Published May 11, 1943

Serial No. 333,593

ALIEN PROPERTY CUSTODIAN

COMPOSITE PAINT AND THE METHOD OF MANUFACTURING THE SAME

Albert Frangois Xavier Ferdinand Alphonse Claessens, Hove, Belgium; vested in the Alien Property Custodian

No Drawing. Application filed May 6, 1940

The present invention consists in a new composite paint formed by at least two constituents, each of which is a paint or a varnish and which are capable of separating from each other, such separation being effected at least partially after the paint has been applied and spread upon a convenient surface.

According to the invention, the constituents used should be incompatible with each other or only compatible at a small degree, but they would be however miscible in massive quantities, such constituents being incorporated in the composite paint in the form of coarse mixtures. The invention relates also to a method of producing this new paint, as also to the different methods of working and embodiment which will be described hereafter.

Two paints will be considered as having little or no compatibility with each other when, after they have been mixed coarsely (thus without being emulsified for instance), they will separate from each other at least partially when they are spread in thin layers.

This incompatibility may result from different physical factors, for instance different wetting capacity, different specific weight, different dispersive and cohesive capacities, different surface tension, and the like.

By "miscible in masses" must be understood that when it is proceeded to a coarse mixing of the two constituents and the latter be present in massive quantity, and not in the form of a thin layer, the mixture would be sufficiently stable for permitting the industrial use thereof in spite of the incompatibility of the constituents. The stability of the complete product is generally secured mainly by the viscosity of the mass or of its constituents, so as to prevent a too rapid separation of the mass. The factor of viscosity is however losing its preponderating importance in the mixture when the product is spread in thin layers. The relative stability of the mixture may however also result from or being enhanced by other factors, such as for instance the addition of a known volatile solvent.

By "coarse mixture" must be understood that the mixture is essentially constituted with small quantities of each of the constituents which have wholly kept their individuality with almost always a small proportion of parts comprising a more intimate mixture of the constituents.

The way in which the constituents of the paints will separate from each other, after application upon a surface, depends from the nature of the physical phenomenons which cause the incompatibility of the constituents and, in a relative degree, from the nature of the surface upon which the paint is applied and from different other causes as will be explained by the following examples.

1. Taking for instance a composite paint according to the invention, formed with two constituents A and B, and in which the constituent A is a red minium paint and at the constituent B an enamel lacquer of resin in alcohol having a silver tint, and in which may be eventually incorporated fillers of specific quality having particularly waterproofing, fungicide and like characteristics. By coarsely mixing the two constituents, a composite paint is produced which will have a determined stability owing to its own viscosity; however, this stability may be increased by the addition of a common volatile solvent, for instance benzene.

When this composite paint is spread in relatively thin layers upon a convenient surface, such as for instance the iron of metallic structures, ships' hulls and the like, while avoiding any emulsifying of the paint (for instance by pouring out the paint), the volatile solvent will be rapidly evaporated and the capacity of viscosity will lose its preponderating importance, so that the physical factors, which make both constituents incompatible, may produce their effect. The constituent A (minium paint) has great spreading, wetting and adhesive capacities upon iron. It will become stretched in a uniform layer over the whole surface of the iron. The constituent B has a considerable adhesive capacity with relation to constituent A and will become spread in a uniform layer upon the product A. In this way, by one single operation and by one single application, it is produced a rust preventing layer with a minium base, upon which is superposed a layer of paint forming protection for the minium. Generally moreover, the two layers will be separated from each other by a third layer formed by a more or less intimate mixture of the constituents.

2. When the constituent A of the coarse mixture is an aqueous paint of resin, tinted for instance in yellow by convenient pigments and when the constituent B is an oil paint formed for instance with a blue pigment and when such composite paint is applied by means of a brush upon the surface of an article to be ornamented, the following phenomenons will occur. It must be firstly noticed that both constituents are not wholly incompatible in the meaning given herebefore to this expression.

The blue oil paint spreads in a thin bottom layer upon the article, owing to its higher capacities of dispersion and adhesion, and mainly to its wetting capacity, whereas the yellow resin solution, having a high surface tension and reduced adhesive and binding capacities, will have a tendency to shrink upon the oily film and to form accumulations forming plastic reliefs. It occurs furthermore a determined interpenetration of one of the constituents into the film of the other, an effect from which may be made profit in practice.

It will thus be obtained after drying an ornamenting effect of relief type. This relief effect may be increased and a decorative appearance may be also improved by the presence of a dominant coloration according to constituent A at the retracted parts and of a dominant coloration according to constituent B at the relief shaped parts or also by obtaining the transitory tint indicated herebefore. The ornamental effect may be also enhanced by uncovering the upper layer of the relief shaped parts by a slight scraping or frictioning.

The separation process may moreover be influenced by numerous other factors. The way in which the product is applied by the operator may be of great influence. In the example of the blue oil paint mentioned herebefore, the operator may produce a more or less marked emulsion by frictioning the brush containing the composite paint more or less energetically over the surface to be ornamented, so that a more or less considerable proportion of constituents will not separate, and such constituents will also be more or less spread, so that therefrom results that the operator is in position to improve the ornamental effect according to its personal skill and by producing variable tints due to the emulsified portions.

In the case of the minium paint, an energetical application by means of a brush would produce a strong emulsion and subsequently prevent the separation in superposed layers.

This paint product will find its application in numerous cases, namely in ornament of painting and in determined conditions for painting metallic articles, which want to be covered with two superposed paint layers.

It is obvious that such paint may be constituted according to a great number of compositions. The compositions mentioned hereafter are only given by way of examples and without any restrictive intention.

Examples

(1.) It is prepared, on the one hand, a solution of 100 parts by weight of Carnauba wax in 300 parts of benzene for preparing lacquers; thereto is added 90 parts of umber, and, on the other hand, a solution of 15 parts of shellac in 15 parts of alcohol at 95°, which are thoroughly mixed and to which is added, under stirring, 20 parts of antimony oxide suspended in 17 parts of water and 24 parts of alcohol. 16 parts of the first mass is now mixed with 14 parts of the second mass and this produces a mixture which can be easily shaken and which produces a covering layer with relief effect after application and light spreading by means of a brush.

(2.) 40 parts by weight of colophany resin are dissolved in 10 parts of ammonia at 22° Be. and 440 parts of water, solution to which is added 100 parts of lithopone. To 12 parts of this solution is then added, under stirring, 8 parts of concentrate cellulosic lacquer. After application with a brush and drying, a multicoloured plastic covering is obtained.

(3.) To a minium paint composed with 82 parts of lead minium, 15 parts of standoil and 3 parts of an aliphatic hydrocarbon is added an aluminium paint composed with 25 parts of synthetic resin, 15 parts of aluminum powder and 60 parts of methyl or ethyl alcohol, the whole being slightly stirred. By application with a brush in layers of convenient thickness, there is rapidly formed two layers of different composition, each of the two films complying with a specific technical purpose.

(4.) In a general manner, an oily paint could be mixed with an alcohol or a water paint.

The oil paint may be formed with 80 parts of powdered pigments and 20 parts of synthetic drying oil with 40 parts of petroleum. A second constituent is composed with 20 parts of shellack and 80 parts of alcohol at 93° or 20 parts of shellack dissolved in 75 parts of water and 5 parts of a basic salt, in which are introduced 150 parts of a pigment of different tint. The two paints are mixed in the proportion of 1 to 2.

ALBERT FRANÇOIS XAVIER
FERDINAND ALPHONSE CLAESSENS.