H. L. FOX.

HIGH PRESSURE LIGHTING AND HEATING APPARATUS.

APPLICATION FILED JAN. 28, 1908.

908,402. Patented Dec. 29, 1908.

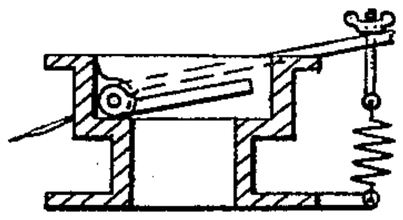


FIG. 3.

FIG. I.

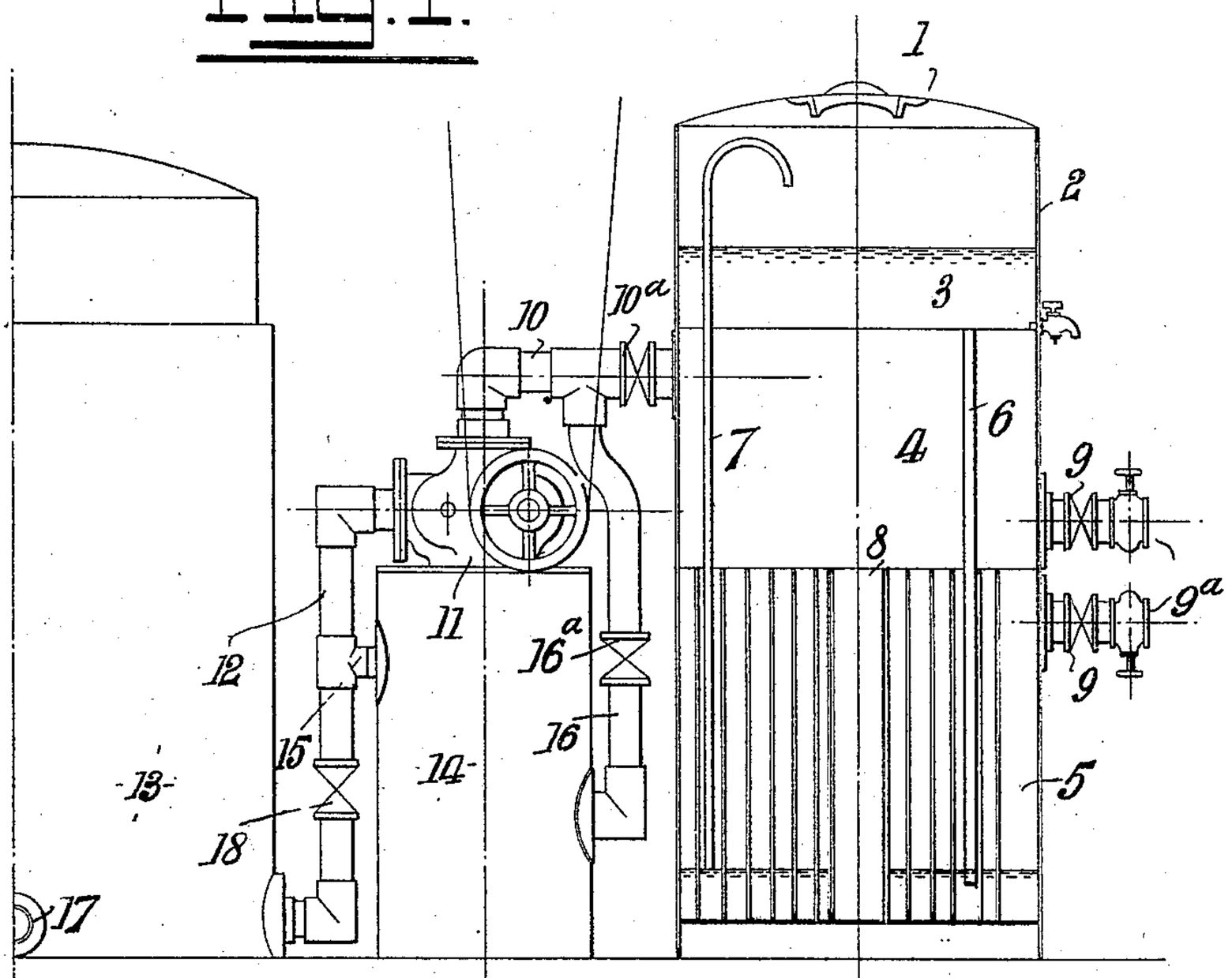
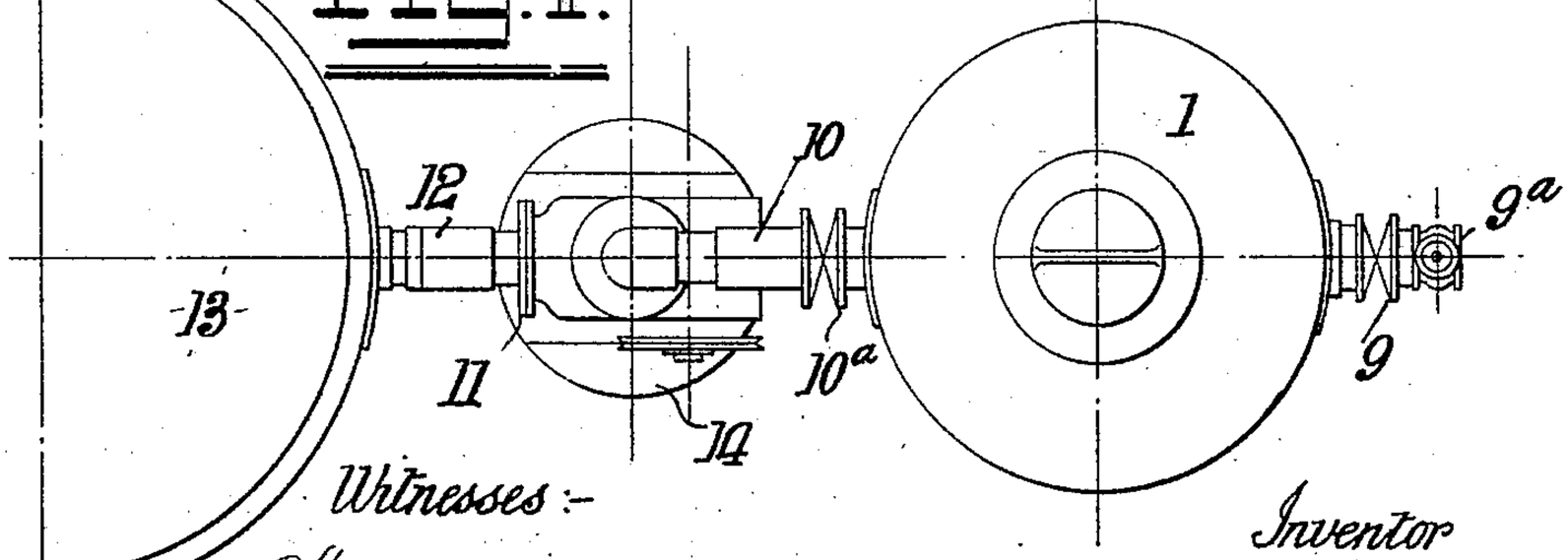


