

No. 629,738.

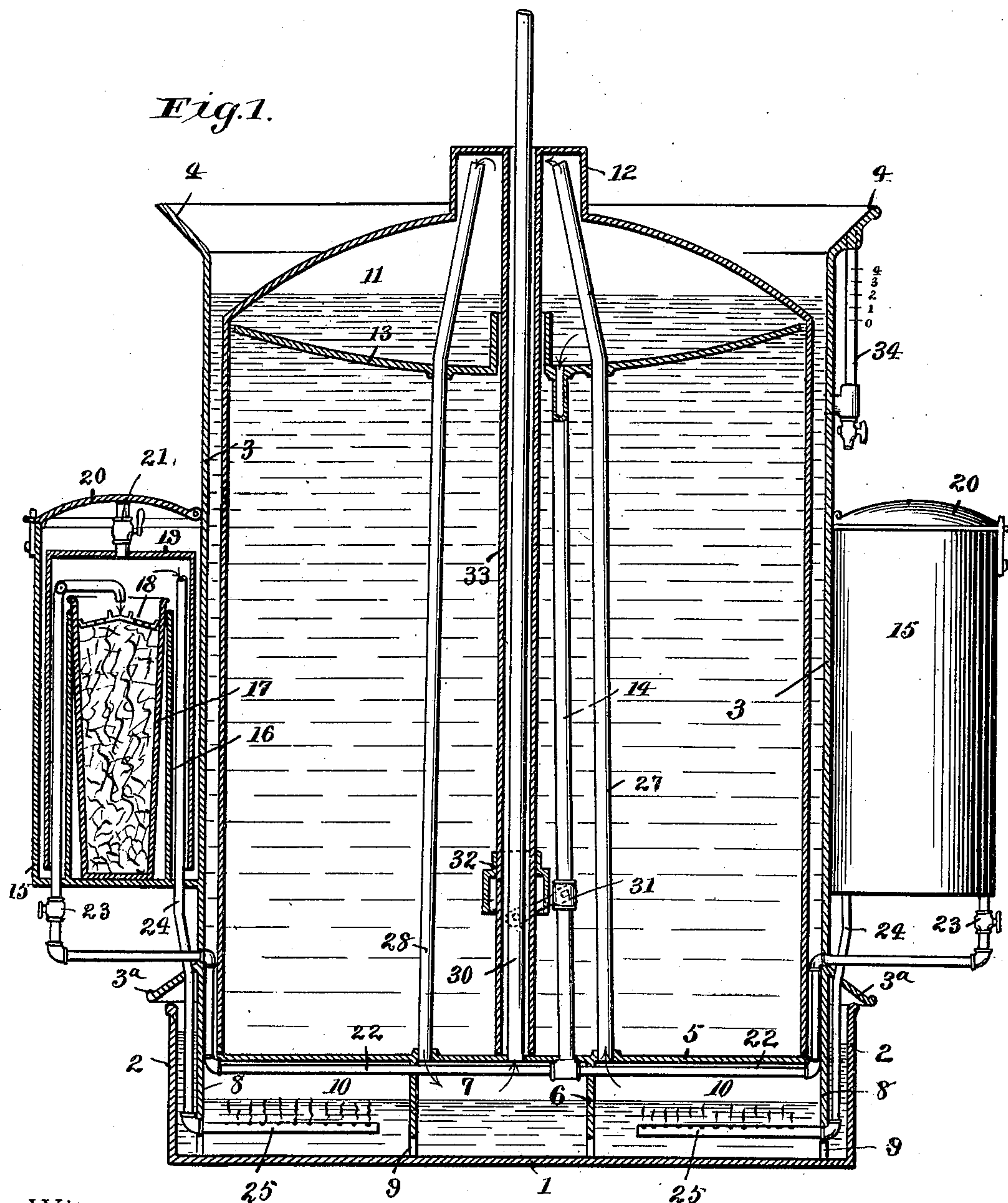
Patented July 25, 1899.

W. J. BAULIEU.
ACETYLENE GAS GENERATOR.

(Application filed Mar. 11, 1898.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses.

