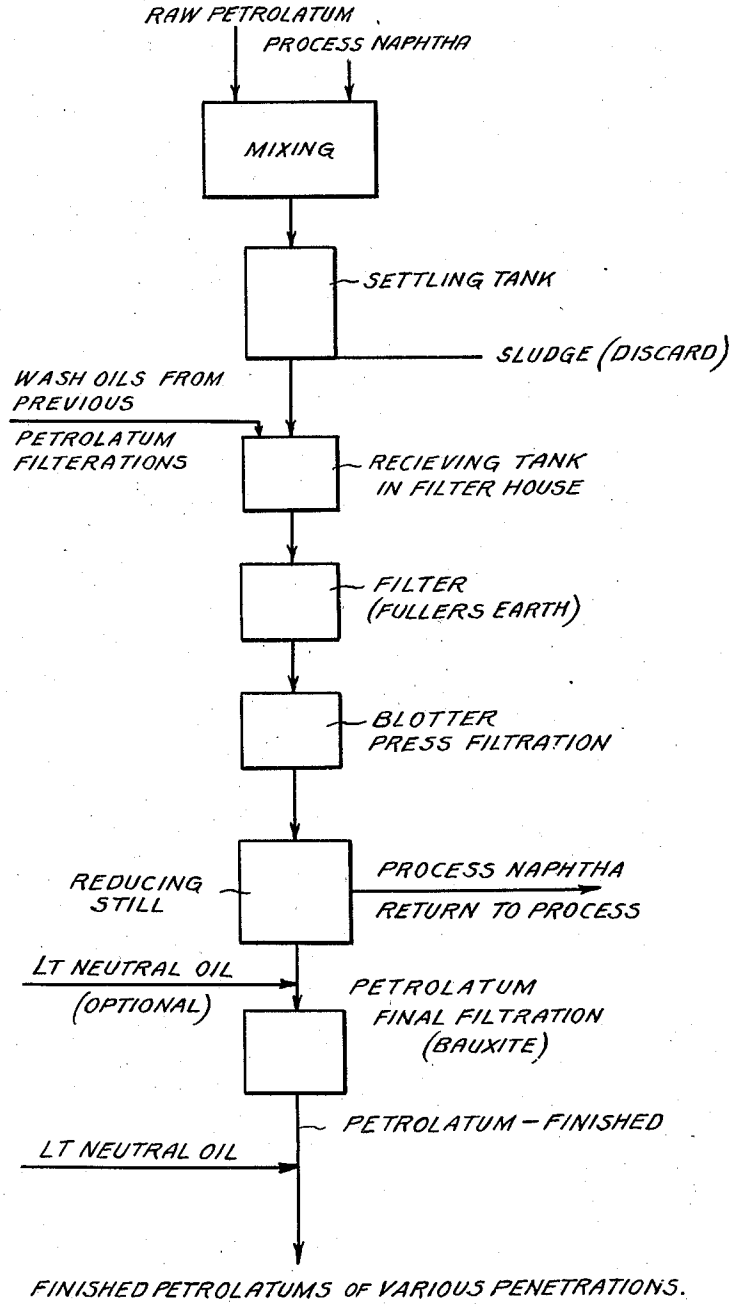
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FINISHING PETROLATUM

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INVENTOR
DAVID F. RENSHAW
BY
Myers J. Burkhard
ATTORNEY

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FINISHING PETROLATUM

David F. Renshaw, Olean, N. Y., assignor to Socony-Vacuum Oil Company, Incorporated, New York, N. Y., a corporation of New York

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3 Claims. (Cl. 196—21)

This invention is directed to a method for the finishing of petrolatum, to furnish a brilliant petrolatum of clean yellow or bright green cast when solid, particularly from petrolatums which have been separated from stocks not previously acid treated.

Petrolatum products as prepared for sale should be possessed of a clear light color, brilliant appearance, freedom from taste and odor, and stability on exposure to light and air. It has formerly been considered necessary, in order to attain these properties, to subject the petrolatum to chemical treatment, usually with sulphuric acid, but frequently with aluminum chloride and other reagents. This chemical refining is frequently carried out upon the petrolatum stock, but may be and frequently is accomplished by treatment of the oil stock in which the petrolatum is contained prior to separation of the petrolatum therefrom. Of late, the use of solvent dewaxing methods in the industry to remove petrolatum from long residuums or cylinder stocks which have not been previously treated, as by sulphuric acid, has given rise to raw petrolatum stocks presenting some rather unusual problems in refining.

This invention has for its object the provision of a sequence of refining steps, not making use of chemical treatment, capable of producing a finished petrolatum of high brilliance, clear light color, good taste, odor, and stability, and high electrical resistance from stocks of the kinds noted.

In order to more completely understand this invention, reference is now made to the drawing attached hereto, which drawing shows in diagram form the steps and sequence of steps involved.

The starting petrolatum, particularly when derived by the benzol ketone dewaxing of a residual paraffinic base crude stock may have the following character.