FIG. II.



Witnesses:-

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UNITED STATES PATENT OFFICE.

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HIGH-PRESSURE LIGHTING AND HEATING APPARATUS.

No. 908,402. Specification of Letters Patent. Patented Dec. 29, 1908.

Application filed January 28, 1908. Serial No. 413,079.

To all whom it may concern:

Be it known that I, HERBERT LLOYD FOX, residing at 143 Cannon street, London, E. C., England, have invented certain new and useful Improvements in High-Pressure Lighting and Heating Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in high pressure lighting and heating apparatus and has more particular reference to that class of generator in which petrol, oil, or other volatile hydrocarbon is employed to give a combustible mixture.

The object of this invention is to provide a compact high pressure gas generating and storing plant, that is automatic in action and which will supply a fixed combustible fluid in proportion (within reasonable limit) to the demands made upon it.

To carry my improvements into effect I dispose in suitable positions a petrol supply tank, a carbureter, a mixing chamber and a pressure storing tank the system of generation being to produce a saturated gaseous mixture, and then dilute this with air in the mixing chamber to requirement, drawing the diluted gas by means of a blower or other suction, from the mixing chamber, compressing said diluted gas to any desired point and storing same under pressure for use, the generation of the gas being automatically increased and decreased according to the consumption of that stored in the pressure tank.

I will now proceed to describe my invention more particularly by means of the accompanying drawings in which:—

Figure 1 is a sectional part elevation. Fig. 2 is a plan. Fig. 3 is a detail sectional view of one of the adjustable spring-pressure valves.

In the drawings 1, is preferably a circular tank formed with three divisions in its height the upper chamber 2, containing the petrol, oil, or other volatile hydrocarbon 3. Immediately beneath this compartment is a mixing chamber 4, and beneath this the carbureter 5.

A pipe 6, communicates between the upper petrol chamber 2, and the carbureter 5, for the flow of the petrol to the carbureter. A second communicating pipe 7, formed as shown I employ for the purpose of regulating the quantity of petrol admitted to the carbureter and the height to which the oil or petrol is allowed to accumulate in the carbureter 5. The carbureter may be of any good surface type, where this particular form of construction is utilized; and in such case I prefer to employ the type shown in the drawings in which a metallic spiral baffle is covered with an absorbent blanket or equivalent suitable material. A passage 8, in the top of the carbureting chamber communicates with the mixing chamber. Non-return air valves 9, and control valves 9^a are fitted at suitable positions to communicate with the mixing chamber 4, and upper part of carbureter 5.

A pipe 10, leads from the mixing chamber to the suction inlet of a compressing pump 11, a non-return air valve 10^a, being fitted immediately next to the mixing chamber 4. The pump 11, may be of the rotary blower or Roots type, the discharge pipe 12 from this blower is led into the pressure gas tank 13. Immediately between this pressure gas tank 13, and the chambered tank 1, is the expansion chamber 14.

A pipe 15, communicates with the chamber 14, and the pressure pipe 12, leading from the blower 11, and a pipe 16 communicates between this chamber and the pipe 10. The pipe 16, is fitted with a spring pressure valve 16^a set to be a little above the pressure required in the gas tank. The blower 11, is preferably driven by a hot air engine (not shown) which may be actuated by the gas generated. The pressure chamber 13, is provided with a suitable outlet 17, and a non-return adjustable spring pressure valve 18, adapted to close when the pressure of the gas has reached any desired level, said valve being capable of regulation.

The operation of this form of my invention is as follows:—Upon the pump or blower being started air is drawn into the carbureter, and the carbureted air into the mixing chamber the amount in both cases being regulated by the taps of the valves 9^a, disposed in front of the clapper or non-return valves 9. The carbureted air is now compressed in the blower and passes into the pressure tank through the spring valve 18. When the pressure within the pressure tank has reached the desired amount, the valve closes, and the blower then compresses the gaseous mixture sending it through the pipe

15, into the expansion chamber 14. It issues from this and flows again into the suction inlet of the blower 10, by means of the pipe 16, through the valve 16a, which it opens or in other words, so soon as the pressure tank is full, the surplus gas is compressed and expanded over and over again until the valve leading to the pressure tank reopens to admit a fresh supply.

What I claim is:

The combination, with a carbureter provided with a mixing-chamber for gas and air, of a pump, an inlet-pipe for the mixed gas and air arranged between the said mixing chamber and pump and provided with a non-return valve, a storage-tank, an outlet-pipe arranged between the said pump and tank and provided with an adjustable spring-pressure non-return valve, an expansion-chamber, a pipe connected to the said expansion chamber and to the said outlet-pipe between its non-return valve and the pump, a by-pass pipe connected to the said expansion-chamber and to the said inlet-pipe between its non-return valve and the pump, and an adjustable spring-pressure valve arranged in the said by-pass pipe.

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

HERBERT LLOYD FOX.

Witnesses:
THOMAS BURNETT,
H. D. JAMESON.