UNITED STATES PATENT OFFICE.

CARLETON ELLIS, OF MONTCLAIR, NEW JERSEY, ASSIGNOR TO CHADELOID CHEMICAL COMPANY, OF NEW YORK, N. Y., A CORPORATION OF WEST VIRGINIA.

FINISH-REMOVER.

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To all whom it may concern:

Be it known that I, CARLETON ELLIS, a citizen of the United States, and now residing at Montclair, county of Essex, and State of New Jersey, have made a certain new and useful Invention Relating to Finish-Removers, of which the following is a specification.

This invention relates especially to substantially non-aqueous finish removers preferably containing oxalic acid or similar wood bleaching agent and which may contain terpineol and other finish solvents of a chlorinated character so as to be substantially non-inflammable.

Oxalic acid or other dicarboxylic acid material such for example as acid ammonium oxalate or succinic acid have a very desirable bleaching action on weather-stained wood and are, therefore, desirable components of finish remover to be used in that connection. Oxalic acid wood bleaching material or dicarboxylic acid wood bleaching material of this character may be incorporated in substantially non-aqueous volatile solvent finish removers and if the oxalic acid is thoroughly dried it exerts a desirable dehydrating action by combining with or taking up some of the water usually present in alcoholic and similar finish solvents so as to proportionately minimize undesirable hydrolysis in connection with chlorinated solvents. Carbon-tetrachlorid is a desirable chlorinated solvent having valuable inflammability suppressing properties in this connection and pentachlorethane or tetrachlorethylene or similar acting chlorinated solvents may also be used. Terpineol and pine oil and the like also seem to have a desirable preserving action in such non-inflammable removers, as well as being desirable penetrating finish solvents. Other suitable penetrating finish solvent material may be employed, that is, finish softening material of a generally benzolic character or action in removers, such as benzol and its homologues, toluol, xylol, and their commercial forms such as commercial toluol and the high boiling point coal tar, solvent naphtha and also the somewhat analogous petroleum hydrocarbons, such as benzin, light kerosene, and so forth, as well as turpentine, wood turpentine, tar oil and other chlorinated solvents such as chlorinated benzol, dichlorhydrin and epichlorhydrin, although of course it is understood, that the more volatile solvents giving off inflammable vapors are undesirable for use in large proportions for non-inflammable removers.

Suitable loosening finish solvent material may also be used, that is, solvents of a generally alcoholic character or action in removers, such as methyl, ethyl, propyl, butyl, amyl, allyl and other strict alcohols, preferably in their commercial forms, including denatured alcohol or their esters derived from combination with acetic, carbonic, butyric, propionic, formic, carbolic, cresylic, lactic, citric and other acids. Many ketonic bodies having a generally alcoholic character or action may also be used, such as methyl ethyl ketone, ethyl butyl ketone, oil of acetone, acetone and its condensation derivatives, mesityl oxid, phorone, xylitone and isoxylitone as well as methyl acetone and the secondary and tertiary alcohols and their derivatives.

An illustrative substantially non-inflammable remover may comprise 40 gallons of ethyl or denatured alcohol, 20 gallons of terpineol, 40 gallons of carbon-tetrachlorid, 20 pounds of paraffin and 3 to 5 per cent. or so, say 30 pounds, of dry finely divided oxalic acid.

Another non-inflammable remover may comprise 50 gallons of denatured alcohol, 10 gallons of pine oil, 40 gallons of carbon-tetrachlorid, 30 pounds of paraffin or ceresin wax and 35 pounds of oxalic acid.

Another illustrative remover may comprise 100 gallons of benzyl alcohol, 60 gallons of ethyl alcohol, 40 gallons of carbon-tetrachlorid, 30 pounds of ceresin wax and 50 pounds of oxalic acid, either with or without the use of turpentine, pine oil, terpineol or other preservative.

Another illustrative remover which does not have non-inflammable properties may comprise wood alcohol, 50 gallons, benzol, 40 gallons, paraffin, 20 pounds, and oxalic acid wood bleaching material such as oxalic acid or acid ammonium oxalate, 35 pounds.

Another illustrative remover suitable for general use may comprise 60 gallons of benzol, 40 to 50 gallons of wood alcohol or methyl acetone, 20 pounds of waxy stiffening material such as paraffin or ceresin, and 3 to 4 per cent. by weight of oxalic acid. It is of course understood, that the oxalic acid, thoroughly dried at 120° C. or so and finely ground, may be readily dissolved in the al-

cohol or similarly acting loosening finish solvent and the waxy material dissolved in the solvent therefor and the two solutions incorporated at a slight heat, if desired.

Another illustrative remover may comprise ethyl citrate 10 gallons, terpineol 5 gallons, gasolene 5 gallons, denatured alcohol 10 gallons, wood flour 15 pounds and chlornaphthalene 45 pounds.

