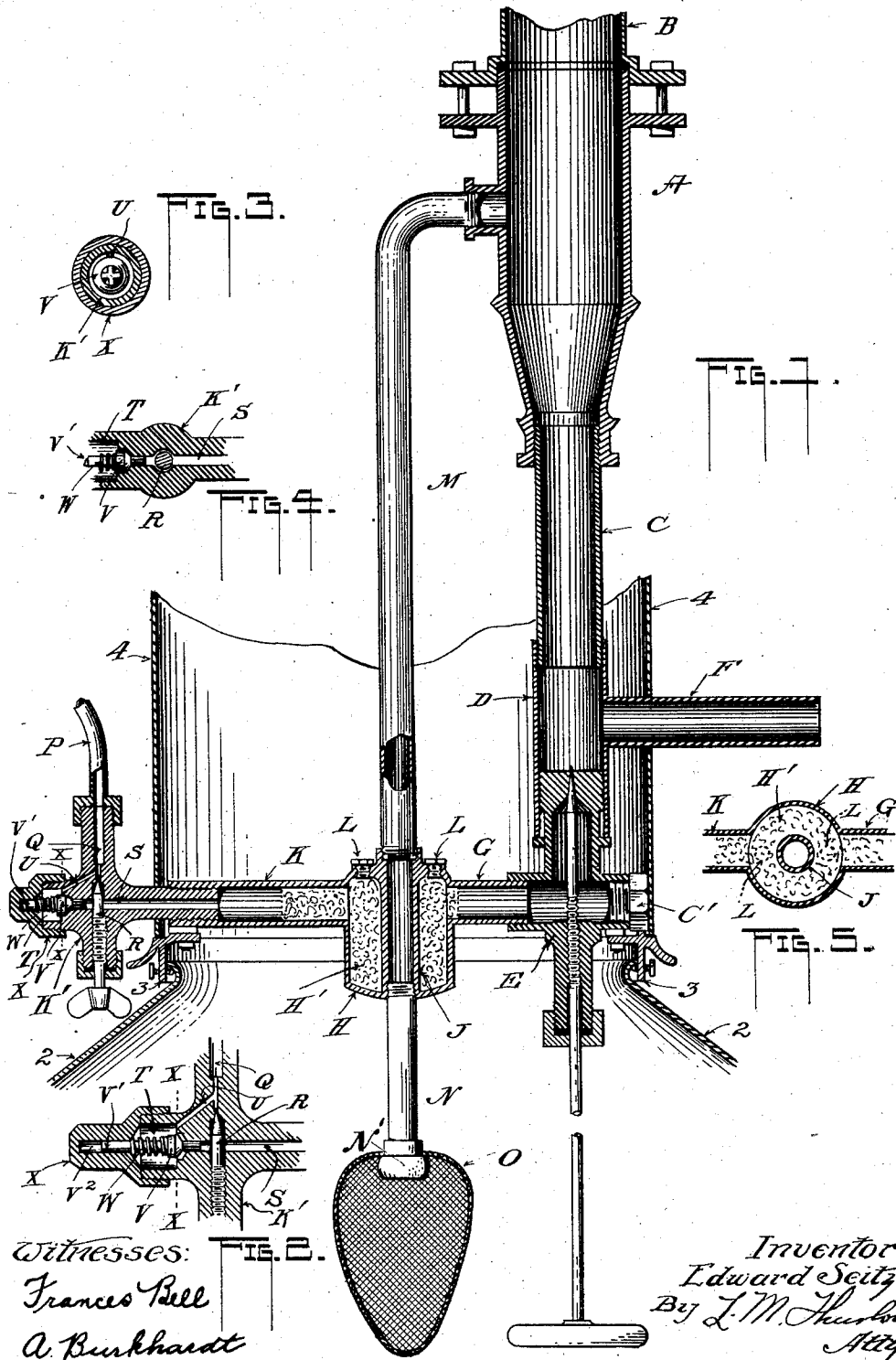


E. SEITZ.
VAPOR LAMP.

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1,044,267.

Patented Nov. 12, 1912.



Witnesses: **FIG. 2.**
Francis Bell
A. Burkhardt

Inventor:
Edward Seitz,
By L. M. Hurlock
Atty.

UNITED STATES PATENT OFFICE.

EDWARD SEITZ, OF PEORIA, ILLINOIS.

VAPOR-LAMP.

1,044,267.

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To all whom it may concern:

Be it known that I, EDWARD SEITZ, a citizen of the United States, residing at Peoria, in the county of Peoria and State of Illinois, have invented certain new and useful Improvements in Vapor-Lamps; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to gasolene-vapor lighting-systems and pertains to a lamp and generator therefor.

It relates more particularly to a new form of generator for producing a combustible vapor and to an automatic relief valve in connection therewith.

