained within the receptacle 11. It will, of course, be understood that as soon as the water comes in contact with the carbid, gas will be generated and the same will continue to gather within the chamber 7' until such a gas pressure is created therein that it equals or overcomes the air pressure maintained within the water chamber 6'. When this occurs, the gas will force its way through the plug 22 into the pipes 23 and 25 until it comes in contact with the valve 25', whereupon the said valve will be forced onto and held against its seat thereby preventing a further flow of water through the pipes 25 and 23 and thence into the carbid chamber. This condition will be maintained until the gas pressure within the chamber 7' is reduced below the air pressure in the chamber 6' whereupon the water will immediately resume its flow through the pipes into the carbid chamber and thus cause a further generation of gas. The above actions are repeated until either the supply of carbid or water is exhausted, so that at all times a substantially uniform pressure is maintained within the gas chamber 7'.

The cover 14 which incloses the gas and carbid chambers is provided with an outlet port formed by the pipe 26, which conveys the gas from the chamber 7' to any suitable

lamps, not shown; while on the inner face of this cover and surrounding the terminal of the outlet port, a perforated or wire mesh basket 29 is secured, this basket being adapted to receive and hold a sponge or other porous and absorbent material so that any impurities which are contained within the gas will be removed upon the passage of the gas from the generating chamber to the lamps.

As shown in Fig. 1, the cover 14 is provided with a suitable safety valve 31 and also with the pressure gage 32 which will at all times indicate exactly what the gas pressure is in the generator. An enlarged opening 34 is also formed in the said cover and permits the carbid receptacle to be easily and quickly recharged by simply removing the screw plug 35 which normally closes the said opening, this plug having a packing interposed between a flange carriage thereon and an upwardly extending ridge 36 formed on the cover 14, the top or cover 8 of the water chamber 6' is also provided with a similar pressure gage 33 and it will therefore be apparent, that by consulting each of said pressure gages it may be determined what the condition of the carbid and water supply is.

As has been stated heretofore, the base plate 1 is provided with the normally closed outlet 4 whereby the ashes which accumulate in the bottom of the chamber 7' may be removed without disturbing the cover 14.

I claim:—

In a device of the class described, the combination with a base plate, a pair of upwardly extending concentric annular ridges formed thereon, of cylindrical casings adapted to fit over and abut against the ridges whereby liquid and gas chambers are formed, of means for permitting the introduction of fluid pressure into the liquid chamber, and pipe connections between the liquid and gas chambers, a valve positioned within said pipe connections, a carbid receptacle positioned in said gas chamber and a trough extending transversely above the carbid receptacle and below the said pipe connection whereby a continuous flow of liquid will be delivered to the carbid receptacle until the gas chamber produces a pressure therein which is greater than the fluid pressure introduced into the water chamber,

FREDERICK WILLIAM MARTIN.

In presence of two witnesses:

GEO. W. MARTIN,
A. JOHNSON.