No. 757,615. PATENTED APR. 19, 1904.

H. C. HANSON.

GAS GENERATOR.

APPLICATION FILED SEPT. 28, 1903.

NO MODEL.

Fig. 1.

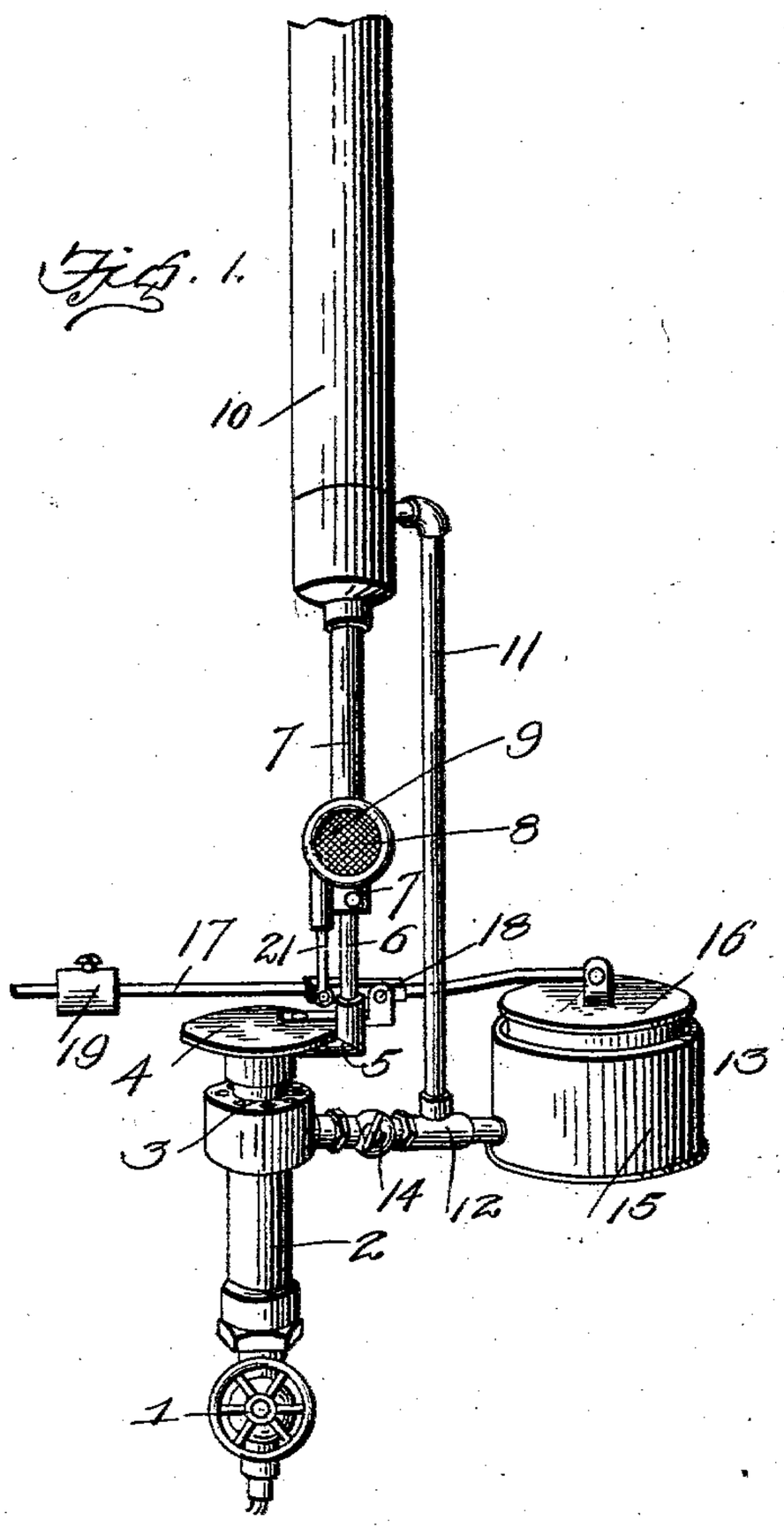


Fig. 2.

