

No. 631,156.

Patented Aug. 15, 1899.

F. DEMARIA & C. RANZINI.
ACETYLENE GAS GENERATOR.

(Application filed May 18, 1899.)

(No Model.)

Fig. 2.

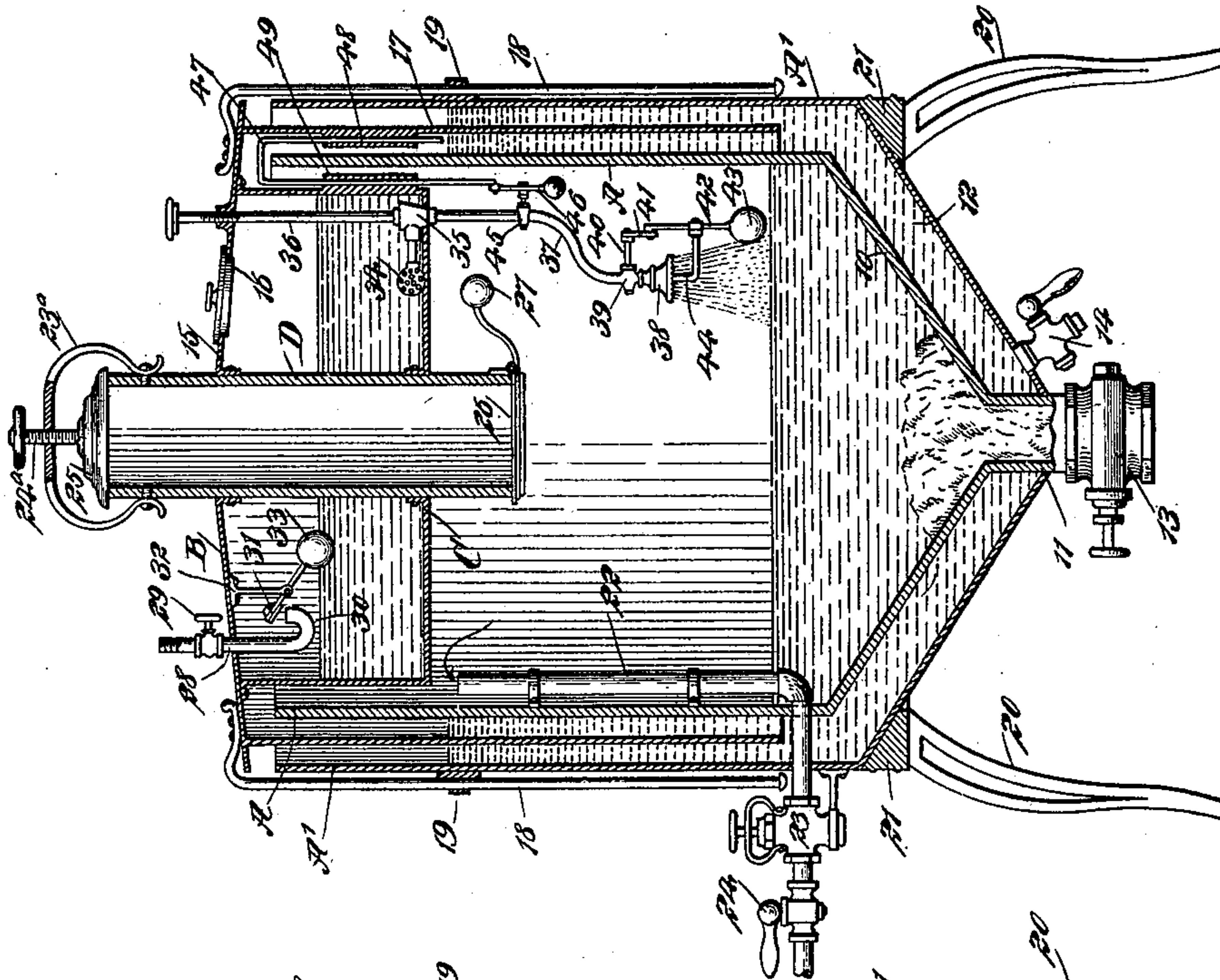
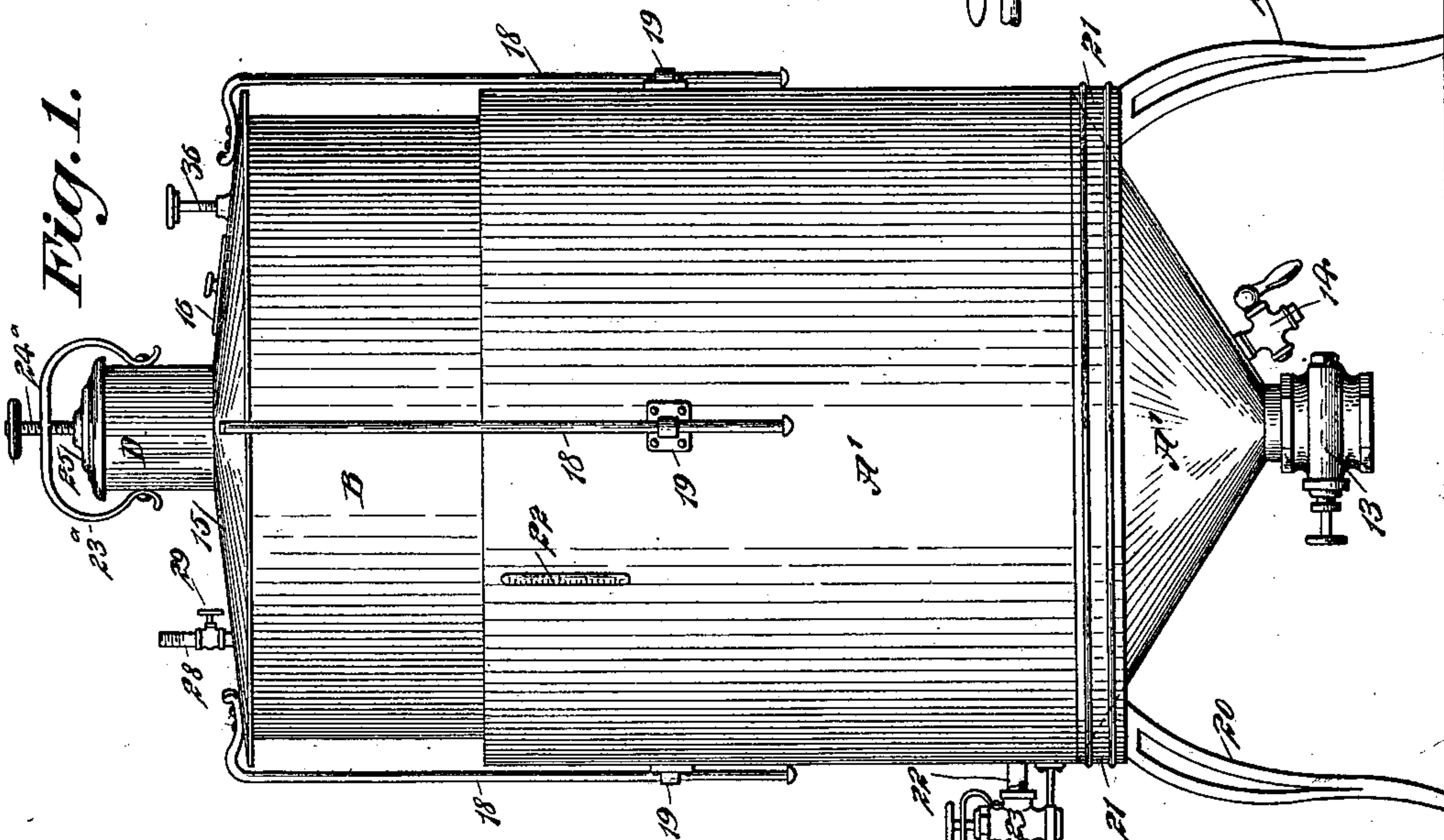


