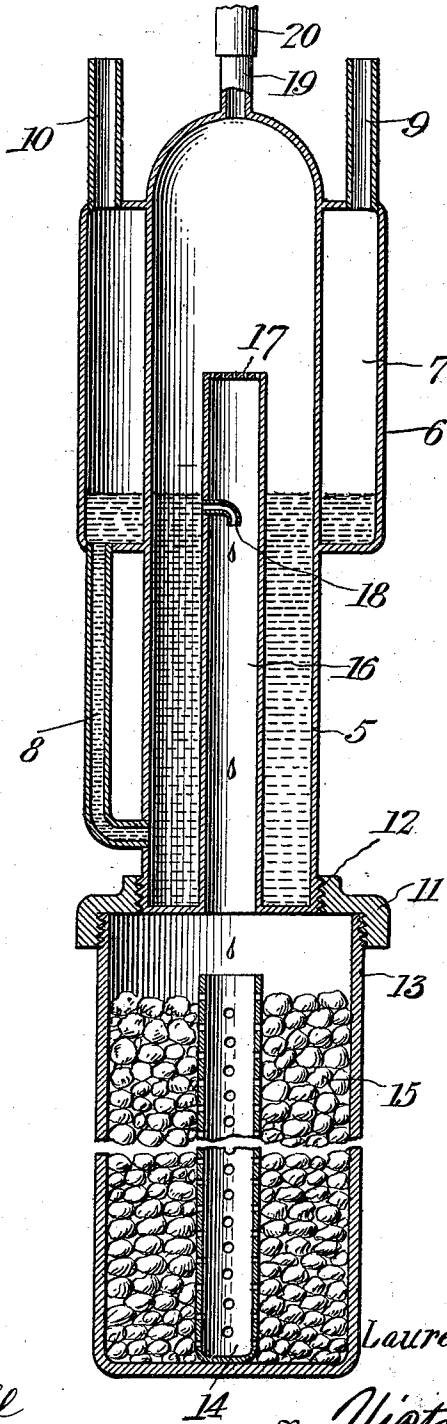


L. M. HANSEN.  
GAS GENERATOR.

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1,000,403.

Patented Aug. 15, 1911.



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# UNITED STATES PATENT OFFICE.

LAURENCE M. HANSEN, OF UPLAND, NEBRASKA.

GAS-GENERATOR.

1,000,403.

Specification of Letters Patent. Patented Aug. 15, 1911.

Application filed September 17, 1910. Serial No. 582,478.

To all whom it may concern:

Be it known that I, LAURENCE M. HANSEN, a citizen of the United States, residing at Upland, in the county of Franklin and State of Nebraska, have invented new and useful Improvements in Gas-Generators, of which the following is a specification.

The invention relates to a gas generator, and more particularly to the class of acetylene gas generators.

The primary object of the invention is the provision of a generator in which the gas pressure will be controlled, so as to prevent any possibility of an explosion, resultant from excessive gas pressure within the generator, thereby avoiding all danger of the bursting thereof during its operation.

Another object of the invention is the provision of a generator of this character in which the water supplied to the carbid holder or font is regulated by gas pressure, so that the water will be shut off therefrom when excessive gas pressure prevails within the generator, thus obviating injury or the explosion thereof.

A further object of the invention is the provision of a generator in which excessive gas pressure therein may be expelled to the atmosphere during the operation of the said generator.

A still further object of the invention is the provision of a generator of the character described, in which the parts thereof are held stationary and that will operate automatically without producing excessive gas pressure. However, should any amount of excessive gas pressure exist within the generator, it will be discharged to the atmosphere without interruption to the working thereof or reducing the gas pressure in the mains or branches leading to the burners or jets.

With these and other objects in view, the invention consists of the construction, combination and arrangement of parts, as will be more fully described hereinafter, illustrated in the accompanying drawings, and pointed out in the claim hereunto appended.

In the drawing, there is shown a vertical longitudinal sectional view of a generator constructed in accordance with the invention.

Similar reference characters indicate corresponding parts throughout the several views of the drawings.

