

J. D. SAUL.
FUEL GENERATOR FOR EXPLOSIVE ENGINES.
APPLICATION FILED MAY 10, 1916.

1,292,653.

Patented Jan. 28, 1919.

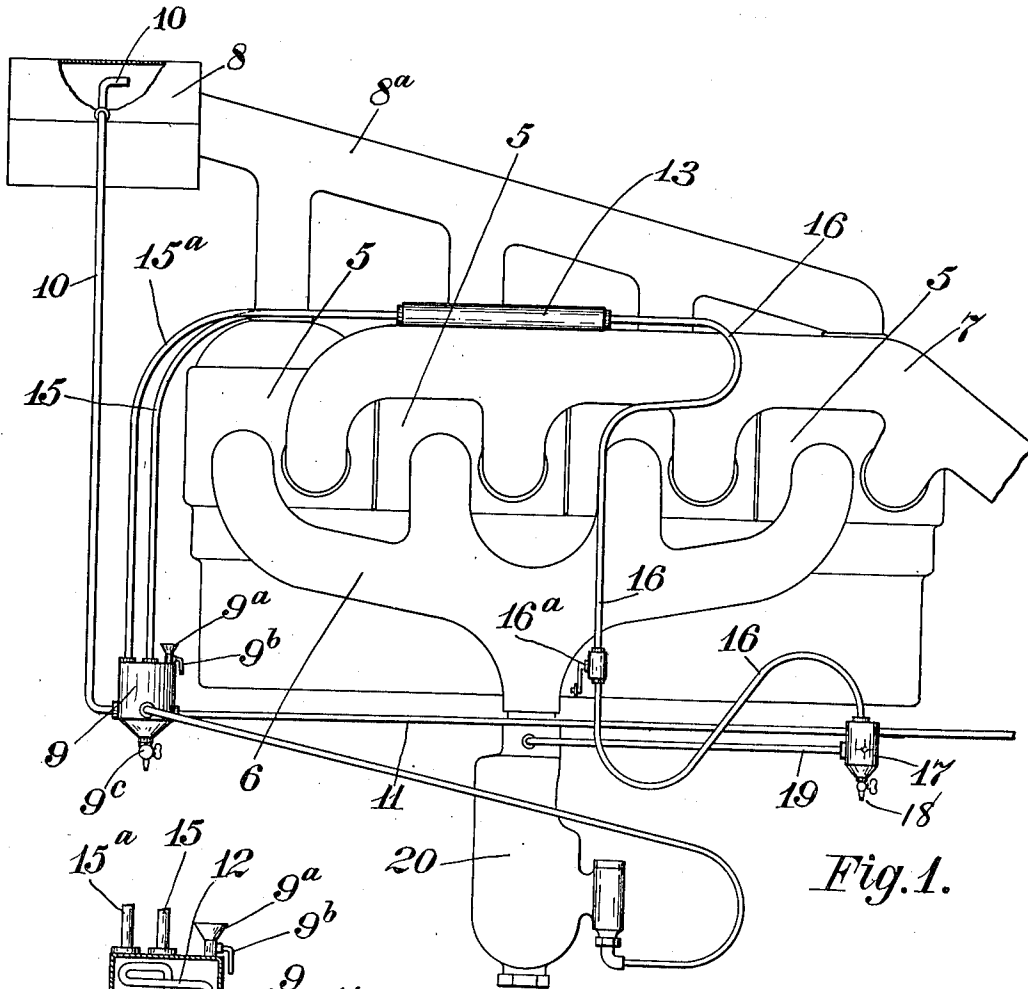


Fig. 1.

Fig. 2.

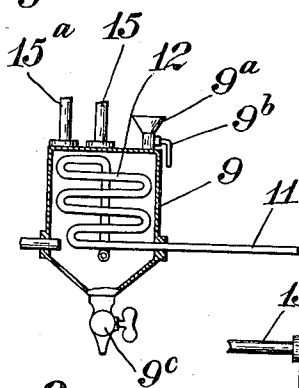


Fig. 3.

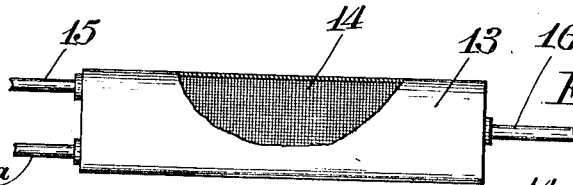
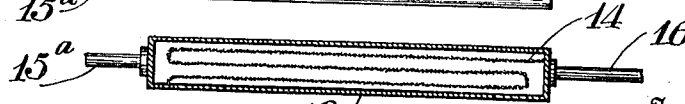


Fig. 4.



Witnesses
Burr Finkel

Inventor
Jerome D. Saul
By Finkel Finkel
his Attorneys

UNITED STATES PATENT OFFICE.

JEROME D. SAUL, OF COLUMBUS, OHIO.

FUEL-GENERATOR FOR EXPLOSIVE-ENGINES.

1,292,653.

Specification of Letters Patent.

Patented Jan. 28, 1919.

Application filed May 10, 1916. Serial No. 96,722.

To all whom it may concern:

Be it known that I, JEROME D. SAUL, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented a certain new and useful Improvement in Fuel-Generators for Explosive-Engines, of which the following is a specification.