Fig. 1.



WITNESSES:

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UNITED STATES PATENT OFFICE.

FRANCESCO DEMARIA AND CARLO RANZINI, OF NEW YORK, N. Y., ASSIGNORS OF THREE-FIFTHS TO FRANK ZUNINO, FRANK VALENTE, AND STEFANO CUNEO, OF SAME PLACE.

ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 631,156, dated August 15, 1899.

Application filed May 18, 1899. Serial No. 717,324. (No model.)

To all whom it may concern:

Be it known that we, FRANCESCO DEMARIA and CARLO RANZINI, subjects of the King of Italy, residing at the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Acetylene-Gas Generator, of which the following is a full, clear, and exact description.

10 The object of the invention is to provide a simple, durable, and economical machine for generating acetylene gas wherein the generator and holder directly cooperate.

15 Another object of the invention is to so construct the machine that it will produce a very dry gas and will automatically regulate the generation of gas in accordance with the amount consumed and at all times maintain a uniform pressure.

20 A further object of the invention is to provide an automatic supply for and check of the water fed to the calcium carbide, the water being delivered thereto in a spray.

25 It is also an object of the invention to provide means for automatically controlling the supply of water to the generator during the process of cleaning the same.

30 The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

35 Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in both figures.

Figure 1 is a side elevation of the improved generator, and Fig. 2 is a vertical section taken centrally through the same.

40 The generator A is in the form of a tank, and the bottom 10 inclines downward from the sides toward a central bottom outlet-pipe 11. The generator A is surrounded by a jacket A', preferably of less thickness than the generator, and the space 12 between the jacket and generator is adapted to be filled with water. A column of oil may be placed upon the surface of the water to prevent rapid evaporation. The jacket A' closely surrounds the outlet-pipe 11, and this pipe 11 is provided 50 at its lower end with a valve 13. The pipe

11 and valve 13 are utilized to discharge the lime that accumulates in the bottom of the generator, and a cock 14 is located at the bottom portion of the jacket A', which is opened whenever the water in the space 12 is to be drawn off. 55

The holder B consists of a top 15, provided with an opening normally closed tightly by a plug 16 and a cylindrical body 17. The lower end of the body portion of the holder enters 60 the space between the generator A and its jacket A', as shown in Fig. 2. The vertical movement of the holder is directed through the medium of rods 18, attached to the top of the holder and extending downward outside 65 of the jacket A' through guides 19, as shown in both figures.

A tank C is secured to the under face of the top of the holder, and a receptacle D for calcium carbide extends through the top of the holder and through the bottom portion of said tank, as shown in Fig. 2, being attached in a water and gas tight manner to both of said parts. The gas escapes from the generator through a stand-pipe 22, and this pipe is carried out through a side wall of the generator 75 and the side wall of the jacket and at its outer end is provided with a purifier 23 and a stop-cock 24. The structure is supported preferably by legs 20, but the legs are not usually attached directly to the tank, but to a ring-base 21, that extends around the bottom portion of the tank near its outer side, as shown best in Fig. 1.

A vertical yoke 23^a is secured to the upper 85 portion of the receiver D, and a threaded stem 24^a is passed through said yoke, the cover 25 for the receiver being carried by the bottom portion of said stem, so that when calcium carbide is to be placed in the receiver D the cover may be raised, and as soon as the receiver has been charged the cover may be tightly closed against the upper end of the receiver.

The bottom 26 of the receiver is hinged at 95 its side and is held closed by an attached weight 27; but the weight of the carbide introduced into the receiver will overcome the weight attached to the bottom 26, and therefore the bottom will open and the charge in 100

the receiver will drop to the bottom of the generator A.

Water is introduced into the tank C through a supply-pipe 28, provided with a suitable valve 29, and that portion of the pipe that extends within the tank C is provided with an upturned terminal 30, and the outlet end of the pipe is adapted to be closed by a valve 31, fulcrumed upon a suitable support 32, and this valve is controlled by a float 33. When the water in the tank C reaches a given level, the float 33 is raised to such an extent that the valve 31 will seat itself. When the water is below the said level, the valve automatically opens and permits a further supply of water to the tank.

A strainer 34 is located in the bottom of the tank C. This strainer is connected with a valve 35, preferably located within the tank C, as illustrated in Fig. 2, and the plug of the valve is regulated through the medium of a rod 36, that extends upward and outward through the top of the holder. This valve 35 is closed only when the machine is not in operation. A pipe 37 is connected with the valve 35. This pipe extends downward within the generator A to about the central portion thereof and terminates in a rose or sprinkler 38, and above this rose or sprinkler a valve 39 is located, the plug whereof is attached to a stem 40, provided with a crank-arm 41, and a rod 42, provided with a float 43, is pivotally attached to said crank-arm, said rod being fulcrumed upon a bracket 44, that extends, preferably, from the central portion of the rose or sprinkler, as shown in Fig. 2. This valve is normally open and is closed only when water has accumulated in the generator sufficient to raise the float 43 while said generator is being cleaned. A cut-off valve 45 is located between the upper valve 35 and the lower valve 39. The plug of this cut-off valve 45 is attached to a weighted arm 46, and said arm 46 is pivotally connected with the lower end of a bracket 47, which bracket is practically an inverted-U-shaped rod, one member whereof is attached to bearings 48, carried by the inner face of the body of the holder, the other member being attached to a bearing 49, secured upon an end of the tank C. Thus the bow portion of the bracket 47 extends across the upper edge of the generator.

