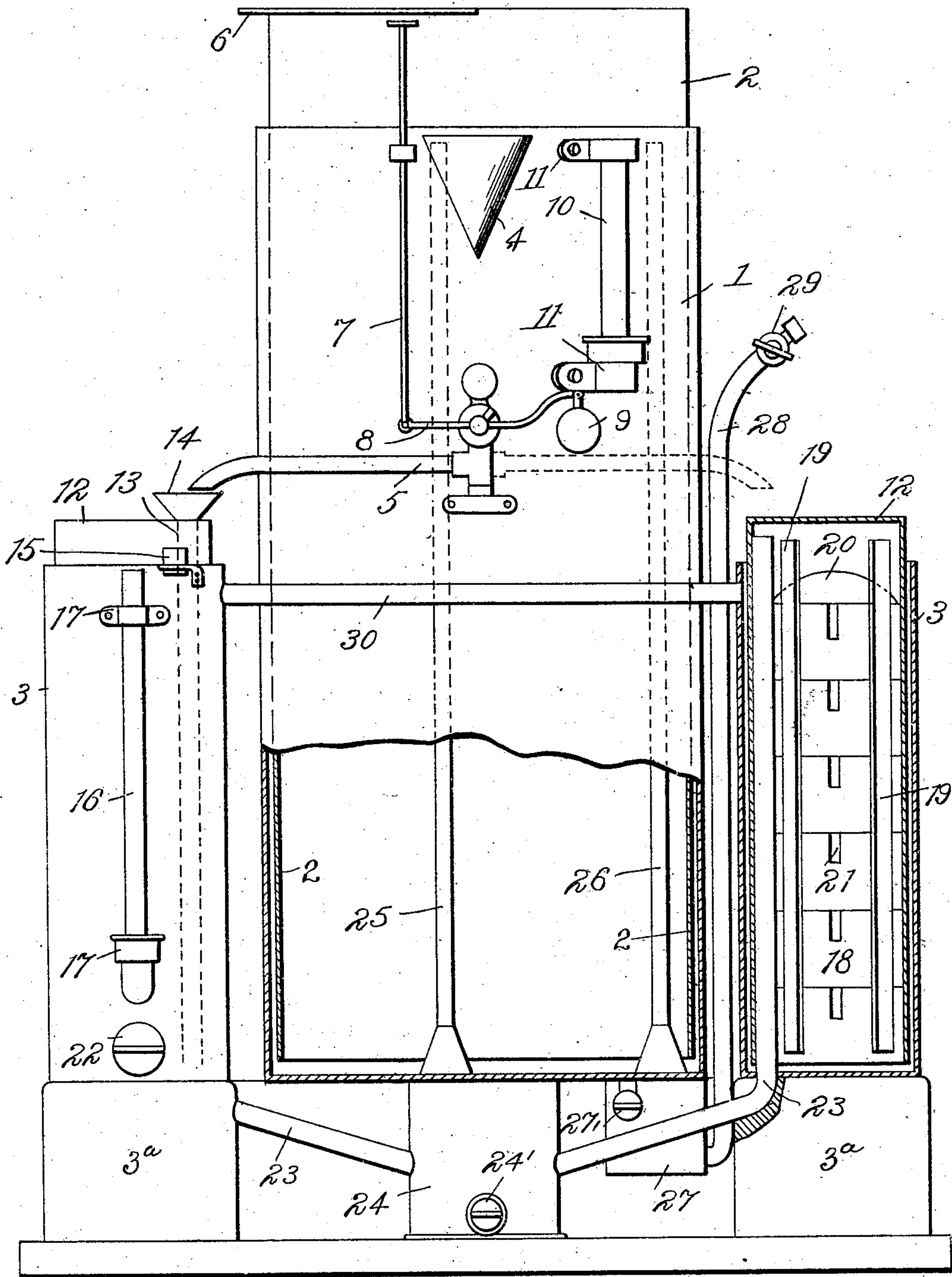


No. 845,560.

PATENTED FEB. 26, 1907.

T. LENZI.
ACETYLENE GAS GENERATOR.
APPLICATION FILED MAY 8, 1906.



Witnesses
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UNITED STATES PATENT OFFICE.

