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FUEL FOR INTERNAL-COMBUSTION ENGINES.

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To all whom it may concern:

Be it known that I, BENJAMIN HOWELL MORGAN, a British subject, and resident of 7 Princes Street, Westminster, London, S. W. 1., England, have invented certain new and useful Improvements in Fuel for Internal-Combustion Engines, of which the following is a specification, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a new fuel for internal combustion engines and includes a combination and method of manufacture which has not hitherto been used.

Mixtures of alcohol and ether have been used in internal combustion engines and have given results which compare favourably with those obtained from petrol although the calorific value of this fuel is greater than either that of alcohol or ether.

This is accounted for in part by the fact that the specific gravity of an alcohol ether mixture is greater than that of petrol and consequently when comparing equal volumes of alcohol-ether mixtures and petrol, in the liquid state, the calorific values are less divergent.

It has also been found that the thermal efficiency of an internal combustion engine using alcohol-ether mixtures is always greater than when petrol is used.

A greater power is developed in an internal combustion engine using alcohol ether mixtures than with petrol because the latent heat and rate of evaporation of an alcohol-ether mixture are very much greater than those of petrol and consequently there is a greater cooling effect produced in the fuel-air mixture on its passage from the carburettor to the cylinder of an internal combustion engine. A mixture is therefore drawn into the engine having an increased number of thermal units in the charge than is possible with a petrol air mixture when used in the ordinary types of internal combustion engines.

In practical working of an alcohol-ether mixture in an internal combustion engine certain difficulties have from time to time arisen through the formation of acid by the combustion of the alcohol. This has been reduced or overcome by the addition of a small quantity of ammonia to the alcohol-ether mixture.

I have found, however, from considerable experiment and investigation that this difficulty can also be overcome by the addition of a small quantity of castor oil, varying from say .2 per cent to 5 per cent, to the alcohol-ether mixture and this addition has the further advantage that it assists the lubrication of the engine.

Another important advantage of using castor oil between the proportions named in an alcohol-ether mixture is that it increases the miscibility of the fuel with petrol and similar fuels.

What I claim is:—

A fuel for internal combustion engines consisting of a mixture of ether and alcohol to which has been added a small proportion of castor oil, varying from .2 per cent to 5 per cent.

In witness hereof I have hereunto set my hand.

BENJAMIN HOWELL MORGAN.