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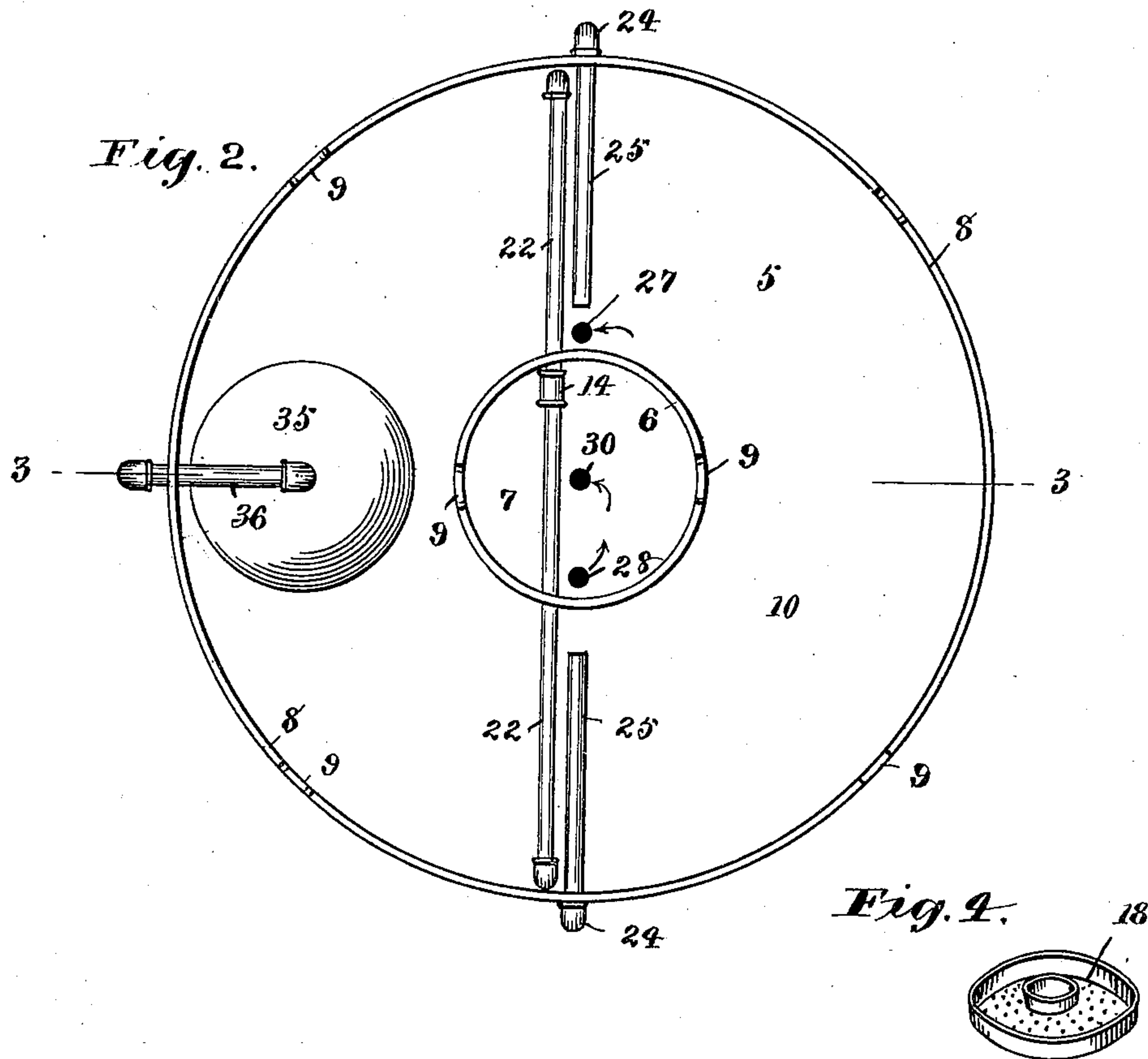
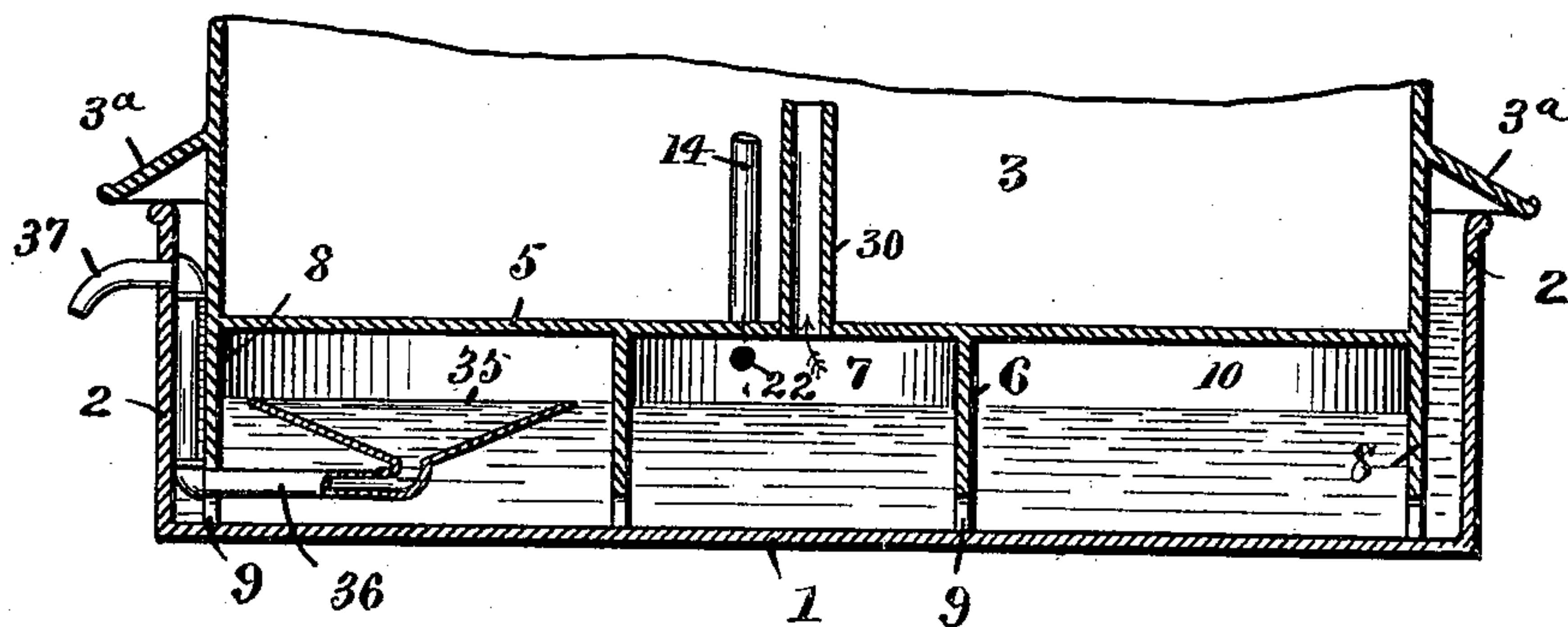


