

UNITED STATES PATENT OFFICE

2,038,640

PROCESS OF TREATING LUBRICATING STOCKS CONTAINING AMORPHOUS WAX

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No Drawing. Application October 5, 1933,
Serial No. 692,317

2 Claims. (Cl. 196—19)

In the treating of lubricating oil stocks which contain amorphous wax, it has been proposed to add naphthalene or anthracene or other hydrocarbon of high molecular weight, and crystallize and separate in an effort to entrain and remove the amorphous wax. Hydrocarbons however, have an unfavorable crystal shape and are difficult to filter or separate from the oil, and all such procedures employing hydrocarbons have not met with general acceptance. Rather, a process is desirable which permits crystallizing or setting and easy and clean separation of the added material; and furthermore, desirably an action upon deleterious materials in the oil.

To the accomplishment of the foregoing and related ends, the invention, then, comprises the features hereinafter fully described, and particularly pointed out in the claims, the following description setting forth in detail certain illustrative embodiments of the invention, these being indicative however, of but a few of the various ways in which the principle of the invention may be employed.

In accordance with my invention, a lubricating stock containing amorphous wax is treated by admixing a phenol and finally reducing the temperature sufficiently to solidify or set the phenol into a separable condition, and then separating. Ordinary phenol of reasonable purity, or a purity sufficient to allow crystallization or solidification, is preferred, although cresols and higher phenols, or mixtures may in some cases be employed. The amount of phenol may in general range from 5 to 25 per cent, and the agent will be incorporated under conditions to provide thorough admixture or solution, the temperature being raised as necessary to such end. After thorough admixture, the oil is cooled sufficiently to set or crystallize the phenol, as for instance a temperature of -50 to $+50$, and the phenol crys-

tal magma is separated in suitable manner, as by filter-pressing.

As an example: A lubricating stock of 22.1° Bé. from Mid-Continent crude, and having a pour point of 100° F. is treated by admixing about 10 per cent of commercially pure phenol, at a temperature above 105° F. After thorough mixing, the oil is passed to a chiller and is chilled to a temperature of 5° F., and is then run through a filter-press. The solidified magma or slurry of phenol is removed in the filter-press together with wax and some other impurities which are of resinous character and in part apparently of basic nature. The oil may then be finished by any desired procedure.

It is to be noted that in applying a phenol in such manner, there is not only a crystal magma formation of matted needle-like crystals in a superior mechanical treatment with the solidifying entraining agent, but in addition a phenol has an acid type of function, and the present treatment makes possible an especially advantageous cleaning of the oil.

Other modes of applying the principle of the invention may be employed, change being made as regards the details described, provided the features stated in any of the following claims, or the equivalent of such, be employed.

I therefore particularly point out and distinctly claim as my invention:—

1. A process of de-waxing oil containing amorphous wax, which comprises subjecting such oil to the action of phenol, solidifying the phenol in the oil in crystalline form, and separating the crystallized phenol and precipitated wax from the oil.

2. A process of de-waxing lubricating stocks, which comprises dissolving five to twenty-five per cent of phenol therein, chilling the mixture, and filtering out the phenol slurry formed.

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