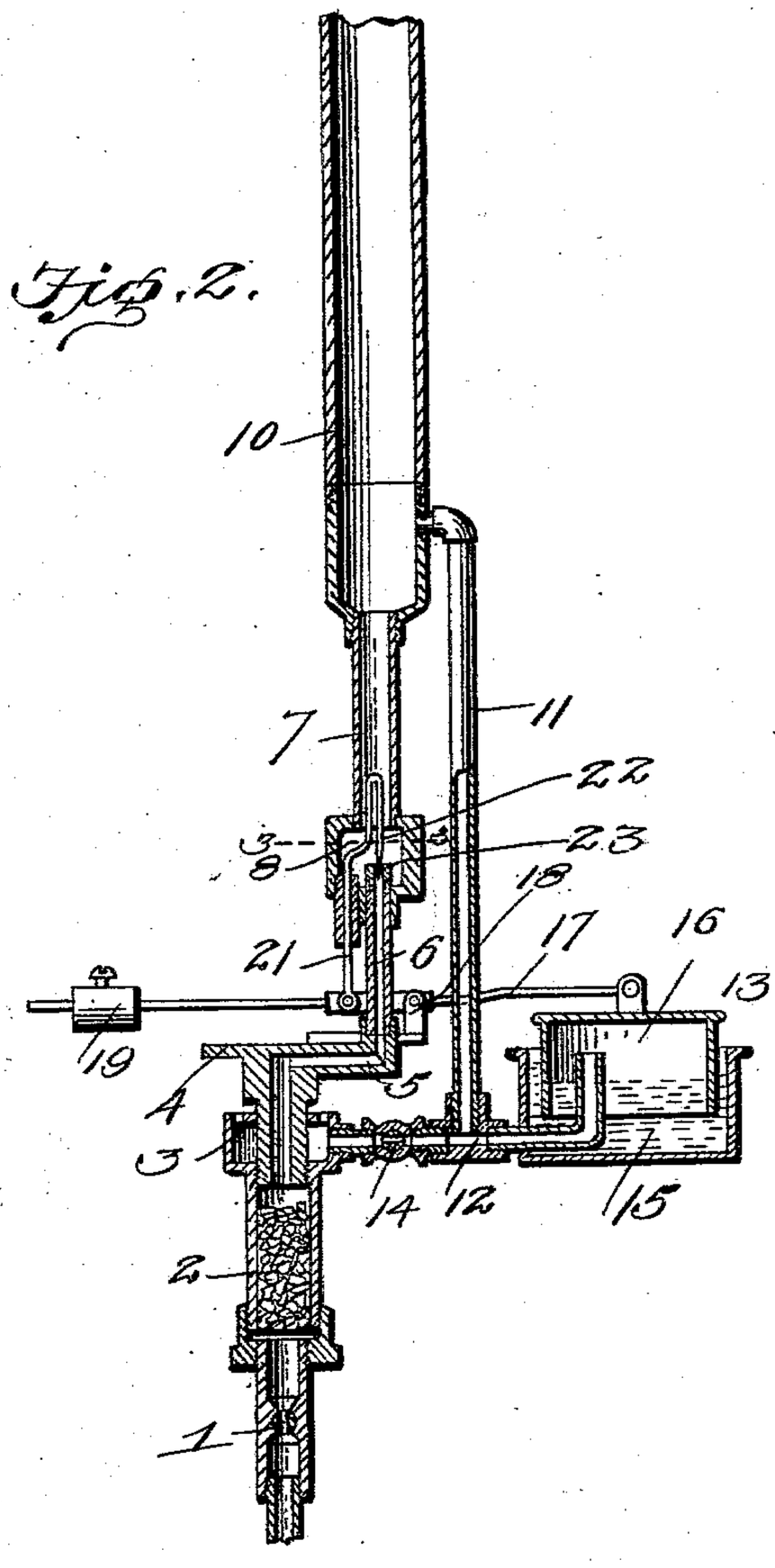
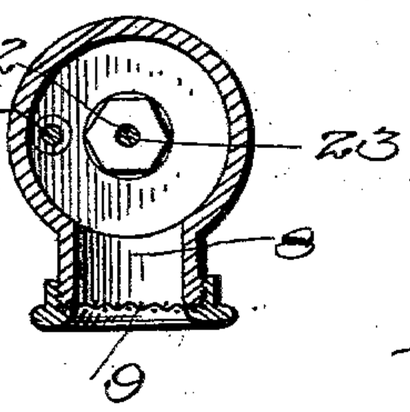


Fig. 3.



Witnesses

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No. 757,615. Patented April 19, 1904.

UNITED STATES PATENT OFFICE.

HANS C. HANSON, OF ALBERT LEA, MINNESOTA, ASSIGNOR TO THE AMERICAN GAS MACHINE COMPANY, OF ALBERT LEA, MINNESOTA.

GAS-GENERATOR.

SPECIFICATION forming part of Letters Patent No. 757,615, dated April 19, 1904.

Application filed September 28, 1903. Serial No. 174,938. (No model.)

To all whom it may concern:

Be it known that I, HANS C. HANSON, a citizen of the United States, residing at Albert Lea, in the State of Minnesota, have invented certain new and useful Improvements in Gas-Generators; and I do 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.

This invention relates to improvements in gas-generators of that kind adapted for generating gas from a hydrocarbon, such as gasolene, for supply to a system of burners for illuminating or other purposes. Its object is to provide a generator which is simple of construction, reliable and efficient in use, comparatively inexpensive of production, and adapted to automatically regulate the pressure.

