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GEORGE L. SOUTHARD, OF FRANKLIN, PENNSYLVANIA

LUBRICATING COMPOUND

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This invention relates to a lubricating compound for general purposes, and is composed of a petroleum oil derived from crude petroleum which latter consists of approximately 33% of aromatic and unsaturated hydrocarbons, the remainder consisting of naphthenes and paraffines, with the naphthenes predominating.

A typical example of such crude petroleum is found in the vicinity of Franklin, Pennsylvania and is known as Franklin heavy crude.

In the manufacture of my improved lubricant, a crude petroleum of the class above identified is reduced by the process of distillation to a point where it has a flash test of preferably not less than 300° F. and it may have a flash test of preferably not above 650° F. Also preferably the reduced petroleum oil so obtained and used in the manufacture of my improved lubricant is not filtered. The instances in which the foregoing specifications of preferred limits of flash point and preferred process treatment are utilizable depend upon the particular purpose for which my improved lubricant is to be used.

With such a residual petroleum oil, as defined in the foregoing, is mixed aluminium stearate in an amount ranging, by weight, from not less than 5% nor more than 20% of the petroleum oil used. The mingling of these ingredients may be facilitated by means of suitable agitation and by the application of heat. This heat may be applied to the mixture, or may be applied separately to the ingredients, in which latter case the separately heated ingredients may be mingled by suitable agitation. The degree of the heat applied may vary to a wide extent, but preferably should not exceed the flash point of the petroleum oil used, and in any case preferably not above 350° F. Suitable agitation of these ingredients may be accomplished by any mechanical or other means used in the compounding of oils and greases.

The petroleum oil which I have heretofore employed in the compounding of my improved lubricant represents not more than a 75% residual product, by volume, of the crude petroleum in its natural state from which it is reduced extracting the lighter fractions therefrom by the process of distillation, and need not be filtered. Such crude petroleum referred to is composed of the naphthene element in a predominating measure; however, any non-asphaltic, mixed base crude petroleum having a mixture of naphthenes and paraffines may serve as a base from which to derive residual petroleum oil commonly known as cylinder stock for use in the manufacture of my improved lubricant.

The advantages of my improved lubricant are particularly distinguished by and noteworthy in the fact that an unusually wide range exists between low cold test, that is to say, the temperature below which a solid lubricant crumbles and no longer functions as a lubricant, and the melting point, namely the temperature at which a solid lubricant flows and therefore loses enough of its property of cohesion to no longer permit it to be classed as a solid lubricant.

Further advantages of my improved lubricant consist in the fact that it does not contain any lime soap, resin or fillers, is non-acid, non-corrosive, contains nothing injurious to metals, and no non-lubriacting ingredients of any nature whatsoever. Also, my improved lubricant is unusually efficient and economical because the residual petroleum is preferably never less than 80% by weight of lubricant, and averages preferably not less than 88% by weight, compared to the usual 40% to 65% petroleum oil content of many commercial solid oils or greases.

As previously stated the oil ingredient of this compound may have a flash point ranging from 300° F. to 650° F., or the range may be even greater than this; the cold test of the natural crude is approximately 40° below zero.

In a lubricant of this class these heat characteristics, both the melting point and the cold test, are important points. I am enabled to vary both of these heat characteristics over a comparatively wide range, in three different ways, namely, by varying the flash point of the oil, by varying the relative quantity of stearate, or by employing both of these expedients together.

As specific instances of said variations the following are given, the oil contemplated being Franklin heavy reduced crude, and the starate being the commercial aluminum stearate:

The figures given are approximate for the reason that they vary somewhat between filtered and unfiltered oil, and the degree of purity of the stearate used. Temperatures of the heat characteristics are Fahrenheit.

350 flash oil
10% aluminum stearate
Cold test ..... 39° below zero
Melting point ..... 150°

350 flash oil
20% stearate
Cold test ..... 30° below zero
Melting point ..... 190°

440 flash oil
10% stearate
Cold test ..... 20° below zero
Melting point ..... 200°

440 flash oil
20% stearate
Cold test ..... 10° below zero
Melting point ..... 220°

490 flash oil
10% stearate
Cold test ..... −5°
Melting point ..... 230°

490 flash oil
20% stearate
Cold test ..... Zero
Melting point ..... 250°

Many other specific examples could be given but the foregoing are deemed fully sufficient to enable those skilled in the art to produce a compound having the desired heat characteristics.

Claims:

1. A lubricating compound consisting of a petroleum oil having a flash test ranging between 300° F. and 650° F. derived from crude petroleum which latter consists of approximately 33% of aromatic and unsaturated hydrocarbons, and a naphthene-paraffin base with the naphthenes predominating, and an admixture of five per cent to twenty per cent aluminium stearate.

2. A lubricating compound produced from an oil derived from a crude petroleum having a naphthene-paraffin base which has been reduced by distillation to a flash test ranging from 300° F. to 650° F. as required by the purpose for which the lubricant is to be used, together with an admixture of aluminum stearate in a proportion by weight ranging between five percent and twenty percent of the mixture.

3. A lubricating compound consisting of a substantially crude petroleum in admixture with aluminum stearate, said petroleum having a base consisting of naphthenes and paraffines, and from which the lighter fractions have been eliminated to an extent to produce the desired flash point through a range of temperatures from 300° F. to 650° F., said stearate being in such proportion by weight as to produce the desired cold test of the compound through a range of temperatures from the natural cold test point of said oil which is 40° F. below zero, up to zero.

4. A lubricating compound consisting of a substantially crude petroleum, in admixture with aluminum stearate; said petroleum having a base consisting of naphthenes and paraffines and from which the lighter fractions have been eliminated so as to cause the petroleum to have a flash test within the limits stated as may be required by the particular service for which the lubricant is intended, said stearate being in proportion ranging from 5% to 20% of the compound.

5. A lubricating compound consisting of a residue of a crude petroleum having a base consisting of naphthenes and paraffines which remains in the oil, a cold test of approximately 40° F. below zero and from which the lighter fractions have been distilled off to the extent causing the residue to have a flash test ranging through the temperatures of 300° F. and 650° F., with an admixture of aluminum stearate.

6. A lubricating compound consisting of a mineral oil that is the residue of a petroleum which in its natural state has a base consisting of naphthenes and paraffines with a cold test of approximately 40° F. below zero, and from which the lighter fractions only have been eliminated to the extent to cause the residue to have a flash test from 300° F. to 650° F. with an admixture of aluminum stearate in any proportion that will cause the resulting compound to have a cold test ranging from said natural cold test up to zero Fahrenheit.

In testimony whereof I affix my signature.

GEORGE L. SOUTHARD.