Fig. 3.



Witnesses.

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UNITED STATES PATENT OFFICE.

WILLIAM J. BAULIEU, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR OF ONE-HALF TO JOHN D. CARPENTER, OF SAME PLACE.

ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 629,738, dated July 25, 1899.

Application filed March 11, 1898. Serial No. 673,436. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. BAULIEU, a citizen of the United States, and a resident of Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Acetylene-Gas Generators, of which the following is a specification.

My invention relates to new and useful improvements in gas-generators, and more especially to that class used to generate acetylene gas for private use by the decomposition of carbids with water.

By the production of acetylene gas from calcium carbid it is found that more or less substance, such as lime, in the form of dust is carried up by the mechanical action of the gas and will invariably be conveyed through the several parts of the machine and finally lodged in the service-pipes and gas-burners connected therewith in such a manner as to clog and choke up the same, whereupon they become objectionable and useless. I therefore provide means for arresting the progress of such matter, and, further, for removing the same from the machine.

The objects of my invention are to produce a machine of the above class which shall be simple, durable, and safe in every particular, which shall not require the services of a skilled attendant, to produce a machine which shall be automatic in its operations and more particularly with reference to the making of gas and whereby substantially a uniform quantity is obtained at all times; further, to provide novel improvements for purifying the gas made in said machine, to provide means for separating and removing therefrom the lime and other impurities which accumulate within the several parts of the machine, and, further, at all times to use the surface water in the supply-tank.

With the above objects in mind my invention resides and consists in the novel construction and combination of parts set forth in the accompanying two sheets of drawings, forming a part of this specification, upon which similar characters of reference denote like or corresponding parts throughout the several figures, and of which—

Figure 1 shows a central vertical cross-section

tion of my improved gas-machine, one of its generators being shown in elevation, the several parts of said machine being in their normal positions and ready to make gas. Fig. 2 is an inverted plan view of the under side of the fluid-tank. Fig. 3 is a detail central vertical cross-section taken on line 3 3 of Fig. 2, said line being at a right angle to the section shown in Fig. 1. Fig. 4 is a detail perspective view of the perforated top used to cover the carbid-basket.

