

J. E. WARMAN.

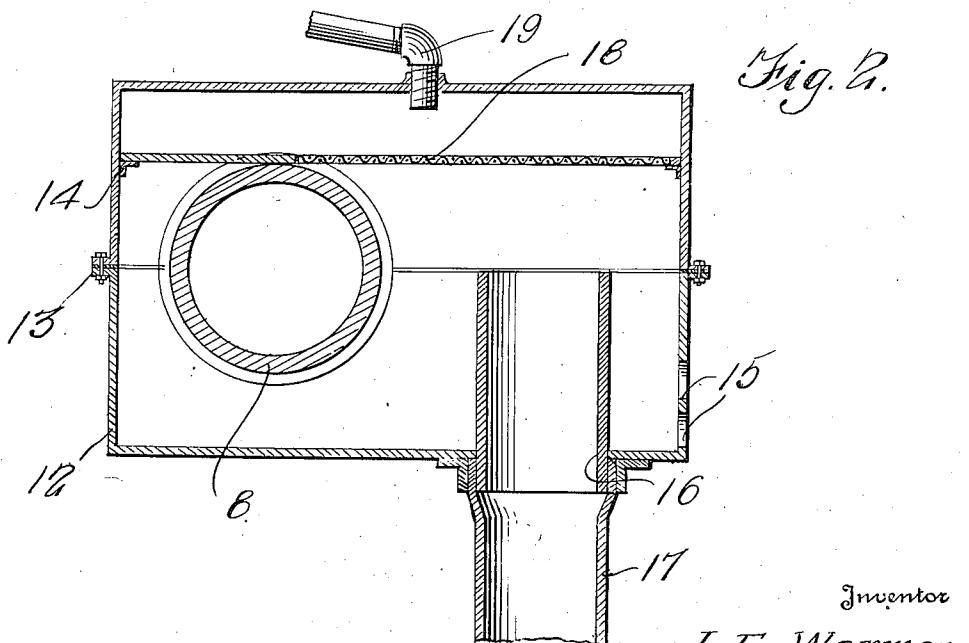
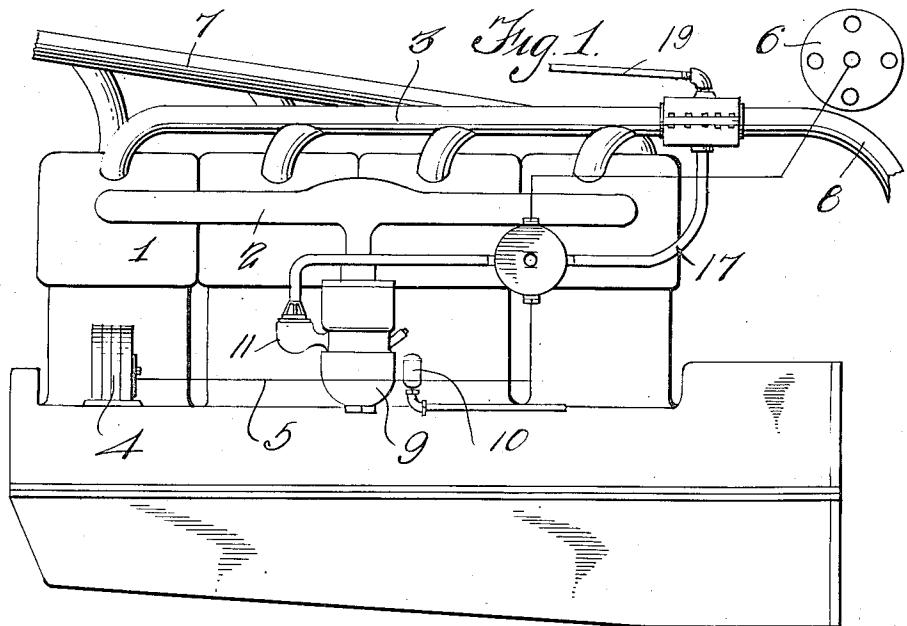
OZONIZER.

APPLICATION FILED APR. 18, 1917.

1,257,053.

Patented Feb. 19, 1918.

2 SHEETS—SHEET 1.



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1,257,053.

