

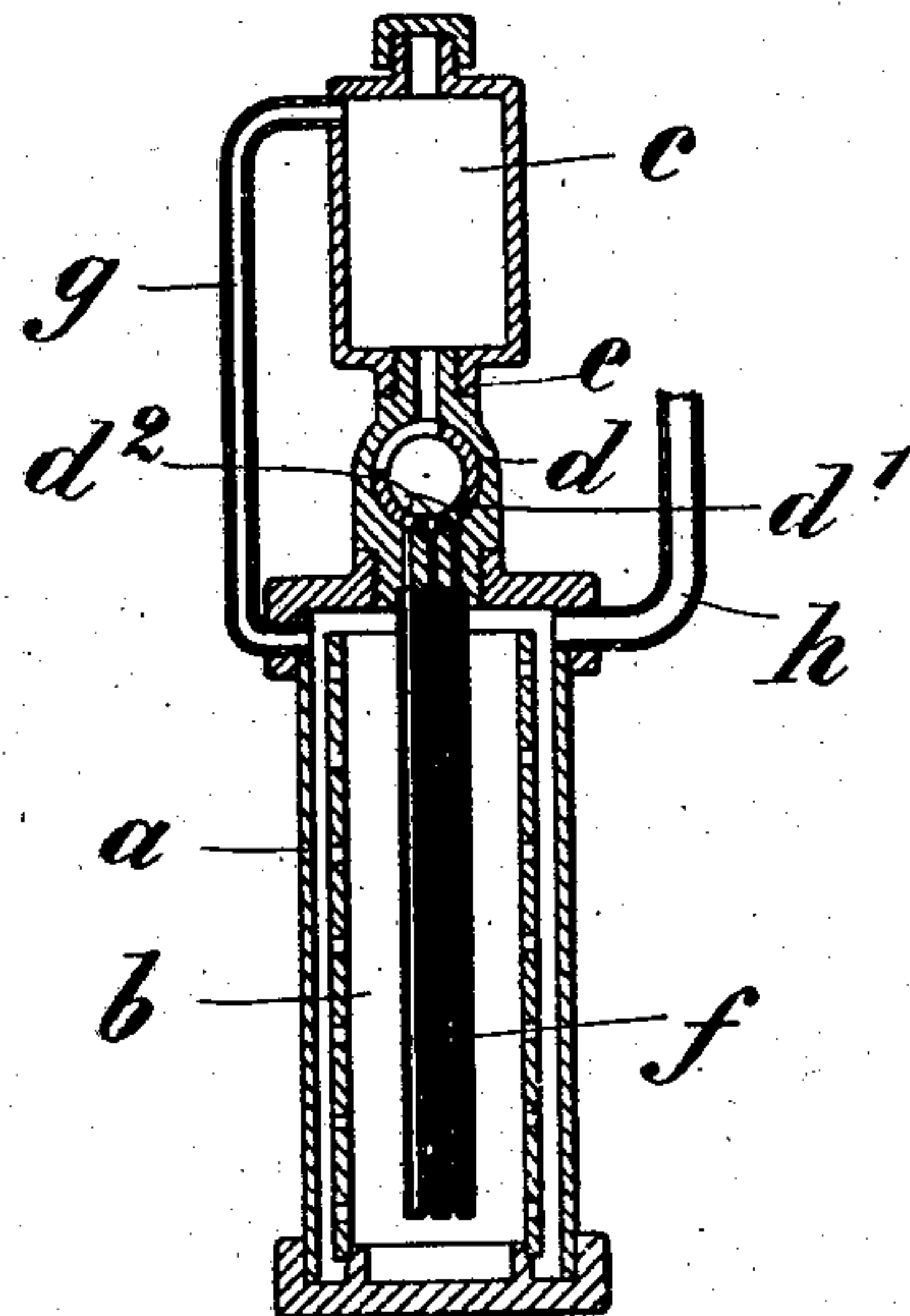
A. AMMENTORP.  
GAS GENERATOR.

APPLICATION FILED SEPT. 15, 1908.

