Aug. 14, 1928. 1,680,537

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SALVAGE GAS GENERATOR FOR INTERNAL COMBUSTION ENGINES

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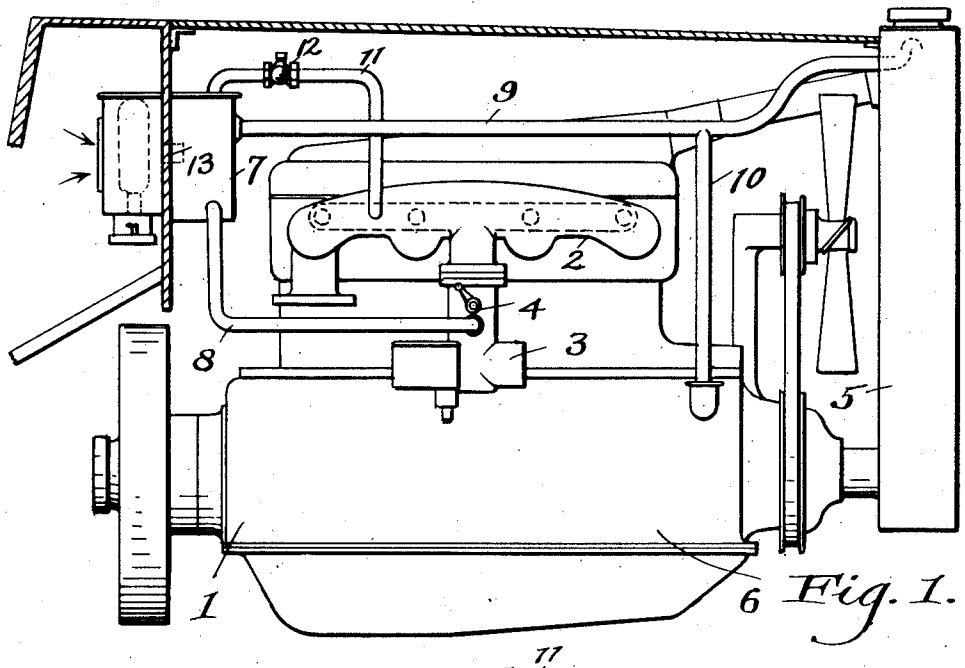


Fig. 1.

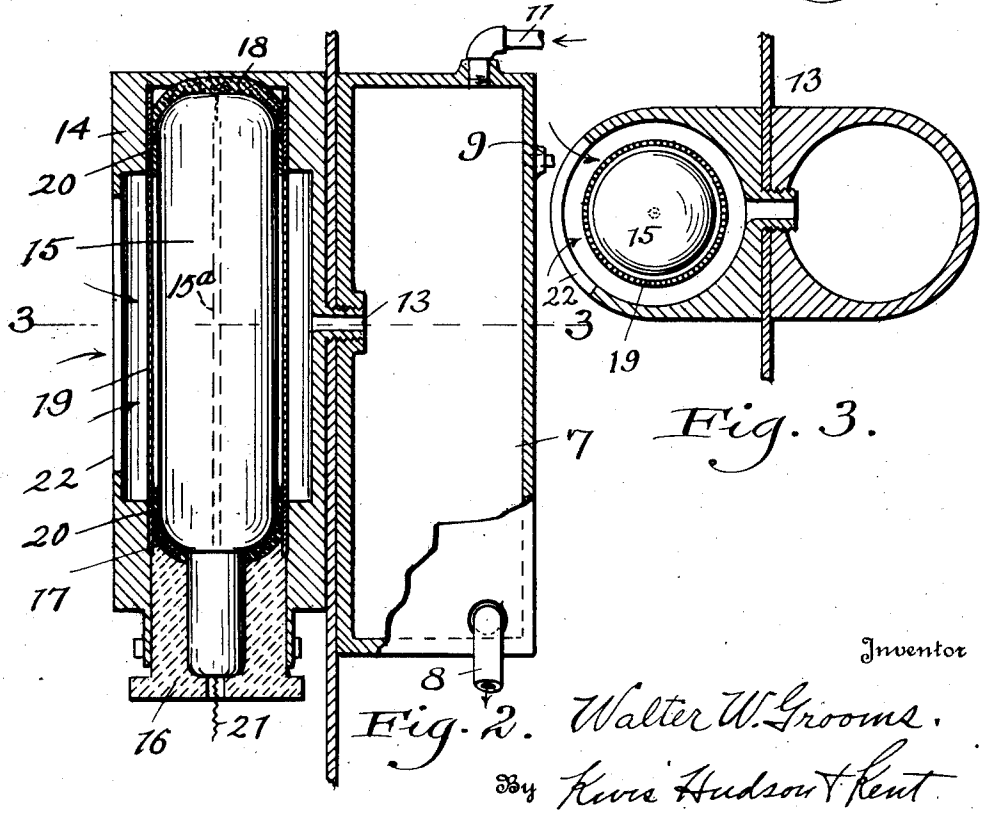


Fig. 3.

Fig. 2.

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SALVAGE GAS GENERATOR FOR INTERNAL-COMBUSTION ENGINES.

Application filed June 22, 1925. Serial No. 38,614.

The present invention relates to a salvage gas generator for internal combustion engines, and has for its object to provide means for producing and delivering to the engine a gaseous fuel mixture of superior quality with the result that the amount of fuel consumed is reduced and the deposit of carbon within the cylinders and on the spark plugs is practically eliminated.

