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3,301,760
**PROCESS AND COMPOSITIONS FOR
MENDING FINGERNAILS**
Paul W. Jewel, North Hollywood, Calif., assignor to Max
Factor & Co., Los Angeles, Calif., a corporation of
Delaware
No Drawing. Filed June 11, 1962, Ser. No. 201,256
23 Claims. (Cl. 167—85)

This application is a continuation-in-part of Serial No. 158,535, filed December 11, 1961 and now abandoned. This invention relates to the repair of broken fingernails and has particular reference to a composition and process for mending broken fingernails which do not impart a change in the appearance of the nail after it has been mended.

One of the principal objects of the present invention is to provide a mending composition and process for broken fingernails which do not alter the appearance of the nail after it has been repaired.

Another object of this invention is to provide a composition and process for repairing broken fingernails which make it possible for conventional nail polish to be applied to the nail after it has been repaired.

A further object of the present invention is to provide a composition and process for the repair of broken fingernails comprising the application of a mixture of colorless lacquer and fibres.

A still further object of the present invention is to provide a composition and process for the repair of broken fingernails comprising the application of a mixture of colorless nail lacquer and nylon fibres.

Still other objects are to provide a composition and process which accomplish the preceding objects with the additional features that a colored nail polish and colored or colorless fibres are used.

Other objects and advantages of the present invention will be readily apparent from the following detailed description of the preferred embodiments thereof.

The objects of the present invention are achieved by the preparation of a mixture comprising colorless lacquer and fibres and the application of this mixture to a broken fingernail, or, in the alternative, the preparation and application of a mixture comprising colored nail polish and harmoniously colored or colorless fibres.

The following specific examples are illustrative of the composition and process of this invention, but it is to be understood that the invention is not to be limited to the specific details thereof.

Example I

The following composition was prepared:

	Percent
Nylon fibres (3 denier, 1/8 inch in length)-----	1
Clear nail lacquer -----	99

The clear nail lacquer used in this example was a nail base coat, i.e., a solution of nitrocellulose in suitable organic solvents. It is available commercially as Nail Satin base coat, manufactured by Max Factor & Co.

Example II

The following composition was prepared:

	Percent
Nylon fibers (3 denier, 1/8 inch in length) -----	1
Nail polish -----	99

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The nail polished used in this example had the following composition:

Nitrocellulose -----	12.5
Santolite MHP (an aryl sulfonamide formaldehyde resin (Mfd. by Monsanto) -----	10.0
Camphor -----	3.0
Dibutylphthalate -----	5.0
Ethylacetate -----	25.0
Butylacetate -----	23.5
Toluene -----	20.0
Titanium dioxide -----	0.5
Amaranth (C.I. No. 184) -----	0.5

The nylon fibres used in this example were colored so as to blend with the colored nail polish.

The compositions described above were applied to broken fingernails. It was found that at 5% nylon fibres the mixture became somewhat thick, and was difficult to apply when the nylon fibre content exceeded 5%. Furthermore, it was found that the mixture had optimum application properties at 1.0% nylon fibres. In general, 0.1 to 5% by weight fibres may be used.

The preparations were applied to broken fingernails in amounts ranging from about 0.02 gram to about 0.08 gram with satisfactory results. It was found that for the normal broken fingernail about 0.04 gram gave satisfactory results. The mending compositions were applied to a split or cracked nail in the usual manner of applying lacquer to the surface of fingernails. Of course, if the nail was broken such that it was hanging loosely it was necessary to hold the broken pieces of the nail in their normal position during the application of the mending composition. When the mending composition dried the sides of the crack or split were securely held in position.

While the exact nature of the bonding mechanism is not known, it is possible that the fibres provide a bridging structure between the sides of the crack or split.

It is a primary feature of the present invention that, after mending, the broken fingernail has an appearance substantially the same as that of a normal unbroken nail. Thus, there are no unsightly ridges or lumps of mending material on the nail. Furthermore, in those cases where a composition comprising a clear nail lacquer was used, the nail is not discolored by the mending composition. In those cases where a composition comprising a colored nail polish was used, the appearance of the mended nail was substantially the same as that of a normal unbroken nail after application of nail polish.

Conventional fingernail polishes may be subsequently applied to the mended nail if desired, after use of the colorless mending composition, which is an additional distinct advantage of the present invention.

The practice of the present invention is not limited to a specific size or type of fibre. For example, fibres comprising the following materials have been found to give satisfactory results: rayon, polyacrylonitrile, polyethylene terephthalate, cellulose acetate, polyolefins (e.g., polyethylene, polypropylene), polyurethanes, polyesters, vinyl polymers, copolymers of these polymers, e.g., a vinyl chloride-acrylonitrile copolymer such as dynel, cotton and silk. It is, of course, required that the fibres be small enough so that they are not readily visible to the naked eye. In this regard, it has been found that fibres of about one-eighth of an inch in length and about 0.1 millimeter in diameter are highly satisfactory.

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The fibres should also be insoluble or only slightly soluble in the lacquer with which they are mixed.

