Aug. 23, 1932. W. S. ENGLISH 1,873,746

APPARATUS FOR ENRICHING FUEL MIXTURE FOR INTERNAL COMBUSTION ENGINES

Filed Dec. 9, 1929

Fig. 2.

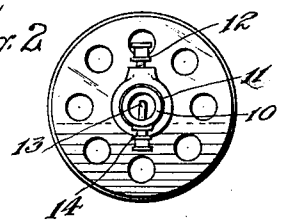


Fig. 1.

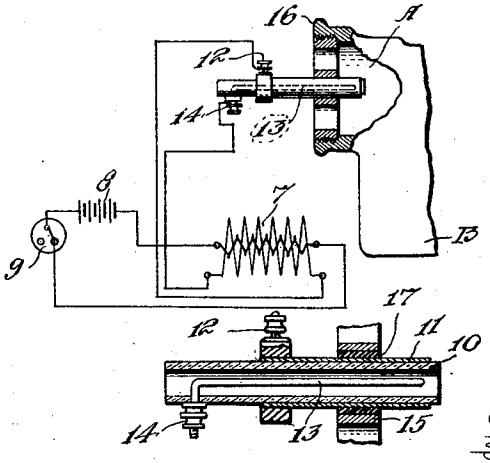


Fig. 3.

INVENTOR
William S. English,
BY
Lucien H. Cook,
ATTORNEYS

Patented Aug. 23, 1932 1,873,746

UNITED STATES PATENT OFFICE

WILLIAM S. ENGLISH, OF NEWARK, NEW JERSEY

APPARATUS FOR ENRICHING FUEL MIXTURE FOR INTERNAL COMBUSTION ENGINES

Application filed December 9, 1929. Serial No. 412,700.

This invention relates in general to apparatus for enhancing combustion of the fuel mixture in internal combustion engines, one object of the invention being to provide apparatus of this character wherein the fuel mixture is activated by subjecting it to the action of radio-active rays, for example such as produced by an electric discharge or by radio-active substances either by treating the air before it passes into the carburetor or by treating the mixture of fuel and air between the carburetor and the engine cylinders.

Other objects of the invention are to provide apparatus of the character described comprising means for producing an electric spark or a silent electrical discharge from a high tension current or radio-active rays, in the path of the air or fuel mixture as it passes to the internal combustion engine; to provide such apparatus which is simple and inexpensive in construction and can be applied to internal combustion engines or the like without material modification thereof, and to obtain other advantages and results as will be brought out more fully by the following description.

Referring to the accompanying drawing in which corresponding and like parts are designated throughout the several views by the same reference characters,

Figure 1 is a vertical longitudinal sectional view, partially diagrammatic, through apparatus embodying my invention, showing the same applied to the air inlet of a carburetor.

Figure 2 is an enlarged end elevation of the device shown in Figure 1, and

Figure 3 is an enlarged longitudinal vertical sectional view through the apparatus shown in Figure 1.

The invention comprises a silent electrical discharge apparatus including a tube 10 of dielectric material, for example, glass, on the exterior of which is an electrode 11 which may be metal foil or the like. To this electrode is connected a binding post 12. Within the tube is a second electrode 13 substantially concentric with the electrode 11 and connected to a binding post 14 exteriorly of the dielectric tube 10. The device may be secured to the air inlet A of a carburetor B by mounting the device in a spider or the like 15 which may be screw threaded into the carburetor as at 16. The electrode 11 is shown as insulated from the spider by suitable insulation 17. Obviously, a single wire or grounded circuit of which the engine forms one side may be utilized instead of the two wire circuit described.

In operation, the binding posts or terminals 12 and 14 are connected to a high tension electric current circuit of any suitable known construction, for example, including a high voltage transformer or an induction coil 7, a source of electricity 8 and an interrupter 9, whereby a silent discharge takes place, between the electrodes 13 and 11, through the dielectric 10. This breaks down the air which passes through the tube 10 into the carburetor, and the chemicals thus produced pass into the carburetor and enrich the fuel mixture. These chemicals mix with the fuel vapors produced in the carburetor and pass into the engine cylinders, and I have found that the combustion in the cylinders is greatly enhanced by such enriching of the fuel mixture, and carbon deposit in the cylinders is materially reduced or prevented. More power from a given quantity of fuel is also obtained by the use of my invention. Only a portion of the air passes between the electrodes 13 and 11, the remainder of the air passing around the electrodes and not being subjected to the action of the electrical discharge. This is important, since it is extremely desirable that the electrodes be closely related so that the air passing between them may be completely broken down into ozone and the other known chemicals. This results in a relatively small quantity of gas including a large amount of ozone and other desirable chemicals to enhance combustion, which is mixed with the remainder of the air passing through the air inlet of the carburetor.

While I have shown and described a certain now preferred embodiment of my invention, it should be understood that this is primarily for the purpose of illustrating

the principles of my invention, and that many modifications and changes may be made in the details of construction of the apparatus without departing from the spirit or scope of the invention.

Having thus described the invention, what I claim is:

The combination with an internal combustion engine having an air intake for fuel mixture, of a tubular electrode disposed substantially axially of and in alinement with said air intake and in spaced relation to the walls thereof, another electrode disposed substantially coaxially within said tubular electrode in spaced relation thereto, and means for producing an electrical discharge between said electrodes, so that only a portion of the air entering said inlet passes through said tubular electrode and is subjected to said electrical discharge while the remainder of the air passes through said intake around said tubular electrode and is not affected by said electrical discharge.

WILLIAM S. ENGLISH.