The main object herein is to provide for the generator of a vapor lamp, or for the vapor generator, an automatic relief device for the escape of an excess pressure of vapor in such generator and especially at such times as the vapor outlet valve and the fluid supply valve are closed such as to retain said pressure within the generator. The result of this high pressure if not relieved, is to break the generator thus rendering it unfit for further use and such other objects will appear herein with reference to this automatic feature as will make its value understood.

Another object is to provide a vapor lighting system in which a lamp that is used for lighting purposes also produces vapor for other lamps, that is to say, instead of providing merely a vapor-generating machine as in some of the older methods, which gives no light, my system includes an actual light producing lamp, that may be placed where desired, which produces vapor for the other lamps of the system.

Another object of my invention is to produce a new structure for a generator.

Figure 1 is a vertical section of a lamp showing my invention. Fig. 2 is a longitudinal section of an automatic relief valve shown in Fig. 1. Fig. 3 is a transverse section of a part of the same on line *x x* Fig. 2. Fig. 4 is a horizontal section of the relief valve shown in the first two figures. Fig. 5 is a horizontal section of a generator.

Since a system of conveying vapor to a series of lamps from a central source of vapor is well known, I shall not draw par-

ticular attention to the same herein but merely refer to such parts as may be necessary to explain the invention now under consideration.

A is a conduit for receiving vapor and for conveying it to a pipe B which supplies the lamps of the system. Suitably suspended from the lower extremity of the said pipe A by means of pipe sections C and D is a needle valve E which discharges vapor into said pipe A through said pipes C, D there being an air intake pipe section at F connected into the section D the purpose of which is well known. Secured into one side of the body of the valve body E is a horizontal tubular extension G of a generator which consists of a retort or pot H of a hollow cylindrical form having a central vertical tubular portion J opening entirely through it; said retort or pot H having an extension K opening into it opposite the portion G already described. The generator is filled with a non-combustible straining material H' such for instance as asbestos as used in many lamps of this class there being two threaded plugs L in the top thereof through which the said filling can be inserted and through which said generator may be cleaned, from time to time as occasion may demand. Opening into one side of the pipe A is a pipe M whose lower end is threaded and screwed into the top of the generator H to communicate with the central tubular portion J of the latter. Screwed in the bottom of the retort and also communicating with the member J is a tube N carrying at its lower end a burner N' and the usual mantle O. The extension K of the generator receives a threaded extension of a valve K' to receive a supply of gasolene which enters the latter through a feed pipe P. The fluid enters a passage Q controlled by the needle R.

S indicates a passage in the valve which communicates with the passage Q through which the fluid passes to the generator which upon entering the latter is heated by the mantle O or, when the lamp is first started, by means of a suitable torch as is well understood. The fluid upon becoming vaporized passes into the needle valve E and thence up into the pipe A to the pipe system to supply the lamps, part of said vapor being divided and forced into and down through the pipe N through the por-

tion J of the generator to the mantle. While generators are common for this purpose the one which I illustrate herein I regard as new in form and very efficient because of its peculiar construction and large heating surface. It entirely surrounds the conduit J through which the vapor passes, so that its heat will raise the temperature of the vapor to a very high degree before passing to the mantle. The generator being of a large size provides for a large heating surface so that any reasonable amount of fluid that is supplied thereto is readily and quickly vaporized and it is practically impossible for any fluid to pass into or through the needle valve E. This form of generator I believe to be novel since it can be readily cleaned by an inexperienced person after removing the plug L. In connection with this feature also the valve K' can be unscrewed and removed from the extension K and a threaded plug C' screwed into the needle valve E may be removed so that the generator can be reached from each side through the extensions K and G thereof for cleaning purposes.

In the present invention I have provided an automatic relief valve for permitting escape of heavy pressure from the generator and this will now be described. While the lamp is in operation if the needle valve is closed when it is desired to interrupt the flow of vapor to the lamp circuit to extinguish the lights the great heat resident in the generator will vaporize the fluid as long as any of the latter is present therein and necessarily if the valve R is closed the pressure of the vapor will run very high often reaching a pressure of several hundred pounds. The extreme pressure having no way of escape results in very often breaking the generator and in view of this it has been my purpose to provide the automatic relief mentioned. The passage S in the valve body K' is extended beyond the stem or needle R and terminates in a cavity T of said body K'. A passage U connects said recess with the inlet passage Q above the needle substantially as shown and constitutes a by-pass. The extremity of the said passage S when it enters the said cavity T is recessed to receive what I shall term a check valve V which is held by means of a spring W which surrounds the stem V'. This spring bears at one end against the head of the said valve and at the other against a cap X covering the valve-body K'. The valve-stem lies within a socket V² of said cap and its opposite end lies in the passage S and as shown in Fig. 3 is given a form that while centralizing the said check valve will permit the passage of the vapor therealong into the cavity T. The passage Q is enlarged around the valve stem R as shown in horizontal section in Fig. 4 so that the vapor can pass

around said stem and reach said check valve V. Now, although the valves E and R are closed the pressure from the generator will be relieved when sufficient to move the valve V against its spring. The vapor then passes the valve and enters the cavity T through the passage S and by-pass U into the fluid passage Q to any escape provided for it. While I have shown this form of check valve I may use other forms that will provide for the desired result. In extinguishing the lights of the system it is necessary rather than merely to stop the fluid supply to the generator, and let the vapor gradually burn out at the mantle of the lamps, to stop the flow of vapor at once and entirely by closing the valve E. If the vapor is permitted to gradually lessen and the light to gradually "go out" the mixture of air with the vapor entering the pipe through a defective mantle causes an explosion which ruptures all the mantles of the system. The valve R cannot be left open since the generator would be filled with fluid which would cause trouble at the time the lamps are again lighted. The necessity for some form of relief is therefore evident.

