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COMPOSITION OF MATTER

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The present invention relates to compositions made of cashew nut shell liquid and hard wood pitch and to method of dissolving and using the latter material with the first. The compositions and products of the invention are suitable for impregnating and coating purposes, and are useful in the arts generally.

The hardwood pitch used in the practice of the present invention has the characteristics of being hard, brittle, and non-resilient, and of being nonmiscible in animal and vegetable oils.

An object of the invention is to modify hard wood pitch to overcome its natural brittleness, and to overcome its natural nonmiscibility with animal and vegetable oils.

Other objects and advantages of the invention will appear from the following statement of the invention and from the appended claims.

According to the invention a mixture is made of hard wood pitch and cashew nut shell liquid, the latter being heated to impart drying characteristic thereto. This heating of the cashew nut shell liquid can be done either before, during or after the mixing with the hard wood pitch. The hard wood pitch can be either comminuted or melted to mix it with the cashew nut shell liquid.

The cashew nut shell liquid is heated preferably between 200° F. and about 650° F. to impart drying characteristic thereto; and usually a drier is added to aid in the drying or setting thereof. Suitable driers are manganese resinate, lead resinate, manganese oxide, lead oxide, iron oxide, copper oleate or others or mixtures of any of these.

The proportions of the hard wood pitch and cashew nut shell liquid can be varied from a small ratio of one, say about five per cent, to the other extreme, to suit various needs.

A particular example (A) of making a product of the present invention is to heat together about three and one-half parts by weight of cashew nut shell liquid and one part of chinawood oil to about 610° F., about three and one-half per cent of manganese resinate being added during this heating. One part by weight of this mixture is heated together with about two parts of hard wood pitch at about 450° F. and mixed together. Among other uses, this mixture is suitable for impregnating electric transformer coils, the mixture being put in at the melting or flow point thereof which is about 210° F.

Another example (B) is to melt together about two parts by weight of hard wood pitch and one part of cashew nut shell liquid which latter has been heated to about 550° F. to 600° F., about three per cent of manganese resinate being added. This mixture is suitable for impregnating coils and fabrics and for other uses.

The time of heating in examples (A) and (B) can be varied to suit the body desired in the finished composition.

These particular mixtures and others of the invention form a protective film when the cashew nut shell liquid sets or dries and the whole is insoluble in petroleums, is resilient and strong, and has good electrical insulating characteristics.

The two particular examples given above can be used without the drier, manganese resinate, and are useful in such form as an impregnating and filling compound, among other uses.

The particular given examples of the invention as well as other combinations thereof can be taken up with a solvent or thinner when first made up and applied therewith as a coating or impregnating compound, and thereafter dried.

The drying or setting of the mixtures of the invention will take place at room temperature, or the drying can be hastened by heating to a point below the melting point of the mixture.

Linseed oil, castor oil, fish oil, gums and resins, can be used in place of or with the chinawood oil of the first example and in other combinations of the invention to suit various uses, all within the scope of the invention. The gums and resins suitable for use are East India gums, run or select fossil gums, kauri, also synthetic gums of all kinds.

The driers, above mentioned and others, are useful in any of the above compositions for setting or drying when desired, as is also formaldehyde, the latter being suitable alone or with a drier.

When non-drying or semi-drying compositions are desired sulphur can be used in any of the above compositions to give the cashew nut shell liquid a tack which is permanent or recurrent upon increase above normal temperatures.

Fillers can also be used with the above compositions of the invention. For instance, either of the compositions which are examples (A) or (B), above, can be mixed twenty parts by weight with about eighty parts of barytes to make a filling compound for transformer lead bushings. Also silica, iron oxide, oleate dust, and so on can be used for fillers.

The above particular examples are given for illustration and it is clear that various changes in the proportions and combinations can be made in view of the above disclosure.

Having thus described my invention, what I desire to protect by Letters Patent is:

1. A composition of matter comprising cashew nut shell liquid and hard hardwood pitch, said pitch being insoluble in mineral and naturally drying vegetable oils.

2. A composition of matter comprising cashew nut shell liquid modified to a drying condition, and hard hardwood pitch, said pitch being insoluble in mineral and naturally drying vegetable oils.

3. A composition of matter comprising a natural drying oil, cashew nut shell liquid, and hard hardwood pitch, said pitch being insoluble in mineral and naturally drying vegetable oils.

4. A composition of matter comprising a vegetable oil, cashew nut shell liquid, and hard hardwood pitch, said pitch being insoluble in mineral and naturally drying vegetable oils.

5. A composition of matter comprising hard hardwood pitch, cashew nut shell liquid and a drier such as manganese resinate, said pitch being insoluble in mineral and naturally drying vegetable oils.

6. A composition of matter insoluble in petroleums and made by mixing together hard hardwood pitch and cashew nut shell liquid, said pitch being insoluble in mineral and naturally drying vegetable oils and said cashew liquid having been heated between 400° F. and 650° F.

7. A composition of matter insoluble in petroleums and made by mixing together hard hardwood pitch, cashew nut shell liquid, and a drier such as manganese resinate, said pitch being insoluble in mineral and naturally drying vegetable oils and said cashew liquid having been heated between 400° F. and 650° F.

8. A composition of matter insoluble in petroleums and made by mixing together hard hardwood pitch, cashew nut shell liquid, and formaldehyde, said pitch being insoluble in mineral and naturally drying vegetable oils and said cashew liquid having been heated between 400° F. and 650° F.

9. The method which comprises mixing hard hardwood pitch and cashew nut shell liquid, said pitch being insoluble in mineral and naturally drying vegetable oils and said cashew liquid being heated in a range between 400° F. and 650° F. to give it a drying characteristic.

Signed this 14th day of February at Irvington, New Jersey.

FREDERICK M. DAMITZ.