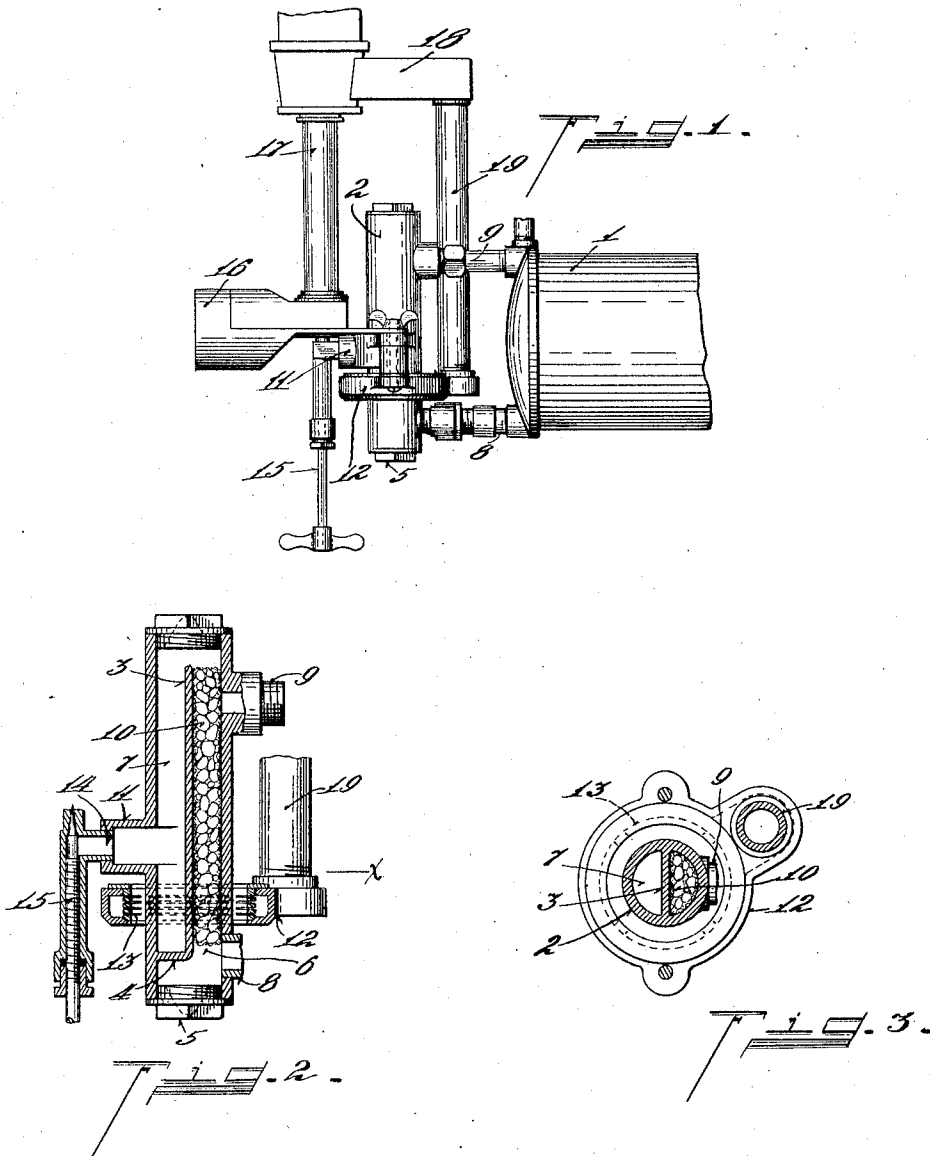


G. T. ROSSELLE.
 GENERATOR FOR HYDROCARBON SYSTEMS.
 APPLICATION FILED OCT. 17, 1910.

1,002,871.

Patented Sept. 12, 1911.



Inventor

George T. Roselle

Witnesses

Emma Spener

C. B. Foster

By

Wood & Wood

Attorneys

UNITED STATES PATENT OFFICE.

GEORGE T. ROSSELLE, OF NEWPORT, KENTUCKY, ASSIGNOR TO THE INCANDESCENT LIGHT & STOVE COMPANY, OF CINCINNATI, OHIO, A CORPORATION OF OHIO.

GENERATOR FOR HYDROCARBON SYSTEMS.

1,002,871.

Specification of Letters Patent.

Patented Sept. 12, 1911.

Application filed October 17, 1910. Serial No. 587,599.

To all whom it may concern:

Be it known that I, GEORGE T. ROSSELLE, a citizen of the United States, residing at Newport, in the county of Campbell and State of Kentucky, have invented certain new and useful Improvements in Generators for Hydrocarbon Systems, of which the following is a specification.

My invention relates to an improvement in hydrocarbon vapor generators.

One of the objects of the invention is to provide means for super-heating the vapor before it enters the needle valve, the super-heating chamber and its relation to the generator proper being such that the deposit of carbon will not clog any of the passages through which the vapor passes to the needle valve.

Another object of the invention is to provide means for preventing the liquid hydrocarbon from boiling over from the generator into the super-heating chamber.

Another object of the invention is to produce a simple, cheap, compact and efficient combined generator and super-heating chamber.

Another object of the invention is to provide means for uniformly heating the walls of both generator and super-heating chamber.

Another object of this invention is to produce a combined generator and super-heating chamber, of such construction and arrangement, relative to one another and to the sub-burner, that the vapor will be uniformly super-heated, irrespective of the quantity being generated.

The features of my invention will be more particularly set forth in the description of the accompanying drawing, forming a part of this specification, in which:—

Figure 1 is a side elevation of my improvement. Fig. 2 is a central vertical section through the combined generator and super-heating chamber. Fig. 3 is a section on line *x*, Fig. 2.

