Patented Jan. 7, 1930 1,742,347

UNITED STATES PATENT OFFICE

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ART OF REMOVING VARNISH AND ENAMEL COATINGS

No Drawing. Application filed February 23, 1926. Serial No. 90,208.

My invention relates to the removal of coatings of enamel, varnish and the like in which the binder or body consists in whole or in part of an oxidizing or drying oil such as linseed oil. It is of particular value for the removal of baked enamel such as employed upon automobile bodies, fenders, etc. Such baked enamels are very hard and difficult to remove from the metal surfaces to which they are applied as compared to varnishes which are dried at ordinary temperatures, and ordinary varnish solvents are not satisfactory for their removal. Prior to the present invention, therefore, it has been usual to employ for the removal of baked enamel, caustic alkali solutions. But alkali solutions as commonly employed require several hours for the removal of the enamel, are inconvenient to handle and have other disadvantages which need not here be described.

The varnish and enamel remover which forms the subject matter of the present specification effects the loosening of the enamel on the metal to which it has been applied in a relatively short space of time so that it may readily be washed off with water and is easy to handle and apply. My invention is based more particularly on the discovery that the chlorine or chlorinated derivatives of acetic acid have a very active solvent or disintegrating effect upon varnishes in which a drying oil is used and particularly upon baked enamel. I have found that monochloracetic acid, dichloracetic acid or trichloracetic acid may be used with satisfactory results, though the first-mentioned has the advantage over the other two in that it is cheaper. Manifestly, also, any materials may be used which when brought together in the remover composition form such chlorine substitution products of acetic acid. Furthermore, mixtures of the substitution products of acetic acid may be used with satisfactory results.

The chloracetic acid may be applied to the varnish, paint or enamel to be removed, as a liquid in any suitable solvent. A solvent which I have found satisfactory is alcohol. I have also found dichlorbenzol a satisfactory solvent for the chlorine substitution products of acetic acid in this connection, it having the additional advantage of having a marked solvent or disintegrating effect upon the varnish or enamel, thus aiding the action of the chlorinated acetic acid. Other solvents, however, might be used either alone or in admixture with those specified or either of them. Preferably I employ both alcohol and dichlorbenzol as solvents for the chlorine substitution products of acetic acid. Advantageous results may be obtained within a wide range of proportions of the mixture. Preferably, however, the dichlorbenzol will constitute more than half of the mixture, alcohol may constitute approximately a quarter thereof and the chlorinated acetic acid the remainder. I have found the following formulas satisfactory:

	Per cent
Dichloracetic acid	10
Alcohol	25
Dichlorbenzol	65
Monochloracetic acid	5
Alcohol	25
Dichlorbenzol	70

The activity of the remover may be increased if desired by additional quantities of the chlorine substitution products of acetic acid. It may also be increased by warming the mixture, but the application of heat thereto, naturally, renders the material more volatile and this is particularly true of the alcohol, the dichlorbenzol having a lower vapor pressure and a higher boiling point. Where very rapid action is desired, however, the mixture may be heated up to about 150 degrees F.

By the use of my improved remover baked enamel may be removed or rendered readily removable in a fraction of the time heretofore employed. After the application of the compound to the enamel for a period which depends upon the conditions above set forth but may be as short as five minutes, the enamel may be washed off from the metal very readily, the washing operation being assisted by mechanical means, if desired.

What I claim is:—

1. A varnish and enamel remover con-

taining a chloracetic acid and dichlorbenzol.

2. A varnish and enamel remover comprising a chloracetic acid, dichlorbenzol and alcohol.

3. A varnish and enamel remover comprising approximately 10 per cent of a chloracetic acid and between 50 and 70 percent of dichlorbenzol.

4. A varnish and enamel remover comprising approximately 10 per cent dichloracetic acid and between 50 and 70 per cent of dichlorbenzol.

5. A varnish and enamel remover comprising approximately 10 per cent dichloracetic acid, 25 per cent alcohol, and 65 per cent dichlorbenzol.

Signed by me at South Bend, Indiana, U. S. A., this 16th day of February, 1926.

EARL C. FRIES.