

UNITED STATES PATENT OFFICE

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WATERPROOFING COMPOSITION AND METHOD OF PREPARING SAME

No Drawing.

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This invention relates to a waterproofing composition having superior waterproofing qualities and which will not allow the formation of mold or mildew when applied to fabrics.

5 An object of the present invention is to disclose a method of making a waterproofing composition. Another object is to disclose a method of preventing the formation of lumps or granular masses in the manufacture of waterproofing compositions containing waxes, a soap and a petroleum thinner. An object of the present invention is to produce a product suitable for use as a
15 waterproofing composition which is not dangerously volatile and still has desirable evaporating characteristics. Another object is to disclose a waterproofing product comprising aluminum palmitate, paraffin wax,
20 beeswax and a thinner of relatively narrow boiling point range.

Waterproofing compositions are rather extensively used, particularly in liquid form, for saturating fabrics such as tarpaulins, tents, awnings and clothing and for the treatment of structural materials such as walls and wooden flooring. Hitherto such waterproofing compounds have been composed of drying oils, gums or varnishes,
25 waxes or the like containing a volatile solvent which enables the compounds to be applied by means of a brush or a spray to the surfaces to be treated. The function of the solvent is to act as a vehicle to carry the
35 waterproofing media into the pores or interstices of the fabric or other body being waterproofed and then on evaporation to leave the fibers coated with a non-porous substance or water-repellent substance which is designed to prevent the entry and absorption
40 of water. Many of these compounds tend to discolor the material to which they are applied, do not prevent the growth of mold or mildew, are apt to dry slowly, require considerable mixing or stirring prior to use
45 and very often liberate toxic vapors. Our invention comprises a method of manufacturing a waterproofing composition which results in a product having superior waterproofing qualities and which contains an

ingredient which, by reason of its water-repellent characteristics, offers active resistance to the entry of moisture into fabrics and other materials to which it is applied. Furthermore, our product has none of the disadvantages above referred to and is remarkably stable and homogeneous. The process of manufacturing comprises the addition of a metallic soap, particularly aluminum palmitate, to a heavy petroleum product and then mixing the mass with suitable waxes, the resulting mixture being dissolved in a petroleum thinner of relatively narrow boiling point range.

It is acknowledged that the use of soaps in waterproofing compositions is old but we have found that all soaps do not produce the desired results and have discovered that aluminum palmitate is extraordinarily effective when incorporated in accordance with our method. Furthermore, we have found that in order to prevent the formation of lumps, the aluminum palmitate should be first mixed with a heavy oil such as petrolatum and then the beeswax added to the mixture. Beeswax apparently exerts a peculiar solvent action upon the aluminum palmitate thereby enabling the resulting mass to dissolve easily and completely in the petroleum thinner. As has been said before, various waterproofing compositions made heretofore do not dry quickly and rapidly settle out on standing. We have found that the success of our waterproofing composition depends upon strictly following a certain series of steps in certain order, namely, the kneading of aluminum palmitate with petrolatum into a paste, then adding beeswax and, if desired, a paraffin wax such as white scale wax to the paste, heating this mixture with constant agitation to a temperature of about 260° F., cooling the mixture to below the initial boiling point of the thinner and then adding slowly the petroleum thinner, agitation being continued during such addition. The petroleum thinner which we prefer to use is a distillate fraction having a boiling point range of between 220° and 450° F. A distillate of 275° F. initial and 450° F. final

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boiling point has been found satisfactory as it is easily applied and is sufficiently volatile to evaporate after application without leaving a persistent and lasting odor. This thinner also has a higher flash point than benzol, for example, thereby permitting compounding of the mixture at higher temperatures and its vapors are agreeable and harmless while those of benzol are highly toxic.

A specific embodiment of our invention and the proportions which we have found to give a desirable product are as follows: To thirty parts of commercial petrolatum fifteen parts, by weight, of aluminum palmitate are added and the mixture kneaded into a smooth paste free from lumps. Or the petrolatum may be heated to about 130° F., whereupon the consistency of the petrolatum is such that a smooth mixture is produced by introducing the palmitate and stirring. To this mixture is added fifty parts of commercial, yellow beeswax and one hundred five parts of soft paraffin wax, such as white scale wax, and the resulting mixture agitated in a steam heated container. The temperature is brought up to 250° to 270° F. and the agitation continued until a smooth, homogeneous mass is obtained. The mixture is then allowed to cool to about 220° F. and about eight hundred parts by weight of a petroleum thinner having a boiling range in this instance of 275° to 450° F. added. It will be found that the resulting product is stable and homogenous, of proper viscosity for application by hand or machine, and extremely suitable as a saturant for waterproofing fabrics. It acts as a preservative to fabrics to which it is applied and forms a water-repellent and impervious coating on each of the fibers making up the material.

The proportions of our preferred composition by weight may be expressed approximately as follows:

- 1.5% aluminum palmitate.
- 3% petrolatum.
- 10.5% soft paraffin wax.
- 5% yellow beeswax.
- 80% petroleum thinner by weight.

We do not desire to be limited to the exact proportions or details of operation disclosed in the above specific example which is merely illustrative of our preferred method, and various modifications and changes may be made therein, it being understood that our invention embraces all changes and modifications which come within the scope of the following claims.

We claim:

1. The process of making waterproofing compositions comprising plasticizing aluminum palmitate in a mineral oil, heating the resulting mixture with a wax to produce

a plastic mass and then incorporating a petroleum thinner in said mass.

2. The process of making waterproofing compositions comprising plasticizing aluminum palmitate in petrolatum, heating and agitating the resulting mixture with a wax to produce a plastic mass and then incorporating a petroleum thinner in said mass.

3. The process of making waterproofing compositions comprising plasticizing aluminum palmitate in petrolatum, heating and agitating the resulting mixture with beeswax to produce a plastic mass and then incorporating a petroleum thinner having a boiling point range of between 220° and 450° F. in said mass.

4. The process of making waterproofing compositions comprising plasticizing aluminum palmitate in petrolatum, agitating the resulting mass with a mixture of beeswax and mineral wax at a temperature of about 250° F., and then adding a petroleum thinner of relatively narrow boiling point range to the resulting mixture at a temperature below initial boiling point of said thinner.

5. In the process of making waterproofing compositions, the step of dissolving aluminum palmitate in a petroleum thinner by first mixing aluminum palmitate with beeswax and then adding petroleum thinner to such mixture.

6. A waterproofing and preserving composition comprising liquid petroleum thinner of relatively narrow boiling point range, petrolatum, aluminum palmitate and beeswax.

7. A waterproofing and preserving composition comprising aluminum palmitate, petrolatum and beeswax.

8. A waterproofing and preserving composition comprising aluminum palmitate, petrolatum, beeswax and paraffin wax.

9. A waterproofing and preserving composition comprising liquid petroleum thinner of about 220° to 450° F. boiling point range, aluminum palmitate, petrolatum and beeswax.

10. A waterproofing and preserving composition, comprising a liquid petroleum thinner having an initial boiling point of over about 220 degrees F., petrolatum, aluminum palmitate and a wax.

11. A waterproofing and preserving composition, comprising a liquid petroleum thinner having an initial boiling point of over about 220 degrees F., petrolatum, aluminum palmitate and beeswax.

Signed at Richmond, California, this 20th day of September, 1927.

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