1 indicates the liquid hydro-carbon tank.

2 represents the casting containing the generating and super-heating chamber.

Within said casting 2 is a vertical partition 3, having a horizontal floor 4, connected to one of the side walls of the casting 2, at a point slightly above the bottom of the casting 2. Preferably, the bottom has a screw threaded plug 5, engaging into the lower

end of the casting 2 and forming the lower end of the generating compartment. This partition 3 extends upwardly to a position near the upper end of the casting 2, terminating at a point above the highest liquid level of the hydro-carbon in the generating compartment. Thus, the said partition 3 defines, within the chamber or casting 2, a generating compartment 6, and a super-heating compartment 7, separated at their lower ends and in free communication at their upper ends.

8, 9, represent pipes connecting the top and bottom respectively of the liquid tank 1 and the generating compartment 6. Preferably, that portion of the generator 6, which lies above the pipe 8, is filled with a granular packing 10, preferably gravel, the function of which is to elevate the liquid hydrocarbon in the generator in a diffuse condition, and I have found that this arrangement prevents the liquid hydro-carbon from boiling over into the vapor super-heating chamber. Preferably, the casting 2 is formed with a horizontal extension 11, forming a part of the super-heating chamber 7, and positioned at the lower portion of the casting 2.

12 represents an annular sub-burner surrounding the chamber 2 at a position just under the horizontal extension 11. This sub-burner has the horizontal jets 13, which cause the generating flame to impinge substantially perpendicularly against the walls of the casting 2, thus serving to uniformly heat both the generating and super-heating compartments, irrespective of the size of the sub-burner flame. The generating and super-heating compartments, preferably have the same cross sectional area, and the heating surfaces of said compartments are of predetermined proportional area. It will thus be seen that the sub-burner is positioned just under the vapor outlet 14, leading from the super-heating compartment to the needle valve 15, so that the super-heating and generating compartments extend downwardly to a point somewhat below the plane of the sub-burner. Thus, the sub-burner not only heats the liquid hydro-carbon at a point where it is held by the filling 10, above the pipe 8, but it super-heats the vapor at a point below the horizontal plane of outlet 14, where the vapor enters the needle valve. The carbon which will be deposited at the

point where the highest degree of heat is applied, will adhere to those portions of the walls of the superheating chamber 7, which lie below the vapor outlet 14, so that with this construction and arrangement it is impossible to clog or impede any portion of the structure through which the vapor must pass from the generator into the needle valve.

16 represents the air mixer cooperating with the needle valve 15.

17 represents the service-pipe into which the vapor and air are entrained.

18, 19, represent pipes leading from the service-pipe to the sub-burner 12, for supplying the latter. The top and bottom connection of the generator and tank is important, as it equalizes the vapor pressure above the liquid level, and prevents the gasoline from being forced back into the tank, when the generator is heated, or into the super-heater when the sub-burner is shut off.

The simplicity, compactness, efficiency and new and useful functions of this combined generator and super-heating chamber, will be fully understood by those skilled in the art from the above disclosure. By this partition two compartments are formed lying upon each side of the chamber, so that their walls are in common, thus the flame of the annular sub-burner plays directly upon the exterior wall of both the generating and the super-heating compartments so that they are proportionately heated in the ratio of the area of the wall directly subjected to the sub-burner flame.

Having described my invention, I claim:

1. In a device of the class described, a chamber divided by a partition into two vertical compartments communicating at the top, a liquid hydro-carbon supply to one of said compartments, a vapor outlet from the other compartment, and a sub-burner surrounding the lower portion of said chamber at a point below the vapor outlet.

2. In a device of the class described, a chamber formed with two vertical compartments, communicating at the top, a liquid hydro-carbon supply to one of said compartments, a vapor outlet from the other compartment, and an annular sub-burner surrounding said chamber at a point below the vapor outlet, the lower extremities of said compartments extending to a point below the flame of the sub-burner.

3. In a device of the class described, a chamber formed with a generating and a

super-heating compartment communicating at the top and inclosed by the walls of said chamber, a liquid hydro-carbon supply to the generating compartment, a vapor outlet from the super-heating compartment, positioned above the bottom thereof, and a sub-burner positioned between the bottom of said compartment and said vapor outlet.

4. In a device of the class described, a chamber formed with a generating and a super-heating compartment communicating at the top, a liquid hydro-carbon supply at the lower end of said generating compartment, a sub-burner at the lower end of said generating and super-heating compartments, a liquid holding filler in said generating compartment, and a vapor outlet from the super-heating compartment positioned above the sub-burner.

5. In a device of the class described, a chamber formed with a generating and a vapor super-heating compartment communicating at the top, a liquid hydro-carbon tank communicating at the top and bottom with the generator, a sub-burner for the said chamber, and a vapor outlet in the super-heating compartment adjacent the sub-burner.

6. In a device of the class described, a chamber, a partition dividing the same into generating and superheating compartments, a filler in the generator compartment, a vapor outlet from the super-heating compartment, a sub-burner for heating the walls of both compartments, a liquid hydro-carbon tank communicating at the bottom with the generator compartment, and a vapor conduit connecting the upper portions of said tank and chamber.

7. In a device of the class described, a chamber, a partition therein forming compartments on each side of the chamber communicating at the top, a sub-burner for heating the walls of said chamber whereby each compartment is directly subjected to the influence of the flame, and a liquid hydro-carbon tank having a bottom communication with one of said compartments, and a top vapor communication with the said chamber at a point above the liquid level therein.

In testimony whereof, I have hereunto set my hand.

GEO. T. ROSSELLE.

Witnesses:

EMMA SPENER,
LOUISE BECK.