No. 723,411. PATENTED MAR. 24, 1903.

A. SCHWEITZER.

ACETYLENE GAS GENERATOR.

APPLICATION FILED JUNE 18, 1902.

NO MODEL.

Fig 4

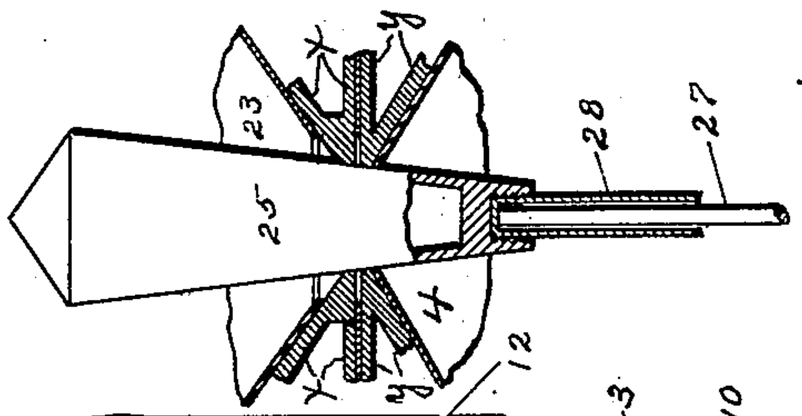


Fig 5

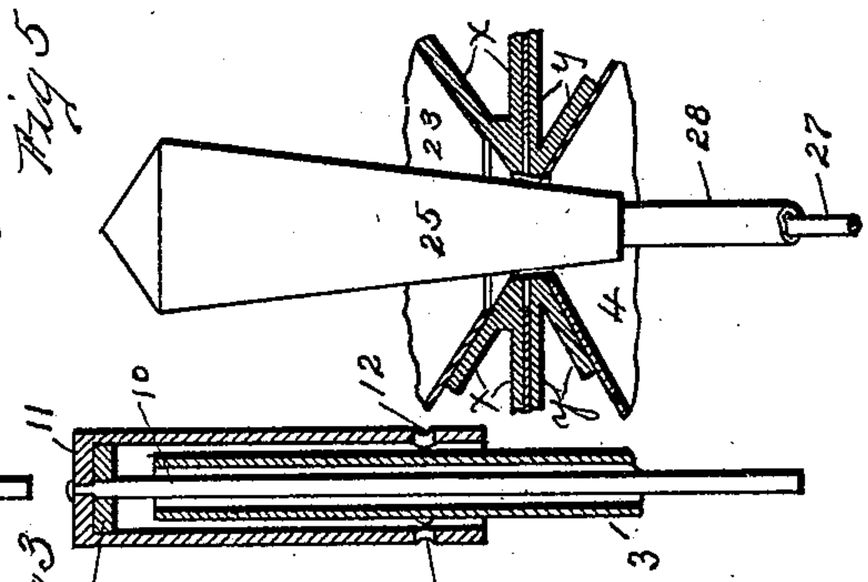


Fig 2

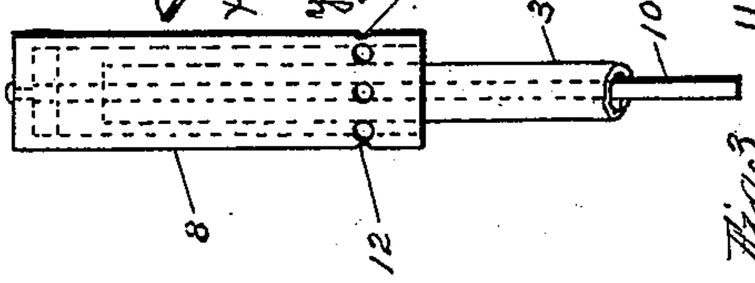
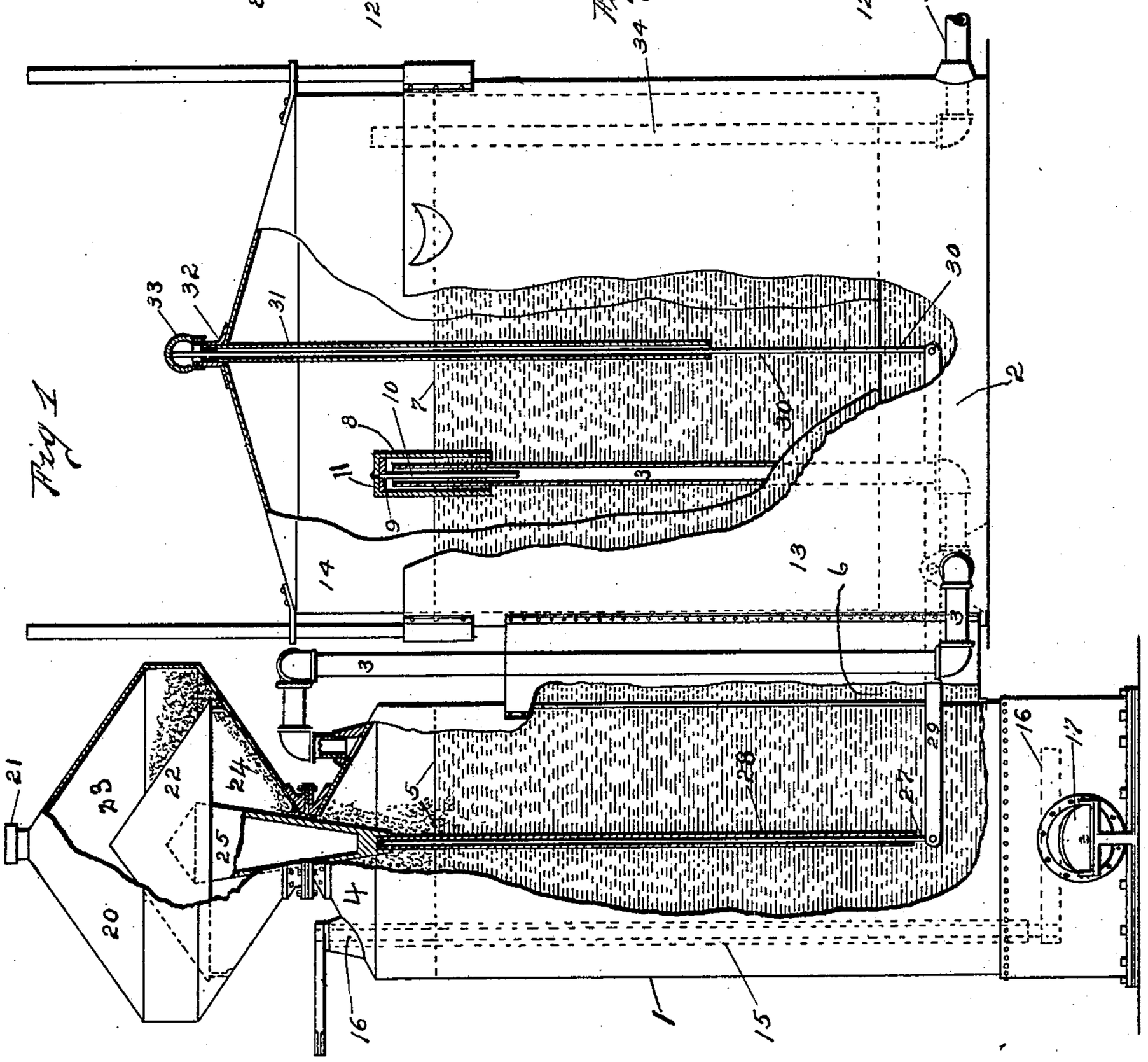


Fig 3

Fig 1



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UNITED STATES PATENT OFFICE.

AUGUST SCHWEITZER, OF GLENDORA, CALIFORNIA.

ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 723,411, dated March 24, 1903.

Application filed June 18, 1902. Serial No. 112,241. (No model.)

To all whom it may concern:

Be it known that I, AUGUST SCHWEITZER, a citizen of the United States, residing at Glendora, in the county of Los Angeles, State of California, have invented and discovered a new and useful Improvement 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.

This invention relates to improvements in acetylene-gas generators; and some of the objects of my improvements are, first, to provide a gas-making apparatus economically constructed and easily operated; second, to afford means for automatically equalizing the pressure in the generator and in the holder; third, to produce means for increasing and decreasing the feeding of material from which the gas is evolved; fourth, to construct a device for preventing fluctuation of the gas in the gas-holder, and, fifth, to connect the generator and holder together and at the same time provide a passage between the same. I attain these and other objects by the construction illustrated in the accompanying drawings, in which—

Figure 1 is a view in elevation of the generator and gasometer, parts thereof in section and parts of the same broken away. Fig. 2 is a view in elevation of the inverted thimble, and a portion of the supporting gas-pipe, and guide-rod for the thimble. Fig. 3 is a longitudinal sectional view of the inverted thimble, the supporting gas-pipe, also shown in section, and a portion of the guide-rod, shown in elevation. Fig. 4 is a detailed view showing a portion of the hopper, upper portion of the generator, carbid-valve, and guide-pipe partly in section, and guide-rod in elevation; and Fig. 5 is a detailed view illustrating a portion of the carbid-hopper, upper portion of the generator in section, the carbid-valve, guide-pipe, and guide-rod in elevation.