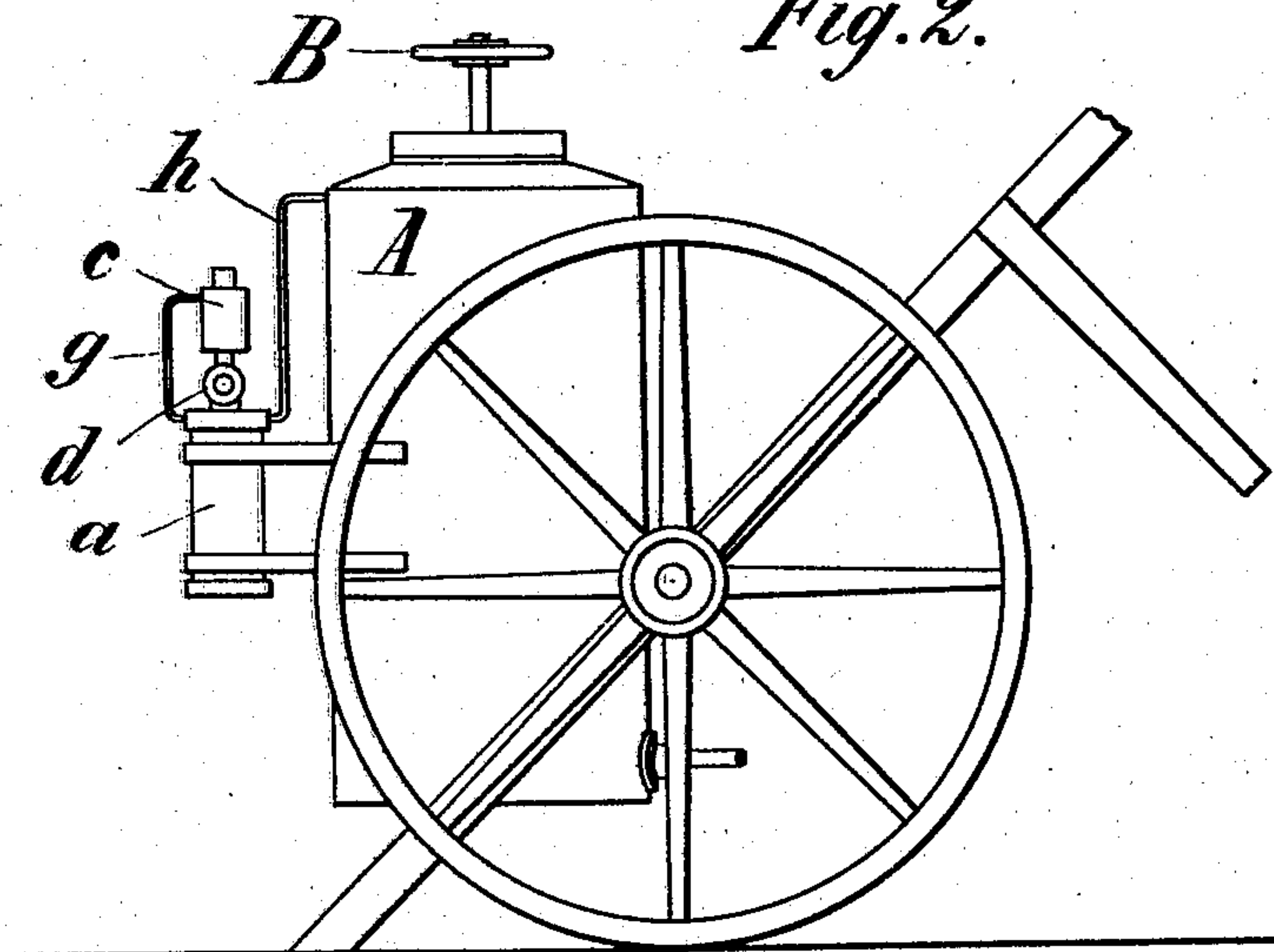
Patented Feb. 9, 1909.

911,801.

*Fig. 1.*



*Fig. 2.*



Witnesses.

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# UNITED STATES PATENT OFFICE.

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## GAS-GENERATOR.

No. 911,801.

Specification of Letters Patent.

Patented Feb. 9, 1909.

Application filed September 15, 1908. Serial No. 453,166.