TOMMASO LENZI, OF JERSEY CITY, NEW JERSEY.

ACETYLENE-GAS GENERATOR.

No. 845,560.

Specification of Letters Patent.

Patented Feb. 26, 1907.

Application filed May 8, 1906. Serial No. 315,802.

To all whom it may concern:

Be it known that I, TOMMASO LENZI, a citizen of the United States of America, and a resident of Jersey City, in the county of Hudson and State of New Jersey, have invented new and useful Improvements in Acetylene-Gas Generators, of which the following is a specification.

This invention relates to improvements in acetylene-gas generators, and has for its object the production of a durable, compact, and portable machine of simplified construction, insuring the highest degree of safety in operation, and one that produces a pure gas free from contaminating substances.

I will describe a machine embodying the particular features of improvement of my invention, reference being had to the accompanying sheet of drawing, in which is illustrated, partly in elevation and partly in section, a machine having a cylindrical tank 1, formed to receive a vertically-sliding dome 2, spaced from the tank 1 to provide a water seal and forming a chamber for the generated gas. This dome 2 is capable of rising and lowering under action of the varying quantities or pressure of the gas within. Adjacent to this tank are arranged the generators, of which I have shown two, it being manifest, however, that any desired number may be employed. These generators each have an outer shell 3, mounted upon a base 3^a, independent of the tank 1.

On the peripheral portion of the tank 1, near its upper edge, is provided a trough 4, communicating with the interior of said tank to receive the water from any exterior source and supply it to the tank 1 through the space between dome 2 and the tank 1 to hydraulically seal the dome 2, situated within, and at the same time provide a water-reservoir for supplying the individual generators with the water necessary to slack the carbid and generate the gas. The flow of the water from the tank 1 to a generator is accomplished automatically by means of a vertically swiveled faucet 5, having an oscillating horizontal valve thereabove, controlled by the dome 2, which is fitted with a segmental flange 6, which contacts with and depresses the perpendicular rod 7, which in turn imparts an oscillatory movement to a transverse rod 8, connected with and operating the horizontal valve of the faucet 5. It will be seen that in order to operate or open the horizontal valve the dome has to be depressed,

and thus allow the flow of water from the water seal through the horizontal valve and swiveled faucet 5 to the generator. At the free extremity of the transverse rod 8 is provided a weight 9 for the purpose of closing the swiveled faucet as soon as the flange 6 on dome 2 frees itself from the perpendicular rod 7 by reason of the increasing pressure of the gas within the dome. On the periphery of the tank 1 is provided a gage 10, connecting with the interior of the tank 1 and supported in suitable brackets 11 to indicate the amount of water within said tank.

The generators are uniformly constructed and a description of one will suffice. Located within and spaced from the outer shell 3 of the generator is inserted the dome 12, provided with a pipe 13, having at its upper extremity a funnel 14, which receives the water-supply from the vertically-swiveled faucet 5. This dome is provided with a fastening device 15 to fasten or lock it to the outer shell 3 against upward movement under the influence of the generated gas. A gage 16, communicating with the interior of the generator, is supported by suitable brackets 17 and indicates the amount of water feed into the generator and also determining the amount of carbid consumed.

The carbid is contained in a plurality of cups 18, which are arranged one above the other in a removable skeleton frame 19, the top one being provided with a cover 20. These cups are vertically slotted at the sides, as indicated at 21, through which the water is permitted to reach the carbid within. The generator is provided with a drain 22 at the lower extremity for leading off the water when recharging. Communicating from the upper end of the dome of each generator and downwardly through the shell 3 at the lower end of the generator and supported upon the base 3^a of the generator is a lead or pipe 23, having a downwardly-inclined part terminating in a main purifying-chamber 24, which is located below and centrally of the main reservoir or tank 1, having a drain 24', which is located at the lower extremity of the purifying-chamber 24. A vertical lead or pipe 25, supported upon the base of the tank 1, communicates from the purifier 24 up and through the reservoir formed by the tank 1 and into the dome 2. Another vertical lead or pipe 26, also supported upon the base of the tank 1, is provided, which communicates from the said dome 2 down through the res-

ervoir formed of the tank 1 to a second or auxiliary purifying-chamber 27, suspended from the tank 1 and from which the purified gas is led to the lighting system through lead 5 or pipe 28, which extends upwardly from the bottom of the chamber 27, between the tank 1 and a generator, and is provided with check-valve or faucet 29 at its outer extremity. The purifying-chamber 27 is also provided with a drain 27' across the tank 1.