Similar reference-numerals refer to like parts throughout the several views.

The numeral 1 refers to the generator.

2 is the holder or gasometer. The casting x, secured to the hopper 20 by means of screw-bolts or rivets or other suitable devices, is in like manner fastened to the casting y, riveted or bolted to the top or dome 4 of the generator 1, and the said casting x has an opening therein sufficiently large to admit the valve 25 therethrough before said casting x is fastened to the casting y, riveted to the dome of the generator. The said holder 2 consists of the outside tank 13 and the inside inverted tank or cooler 14, employed to wash and purify the gas evolved from carbid or other gas-making material, which is conducted from the generator 1 through the connecting-pipe 3, the said pipe securely inserted at one end thereof into the top or cover 4 of the generator and extending laterally, then downwardly, and is inserted into the outside tank 13, near the bottom thereof, and extends upward within the holder or gasometer above the water-line 7 thereof.

I invert a thimble 8, which has fixed in the closed end thereof a leather valve or cushion 9, which thimble rests directly upon the upper projecting end of the gas-pipe 3 in the gasometer above the water-line, and the said thimble is held in place upon the free open end of said pipe 3 by means of the guide-rod 10. This inverted thimble 8 has a guide-rod 10, which passes through the leather valve or cushion 9 and is inserted and securely fastened into the upper or closed end 11 thereof. Said rod 10 projects downwardly into the pipe 3 within the gasometer or holder 2 and acts as a guide to retain the thimble 8 in the proper position upon the open end of the said pipe 3, thereby preventing the thimble 8 from being displaced by the evolved gas passing from the generator 1 through the connecting-pipe 3, connected to the top or cover of the generator 1 above the water-line 5 therein, into the gasometer-holder. This thimble 8 deflects the gas above the water-line 7 within the thimble downward into the water within the gasometer or holder 2, and finally the said gas makes its exit through a number of perforations 12 near the lower edge of the thimble into the water in the cooler or purifier and is again washed in its passage upward through the water to the top of the holder 2, above the water-line 7 thereof.

In the top of the generator 1 I secure a pipe 15, which extends nearly to the bottom of the generator. I insert through the said pipe 15 a rod 16, referred to as an "agitator" or "stir-

rer," bent at right angles upon itself, near the upper and lower ends thereof, and in opposite direction from the body portion. The said rod or stirrer 16 within the generator is designed to agitate and thoroughly mix the precipitated material at the bottom of the generator not taken up by the water contained within the generator. The stirrer, which consists of the double bent rod, has upon the upper end thereof, at the top and outside of the generator, a crank-handle, by means of which the opposite end of the stirrer mixes up the precipitated carbid material not used in generating the gas. Said precipitated material and water is drawn off through the gateway 17 at the bottom of the generator.

All the pipes and rods within the generator 1, within the outer tank 13 and cooler 14, comprising the gasometer or holder, brought in contact with the water therein are galvanized or plated in order to prevent oxidation of the same.

20 is the carbid-hopper, preferably made in the form shown upon the drawings. At the apex thereof is a screw-threaded plug 21, through which the carbid or material used in manufacturing the gas is poured. The hopper 20 has a partition therein, 22, extending entirely around the hopper, except at the lower portion thereof. This partition 22 divides the hopper into two compartments 23 and 24, in the upper of which, 23, the carbid material is retained, while the carbid-valve 25 is located in its seat. The lower compartment 24 provides space for the upward and downward movement of the carbid-valve 25. The upward movement of said carbid-valve 25 by means of the lever and operating-rods permits the carbid within the upper compartment 23 to pass around the lower edge of the partition 22, thence downward around the inclined portion of the lower side of the hopper, thence into the generator, when the carbid-valve 25 is unseated, as shown in Figs. 1 and 5 of the drawings.