In the operation of the machine the calcium carbide is fed into the generator in the manner described, water is turned on at the supply-pipe 28, and the valve 35 is opened, and the cut-off valve 45 will be fully opened by reason of the holder being in its lowermost position. The water from the tank C will then pass through the pipe 37 to the rose or sprinkler 38 and will be sprayed upon the calcium carbide, thus generating gas, which passes through the supply-pipe 22, the stop-cock 24 having been opened. When the pressure of gas in the machine is such that the holder or bell is raised sufficiently to carry the bracket 47 out of engagement with the top of the generator

A, the weighted arm 46 will automatically close the cut-off valve 45; but as the pressure in the machine is reduced and the holder or bell lowers as soon as the bracket 47 engages with the top of the generator A the cut-off valve will commence to open and water is again supplied to the carbide, renewing the process of generating the gas.

When the generator is to be cleaned, the lime is dumped out by opening the valve 13 at the bottom of the machine. Water is then turned on at the supply-pipe 28, the valve 35 being open, and when the generator has received a sufficient quantity of water the float 43 will be raised and the valve 39 will be closed, thus stopping the supply of water to the generator. The water is permitted to remain for a given length of time in the generator and is then drawn off and the generator again charged with water, and when the water reaches a predetermined level it will again be shut off. This operation is repeated until the generator is thoroughly cleaned, whereupon the valve 35 is closed.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. A generator for gas, a jacket inclosing the generator and adapted to contain liquid, a holder the body portion of which enters the space between the generator and jacket, a water and a carbide supply for the generator, and means for regulating the water-supply by the movement of the holder and at times by the liquid contained in the generator.

2. A gas-generator, a jacket for the gas-generator, the space between the jacket and gas-generator being adapted to contain liquid, a holder the body of which enters the space between the gas-generator and its jacket, a water-tank carried by the holder, a carbide-receiver having a drop bottom, extending from the holder and its tank, a water-supply for the tank and a water-exit for the tank, the said water-exit terminating in a sprinkler, and means for regulating the flow of water through the said exit by the rise and fall of the holder, as specified.

3. In an apparatus for generating gas, the combination, with a generator, a jacket for the generator, the space between the jacket and generator being adapted to contain water, a holder, the body portion of which enters the space between generator and jacket, and a gas-distributing pipe located partially within and partially without said generator, of a tank attached to the holder, a water-supply pipe extending into the tank, a float-valve for the water-supply pipe, a water-distributing pipe extending out from the tank, provided with a valve opened and closed by the rise and fall of said holder, a sprinkler at the end of said water-distributing pipe, a valve above said sprinkler, a float arranged to control the said valve, and a receiver for carbide, extending through the holder and tank connected therewith, for the purpose specified.

4. In an acetylene-gas generator, the combination, with a generator, a jacket therefor, the space between the jacket and generator being adapted to contain water, the generator
5 being provided at its lower end with a valved outlet, and a gas-distributing pipe located partially within and partially without the said generator, of a holder, the body portion of which enters the space between the generator and its jacket, a water-tank located
10 within the generator and connected with the upper portion of the holder, a water-supply pipe leading into the said tank, a float-valve for the water-supply pipe, a carbid-receiver
15 extending through the top of the holder and bottom of the tank, said receiver being pro-

vided with a weighted drop bottom, an exit-valve in communication with the interior of the tank, said valve being controlled from the exterior of the holder, an exit-pipe connected with the exit-valve, terminating in a
20 sprinkler, a cut-off valve located between the exit-valve and sprinkler, means for operating said cut-off valve by the rise and fall of the said holder, and a float-operated valve located
25 between the cut-off valve and said sprinkler, for the purpose specified.

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Witnesses:

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