Communicating from one generator to the other is a pipe or lead 30, being provided for the purpose of affording an outlet for any overflow of water in either one of the generators.

The operation is as follows: The generator is started by withdrawing the removable dome 12 of the generator. Then the skeleton frame or retaining-rack 19 is lifted out, bringing with it the carbid-cups 18. The cups are then filled with carbid and replaced within the shell 3, the dome 12 replaced and locked from vertical movement by fastening means 15. A small quantity of water is fed through lead or pipe 23 into the purifying-chamber 24. Water is then fed into the space between the walls of the tank and dome from any source of supply through trough 4 into tank 1 until the water within the tank reaches the desired level, as indicated by the gage 10. The dome 2 is then positioned so that flange 6 will depress the vertical rod 7, which opens the valve of the faucet 5. The faucet is swung laterally and positioned so as to discharge into the funnel 14 of either of the generators. The water is led down through the lead or pipe 13 to the lower extremity of the generating-tank and rises within said tank and flows through the slots in the carbid-cups successively, thus thoroughly slacking the carbid in all the cups. The gas as it accumulates is forced by reason of its own created pressure through lead or pipe 23 into the purifying-chamber 24, where it is compelled to pass through the water contained therein. From this purifying-chamber the gas ascends through lead or pipe 25 and is discharged into the dome 2. The gas then flows from the dome 2 down the lead or pipe 26 into a second purifying-chamber 27, and from thence up and out through lead or pipe 28 to the lighting system. As the gas accumulates and the pressure increases within this dome the dome gradually ascends, and as soon as it has reached the limit of the vertical movement of the rod 7, which movement is caused by counterweight 9 at one extremity of rod 8, the supply of water is automatically turned off. When the pressure within dome 2 has been diminished by reason of the gas being consumed, the dome 2 will gradually descend, and in descending flange 6 will contact with

and depress vertical rod 7 and again open the valve of the swiveled faucet 5 and permit more water to be fed into the generator. This is how the generators are automatically and the individual carbid-cups successively set into operation as the gas is being consumed from the dome 2. The water within the generator rises gradually until the carbid within the entire number of cups or receptacles has been slacked, whereupon the swiveled faucet 5 is turned laterally into alinement with the funnel of the other generator to supply the water necessary to bring it into operation. If, however, for any reason the swiveled faucet 5 should not be moved so as to feed the other generator after the entire charge in the first generator has been consumed, the water will be communicated to said other generator through the pipe 30 and pass down between the walls of the dome 12 and outer shell 3, and the same generating operation is repeated in this generator. The individual receptacles or cups are made with imperforated bottoms and slotted sides, as shown. The advantage of using these individual cups is that they are capable of producing any desired quantity of gas and supply it at a uniform pressure continuously, if desired, this being regulated by the amount of gas consumed. To stop the generation of the gas without removing the carbid, the dome 2 is revolved so as to take the segmental flange 6 out of the path of the vertical rod 7, or, if desired, the swiveled faucet can be turned away from the funnel 14 of the generator and permit the water to drain out into a suitable receptacle.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

The combination of a tank providing a water-reservoir, a gas-dome adapted to slide within the tank and provided with a peripheral flange and spaced from the wall of the tank so as to provide a water seal, a trough secured to the tank for supplying water to the reservoir through the water seal, a horizontal valve supported on the tank and connected with the water seal, a transversely-arranged rod secured to the plug of the valve, a vertically-guided rod, upon which the peripheral flange is adapted to impinge, pivoted to one end of the transversely-arranged rod, a counterbalance suspended from the other end of the transversely-arranged rod, and a vertically-swiveled faucet connected with the horizontal valve and adapted to swing across the tank.

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Witnesses:

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