Referring to the drawings by numerals, 5 designates a cylindrical reservoir adapted to receive a quantity of water and is surrounded by a jacket 6 providing a water receiving space 7, the jacket being disposed near the upper end of the reservoir and from which leads a water vent or feed pipe 8, the latter communicating with the reservoir 5 near the bottom thereof. Rising from diametrically opposite points of the jacket 6 are inlet and exhaust tubes 9 and 10, respectively, the inlet tube being designed to permit the filling of the water space 7 in the jacket 6 when required, while the exhaust tube 9 permits the escape of excessive gas pressure from the generator, as will be hereinafter more fully described.

Surrounding the bottom end of the reservoir 5 is a coupling sleeve 11, the same being provided with internal threads 12 detachably engaged by the correspondingly threaded upper end of a carbid holder 13, the latter being preferably of cylindrical shape and of greater diameter than the reservoir, and has rising from its bottom centrally thereof a tubiform perforated water gage 14, the latter terminating short of or spaced from the upper end of the holder, and between which and the wall of the holder is held the desired quantity of carbid 15, from which is produced a volume of gas on the contact of water therewith, the water being fed to the holder 13 in a manner, as will be hereinafter more fully described.

Rising from the bottom of the reservoir 5 centrally thereof is a water feed tube 16, the latter opening through the bottom of the said reservoir for communication with the carbid holder in direct alinement with the perforated cage 14, within the latter, the water feed tube 16 being provided with a perforated upper end 17, and suitably secured in the wall of the said tube 16 spaced from its perforated end 17 is a drip nozzle 18, the latter projecting within the tube 16 to a point central thereof, so that water from the reservoir 5 may be discharged in drops into the said tube 16 and thence into the cage 14 in the carbid holder 13 for impregnating the

carbide 15 surrounding the said cage 14 for the generation of gas, which latter will rise in the holder 13 and pass upwardly through the tube 16 into the reservoir 5 at the upper end thereof above the level of the water contained therein.

Projecting upwardly from the upper end of the reservoir 5 is a nipple 19 with which is connected a gas delivery main or tube 20 which communicates with the interior of the said reservoir, whereby the gas confined within the upper end portion thereof may be discharged into the main for its consumption in the ordinary manner when ignited at the gas burners or jets, not shown.

In the operation of the generator, water is introduced into the space 7 in the jacket 6 surrounding the reservoir 5 which water will be conveyed through the feed pipe 8 into the said reservoir 5, and on its reaching a predetermined level, the same will discharge through the drip nozzle 18 into the tube 16 within the reservoir, and thence into the cage 14 within the carbide holder 13, where it will come in contact with the calcium carbide for the generation of gas, which latter will be fed upwardly through the tube 16 to the upper portion of the reservoir 5 above the level of the water contained therein, whence it will be delivered through the gas delivery nipple 19 into the main or delivery tube for consumption.

Should the gas pressure in the reservoir 5 become excessive beyond the volume required for consumption, it will force the water into the space 7 in the jacket 6, so that the water level will drop below the plane of the nozzle 18, thereby shutting off the water supply to the carbide holder or font. However, if this excessive gas pressure is of a materially increased volume, it will displace the water within the space 7 in the jacket so that the excessive gas pressure will discharge through the exhaust tube 10 to the atmosphere until such gas pressure within

the reservoir 5 is reduced to the required volume for consumption.

What is claimed is:

In a generator of the class described, a carbide holder having an open upper end and provided with external screw threads at the said open end, a cap detachably engaging the screw threaded end of the holder and having a central boss rising therefrom provided with an internally threaded opening, a cylindrical reservoir having one end detachably engaged in the threaded opening in the cap, a tube rising centrally within the said reservoir from its end connected with the cap and opening therethrough for communication with the carbide holder, the said tube being terminated at its opposite end spaced from the free end of the reservoir and provided with a plurality of orifices, a dripping nozzle carried by the said tube and spaced a distance from its end containing the orifices for establishing communication between the reservoir and the tube, the free end of the nozzle being downturned and alining with the center of the tube, a water jacket circumscribing the reservoir near the free end thereof and formed integral therewith, a feed pipe leading from the bottom of the water jacket and opening into the reservoir contiguous to its end connected with the cap, a gas outlet nipple formed on the free end of the reservoir in alinement with the said tube, independent inlet and exhaust pipes communicating with the water jacket, and a perforated tubiform shell located centrally within the carbide holder in alinement with the first named tube and having an open upper end spaced from the cap.

In testimony whereof I affix my signature in presence of two witnesses.

LAURENCE M. HANSEN.

Witnesses:

E. L. MORSE,

J. R. BUCKNELL.