

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-REMOVING PROCESS.

1,185,641.

Specification of Letters Patent.

Patented June 6, 1916.

No Drawing.

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To all whom it may concern:

Be it known that I, CARLETON ELLIS, a citizen of the United States, and resident of Montclair, county of Essex, and State of New Jersey, have made certain new and useful Inventions Relating to Finish-Removing Processes, of which the following is a specification.

This invention relates to processes of removing paint, varnish or other finish from articles and consists in applying thereto by immersion or otherwise remover previously heated to 80 degrees centigrade or more and thereby energized or having its fluidity and solvent action promoted, such application being effected preferably by immersion of the article in the previously heated remover, the finish coating being thereby heated to substantially the temperature of the remover. The remover is then allowed to remain on the finish until the energized solvent material has dissolved, softened or loosened the same and then the finish and remover are removed from the article which is preferably washed or cleaned with volatile finish solvent material.

Many high boiling point liquids have energetic solvent or loosening action on paint, varnish or other finish and in many cases such action is considerably increased when the finish solvent material is heated to high temperatures, such as about 80 to 100 degrees centigrade or more before being applied to the finish. Such heating not only greatly increases the fluidity of the finish solvent material, but also promotes its finish solvent or softening action; and these desirable effects persist to a considerable extent after the solvent material begins to cool, probably due to the hysteretic fluidity and solvent action possessed by such bodies. It is of course desirable to keep the temperature of any such finish solvent material below the point where undesirable evaporation or fuming takes place and also to thereby minimize any chemical changes which might be caused by continued heating. It is also desirable in removing finish from wood or other fibrous or porous material which may contain traces of moisture to keep the temperature of the wood or the like below the boiling point of water so as to prevent expulsion of the moisture or undesirable absorption of the removing compositions, although it is of course under-

stood that where finish is being removed from metallic or other impervious articles considerably higher temperatures may in some instances be used. Higher temperatures of the applied remover are also in some cases desirable in removing paint from concrete, masonry or brick because of the greater cooling action of such materials on the thin layers of remover. Such high boiling point solvents as benzyl alcohol and many benzyl derivatives, such as benzyl acetate, cresyl acetate, carbolic benzyl ester, cresylic benzyl ester, and so forth, may be advantageously used in carrying out this process as well as phthalic methyl ester, phthalic ethyl ester, dichlor naphthalin, dichlor hydrin and the heaviest grade of solvent naphtha especially when fractionated to have the desired high boiling point. The temperature to which the finish solvent or loosening material is heated is of course dependent upon the composition used and with mixtures of about equal parts of benzyl alcohol and benzyl acetate, for instance, the temperature of the remover before application can if desired approach in some cases 150 degrees centigrade. When the remover is heated even as high as about 80 to 100 degrees centigrade greatly increased fluidity, solvent action and effectiveness are secured and many high boiling point remover compositions may be advantageously used in this way.

An illustrative remover for this purpose may comprise 10 parts of phthalic methyl ester, 35 parts of fractionated heaviest solvent coal tar naphtha, 30 parts of benzyl alcohol and 25 parts of benzyl acetate.

Another illustrative composition may comprise 30 parts of cresylic benzyl ester, 15 parts of phthalic methyl ester, 20 parts of benzyl alcohol and 30 parts of benzyl acetate.

Another illustrative composition may comprise 40 parts of cresylic benzyl ester, 10 parts of benzyl alcohol and 15 parts of benzyl acetate.

It is of course understood that where the previously heated remover is applied by means of brushes, sprayers or the like to the finished articles, it is desirable to increase the consistency of the remover compositions by incorporating suitable stiffening material, such for instance, as wood flour, preferably of the finest grade, starch, infusorial

earth, whiting, or the like. The incorporation of specially hard waxes is of some value in this connection and also tends to retard evaporation, especially at the lower temperature ranges. Such stiffening material may be incorporated in the above compositions to the desired extent, such as 5 to 15 per cent. to make the removers more suitable for various classes of work and 2 to 5 per cent. or more of various hard waxes or waxy bodies may also be incorporated if desired.

With comparatively small articles good results are secured when the articles are dipped for a sufficient time to heat the finish thoroughly in a tank of the previously heated remover which may be maintained at the desired temperature, preferably between 85 to 95 degrees centigrade when removing finish from wood or other porous or fibrous material containing moisture, by means of electric resistance heaters embedded in the tank or by steam jackets, water baths or the like. When the finish coating has been heated to substantially the temperature of the hot remover by contact therewith in the heated dipping tank the article is preferably withdrawn before substantial or undesirable solution of the finish has taken place and the remover allowed to remain on the finish until the energized solvent material has dissolved, softened or loosened the same, which of course varies with different kinds of finish. Then the softened and loosened finish and the remover in contact therewith are removed from the article in any desired way as by brushes, scrapers or other means and then preferably the surface of the article is washed and cleaned by the use of volatile solvent material which may be accomplished, for example, by dipping the article in a tank of volatile solvent material, such as an equal part mixture of benzol and acetone or wood alcohol. This thoroughly removes from the article any remaining traces of loosened finish and any traces of the remover. When the previously heated and energized remover is applied in small quantities by brushing or other generally similar methods to the finished surface of the article the finish is thereby heated considerably and is more rapidly and effectively dissolved or loosened by the energized finish solvent material which preferably has incorporated with it sufficient stiffening material of any suitable character to prevent the remover running off to an undesirable extent. The dissolved, loosened or softened finish may be similarly removed from the article in any desired way and a similar subsequent washing or cleaning may if desired be used in this connection.

In some cases also it may be desirable to re-heat the article after the energized remover has been applied thereto in such ways and this may be accomplished in any desired way as by passing the article after applying the desired small quantities of remover thereto through suitably heated chambers or by storing it therein, or if desired heated bodies such as electric or other heating plates may be passed or placed adjacent its surface, especially in cases where it is desirable to secure more energetic local removing action on any particular part of the finish.

Having described this invention in connection with a number of illustrative ingredients, proportions, compositions, processes, steps and orders of arrangement, to the details of which disclosure the invention is not of course to be limited,

What is claimed:

1. The process of removing a coating of paint, varnish or other finish from an article which consists in immersing the finished article in a body of high boiling point organic finish solvent remover having a boiling point over 200 degrees C. and which was previously heated to over 90 degrees C. to thereby energize the remover, in allowing the finished article to remain in the heated remover until the finish coating has been heated to substantially the temperature of the remover, in removing the finished article and adherent remover from the body of remover, in allowing the remover to remain on the finish until the energized finish solvent material in the remover has dissolved, softened or loosened the finish, in removing the finish and remover from the article and in cleaning the surface of the article with volatile liquid.

2. The process of removing a coating of paint, varnish or other finish from an article which consists in applying to the finish organic finish solvent remover having a boiling point over 200 degrees C. and which has been previously heated to over 100 degrees C. to energize the finish solvent material therein, in heating the finish coating to approximately the temperature of the remover in contact therewith, in allowing the remover to remain on the finish until the energized solvent material in the remover has dissolved, softened or loosened the finish and in removing the finish and remover from the article.

CARLETON ELLIS.

Witnesses:

HARRY L. DUNCAN,
JESSIE B. KAY.