The rod 27, surrounded by the pipe 28 in the generator 1, is held in position in the lower tapering end of the carbid-valve. The pipe 28 is suitably secured in the lower tapering end of the carbid-valve 25 by solder or other means. Said pipe extends nearly to the bottom of the generator. The rod 27, at the lower end thereof, is pivoted to one end of the lever 29, which is fulcrumed or pivoted between two upward projections secured to the bottom of the outer tank 13 of the gasometer or holder 2. Said lever 29 extends through the communicating passage 6, which connects the walls of the outer tank 13 and the generator 1, whereby the water or liquid in the outer tank 13 and that contained in the generator 1 circulates back and forth. Through the said communicating passage 6 the said lever 29 extends from tank 13 to the generator 1. Said lever fulcrumed near the bottom of the outer tank 13 is pivoted at the end thereof within the outer tank 13 to the rod 30, which extends upward from near the bottom of said tank 13 to the top or cover of the inverted tank 14 of the gasometer or holder and projects slightly through the apex of the inverted tank 14. Said rod 30 has surrounding the same a tube 31, securely fastened, by means of screw-threads or other means, to the dome of said inverted tank 14. I secure, by means of screw-threads or other suitable devices, the cap 33 upon the projecting annular flange 32, secured to the dome of the inverted cover 14, in order to protect the end of the rod 30, which slightly projects above the top of the apex of the dome of the inverted tank 14 and above the annular flange 32, secured to said apex.

When it is desirable to remove or elevate the carbid-valve from its seat in the mouth of the generator 1 in order to permit the carbid within the compartment 23 to slide down the inclined passage-way to the mouth of the generator and into the same, I remove the cap 33 from the annular flange 32, and by slight pressure upon the end of the rod 30 the carbid-valve 25 is elevated within the compartment 24 of the hopper, and the carbid readily passes into the generator 1. When sufficient carbid has passed into the generator, I remove the pressure from the end of the rod 30 and replace the cap 33 upon the annular flange 32, which then regulates the feeding of the carbid within the generator 1.

The gas which has been generated and conveyed from the generator 1 through the pipe 3 into the inverted tank 14 and purified by means of the water contained in the outer tank 13 is ready to be conveyed by means of the pipe 34, one end of which extends above the water-line 7. The opposite end of said pipe projects through the lower wall near the bottom of the outer tank 13. To this pipe, at its outer projecting end, gas-pipes may be connected in any ordinary or usual manner and through which the gas manufactured may be conveyed to dwellings of any kind where an economical light is desired.

A further description of the mode of operation of my invention is not necessary in view of the above description, when taken in connection with the drawings hereto appended and made a part of this application.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a gas apparatus, a generator provided with a valve and a hopper, the hopper having two compartments partially separated by a partition the upper compartment for the storage of material from which the gas is evolved and a lower compartment affording space within which a valve operates, a valve having a smaller or reduced end within the generator and a larger end thereof within the lower compartment of the hopper and means for operating the valve.

2. In an apparatus for making gas, a generator having a hopper provided with two

compartments the upper for the storage of the material from which the gas is made and the lower compartment affording space within which a valve reciprocates, the said valve provided with a reduced end which is located within the generator and an upper and larger end of the valve within the upper compartment of the hopper, and means for reciprocating the valve.

3. In a gas apparatus, a generator provided with a hopper having two compartments partially separated by a partition, a cone-shaped valve, the smaller end thereof projecting into the generator, and the upper end of the valve within the lower compartment of the hopper, a gasometer connected with the generator and means for operating the valve.

4. In a gas apparatus, a generator having a hopper secured thereto provided with upper and lower compartments, the upper compartment for the storage of material from which the gas is made and the lower compartment affording space for a portion of the valve, the valve having an upper and enlarged end and a lower and reduced end, devices for operating the valve, a stirrer, and a gasometer connected with the generator, said generator provided with a gateway and a gate.

5. In a gas apparatus, a generator having a hopper provided with an upper and lower compartment, the upper compartment adapted for the storage of material from which the gas is made and the lower compartment affording space for the valve, a valve having an upper and enlarged end and a lower and reduced end, the lower end of said valve located within the generator, means for operating the valve, a stirrer and a device for operating the same, a gasometer connected with the generator.

6. In a generator provided with a hopper having an upper and lower compartment partially separated by a partition cone-shaped, the apex of which projects upward, the valve conical in form the lower and reduced end thereof projecting into the generator and the upper and larger end thereof projecting upward within the cone-shaped partition, a stirrer within the generator having a device for operating the same, a gasometer connected with the generator and means for operating the valve.

7. A generator having a hopper secured thereto provided with a cone-shaped partition, the apex of which projects upward within the hopper, the upper compartment adapted for the storage of material from which gas is evolved, the lower compartment affording space for the reciprocation of a valve, a conical-shaped valve the lower and reduced end of which is located within the generator and the upper and larger end thereof within the lower compartment of the hopper, a gasometer, connections for uniting the gasometer with the generator, a stirrer and means for operating the same, and devices for reciprocating the valve.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

AUGUST SCHWEITZER.

Witnesses:
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