One of the principal objects of this invention is to effect an economy in the consumption of gasolene as the motive agent of explosive engines and the invention is embodied in the improved means—such as herein particularly described—whereby the vapor of a cheaper hydrocarbon, kerosene for example may be mixed or combined with the vapor of gasolene to form an efficient and satisfactory explosive agent for driving the engine.

The invention also embraces such other features as are herein set forth and claimed and not specifically referred to in the foregoing statement.

In the accompanying drawing forming a part hereof:—

Figure 1 is a view in side elevation showing an automobile engine equipped with the means according to my invention.

Fig. 2 is a detail in vertical section of the kerosene and lubricating oil vaporizer and gasolene heater.

Fig. 3 is a plan view partially in section of a supplemental heater for the kerosene and oil vapors.

Fig. 4 is a longitudinal vertical section of the device shown in Fig. 3.

The engine illustrated in Fig. 1 is that currently employed in the "Overland" automobile and the character 5 designates the cylinders of the engine. 6 designates the intake manifold and 7 the exhaust manifold. The radiator is designated 8 and the water inlet manifold 8^a. The carbureter is designated 20.

9 designates an inclosed vessel or chamber. 10 designates a pipe, one end of which is located within the water chamber of the radiator above the water line thereof, the other end of said pipe opening into the vessel 9 so that steam or steam and hot air can be drawn into said chamber from the radiator.

Extending through said chamber is the gasolene supply pipe or line 11. Within said chamber 9 the gasolene line is formed as a coil 12, the gasolene line being connected, as usual, with the carbureter beyond the

coil 12. The gasolene is thus heated by the coil before entering the carbureter.

Resting on the upper side of the exhaust manifold is a flat chamber 13 containing a wire screen 14 of fine mesh, said screen being bent back and forth so as to afford an extensive area for the impingement of the vapors. Extending from the upper end of the vessel 9 are two pipes 15, 15^a, leading into one end of the chamber 13; and extending from the opposite end of the chamber 13 is a pipe 16 leading to a small mixing chamber 17 that can contain a mixing wheel (not shown) actuated by the flow of gas there-through. The chamber 17 has a very small air inlet controlled and regulated by cock 18. From the chamber 17 extends a pipe 19 connected with the carbureter near its connection with the inlet gas manifold and above the point where the air and gasolene are mixed.

The vessel 9 is provided at its top with a charging inlet 9^a controlled by a valve 9^b; and said vessel at its lower end is provided with a draining cock 9^c.

The pipe 16 has a controlling valve 16^a actuated by any suitable and well understood means (not shown) to enlarge the passage when the spark is advanced.

In practice the vessel 9 is supplied with a mixture consisting of equal portions by volume of lubricating oil and kerosene or similar cheap hydrocarbon. With the engine referred to about a half pint of each is originally supplied. The engine is first started and run, as usual, substantially on gasolene alone or until the water in the radiator or the air within the engine hood becomes sufficiently hot to cause necessary evaporation of the kerosene in the vessel 9, after which the valve 16^a is opened to freely permit the passage of the evaporated kerosene to the intake manifold through the pipes 15, 15^a, or either of them, the chamber 13, and pipes 16 and 19.

More or less of the lubricating oil is evaporated or mechanically carried over and it lubricates the cylinders. It may also be that the vapor of the lubricating oil performs some other or different function. More or less of the water is also carried into the mixture of kerosene and oil vapor and this also may perform some useful function. The chamber 13 with its screen serves, as I understand it, to maintain, or increase, the heat of the vapors and to comminute

and mix them. The small quantity of air admitted to the mixing chamber 17 I find aids in promoting the explosive character of the kerosene without materially reducing its temperature. After the water of the radiator has been thoroughly warmed the engine is run with the air inlet of the carbureter fully open.

With this apparatus and process I have obtained a mileage of approximately twenty four miles to the gallon of gasolene whereas with gasolene alone in the same engine and load I obtain but approximately from twelve to fifteen miles per gallon.

What I claim is:

1. In combination with an explosive engine including a radiator, means for introducing a hydrocarbon fuel supply of low flashing point, and means for introducing into such supply fuel vapor of a hydrocarbon of high flashing point consisting of a vessel to receive the last named hydrocarbon and means for heating the same with vapor from the radiator.

2. In combination with an explosive engine including a radiator, means for introducing a hydrocarbon fuel supply of low flashing point, and means for introducing into such supply fuel vapor of a hydrocar-

bon of high flashing point consisting of a vessel to receive the last named hydrocarbon and means for heating the same with vapor from the radiator and means for reheating the same by the engine prior to its introduction into the fuel supply of low flashing point.

3. In combination with an explosive engine including a radiator, means for introducing a hydrocarbon fuel supply of low flashing point, and means for introducing into such supply the vapor of a hydrocarbon of high flashing point consisting of a vessel to receive the last named hydrocarbon, means to heat the last named supply with vapor from the radiator and means including a chamber adjacent the engine provided with a screen for reheating the same prior to its introduction into the fuel supply of low flashing point.

4. In combination with an explosive engine including a radiator, means for introducing a hydrocarbon fuel supply of low flashing point, and means for introducing into said fuel fuel vapor of hydrocarbon of high flashing point and the vapor of water from the radiator, substantially as described.

JEROME D. SAUL.