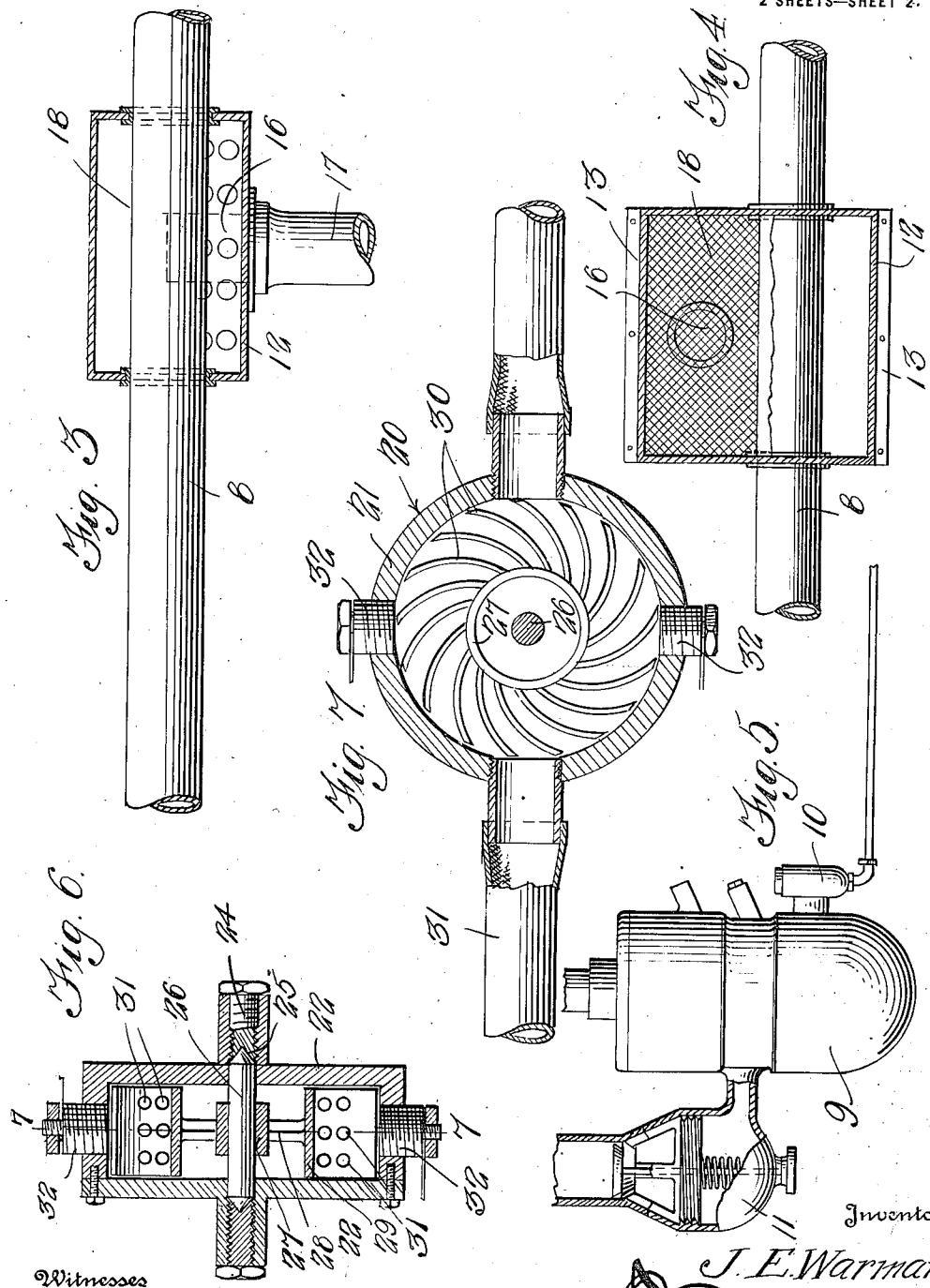
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UNITED STATES PATENT OFFICE.

JOHN E. WARMAN, OF SACRAMENTO, CALIFORNIA, ASSIGNOR OF ONE-HALF TO GEORGE H. P. LICHTHARDT, OF SACRAMENTO, CALIFORNIA.