*To all whom it may concern:*

Be it known that I, ANDREAS AMMENTORP, a subject of the King of Denmark, and resident of Hamburg, Germany, have invented certain new and useful Improvements in Gas-Generators, of which the following is a specification.

The present invention relates to improvements in gas generators and more particular to generators for producing gas, such as carbonic acid gas, from chemicals.

In the generators of this kind known heretofore the generating of the gas is regulated by operating valves or the like to allow more or less liquid chemicals for instance an acid to run on the other chemicals. However no care has been taken to better distribute the liquid chemicals when the generating of the gas is to be increased and this is in many cases for instance in fire extinguishing apparatus of the greatest importance.

According to my invention the fluid acid is led through one or more ports in the valve or cock into one or more pipes placed in a reservoir containing chemicals, which in mixing with the fluid acid give off a gas such as carbonic acid gas. If an increase of the gas production is required the distribution of a greater amount of liquid acid is increased which then remains constant, the fineness of the acid streams and the pressure of the acid on leaving the said opening remaining unaltered.

A generator embodying my invention is shown in the accompanying drawing.

Figure 1 is a section of the apparatus and Fig. 2 is an elevation of the apparatus in connection with a fire extinguisher on wheels.

The generator consists of a cylindrical casing *a* within which there is a reservoir *b* containing chemicals such as bicarbonate of soda. In line above the casing *a* a flask *c* is connected to the casing by means of a pipe *e* provided with a cock *d*. The flask *c* is filled with a liquid chemical generally a liquid acid. The plug *d*<sup>1</sup> is provided with a number of ports *d*<sup>2</sup> and for every port *d*<sup>2</sup> of the plug *d*<sup>1</sup> a thin tube *f* is attached at the lower end of the connecting pipe *e* and reaches down into the reservoir *b*. The tubes *f* are closed at their lower end and perforated at their sides, and also the reservoir *b* is perforated at its side walls. The cylinder *a* is connected with the top of the flask *c* by a pipe *g*, to prevent

the creation of a vacuum in the flask when the liquor is running out, and preferably opposite the pipe *g* there is an outlet pipe *h* attached to the casing *a*.

To set the apparatus in working order the reservoir *b* is filled with a suitable chemical and the flask *c* with a liquid acid. Then the cock *d* is opened to allow the acid to run down the tubes *f* into the reservoir *b*. In contacting with the chemicals in this reservoir the acid generates the gas, which may be led to the place of destination by the pipe *h*.

The apparatus is well suited to be used in cases, where a quick and copious generation of gas is required or where for a long period of time a generation of gas of constant amount is needed as is the case with fire extinguishers.

In the fire extinguisher shown in Fig. 2 a water tank *A* is provided for, from which the whole amount of water should be driven out at constant equal pressure. To this end the pipe *h* of the gas generator is connected with the tank *A* preferably at its top. If desired the tank *A* may be brought in connection with a second gas generator of suitable construction. Should it be found that in operating the pressure in the tank *A* and thus the water given off is insufficient the gases produced in the reservoir *b* are allowed to enter the tank *A* by way of the pipe *h*. In the same degree as the pressure in the tank *A* diminishes, the production of gas in the reservoir *b* is increased, by operating the cock *d* so as to allow a greater number of ports to coincide with a corresponding number of tubes. In this manner a constant and equal pressure may be obtained until the tank *A* is fully emptied, whereupon the hand wheel *B* may be turned in such direction as to close an outlet valve (not shown) in connection therewith.

I claim:

1. A gas generator comprising a flask, a reservoir, a connection between the flask and reservoir, a cock in the connection the plug of which is provided with a series of ports, a series of perforated tubes corresponding in number with said ports in such a way that the liquor from the flask can be allowed to enter the reservoir by one or more tubes according to the position of the plug.

2. A gas generator comprising a flask, a

perforated reservoir, a pipe connecting the latter with the flask, a cock in the pipe the plug of which is hollow and provided with a series of ports, a series of perforated tubes  
5 corresponding in number with said ports leading from the cock to near the bottom of the reservoir, a casing surrounding the res-

ervoir, a conduit connecting the casing and flask and an outlet pipe leading from the casing.

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Witnesses:

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