Referring to the characters of reference marked upon the drawings, 1 indicates the base of my machine, which is in the form of a pan and separate from the main tank, said base comprising simply a bottom having a vertical annular flange 2, forming sides therefor. In practice said base contains water or other fluid to a depth substantially as shown in the drawings and whereby a seal is formed for the open compartments of the tank 3, seated therein. Said tank consists of a cylindrical shell having a flared top 4 and a bottom 5, the latter being provided with a central cylindrical extension 6, (see Fig. 2,) forming a central compartment 7. The sides of the tank are also extended below the bottom 5, as shown in the several figures of the drawings and indicated by 8. The lower edges of these extensions are practically even and are provided with a series of notches 9 to permit of the fluid within the base passing from one to the other and filling up equally within the several compartments. It will thus be seen that when the tank is seated within the base and water or other fluid is placed in the same to a depth substantially as shown the compartments 7 and 10 become sealed and prevent the passage of gas direct from one to the other.

The base is necessarily somewhat larger in circumference than the tank, and in order to cover the same for the purpose of excluding dust and other objectionable matter I provide an annular deflected flange 3^a upon the outer surface of said tank, which projects outward, as shown in Figs. 1 and 3 of the drawings.

Within the tank I provide a receiver or reservoir 11, having a dome top 12 and an open bottom, the latter resting in fluid contained in said tank. A seal for the reservoir is formed by the fluid aforesaid, as shown in the draw-

ings, which fluid in practice fills, surrounds, and covers said reservoir more or less, according to the amount of gas contained therein and the position it occupies. Within the reservoir and adjacent to its upper end is fixed a concave disk 13, as shown, and which is provided with a drain or feed pipe 14, leading to the generators, as will later be more fully explained. This disk is fixed within the reservoir and acts as a funnel, taking the water over its outer edges and from time to time conveys the same to the interior of the generators before mentioned. By skimming the supply from the top, as above stated, the impure water is consumed, thereby preventing stagnation and objectionable odors therefrom, it being obvious that the fresh water is supplied to the tank on the outside of the reservoir, which feeds down through the side and up into the interior, forcing the foul water upward.

In practice any preferred number of generators may be used and may be so constructed as to permit of the recharging of one while the other is in use and the recharging of either or both during the consumption of the gas from within the reservoir. These generators in themselves do not differ very materially from several previous devices, except in the matter of conveying water and gas to and from the same. Said generators comprise a cylinder-body 15, which is preferably secured to the tank and contains an internal cup 16. Within said cup is seated a basket 17, in which the carbid is placed for action. A cover 18 (see Fig. 4) is placed in the basket over the carbid and is provided with a series of perforations to insure a proper distribution of the water, thereby producing a uniform action upon said carbid. The basket is provided with a cylindrical inclosure 19, having deep flanges which extend into the water contained within the body 15, thereby producing a desirable water seal, which prevents the escape of gas and odors therefrom. The cylinders 16 are further provided with a cover 20, which is preferably hinged upon one side and provided with a clamp of desirable construction. Within the center of the top of the basket inclosure is provided a pipe and valve 21, which can be connected with any suitable supply for flushing the basket when desired.

The water-supply for the carbid within the basket whereby the gas is generated is taken from the tank and preferably from the interior of the reservoir carried therein. This supply, as previously stated, is "skimmed," so to speak, from the surface of the water within the reservoir, conveyed through pipe 14 to the branches 22, which in turn lead into the generators, with their discharge immediately over the center of the basket, as shown in the drawings. Said pipes are provided with a cock 23, whereby said supply can be entirely cut off when it is desired to recharge the generators. As the gas is generated it is conveyed through pipe 24 down into the base and

discharges from the perforated sections 25 into the water contained therein. The discharge of the gas within the water serves to purify the same to some extent, removing therefrom lime and such other objectionable matter as may be present, after which it is conveyed upward into the reservoir through pipe 27, as shown. Said reservoir, as will be obvious, is self-adjusting and rises and falls with the varying amount of gas contained therein. The settlement from the gas, such as lime, is upon the disk before mentioned and washes down through the service-pipe and back into the carbid, where some of said impurities are consumed. The remainder settles into the water and is removed therewith. The gas service-supply is taken from the reservoir down through pipe 28, through the water-sealed chamber 7, and up through the central pipe 30. This manner of transmitting the gas is preferable, as it again subjects the gas to the water within the chamber 7 prior to its final delivery for service.