A further object is to provide means for incorporating the vapors from the engine crank case in the gaseous mixture delivered to the engine inlet.

A further object is to add moisture to the air passing through the carbureter by mixing the same with water vapor from the engine water cooling system.

A further object is to deliver a mixture of air and other gases or vapors to the carbureter in which a substantial portion of oxygen of the air has been converted into ozone.

A further object is to dilute and heat the gaseous mixture delivered to the carbureter by mixing part of the exhaust gases from the exhaust manifold of the engine.

The following description and accompanying drawings set forth in detail certain means embodying the invention, the disclosed means, however, embodying but one of the various mechanical forms in which the principle of the invention may be employed.

Reference should be had to the accompanying drawings forming a part of this specification in which Fig. 1 is a side elevation of the engine and the gas generator attachment; Fig. 2 is a vertical section centrally through the gas mixing chamber and the ozonizer; Fig. 3 is a section taken on line 3—3 of Fig. 2.

The accompanying drawings show an internal combustion engine 1 such as employed for driving an automobile. The engine 1 is provided with the usual inlet and exhaust manifolds, the inlet manifold being within the exhaust manifold 2 being connected to a carburetor 3 and communication between the carbureter 3 and inlet manifold being controlled by the usual throttle valve 4. The engine 1 is provided with the usual water cooling system which includes the radiator 5 and has the usual crank case 6 which contains oil for lubricating the pistons, connecting rods and crank shaft.

The present invention consists of devices for delivering a gaseous mixture to the carbureter and the gases and vapors making up the mixture are delivered to the carbureter from mixing chamber 7 which may be secured to the dash in front of the instrument board. The chamber 7 communicates with the carbureter 3 below the throttle valve 4 through a pipe 8 and is also connected to the radiator 5 and crank case 6 through a pipe 9 which extends from the casing 7 into the upper portion of the radiator 5 and a branch pipe 10 which extends from the pipe 9 to the crank case 6. The casing 7 also communicates with the exhaust manifold 2 of the engine through a pipe 11 which may be provided with a regulating valve 12, the setting of which determines the amount of exhaust gases permitted to enter the chamber 7. The chamber 7 is also provided with an air inlet 13 which communicates with the interior of an ozonizer casing 14 which may be mounted upon the inner side of the dash. The casing 14 contains a glass bulb 15 which is supported at its lower end upon an insulator block 16, a packing 17 being interposed between the bulb 15 and the insulating support 16 and a packing 18 being interposed between the upper end of the bulb and the top of the casing. The ozonizer bulb 15 is surrounded by a cylindrical perforated casing 19 which is held spaced from the outer surface of the bulb by means of washers 20. The bulb 15 is provided with a centrally disposed conductor 15^a and a terminal 21 at its lower end connected to the spark coils so that an oscillating electrical discharge is produced between the bulb and perforated metallic cylinder 19 and outer casing which causes the air passing through the casing 19 and around the bulb to be ozonized. The ozonizer casing 14 is provided along one side with an air inlet slot 22 through which air is admitted to the casing and the air entering the casing passes through the perforated cylinders 19 and around the bulb entering the mixing chamber 7 through the opening 13 between the ozonizer casing and the mixing chamber.

In the chamber 7 there is produced a mixture consisting of ozonized air, waste vapors and gases from the crank casing, water vapor from the engine cooling system and a quantity of spent gases from the exhaust manifold 2, this mixture of gases and vapors passing from the chamber 7 to the carbu-

reter 3 to the pipe 8. The connection to the engine crank case causes the gasoline and oil vapor in the crank case to be delivered with the fuel mixture to the engine inlet. The connection to the engine radiator supplies water vapor to the fuel mixture and the connection to the exhaust manifold serves both to dilute the gaseous mixture delivered to the carbureter and to heat the mixture. The conversion of the oxygen of the air into ozone puts the oxygen into a form in which it serves to greatly increase the rapidity of combustion when a charge is fired in the engine cylinder. It will be apparent that the applicant has provided effective means for utilizing waste products from the engine crank case and for providing a fuel mixture of superior quality.

Having described my invention, I claim:

1. The combination with an internal combustion engine having a fuel inlet and a cooling system, of means for delivering a fuel mixture to the inlet comprising a carburetor communicating with the inlet, a mixing chamber communicating with the carburetor, an ozonizer, means for admitting air to the ozonizer and from the ozonizer to the mixing chamber, and pipes connecting the mixing chamber to the upper portion of the water cooling system above the level of the liquid therein and to the crank case of the engine.

2. The combination with an internal combustion engine having a fuel inlet, of means for delivering a fuel mixture to said inlet comprising a carburetor communicating with the inlet, a mixing chamber through which air is delivered to the carburetor, an ozonizer through which the air passes into the mixing chamber, and means connecting the mixing chamber with the crank case of the engine.

3. The combination with an internal combustion engine having inlet and exhaust manifolds and a cooling system including a radiator, of means for delivering a fuel mixture to the inlet manifold comprising a carburetor communicating with the inlet manifold, a mixing chamber communicating with said carburetor, pipes connecting said mixing chamber with the exhaust manifold, with the radiator above the liquid therein, and with the engine crank case, and an air inlet for said mixing chamber having an ozonizer therein.

In testimony whereof, I hereunto affix my signature.

WALTER W. GROOMS.