Another remover may comprise allyl alcohol 10 gallons, camphor 5 pounds, paraffin 3 pounds and wood flour 8 pounds.

Another remover may comprise denatured alcohol 15 gallons, acetone 10 gallons, benzol 10 gallons, benzin 5 gallons and beta naphthol 30 pounds.

Another remover adapted for removing shellac and similar finish may comprise wood alcohol 12 gallons, terpineol 10 gallons, naphthalene 5 pounds and ceresin 2 pounds, although the wood alcohol is not necessary when the remover is used on other finishes.

Another remover may comprise terpineol 10 gallons combined with chlornaphthalene 7 pounds.

Still another illustrative remover may comprise terpineol 8 gallons, acetone 6 gallons and benzophenone 9 pounds.

Although not necessary in all cases it is usually desirable to employ in the remover in addition to the crystalline organic evaporation retarding material other suitable stiffening material, such as wood flour, starch, whiting, infusorial earth and soapy or waxy bodies, such as ceresin, paraffin, bayberry tallow, beeswax, ozocerite, tar oil and the like. All of the ingredients are preferably thoroughly incorporated by agitation at the desired moderate heat, the stiffening material being preferably first incorporated with the more energetic solvents, although this is not always necessary.

Having described this invention in connection with a number of illustrative ingredients, formulas, proportions and processes, to the details of which disclosure the invention is not of cource to be limited, what is claimed as new is:

1. The substantially non-aqueous non-inflammable finish remover, comprising approximately 40 gallons of ethyl alcohol, 20 gallons of terpineol, 40 gallons of carbon-tetrachlorid, with which 20 pounds of paraffin and 30 pounds of previously dried oxalic acid have been incorporated.

2. The substantially non-aqueous non-inflammable finish remover, comprising approximately 40 gallons of ethyl alcohol, 20 gallons of terpineol, 40 gallons of chlorinated solvent, waxy stiffening material and 3 to 5 per cent. of oxalic acid.

3. The substantially non-inflammable finish remover, comprising substantially non-inflammable composite organic finish solvent material, including a chlorinated solvent and terpineol, waxy stiffening material and several per cent. of oxalic acid wood bleaching material.

4. The substantially non-inflammable finish remover, consisting essentially of composite organic finish solvent material, including a chlorinated solvent, stiffening material and oxalic acid wood bleaching material.

5. The substantially non-inflammable finish remover, consisting substantially of composite volatile solvent finish softening material, including a considerable proportion of chlorinated inflammability suppressing solvent and incorporated dissolved dicarboxylic acid wood bleaching material.

6. The substantially non-aqueous finish remover, consisting essentially of volatile organic finish solvent material, including a chlorinated solvent and incorporated stiffening material and dissolved dicarboxylic acid wood bleaching material.

7. The substantially non-aqueous finish remover, consisting largely of composite volatile solvent finish softening material and dissolved dicarboxylic acid wood bleaching material.

8. The substantially non-inflammable finish remover, consisting essentially of composite organic finish solvent material, including a chlorinated solvent and terpineol and incorporated waxy stiffening material.

9. The substantially non-inflammable finish remover, consisting largely of composite organic finish softening material, including terpineol and a considerable proportion of carbon-tetrachlorid.

10. The substantially non-inflammable finish remover, consisting largely of composite organic finish softening material, including a loosening solvent, terpineol and a chlorinated solvent.

11. The substantially fluent finish remover, consisting largely of composite organic finish softening material, including terpineol, a loosening solvent and a considerable proportion of an inflammability suppressing chlorinated solvent.

12. The substantially non-aqueous finish remover consisting substantially of composite volatile organic finish softening material and incorporated waxy stiffening material and several per cent. of oxalic acid wood bleaching material.

13. The substantially non-aqueous finish remover consisting substantially of a volatile organic finish solvent material including a chlorinated solvent and incorporated stiffening material comprising wax and three to five per cent. of dissolved oxalic acid.

14. The finish remover, consisting largely of composite organic finish solvent material comprising terpineol and an inflammability suppressing chlorinated solvent.

15. The substantially non-aqueous finish remover consisting substantially of volatile organic finish solvent material including a chlorinated solvent and incorporated stiffening material and three to five per cent. of dissolved dicarboxylic acid wood bleaching material.

16. The finish remover comprising bleaching material capable of quickly bleaching weather-stained wood and a relatively large proportion of incorporated volatile composite finish solvent material and means to retard the evaporation of said solvent material.

17. The substantially fluent finish remover comprising oxalic acid bleaching material capable of bleaching weather-stained wood and at least as large an amount of incorporated volatile composite finish softening material including a loosening solvent.

CARLETON ELLIS.

Witnesses:
JOSEPH J. COLLINS,
FRANCES I. NEWMAN.