OZONIZER.

1,257,053.

Specification of Letters Patent. Patented Feb. 19, 1918.

Application filed April 18, 1917. Serial No. 163,012.

To all whom it may concern:

Be it known that I, JOHN E. WARMAN, a citizen of the United States, residing at Sacramento, in the county of Sacramento 5 and State of California, have invented certain new and useful Improvements in Ozonizers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others 10 skilled in the art to which it appertains to make and use the same.

This invention relates to new and useful improvements in ozonizers, and is particularly applicable to motor vehicles in order to 15 produce a combustible vapor of high efficiency, and reduce the fuel consumption.

Another object of the invention is to provide a device which by passing warm moist air through an electric arc caused by 20 the interruption of a high frequency current will produce the high active form of oxygen known as ozone which when combined with the vaporized fuel in a carbureter furnishes an exceptionally highly efficient vapor to be 25 introduced to the cylinders of an internal combustion engine.

A further object of this invention is to provide a means for warming and moistening the air and also for interrupting a high 30 frequency current in the path of the warm moist air in order to produce the desired results.

With these and other objects in view, the invention consists in the novel combination 35 and arrangement of parts which will be fully set forth in the following specification and accompanying drawings, in which:—

Figure 1 is a side view of an internal combustion engine showing this device applied thereto;

Fig. 2 is an enlarged transverse sectional view through the air intake, showing in detail the warming and moistening chamber;

Fig. 3 is a longitudinal sectional view 45 through Fig. 2 on a reduced scale;

Fig. 4 is a top plan view of Fig. 3, showing the cover plate removed;

Fig. 5 is an enlarged detail view of the carbureter, illustrating the air intake;

Fig. 6 is a transverse sectional view on an enlarged scale through the interrupter; and

Fig. 7 is a vertical sectional view through Fig. 6 taken on line 7—7 thereof.

Referring to the drawings, the numeral 1 designates an internal combustion engine of 55 the usual type provided with an ordinary intake manifold 2 and exhaust manifold 3. A suitable magneto 4 is operated by the motor and has leading therefrom a conductor wire 5 which is connected to the distributor 6. The water manifold is designated by the numeral 7 and leading from the exhaust manifold is the exhaust pipe 8, around which the air warming chamber is secured. The carbureter 9 is attached to the intake manifold and is provided with the usual gasoline or fuel oil inlet 10 and the air inlet 11.

The air warming chamber is illustrated in Fig. 2 and comprises a lower section 12 having its upper edge provided with an attaching flange 13 to which the upper section 14 is secured. The upper and lower sections are formed in their end walls at their meeting edges with semi-circular recesses forming an aperture when the device is assembled to 75 receive the exhaust pipe 8 as clearly illustrated in the drawings. The lower section 12 has formed in its side walls adjacent their lower edges the air intake openings 15 and formed in the bottom wall of the lower 80 section is the air outlet 16. The air intake pipe 17 extends through the opening 16 and has its upper end disposed in a plane with the upper edges of the wall of the lower section. The upper section 14 has secured 85 therein a suitable screen fabric 18 upon which water from a suitable water inlet pipe 19 is dripped which pipe is connected to the water manifold 7 or to any suitable source of supply. The water dripping on the screen 18 will be evenly distributed over the screen so that the air passing through the opening 15 into the pipe 17 will pass beneath the moistened screen and absorb 90 part of the moisture. As shown in Fig. 2, 95 the screen engages the upper side of the exhaust pipe so that the heat from said exhaust pipe will be distributed over the screen and serve to warm the water thereon and the air passing into the chamber. In this way it will be seen that the air entering the pipe 17 will be warmed and moistened prior to its delivery to the interrupter and ozonizer which will be more fully hereinafter described.

The end of the pipe 17 opposite that

connected to the moistener and heater is connected to the ozonizer designated generically by the numeral 20 which comprises a shell 21 formed of a suitable insulator and 5 having on opposite side edges suitable heads 22 one of which is removable as illustrated in Fig. 6 in order to render the device accessible.

