

# UNITED STATES PATENT OFFICE.

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## MANUFACTURE OF LUBRICATING AND ANTICORROSIVE OILS.

No. 919,884.

Specification of Letters Patent.

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*To all whom it may concern:*

Be it known that I, FRIEDRICH WILHELM KLEVER, manufacturer, a subject of the German Emperor, residing at 6 Brandenburgerstrasse, Cologne-on-the-Rhine, Germany, have invented certain new and useful Improvements in and Relating to the Manufacture of Lubricating and Anticorrosive Oils; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to the manufacture of lubricating and anticorrosive oils, especially of such oils, which are adapted to dissolve or to remove the residues of nitric gunpowders from the bore of firearms.

The invention consists in mixing alkali oleates with hydrocarbons and alcohol or alcohols which have a high boiling point.

Processes are known for rendering hydrocarbons, paraffin oils, mineral oils or vaseline oils, capable of forming emulsions, which processes consist in adding alkali oleates to the said hydrocarbons or the like which are insoluble in water when employed alone. The less alkali oleates are added to the hydrocarbons and the like, the more the lubricating and anticorrosive qualities of the mixture obtained are increased. The usefulness of the said oils was hitherto impaired by the fact that the storage of such oils as well as variations of temperature some times caused separation of the oils and the alkali oleates, the density of the several components not being the same, and thereby those qualities by which they are rendered capable of forming emulsions were destroyed. This drawback is obviated by my invention which will be fully described in the following specification.

In carrying out my process, I first add to the alkali oleates, before mixing them with the oils to be made capable of forming an emulsion, an alcohol or alcohols having a high boiling point and which can be heated to the boiling point without decomposition. I have found that glycerin, which is sometimes considered to be an alcohol, and ethyl alcohol cannot be satisfactorily employed in carrying out my process but I can use of the aliphatic series all mono acid (monatomic) alcohols from propyl alcohol upward and of the di acid (diatomic) class the pinacone. Phenyl paraffin alcohols may also be employed.

Preferably I employ pinacone, oenanthyl- or heptyl-alcohol, capryl- or octylalcohol and butylalcohol. Or, I mix the hydrocarbons and the like with the alkali oleates and then add the said alcohol or alcohols to the resulting mixture. By the admixture of high boiling alcohols the quantity of alkali oleates added to the mineral oil may be reduced to such extent that the alkali oleates together with the alcohol, amount to about 15% of the mineral oil. Furthermore the new compounds obtained are capable of dissolving or removing the destructive residues which remain in the bores of firearms when fired with nitric powders. The lubricants composed according to my invention combine with the said residues, which in consequence are removed more speedily and thoroughly than it was hitherto possible by mere mechanical action by means of other oils. The arms are therefore preserved in a more perfect state than formerly.

The high-boiling alcohols above referred to do not combine with the alkalies themselves; nevertheless the combination which is necessary for the present purpose can be effected for instance by first combining the oleic acid with the alkalies and then adding the high-boiling alcohol, or by first embodying the latter into the oleic acid, then adding the alkalies and finally incorporating the resulting mixture with the hydrocarbons and the like, thus producing the desired qualities. The proportion of high-boiling alcohols and alkali oleates varies from 15 to 30 per cent., according to the quality, density or viscosity of the hydrocarbon to be improved.

If the hydrocarbon which is to be employed contains alcohol which would be decomposed when subjected to a high temperature, such alcohol may be removed and replaced wholly or to any desired extent by alcohol of the proper character. If only a transitory effect is to be produced the high boiling alcohol may be added to the finished product preferably under pressure of from about 1 kg. per sq. cm. to 4 kg. per sq. cm. and to an amount of not exceeding 4%.

As the proportion of mineral oil and mixture of high boiling alcohol and alkali oleates required to obtain the desired results will vary or depend upon the particular oil employed, it is necessary to determine such proportions by experiments with solutions cooled to a temperature of from minus 10 to 20° C. With oils which under the conditions



just referred to will combine with from 4 to 5% of high boiling alcohol and alkali oleates without decomposition of the components; I first neutralize 100 kg. of oleic acid with 5 alkali and afterward add thereto 50 kg. of a suitable high boiling alcohol, for instance, amyl-alcohol. To this mixture is then added 850 kg. of mineral oil having for instance a specific gravity of 0.880-0.910.

10 The oleic acid hereinbefore referred to can be of either vegetable or animal origin and in the carrying out of the invention may be replaced by acids derived from fats or resins.

Having thus described the invention what 15 is claimed is,—

1. The herein described process of manufacturing an anti corrosive lubricant, particularly adapted for removing the residue of nitric powders from fire arms, which consists

in treating hydrocarbon with a mixture of 20 alkali oleates and alcohol which boils at a high temperature and can be heated to its boiling point without decomposition.

2. The herein described process of manufacturing an anti corrosive lubricant, particularly adapted for removing the residue of 25 nitric powders from fire arms, which consists in treating hydrocarbon under pressure with a mixture of alkali oleates and alcohol which boils at a high temperature and can be heated 30 to its boiling point without decomposition.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRIEDRICH WILHELM KLEVER.

Witnesses:

WOLDEMAR HAUPT,  
HENRY HASPER.