

# UNITED STATES PATENT OFFICE.

CHARLES H. FRAZER, OF COLUMBUS, OHIO.

## HYDRO-OXYGEN GENERATOR.

1,262,034.

Specification of Letters Patent.

Patented Apr. 9, 1918.

Application filed June 30, 1916. Serial No. 106,987.

To all whom it may concern:

Be it known that I, CHARLES H. FRAZER, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Hydro-Oxygen Generators, of which the following is a specification.

This invention relates to hydro-oxygen generators for use with internal combustion engines. The attachment is designed particularly to increase the efficiency of internal combustion engines, in that an additional quantity of oxygen is supplied whereby complete combustion of the volatile hydrocarbons is insured. By the use of my attachment, the heavy carbon deposited upon the cylinder and its cooperating parts is also eliminated in that the carbon is completely burned by the use of the additional supply of oxygen.

The main object of my invention resides in the provision of a tank wherein a pair of electrodes are provided for decomposing water into its constituent parts, together with conduits leading from the tank to the intake manifold, whereby the generated gases are permitted to enter the engine cylinder.

Still a further object of the present invention resides in a controlling or throttling structure whereby the generated gases, as well as the hydrocarbon fuel may be simultaneously throttled.

The preferred embodiment of my invention is shown in the accompanying sheet of drawings, in which similar characters of reference designate corresponding parts, and in which:

Figure 1 is a view in side elevation of an internal combustion engine showing my generator mounted in position,

Fig. 2 is a vertical section on an enlarged scale of the generator shown in Fig. 1,

Fig. 3 is a transverse section taken on line 3-3 of Fig. 2, and,

Fig. 4 is a section through one of the controlling valves used in regulating the supply of gas to the intake manifold.

In Fig. 1, the internal combustion engine is represented by the reference numeral 1 and is shown as being provided with a T-shaped intake manifold 2, which latter is in communication with a carbureter 3. The generator itself comprises a circular tank 4 whose upper portion is divided by means of

a transverse wall 5 to form compartments 6 and 7. The upper and lower ends of the generator tank are closed and located in the lower wall 8 thereof are a pair of electrodes, the anode being designated by the reference numeral 9 and the cathode by the reference numeral 10. Both these electrodes are located centrally with respect to their respective chambers 6 and 7. These electrodes are mounted in the customary manner by being insulated from each other, as is shown and they are further adjustable up and down by means of the adjusting nuts shown at 11. The lower portion of the tank 4 is in communication with a source of water supply (not shown) by means of the supply pipe 12, flow through which is governed by means of the valve 13. The water level is normally maintained constant by operating the valve 13 through the medium of a float 14. This float is pivotally attached as shown at 15 to a lever 16 which lever is also pivotally attached intermediate its ends as shown at 17 to the tank 4. The outside end of the lever pivotally connects to a link 18 which latter forms a direct connection with the valve arm shown at 19. Thus, when the water level in the tank 4 rises, the valve will be closed through the elevation of one end of the lever 16. When the current is turned on, the water which, of course, contains a certain per cent of impurities to render it either acid or alkaline to serve as an electrolyte, will be decomposed into its constituents hydrogen and oxygen. These generated gases will bubble to the surface of the water within the generator and collect in the compartments 6 and 7; hydrogen being generated at the cathode and oxygen at the anode. These gases may then be conducted to the intake through the medium of pipes or conduits 20 and 21 leading out of the top of the compartments 6 and 7 respectively. Each conduit is provided with a valve shown in cross section in Fig. 4 and comprising a body portion 22 having alining passages 23. A plug 24 operates within the body portion and is bored transversely as shown at 25, whereby when the passages 23 and 25 are all in alinement, free flow of the gases from the tanks 6 and 7 is permitted. The flow of these gases may also be throttled by partially closing the valves and the operation of these is preferably made simultaneous with the throttle 26 of the carbureter 3. In order to provide this arrange-

ment, each valve plug is provided with an operating arm 27 to each of which is pivotally connected a reach rod 28. A reach rod 29 is also connected to the arm of the throttle valve 26 and these are in turn pivotally connected with a common operating rod, 30 leading to any convenient point of operation, such as the dash of a motor vehicle, or preferably to the ordinary throttle control mechanism.

It will thus be apparent that when the current is thrown on, hydrogen and oxygen will be generated by decomposing the water within the tank 4. These gases rise and are collected in the chambers 7 and 6 from where they are permitted to enter the intake manifold by passage through the pipes 21 and 20. The flow through these pipes is regulated by the valve structure shown and the regulation of these valves is effected simultaneously with the engine throttle valve. By the addition of the separate gases, I am thus enabled to enrich any hydro-carbon fuel which the carbureter may handle. In this manner, a very low grade fuel may be used and by properly setting the valves 22, the proper supply of gases may be added to render the fuel thoroughly combustible.

What I claim, is:

1. The combination with the intake of an internal combustion engine and its carbureter, of a generator tank, positive and negative electrodes within said tank, a water supply pipe leading to said tank, means for maintaining a constant level in said tank, and a pair of outlet conduits leading from said tank to said intake between the engine and carbureter.

