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MOTOR FUEL.

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This invention relates to fuels for internal combustion engines.

As is known the quantities of motor fuel which are obtained in the usual way by fractionating mineral oil hydrocarbons or the hydrocarbons of lignite tar or coal tar no longer suffice to meet requirements.

For years past efforts have been made to supplement the available quantities of motor fuel by decomposing hydrocarbons of higher boiling point either by employing pressure and heat only or by employing catalytically acting substances. The fuel obtained according to this process has, however, certain undesirable properties. When used in internal combustion engines, for instance, such fuel is liable to produce knocking. Motor fuels which are obtained by condensing the so-called casing head gases also exhibit this objectionable knocking. Various suggestions have been made with a view to overcoming this undesirable property of such fuels. In this direction reference may be made in particular to the recent employment of lead tetra-ethyl.

The present invention aims to produce a motor fuel which shall be free of knocking when used either alone or as an addition to present motor fuels. This improved fuel consists of the extract of mineral oil or certain fractions thereof, extracted by means of liquid sulphurdioxide, separated from the undissolved constituents of said oil or fraction thereof and free of dissolved sulphur dioxide. The said process is described in my U. S. A. Patent 911,553 dated 2nd February, 1909. The fraction of this extract which passes over up to about 200° C. is most suitable for use as a motor fuel.

I have furthermore discovered that fuels showing by themselves the disadvantage of knocking can be materially improved by mixing with them certain proportions of the hydrocarbons which are obtained by extracting by means of liquid sulphur dioxide hydrocarbon material, such as mineral oil fractions, coal tar and lignite tar distillates of higher boiling point, for example distillates boiling between about 150° and 300 degrees centigrade. The fraction of this extract which passes over up to about 200 degrees centigrade is the portion whose addition to petrol obtained by cracking processes is desirable. The quantity of this material which is added to the petrol may vary within wide limits according to the nature of the petrol to be improved.

The following particulars are given by way of example to illustrate a convenient manner of carrying this modification of the invention into effect.

A navy gasoline (specific gravity 0.736, 25 per cent of which distils over up to 100 degrees centrigrade and the rest up to about 210 degrees centigrade) when employed in an internal combustion engine, particularly such as are of the high-speed type and therefore employ high compression, exhibits objectionable knocking. If to 100 parts of this navy gasoline, are added 10 parts of the fraction of the extract obtained in the manner above indicated, which has a specific gravity of 0.824 or more and boils between 130 degrees centigrade and 190 degrees centigrade, from a Rumanian petroleum fraction boiling between about 150 and 300 degrees centigrade, the knocking of the motor completely disappears even at high speeds.

The gasoline or benzine may be natural, obtained immediately from the hydrocarbons obtained from wells or bore holes, or artificial, obtained from hydrocarbons by any conversion process or treatment.

Cracking gasoline, obtained from highly boiling mineral oils by the cracking process, may be added with the extract, the fraction of which and the proportion may be about the same as indicated in the above given example.

Also gasoline obtained from bore holes by condensation of certain parts of the gases evolved may be added with the extract, the fraction of which and the proportion may be about the same as in the example.

The proportion of the material extracted by liquid sulphur dioxide employed may be varied within wide limits but it is not possible to give precise indications as to the limits between which the proportion of material soluble in liquid sulphur dioxide added to the fuel may vary.

The proportion which is usefully added to a given fuel may, however, be readily determined by tests in a high compression or preferably variable compression engine, such as is commonly used in testing the properties of motor fuels.

I claim:—

1. A motor fuel comprising an extract ob-

tained from the distillate of mineral oil boiling between 120° C. and 300° C. by treating said distillate with liquefied sulphur dioxide, the resultant product being substantially free from sulphur dioxide and such hydrocarbons as do not boil between the temperatures of 130° C. and 220° C.

2. A motor fuel consisting of a mixture of volatile liquid hydrocarbons such as commonly are employed as fuel for internal combustion engines with a distilled extract obtained from liquid hydrocarbons boiling between about 150° C. and 300° C. by treating with liquefied sulphur dioxide and distilling the sulphur dioxide freed product at temperatures up to about 220° C.

3. A motor fuel characterized by the presence of aromatic hydrocarbons boiling at temperatures under about 220° C. such as are produced by extracting constituents soluble in liquefied sulphur dioxide from liquid hydrocarbons having boiling points for the most part below 300° C. and distilling the sulphur dioxide freed extract.

In testimony whereof I hereunto affix my signature.

LAZAR EDELEANU.