

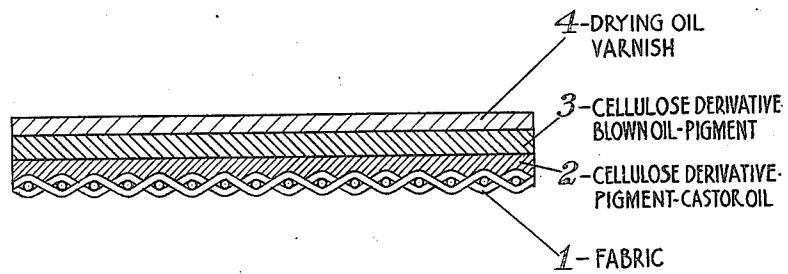
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NONPIPING HIGH GLAZED COATED FABRIC

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NONPIPING HIGH GLAZED COATED FABRIC

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This invention relates to the production of non-piping high glazed patent leather finish for non-rigid surfaces and more particularly to the production of non-piping high glazed patent leather finish for coated fabrics of the cellulose derivative type.

High luster or patent leather finishes on leather or coated fabrics are produced by the application of, to suitable base coatings, drying oil varnishes or clear dispersions in organic dispersing media of cellulose derivatives such as cellulose nitrate, cellulose acetate, etc. The drying oil varnishes must, of course, be baked so as to become thoroughly dry and hard in order to produce a high degree of luster. The baking temperatures for the usual types of varnishes used may vary from 150° F. to 200° F. or higher, the temperature used depending to a large extent on the particular type of varnish applied and finish desired. When drying oil varnishes are used, it is necessary and essential that no oil of the non-drying oil type such as raw castor oil be present in the base coats, because during the baking operation, the non-drying oil may exude from the base coating and mix with the varnish, thus inhibiting or preventing the varnish from drying and hardening to produce the high luster finish. In order to prevent this difficulty, it has been found necessary to use as softeners in the cellulose derivative base coatings, an oil of the drying or semi-drying type such as boiled or blown linseed oil, blown cottonseed oil or blown castor oil. Films of such compositions are quite different in elasticity from the top film which produces the high luster and on bending or folding such high luster material, a crinkling effect is produced which consists of a series of fine parallel lines. This crinkling effect is known to those versed in the coated fabric industry as piping. Piping mars the high luster surface of the material and is not readily remedied, if ever, when the cause of the folding or bending is removed. This piping is an objection to practically all of the high glazed or patent leather finish coated fabrics now produced, in which a drying oil type varnish is used.

This invention has as an object the elimination of the defect known as piping in high luster or patent leather finishes on non-rigid surfaces. A further object is the elimination of the crinkling or piping in high luster or patent leather finish coated fabric of the cellulose derivative composition type.

These objects are accomplished according to the present invention by the use of a coating sys-

tem in which the elasticity of the compositions comprising the various strata of the film more nearly approach the elasticity of the high glazed top stratum, thus obviating the cause of the wrinkling or piping.

The following example is submitted as illustrative of the invention, but not as a limitation thereof.

The single figure represents a diagrammatic section through a fabric coated according to the one form of the herein disclosed invention. In the drawing 1 represents the base fabric; 2 is a cellulose derivative composition coat containing pigment and raw castor oil. The second or intermediate layer is indicated as 3 and contains a cellulose derivative and a blown oil. The surface layer 4 represents a clear drying oil varnish coat.

To the flexible sheet material as a base are applied successive coats of a cellulose nitrate—raw castor oil composition of the following formula:

Composition A

	Parts by weight
Cellulose nitrate	12.1
Pigment	18.6
Raw castor oil	27.5
Solvent	41.8

This composition is applied by means of a doctor knife in a suitable machine which has means for suitably evaporating the solvent and drying the composition and thus producing the film on the flexible base sheet material. Many variations in the means for applying the composition will be readily apparent to those versed in the art. The composition may be applied in as many coats as desired, although for economic reasons it is preferable to keep the number of applications as low as is consistent with the production of a high quality film. The above composition is applied to the extent of from 50 to 85% by weight of the total weight of cellulose derivative-softener composition to be applied to the flexible base sheet material. The preferred amount has been found, however, to be approximately 75%. After this composition has been applied there is then applied a composition of the following formula:

Composition B

	Parts by weight
Cellulose nitrate	12.1
Pigment	18.6
Blown cotton seed oil	27.5
Solvent	41.8

This composition is applied according to the

method previously described for applying the base coatings. The amount applied may vary between 15 and 50% by weight of the total cellulose derivative film, although experience has shown that approximately 25% is the preferable amount. To the flexible base sheet material so coated is applied the final coat or coats of a suitable drying oil varnish which produces the high luster finish. The method of application of such a varnish is known to those skilled in the art and special variations will be readily recognized. Such varnishes, as is well known, are usually dried by heating in a suitable chamber for varying lengths of time, such time depending on the type of varnish used, at elevated temperatures which may vary from 150° to 200° F. or higher.