The colorless lacquer used in the practice of this invention is preferably of the resin-base type. Exemplary of the synthetic resins which may be used for this purpose are: polyvinyl acetate, polyesters, aryl sulfonamides, ethyl cellulose, cellulose acetate butyrate, cellulose acetate, polyvinyl, butyral, polyvinyl formal, glyceryl phthalate and methyl methacrylate. The following natural resins have also been found satisfactory: dammar, mastic, sandarac, benzoin and rosin (colophony). The solvent phase of the lacquers prepared from one or more of these or similar resins may be any suitable organic solvent. For example, acetone, acetic acid, ethyl acetate, dioxane, pyridine, ethanol and tetrachloroethane have been found satisfactory. The colored nail polish of this invention may be any suitable resin-base lacquer pigmented with certified dye lakes or with suitable inorganic pigments.

The colored fibres used in the practice of this invention may be produced according to any of the conventional textile dyeing processes.

When using the mending compositions comprising colored nail polish according to the practice of this invention, it has been found that colorless fibers may be used as well as fibers which are colored so as to blend with the nail polish. In general, however, it is preferred to use harmoniously colored fibers.

Having fully described my invention, it is to be understood that I do not wish to be limited to the details set forth, but my invention is of the full scope of the appended claims.

I claim:

1. A fingernail repair composition comprising a fluid mixture of colorless fingernail lacquer and about 0.1% to about 5% fibres, said fibres having a length and diameter such that they are not readily visible to the naked eye.

2. A fingernail repair composition comprising a fluid mixture of colorless fingernail lacquer and about 1.0% fibres, said fibres having a length and diameter such that they are not readily visible to the naked eye.

3. A process for repairing broken fingernails comprising applying to the broken fingernail a composition comprising a fluid mixture of fingernail lacquer and from about 0.1% to about 5% fibres, said fibres having a length and diameter such that they are not readily visible to the naked eye.

4. A process for repairing broken fingernails comprising applying to the broken fingernail a composition comprising a fluid mixture of fingernail lacquer and about 1.0% fibres, said fibres having a length and diameter such that they are not readily visible to the naked eye.

5. The process of claim 3 wherein the mixture is applied in an amount of about 0.04 gram.

6. The process of claim 3 wherein the fibres have a length of about one-eighth inch and a diameter of about 0.1 millimeter.

7. The process of claim 4 wherein the mixture is applied in an amount of about 0.04 gram.

8. The process of claim 4 wherein the fibres have a length of about one-eighth inch and a diameter of about 0.1 millimeter.

9. The process of claim 3 wherein the lacquer comprises nitrocellulose.

10. The process of claim 3 wherein the fibres comprise nylon.

11. The process of claim 3 wherein the lacquer is colorless and the fibres are colorless.

12. The process of claim 3 wherein the lacquer is colored and the fibres are colored so as to blend with the lacquer.

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13. The process of claim 3 wherein the lacquer is colored and the fibres are colorless.

14. The process of claim 3 wherein the fibres comprise a vinyl chloride-acrylonitrile copolymer.

15. A fingernail repair composition comprising a fluid mixture of a colorless fingernail lacquer and about 0.1% to about 5% fibres having a length of about one-eighth inch and a diameter of about 0.1 millimeter.

16. A fingernail repair composition comprising a fluid mixture of a colorless fingernail lacquer and about 1.0% fibres having a length of about one-eighth inch and a diameter of about 0.1 millimeter.

17. A fingernail repair composition comprising a fluid mixture of a fingernail lacquer and short-length fibres, said fibres having a length and diameter such that they are not readily visible to the naked eye.

18. A fingernail repair composition comprising a fluid mixture of a colorless fingernail lacquer and colorless short-length fibres, said fibres being present in an amount of about 0.1% to about 5%, said fibres having a length and diameter such that they are not readily visible to the naked eye.

19. A fingernail repair composition comprising a fluid mixture of a colored fingernail lacquer and harmoniously colored short-length fibres, said fibres being present in an amount of about 0.1% to about 5%, said fibres having a length and diameter such that they are not readily visible to the naked eye.

20. A fingernail repair composition comprising a fluid mixture of a colored fingernail lacquer and colorless short-length fibres, said fibres being present in an amount of about 0.1% to about 5%, said fibres having a length and diameter such that they are not readily visible to the naked eye.

21. A fingernail repair composition comprising a fluid mixture of nitrocellulose fingernail lacquer and short-length fibres, said fibres being present in an amount of about 0.1% to about 5%, said fibres having a length and diameter such that they are not readily visible to the naked eye.

22. A fingernail repair composition comprising a fluid mixture of a fingernail lacquer and short-length nylon fibres, said fibres being present in an amount of about 0.1% to about 5%, said fibres having a length and diameter such that they are not readily visible to the naked eye.

23. A fingernail repair composition comprising a fluid mixture of a fingernail lacquer and short-length fibres comprised of a vinyl chloride-acrylonitrile copolymer, said fibres being present in an amount of about 0.1% to about 5%, said fibres having a length and diameter such that they are not readily visible to the naked eye.

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JULIAN S. LEVITT, *Primary Examiner*.

FRANK CACCIAPAGLIA, JR., *Examiner*.

ANNA P. FAGELSON, STANLEY J. FRIEDMAN,
Assistant Examiners,