Formed on the heads 22 are central 10 threaded bosses 23 into which the screws 24 are threaded, the inner ends of which are provided with sockets 25 for the reception of the tapered ends of the shaft 26 which support the interrupter. The interrupter 15 above referred to consists of a hub member 27 provided with a web 28 which supports at its outer edge a rim 29 to which the curved blades 30 are attached. These blades as illustrated in Fig. 6, are apertured as at 20 31 to allow the passage of air therethrough, but it will be understood that the resistance area of the blades are such as to cause the interrupter to revolve within the shell 20 when air is drawn through the same. Attached to the shell 20 at a diametrically opposite point to the air inlet is the air outlet pipe 31 and arranged at right angles to the air inlet and outlet pipes are terminals 32 which are connected to the wire 5 between 25 the magneto 4 and the distributor 6. It will thus be seen that the current passing from the magneto to the distributor will necessarily have to arc between the blades 30 and terminals 32 so that the warm moist air passing 30 through the device will be acted upon by the arc and the air passing out of the ozonizer will be considerably enriched with ozone so that when the same is admitted to the air intake of the carbureter it will be in 35 much better condition to mix with the fuel and will produce a highly combustible vapor which will increase the efficiency of the motor.

In use it will be seen that the device is 45 connected to the motor as illustrated in Fig. 1 and the intake stroke of the pistons within the cylinders will cause a draft of air through the ozonizer thereby causing the interrupter to revolve and interrupt the current passing through the device, thus causing an arc which acts on the air in the manner previously described.

While in the foregoing there has been 55 shown and described the preferred embodiment of this invention, it is to be understood that such changes may be made in the combination and arrangement of parts as will fall within the spirit and scope of the appended claims.

60 What is claimed is:—

1. The combination with a motor vehicle having a carbureter provided with an air intake and a high tension ignition circuit, of an ozonizer connected to the air intake 65 and to the high tension ignition circuit for

increasing the efficiency of the combustible elements of the air prior to admitting the same to the carbureter.

2. The combination with a motor vehicle having a carbureter provided with an air 70 intake and a high tension ignition circuit, of a rotary ozonizer connected to the air intake and to the high tension ignition circuit for increasing the efficiency of the combustible elements of the air prior to admitting the 75 same to the carbureter.

3. The combination with an internal combustion engine having a carbureter provided with an air intake, an exhaust manifold and a high tension ignition circuit, of an ozonizer 80 connected to the air intake and to the high tension ignition circuit whereby the air admitted to the carbureter will be acted upon by the current passing through the ozonizer, and means to heat the air prior to 85 its admission to the ozonizer.

4. The combination with an internal combustion engine having a carbureter provided with an air intake, an exhaust manifold and a high tension ignition circuit, of an ozonizer 90 connected to the air intake and to the high tension ignition circuit whereby the air admitted to the carbureter will be acted upon by the current passing through the ozonizer, and means surrounding the exhaust manifold to warm the air prior to its admission to the ozonizer.

5. The combination with an internal combustion engine having a carbureter provided with an air intake, an exhaust manifold and a magneto, of an ozonizer connected to the air intake and to the magneto whereby the air admitted to the carbureter will be acted upon by the current passing through the ozonizer, means surrounding the exhaust manifold to warm the air prior to its admission to the ozonizer, and means connected to the air warming device to moisten the air.

6. The combination with an internal combustion engine having a carbureter provided with an air intake, an exhaust manifold and a magneto, of an ozonizer connected to the air intake and to the magneto whereby the air admitted to the carbureter will be acted upon by the current passing through the ozonizer, means surrounding the exhaust manifold to warm the air prior to its admission to the ozonizer, a liquid supply and a pipe leading from the liquid supply to the air warming device to moisten the air prior 110 to its admission to the ozonizer.

7. The combination with an internal combustion engine having a carbureter, a magneto, an exhaust pipe and a distributor connected to the magneto, of an air warming 115 chamber surrounding the exhaust pipe, air moistening means within the chamber, a circular casing, a pipe leading from the warming chamber to the casing, a pipe leading from the casing to the air intake of the car- 120

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bureter, a pair of diametrically arranged contacts in the casing, one of the contacts being connected to the distributer and the other being connected to the magneto and a rotary interrupter within the casing actuated by the passage of air therethrough.

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

JOHN E. WARMAN.

Witnesses:

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THEODORE BINNEY.