2. The combination with the intake of an internal combustion engine and its carbureter, of a generator tank, a dividing wall dividing the upper portion of said tank into a pair of compartments, positive and nega-

tive electrodes in the lower portion of said tank, a water supply pipe leading into the lower portion of said tank, means for maintaining a constant level in said tank, and an outlet conduit leading from each compartment into said intake between the engine and carbureter.

3. The combination with the intake of an internal combustion engine and its carbureter, of a generator tank, a dividing wall dividing the upper portion of said tank into a pair of compartments, positive and negative electrodes in the lower portion of said tank, a water supply pipe leading into the lower portion of said tank, means for maintaining a constant level in said tank, an outlet conduit leading from each compartment into said intake between the engine and carbureter, a controlling valve in each of said conduits, a throttle valve for said intake, and means for simultaneously controlling all of said valves.

4. The combination with the intake of an internal combustion engine and its carbureter, of means for generating hydrogen and oxygen, and means for leading said gases to said intake between the engine and carbureter.

5. The combination with the intake of an internal combustion engine and its carbureter, means for electrically decomposing water into hydrogen and oxygen, means for leading said gases to said intake between the engine and carbureter, and means for regulating the amount of flow of said gases to said intake.

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

CHARLES H. FRAZER.

Witnesses:

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 HYDRO OXYGEN GENERATOR.  
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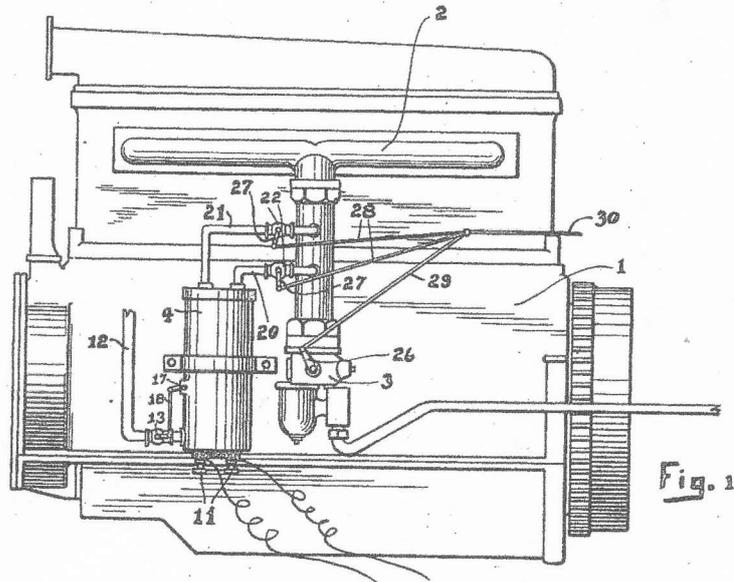


Fig. 1

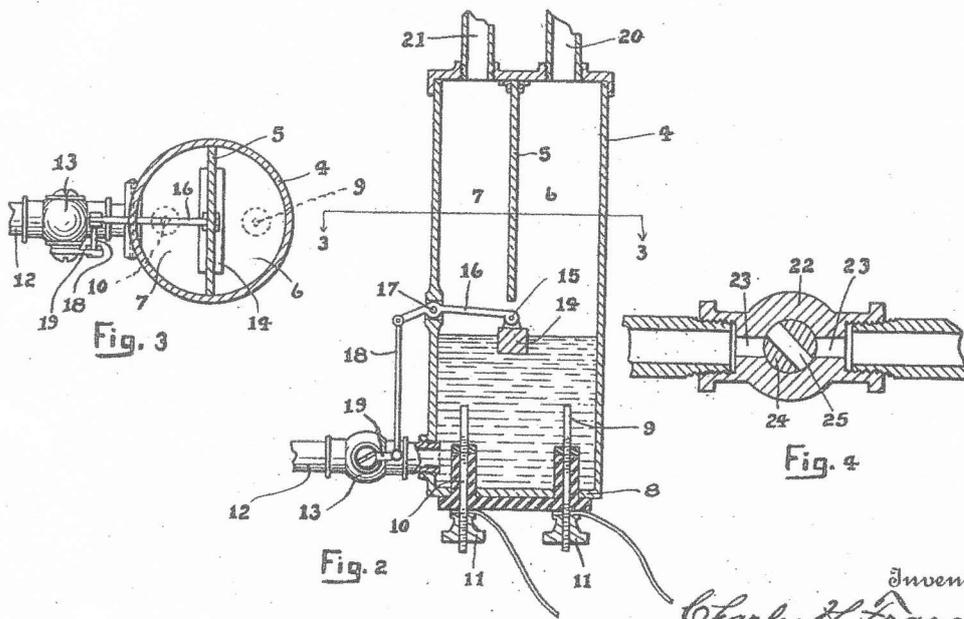


Fig. 3

Fig. 2

Fig. 4

Witness  
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