My device as distinguished from the objects of others of its class provides for relieving pressure of vapor in the generator when the valves are closed so that the imprisoned vapor which, as before stated, in reaching a high pressure often cracks said generator, is allowed to return to the reservoir of the pipe system leading therefrom. Since the valve controlling the vapor passing toward the lamp system is closed for the purpose stated and the valve in control of the fluid must be closed when extinguishing the lights the vapor must of necessity be allowed to escape.

I have provided the usual shade for the lamp which is indicated at 2. This is supported from a ring 3 hung in any good manner from the generator extensions K—G and mounted upon this ring 3 is a casing 4 to inclose the lamp and give it a presentable appearance.

My system besides the structures mentioned is novel in that, as pointed out in the objects, a lamp for producing light is used as a generator for the series of lamps of the system, as distinguished from a system wherein the machine commonly employed for generating vapor provides no light at all and occupies considerable space. My combined distributing generator and lamp may be suspended in any room for lighting purposes out of the way and serves a double purpose.

Having pointed out the important features of the invention, I claim:—

1. In a gasolene-vapor lighting apparatus the combination with a vapor-generator, of a gasolene conduit leading into the same and

having a branch entering at its side, a valve smaller in diameter than the diameter of the conduit and extending across and through it adapted to close the opening of the branch, the said conduit extending beyond the valve, there being a separate passage connected with the extended end of the conduit and connected also with the branch of the latter and in permanent communication with the generator past the valve, and a check valve in said extended end.

2. In a lighting apparatus the combination of a vapor generator having a conduit extending therefrom, a valve in said conduit, there being an extension of said conduit beyond said valve, the same having an open end, a recessed device removably secured at the said open end, a valve in said device, and a spring to close said valve upon the open end of the extension of the conduit, there being a second extension of the conduit disposed substantially at right angles to and connected with it and controlled by the first named valve, there being a passage communicating at one end with the last named extension of the conduit outside the valve, its other end terminating in the recess of the said device.

3. In a vapor lamp, the combination of a vapor generator comprising a member provided with a cavity and including a central tubular portion whose passage opens entirely through said member at two sides, said generator including two tubular extensions communicating with the said cavity, a valve in control of one of the extensions, a conductor for vapor connected with the other extension, a valve in control of the conductor, a pipe connecting the conductor and the central tubular portion of the generator, and a burner connected to the other end of the said central tubular portion.

4. The combination in a vapor lamp, of a vapor generator consisting of a hollow ring providing a closed annular chamber and an open central passage, a fluid supply pipe connected into the chamber, a vapor conduit leading from such chamber and extending away from the lamp, a second vapor conduit connected at one end with the first said conduit its other end communicating with the central passage of the ring for carrying vapor through said ring, and a burner

beneath the generator supplied with vapor from said second conduit.

5. The combination in a vapor lamp, of a vapor generator comprising a closed vessel capable of withstanding high internal pressure, a conduit leading into said vessel for conveying a hydrocarbon fluid thereto, a second conduit for vapor leading away from said vessel, a valve in the first named conduit, a central passage extending through the vessel and separated from its interior by a wall, a third conduit connected with the said second conduit and with the said central passage, a burner connected with said passage, and a pressure relief device independent of the valve for relieving an excess of pressure formed in said generator.

6. The combination with a vapor lamp system of a generator for vapor, a conduit to convey gasoline to the generator, a valve therein, a burner to heat the generator, there being a central passage extending through the said generator and in communication with the burner, a vapor conduit leading from the generator, a valve in said conduit to govern the discharge of vapor, and a conduit beyond the last named valve connecting the vapor conduit with the said central passage.

7. The combination with a vapor lamp system, of a vapor generator, a burner for heating the same, there being a central passage extending through the said generator and in communication with the burner, a conduit connected to the generator, a valve therein to admit fluid to said generator, a second conduit leading from the generator to the lamp system, a valve therein to govern the discharge of vapor from said generator to the said lamp system, a third conduit connecting the second described conduit with the central passage of the generator, a filling material in the interior of said generator, there being an opening in the wall of the generator to communicate with said interior, and a closure for tightly and permanently closing said opening.

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

EDWARD SEITZ.

Witnesses:

L. M. THURLOW,
A. KEITHLEY.