The supply of water to the generators is controlled automatically by the action of the gas and the movement of the reservoir thereby, the object being to retain a uniform amount or pressure of gas on hand at all times. This object is accomplished by placing within the drain-pipe 14 a valve 31, whose stem extends crosswise and is operatively connected to a bracket 32, fixed to a central tube 33, forming part of the reservoir, the action of the valve being to gradually close after the reservoir rises to a given point, which cuts the water off, thus prohibiting the further production of gas in the generators. As the gas is consumed from the reservoir and the latter settles the valve 31 aforesaid will gradually open, permitting a supply of water to pass to the generator, which produces an additional supply of gas therein, said gas being transmitted to the reservoir, where it raises the same in a manner to again operate the valve in question.

From the foregoing statement it will be apparent that my machine is practically self-regulating and that the more gas consumed from the reservoir the more is made by the generator, and, on the other hand, if there is but little being used there is likewise little being made.

I further provide the machine with a water-gage 34, which can be placed at any convenient point—as, for instance, as shown in Fig. 1—and which serves to indicate the height of water within the tank.

As before stated, there is more or less lime and like substances in gas of this class and which I separate therefrom as it comes from the generator by my improved water-sealed chamber. I further provide means for removing this lime while the machine is in use, which consists of the following device: Within the chamber 10 I place a funnel 35, which is normally covered by the water therein. From this funnel a pipe leads down and out

of the chamber, whereupon it is deflected upward above said water-line and having an outlet 37 exterior of the base. From the foregoing construction it will be seen that owing to the special shape of the pipe 35 a trap is formed which prevents the escape of gas from the chamber, but that when the water is well up in said chambers and by reason of the gas-pressure therein said lime, which gathers on the surface, will be forced out through the funnel and pipe. Additional water is supplied to the exterior of the base from time to time, from whence it is let into the chamber through notches 9.

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

1. The combination in a gas apparatus of one or more generators, an exhaustible gas-reservoir, a water-tank in which said reservoir is mounted and forming a seal, a base in which said tank is mounted, gas-pipes leading from the generators and discharging in the water of said base, a pipe connecting said base and the reservoir, connections from the reservoir for the service-supply.

2. The combination in a gas apparatus, of one or more generators, an expansible gas-reservoir, a tank in which said reservoir is mounted and adapted to receive a body of water, a water-chamber beneath said tank, a central compartment in said chamber, connections from the generators discharging into said water-chamber, a pipe leading from said water-reservoir to said central compartment, and a service-pipe leading therefrom.

3. The combination in a gas-machine of a tank, a reservoir therein, a peripheral annular extension on the bottom of said tank, a central annular depending wall secured to the bottom of said tank, a base in which the tank is seated and adapted to receive fluid forming sealed compartments within the wall and extensions, connections from the generator to said compartments and the reservoir, substantially as described.

4. The combination in a gas-generating machine, of a tank, a telescope reservoir mounted therein, generators exterior of said tank,

annular and central water-chambers beneath said tank, a gas-passage from the generators discharging into one of said chambers, connections from said chamber to the reservoir, a passage from said reservoir to the second chambers, and a service-pipe leading therefrom.

5. The combination in a gas-producing apparatus, of a gas-reservoir, an intermediate circular water and gas chamber, a pipe leading from the generator and discharging into the water of said chamber, connections from said chamber to the reservoir, a secondary central water-chamber through which the gas is passed on delivery for use, a funnel for removing the scum from the water of said chamber, substantially as described.

6. In a gas-generating apparatus, the combination with a generator, of a water-sealed and vertically-movable gas-reservoir, means for conveying the gas from said generator to the reservoir and automatically governing said supply, a water-chamber through which the gas is conveyed to the reservoir, means for renewing said water-supply while the machine is in use, a central chamber through which the gas is passed and a funnel to remove the scum from said chambers, substantially as described.

7. The combination in a gas-machine, of an expansible reservoir, one or more generators for producing the gas-supply, a disk for removing the impurities from said reservoir, means for regulating the supply of gas by the consumption, an annular purifying-chamber through which the gas is passed to the reservoir, a funnel for automatically removing the impurities from said chamber and a central water-chamber through which the gas is passed for service, substantially as described.

Signed at Bridgeport, in the county of Fairfield and State of Connecticut, this 8th day of March, A. D. 1898.

WILLIAM J. BAULIEU.

Witnesses:

C. M. NEWMAN,
ELBERT O. HULL.