While the compositions noted above are preferred the proportion of the ingredients may vary over the following range without detracting materially from the ultimate result which it is desired to obtain:

	Parts by weight
Cellulose nitrate-----	11.9-13.5
Pigment-----	11.4-19.2
25 Softener-----	27.3-33.7
Solvent-----	37.5-44.8

A solvent which has been found to be satisfactory consists of ethyl acetate 38%, ethyl alcohol (95% by volume) 60% and acetone 2%. The acetone forms in this particular case the denaturing ingredient in the industrial ethyl alcohol used and incidentally also forms a part of the active solvent ingredient of the mixture.

While raw castor oil has been mentioned as the softener ingredient in the composition used as the foundation coats, I do not wish to limit myself to this softener. Solvent softeners such as tricresyl phosphate, dibutyl phthalate and dibutyl tartrate can satisfactorily replace the raw castor oil. For the composition which forms that portion of the film directly adjacent to the varnish top coat, blown castor oil, blown rapeseed oil or resins of the type known in the trade as "Paraplex" resins are satisfactory.

The flexible sheet material base may be any one of those commonly used in the coated fabric art as sheeting, drill, duck, sateen or moleskin weaves. A fibrous non-woven flexible sheet as felt and similar material may also be used as the base.

While cellulose nitrate has been found to be satisfactory as the cellulose derivative ingredient of the coating compositions, other cellulose derivatives such as cellulose acetate can be used. The solvent used may vary according to the cellulose derivative which is selected and will also be influenced by other factors. Variations in the choice of solvents will, however, be readily apparent to those skilled in the art of preparing coating compositions with cellulose derivatives.

High glazed or patent leather finish coated fabrics are used as a satisfactory substitute in many places where genuine patent leather is used. It also finds many uses where genuine patent leather is not suitable either from a practical or economic standpoint. Examples of uses for the patent leather finish coated fabric are luggage, purses, millinery trimmings, shoe trimmings, etc.

Advantages of the practice of the invention are the production of high luster or patent leather finish coated fabrics in which is eliminated the defect of piping existent in the product as manufactured according to the present state of the

art. This is accomplished by using compositions which produce films approaching uniformity in elasticity with the result that the several strata of the composite film do not have wide variations in elasticity, thus reducing to a minimum or eliminating entirely the piping effect which exists in the material made according to present practice. A further advantage of the practice of the invention is the production of a softer and more pliable finished product due to the use of raw castor oil or plasticizers in the base coating. It is well known to those versed in the art that raw oils and plasticizers produce softer and more pliable films than the treated oils, such as the blown oils. The use of blown oil coatings directly adjacent to the high luster producing coatings is, of course, essential as previously discussed, to produce a finish which will dry properly, and possess a high luster.

It is apparent that many widely different embodiments of this invention may be made without departing from the spirit and scope thereof and, therefore, it is not intended to be limited except as indicated in the appended claims.

I claim:

1. A flexible sheet material having a high luster finish comprising a non-brittle undercoat of cellulose derivative-softener-pigment composition; intermediate coats of cellulose derivative-blown vegetable oil-pigment composition; and a top coat of a drying oil varnish, the softener referred to being a member of the group consisting of raw vegetable oils and solvent softeners.

2. A flexible sheet material having a high luster finish comprising non-brittle undercoats of cellulose derivative-raw vegetable oil-pigment composition; intermediate coats of cellulose derivative-blown vegetable oil-pigment composition and a top coat of a drying oil varnish.

3. Product of claim 2 in which the raw vegetable oil is castor oil.

4. Product of claim 1 in which the blown vegetable oil is blown castor oil.

5. Product of claim 1 in which the blown vegetable oil is blown cottonseed oil.

6. A flexible sheet material having a high luster finish comprising a non-brittle undercoat of cellulose nitrate-softener-pigment composition; intermediate coats of cellulose nitrate-blown vegetable oil-pigment composition; and a top coat of a drying oil varnish, the softener referred to being a member of the group consisting of raw vegetable oils and solvent softeners.

7. Product of claim 6 in which the blown vegetable oil is blown castor oil.

8. Product of claim 6 in which the blown vegetable oil is blown cottonseed oil.

9. A process which comprises applying to a flexible base material a composition consisting of approximately 21% cellulose nitrate, 47% raw castor oil and 32% pigment dissolved in a solvent, allowing the solvent to evaporate, and applying a second similar coat in which the raw castor oil is substituted in whole or part by blown cottonseed oil, and allowing the solvent to evaporate and applying a finish coat of drying oil varnish.

10. Process of claim 9 in which about 75% of the total cellulose derivative coating compositions is applied as a first coat.

11. A flexible sheet material having a high luster finish comprising a plurality of a cellulose derivative-softener-pigment composition coats, the softener in the first coat being raw castor oil and in the subsequent coats, blown cottonseed oil.

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