Gravity °API	32–34
Flash °F. (C. O. C.)	500–550
Visc. S. U. V. @ 210	90–110
Melting point (AMP)	125–140
Penetration	10–75
Color	Black*

*Not only is the material itself black, but considerable colloid-like black material is carried in suspension.

While this is typical of the usual starting petrolatum stock, the material may be heavier or lighter, ranging from a soft to a hard stock, and all such stocks, as well as oils from similar sources containing the similar black suspended material are amenable to this same treatment and for the purposes of this disclosure may be considered to be equivalents.

This petrolatum starting stock is admixed with a process naphtha, (a straight run naphtha of about 50–60° API gravity, initial boiling point (ASTM) 160–200° F., final boiling point (ASTM) 400–440° F.), using 40–50 parts of the process naphtha to 60–50 parts of the petrolatum by volume. The mixture is sufficiently heated to insure solution, but a top temperature of 130° F. is not exceeded to prevent adverse deterioration of the petrolatum.

After mixing, the mixture or solution is placed in a settling tank, where it is held at a temperature of about 120 to 130° F. for at least 72 hours. During this period there separates out from the mixture a black sludge material, which is separately drawn off and discarded, and the settling period must be at least sufficiently long to secure an optimum separation of this material.

The settled solution is now pumped to a receiving tank in the filter house, where there is added to it wash oils from previous filtrations of petrolatum solution. The addition of these wash oils is customary at this point, is not great in amount, and has no influence upon the operation of the process. The mixture, ready for filtration, is usually about a 50–50 mixture of process naphtha and petrolatum stock.

The solution is then filtered by percolation for improvement of color, fuller's earth, new or revivified, usually revivified, being an efficient and usual filtration reagent. This filtration is carried out at about 150° F. The filtration is so operated as to yield a filtered solution of between 150 and 250 Lovibond color, and the yield figure for this operation is about 28½ fifty gallon barrels per ton of clay. The degree of filtration in solution is not a ruling characteristic, since the color reduction duty may be shifted between these solution filters and straight stock filters later mentioned as desired, within reasonable limits.

From the percolating solution filters the solution is passed to and through a blotter press filter wherein there is removed a tarry, gummy, carbonaceous material, the removal of which at this point is essential to the process.

After blotter pressing, the solution is reduced in a continuously operating pipe still to remove overhead the process naphtha which is returned to the starting mixer, leaving as a bottoms a reduced petrolatum.

This reduced petrolatum is then percolated, straight, through a filter to final color. This final filtration is carried out at a temperature of 200° F. and here any efficient filtration material may be used, a preference being had for bauxite. When filtering to a finished color of 200–300 Lovibond, with bauxite, having previously filtered in solution as above, to 150–200 Lovibond, the yield figure is about 53 fifty gallon barrels per ton.

After final filtration, to produce petrolatums of various penetrations, some of the finished stocks may be blended with varying proportions of light neutral oils, as is usual in the art.

When finished, by the use of these steps and by the method outlined, the finished petrolatums when solid are brilliant, with a yellow cast for the lighter products and a reddish green cast for the darker series, as compared with a dullish muddy appearance on petrolatums prepared by ordinary percolation filtration. Also, the materials so prepared are of superior electrical resistance, since the minute black suspended particles not removed by ordinary methods appear to act as conductors.

Not only are all of these process steps necessary, but their sequence as outlined is necessary. Extensive experimentation has shown that no step can be eliminated and still produce a satisfactory product, nor can rearrangements be made without similar failure. For example, placing the blotter press operation prior to the solution filtering operation resulted in practically complete failure of the process.

I claim:

1. That method for the finishing of petrolatum stocks to produce brilliant, clear petrolatums consisting of the steps of diluting raw petrolatum stock with about an equal portion of process naphtha, subjecting the solution to a prolonged period of settling to settle and separate therefrom a sludge, passing the clarified solution through a percolating filtration with an adsorbent filter material, blotter pressing the filtered solution, distilling the solution to remove naphtha therefrom, and percolating the reduced petrolatum through an adsorbent filter material to filter to final color.

2. That method of finishing petrolatum stocks to produce brilliant, clear, petrolatums consisting of the following steps in sequence: diluting the petrolatum stock with solvent naphtha in about equal proportions, settling the solution for at least about 72 hours to separate therefrom a sludge, passing the solution through an adsorptive filtration medium to lower the color thereof, passing the filtered solution through a blotter press to give a further clarification, distilling the solution to remove solvent naphtha therefrom, and passing the reduced petrolatum through an adsorptive filtration medium to bring it to final color.

3. The method of finishing petrolatum stocks to produce brilliant, clear, petrolatums consisting of the following steps in sequence: diluting the petrolatum stock with solvent naphtha in about equal proportions, settling the solution for at least about 72 hours at 120 to 130° F., to separate therefrom a sludge, passing the solution through an adsorptive filtration medium at about 150° F., to lower the color thereof, passing the filtered solution through a blotter press to give a further clarification, distilling the solution to remove solvent naphtha therefrom, and passing the reduced petrolatum through an adsorptive filtration medium at about 200° F. to bring it to final color.

DAVID F. RENSHAW.