With these and other objects in view the invention consists of certain novel features of construction, combination, and arrangement of parts, as will be hereinafter more fully described, and particularly pointed out in the appended claim, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of a gas-generator embodying my invention. Fig. 2 is a vertical longitudinal section of the same, and Fig. 3 is a cross-section on line 3 3 of Fig. 2.

In the embodiment of my invention as shown, 1 denotes a feed-valve, to the casing of which a hydrocarbon-supply pipe (not shown) leading from a tank or reservoir is to be connected. This valve is disposed upon the base of an upright generator 2, which consists of a tube containing an absorbent packing of gravel or other suitable heat-conducting material. At its upper end this generator carries a vaporizing-burner 3, over which is arranged a deflecting and heat-accumulating plate 4. The purpose of this plate 4 is to concentrate the heat upon the top portion of the generator, and thereby secure the effective conversion of the hydrocarbon passing through the tube 2 into gas. The upper end of the generator has an offstanding arm 5, in which is a gas-passage, and the outer upwardly-extending portion of this arm forms a socket to receive a gas-conducting pipe 6, which is provided at its upper end with a jet-outlet discharging into a mixing-chamber 8, being provided at one side with a gauze wire or other suitable open-work side 9, which will admit of the inflow of air to commingle with the hydrocarbon gas or vapor in the chamber 8 and tube 7. The tube 7 leads from the chamber 8 to a service-pipe 10, which conveys the gas to the burners or points of consumption.

The vaporizing-burner 3 is supplied with gas through a vertical pipe 11, leading downwardly from the service-pipe 10 and connected at its lower end to a horizontal or cross pipe 12, which is connected at one end to the burner 3 and at the opposite end to the pressure-regulator 13. In the pipe 3 is a valve 14, by which the supply of gas to the burner 3 may be controlled.

The pressure-regulator 13 comprises a water-containing tank 15, open at top to receive a bell or float 16, which raises and lowers under the pressure of the gas. This bell or float is pivotally connected to one end of a lever 17, which is fulcrumed at 18 to a bracket extending from the plate 4 and is provided at its outer or free end with a counterweight 19, adjustably secured thereto by a set-screw 20. Pivotally connected to the lever 17 is a rod 21, which projects upwardly into the air-inlet tube 8 and terminates therein in a downwardly-extending needle-valve 22. This valve controls the port 23 in the upper end of the pipe 6, and thereby regulates the supply of gas to the service-pipe and burners.

In the operation of the device the generator 2 after being preliminarily heated starts the generation of gas, and this gas flows upward into the mixing-tube 7, where it is commingled with air entering through the air-inlet 8, and thence feeds into the service-pipe 10. A portion of the gas flows down from the service-pipe through the pipe 11 and is divided by the pipe 14, a part passing to the burner 3 and a part to the pressure-regulator 13. The gas supplied to the burner 3 is ignited, and the burner is kept in constant operation to heat the generator 2 for the continuous generation of gas. That portion of the gas entering the

regulator 13 acts upon the bell or float 16, according to its force or pressure, and when the pressure is too high closes the needle-valve to reduce or cut off the supply of gas to the burners or if the pressure is too low opens the valve and allows more gas to flow to the burners. When the pressure of gas is too strong, the weight 19 is adjusted farther out on the free end of the lever, and when the pressure is insufficent it is adjusted farther inward toward the fulcrum-point, as will be readily understood. By this means the supply of gas under proper pressure to the service-pipe is effectively governed or controlled and all liability of danger from overpressure avoided.

From the foregoing description, taken in connection with the accompanying drawings, the construction, operation, and advantages of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

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

In a gas-generator, the combination of an upright generator provided at its upper end with a burner and a deflecting-plate above the burner, a mixing-chamber above the deflecting-plate, a vapor-conducting tube leading from the generator to the mixing-chamber and provided with a jet-outlet discharging into said chamber, a service-pipe arranged above the mixing-chamber and adapted to receive the commingled vapor and air therefrom, a pressure-regulator arranged at one side of the generator and having a movable element operated by gas-pressure, a pipe leading therefrom to the vaporizing-burner, a pipe leading from said pipe to the service-pipe to supply the vaporizing-burner and generator with gas from said service-pipe, a needle-valve adapted to be operated to close the jet-outlet upon an excess of pressure in the service-pipe, and a lever fulcrumed to the generator and connected on opposite sides of its fulcrum to the valve and movable element of the pressure-regulator, and adapted to be rocked by said regulator to operate the valve to open or close the jet-outlet, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

HANS C. HANSON.

Witnesses:
C. B. KELLAR,
H. E. KELLAR.