PATENT SPECIFICATION

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COMPLETE SPECIFICATION

Method for the Preparation of a Product Capable of Increasing the Efficiency of Fuel for Internal Combustion Engines

I, IVAN LOVENS, of 30, Rue de la Brasserie, Bierges-near-Wavre, Belgium, a subject of the King of the Belgians, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

The capacity of output or of useful power of liquid fuel for explosion and internal combustion engines, such as that of gasoline, alcohol, heavy oils, or a mixture of such substances, is not integrally recovered in such engines.

For the purpose of developing such power, improvements have been proposed in mechanical means, such as an improved construction of the carburettors, the use of the exhaust gases and the like, and by adding numerous chemical substances, such as preparations containing camphor, naphthalene, formaldehyde and the like to fuels.

These chemical substances generally produce a momentary blending, but they often produce a fouling of the engine and undue wear.

The product, obtained by the present method, has a perfect doping effect whereby the carburetting is considerably and durably improved while the spark plugs and cylinders remain perfectly clean. The use of the new product permits an easier running of the engine and its power is considerably increased and the acceleration is improved. For producing the same work without any mechanical change, an economy in the consumption of fuel is obtained.

The method consists in treating a vegetable non drying oil, such as olive oil dissolved in benzol, toluol, white-spirit or the like solvents, with a quantity of oxygen and of hydrogen, the gases being passed through the mixture or otherwise brought in contact therewith. The vegetable oil, and particularly olive oil, is selected for reason of its easily absorbing oxygen and hydrogen in large quantities, and the use of such oils for improving liquid fuel cannot provoke the formation of resins or gums.

Benzol is particularly useful owing to its anti-detonant qualities, and toluol for its perfect dissolving capacity.

The oxygen and hydrogen fixed in the solution increase the power produced by the combustion.

By way of example, the following composition will produce good results:

40 ccm. of benzol 90 per cent.
10 ccm. of pure toluol
50 ccm. of olive oil

are dissolved in 900 ccm. of white-spirit or benzol, the mixture being saturated with about 10 litres of oxygen and 10 litres of hydrogen, said gases being passed through the mixture or otherwise brought in contact therewith. This composition added to 1000 litres of hydrocarbon fuel, such as gasoline or, a mixture of gasoline, alcohol and benzol or heavy oils will increase the efficiency of such fuel.

To this basic composition may be added before the treatment with the gases, about 5 ccm. of oleic acid and about ½% to 1% of caprylic acid, said substances having a highly dispersive character.

Owing to the soft and non drying qualities of olive oil, the percentage of oxygen and hydrogen may be increased without fear of damage to the engine.

In order to increase the capacity of saturation, it is useful to subject the basic mixture to the treatment with the lightest gas firstly, i.e. hydrogen, and to continue

the treatment with oxygen. The anti-detonating qualities of the mixture may be improved by using more hydrogen than oxygen. By increasing the percentage of hydrogen and oxygen, the toluol and caprylic acid may be replaced by petroleum spirit.

Some examples of preparation will be given hereafter:

A)	940 parts by volume of benzol 10 ,, ,, ,, ,, toluol 10 ,, ,, ,, ,, petroleum spirit 50 ,, ,, ,, ,, olive oil 5 ,, ,, ,, ,, oleic acid 1 part ,, ,, ,, caprylic acid	This mixture is saturated with: 32.4 l. of oxygen 32.4 l. of hydrogen.
B)	940 parts by volume of benzol 10 ,, ,, ,, ,, toluol 10 ,, ,, ,, ,, petroleum spirit 50 ,, ,, ,, ,, olive oil 5 ,, ,, ,, ,, oleic acid ½ part ,, ,, ,, caprylic acid	This mixture is saturated with: 64.8 l. of oxygen 64.8 l. of hydrogen.
C)	940 parts by volume of benzol 10 ,, ,, ,, ,, toluol 10 ,, ,, ,, ,, petroleum spirit 50 ,, ,, ,, ,, olive oil 5 ,, ,, ,, ,, oleic acid 900 ,, ,, ,, ,, white-spirit	This mixture is saturated with: 151.2 l. of oxygen 151.2 l. of hydrogen.
D)	945 parts by volume of benzol 15 ,, ,, ,, ,, petroleum spirit 50 ,, ,, ,, ,, olive oil 5 ,, ,, ,, ,, oleic acid	This mixture is saturated with: 64.8 l. of hydrogen. 32.4 l. of oxygen.
E)	940 parts by volume of benzol 20 ,, ,, ,, ,, petroleum spirit 50 ,, ,, ,, ,, olive oil 5 ,, ,, ,, ,, oleic acid	This mixture is saturated with: 97.2 l. of hydrogen 64.8 l. of oxygen.
F)	940 parts by volume of benzol 20 ,, ,, ,, ,, petroleum spirit 50 ,, ,, ,, ,, olive oil 5 ,, ,, ,, ,, oleic acid	This mixture is saturated with: 151.2 l. of hydrogen 108 l. of oxygen.

The invention moreover provides for the addition of anti-detonant substances, such as phenol and metallic compounds, and that activators, such as manganese acetate and acetylene, may be added for improving the reaction and absorption of the gases.

A part of olive oil can be replaced by castor-oil for reason of its high viscosity and low cost price.

By way of example, a composition as follows can be used for improving the efficiency of 1000 litres of gasoline:

100 ccm. of methylalcohol;
10 gr. of phenol;
6 gr. of manganese acetate;
35 ccm. of olive oil;
35 ccm. of castor-oil;
10 ccm. of oleic acid;
60 ccm. of petroleum spirit;
780 ccm. of benzol;

this mixture is treated with:

129.6 l. of hydrogen;
97.2 l. of oxygen;
32.4 l. of acetylene.

The preparation will be made according to a well determined succession of steps.

By way of example, a practical method of working, which is however applicable to all hydrocarbons, alcohols and their mixtures, will be given hereafter:

First step: 10 gr. of phenol and 6 gr. of manganese acetate are dissolved in 100 ccm. of methylalcohol;

Second step: 20 ccm. of the product obtained by the first step are mixed with 35 ccm. of olive oil, 35 ccm. of castor-oil and 10 ccm. of pure oleic acid;

Third step: the mixture, obtained by the second step, is treated with 129.6 l. of hydrogen, 97.2 l. of oxygen and 32.4 l. of

acetylene; the gases are caused to bubble through the mixture or brought in contact therewith according to the methods known in the art.

Fourth step: the mixture, resulting from the steps 2 and 3, is added to the remaining 80 ccm. of the first step with addition of 60 ccm. of petroleum spirit and 780 ccm. of benzol.

In a modified form, 150 ccm. of the product resulting from the steps 2 and 3 can be mixed with 120 ccm. of the solution obtained by the first step; 90 ccm. of petroleum spirit and 660 ccm. of benzol are then added in step 4.

Experiments proved that these compositions secure an economy in the use of petroleum residue or the like heavy oils in internal combustion engines with the same or even higher power.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. The method for the preparation of a product to be added to liquid fuels for internal combustion engines for improving the efficiency thereof, which consists in treating a vegetable non drying oil, such as olive oil dissolved in white-spirit, benzol, toluol or the like solvents with a quantity of oxygen and of hydrogen, the gases being passed through the mixture or otherwise brought in contact therewith.

2. The method, as claimed in claim 1, characterized in that the basic mixture is firstly treated with hydrogen and then with oxygen, use being eventually made of more hydrogen than oxygen.

3. The method, as claimed in claims 1 and 2, characterized in that oleic acid and or petroleum spirit is added to the basic mixture.

4. The method, as claimed in claims 1 to 3, characterized in that anti-detonant substances are added to the basic mixture, such as phenol and metallic compounds, and that activators, such as manganese acetate or acetylene, are introduced for improving the reaction and absorption of the gases.

Dated this 23rd day of June, 1938.

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