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A. A. SCHOENBERG ET AL

2,644,262

APPLYING DECORATIVE DESIGN TO LEATHER

Filed Jan. 24, 1950

FIG. 2

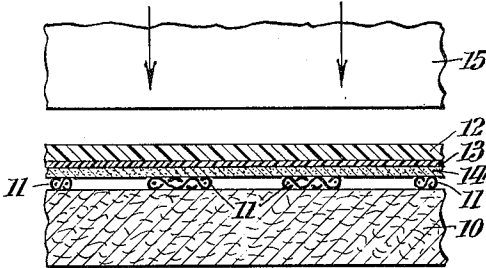


FIG. 7

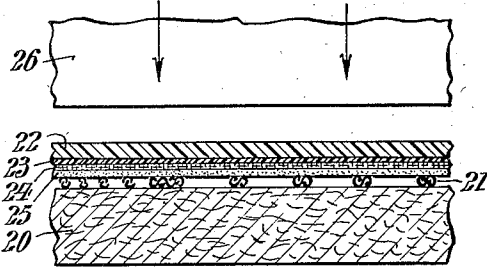


FIG. 3

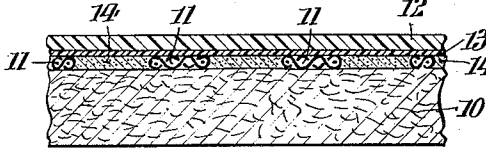


FIG. 8

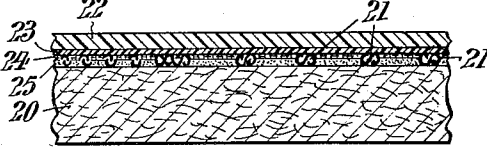


FIG. 4

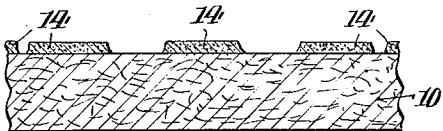


FIG. 9

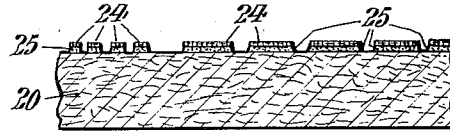


FIG. 1

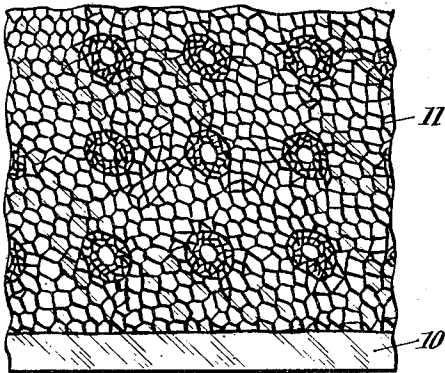


FIG. 6

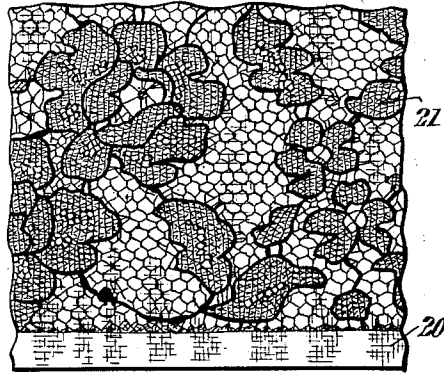
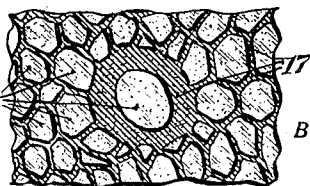


FIG. 5



WITNESSES

Thomas W. Perry Jr.
Hubert Fuchs

INVENTORS
John V. Hastings, III.
Andrew A. Schoenberg

BY

Paul & Paul
ATTORNEYS.

UNITED STATES PATENT OFFICE

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APPLYING DECORATIVE DESIGN TO
LEATHERAndrew A. Schoenberg, Philadelphia, and John
V. Hastings III, Gladwyne, Pa.

Application January 24, 1950, Serial No. 140,197

15 Claims. (Cl. 41—37)

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This invention relates to processes for producing decorative colored patterns on leather and particularly to producing patterns in contrasting colors on suede leather and on base materials other than leather.

Heretofore the application of colored patterns to leather has been carried out by brushing or spraying the coloring material through a stencil which is placed over the leather. However, the processes known to the art have been unsatisfactory for most purposes largely because of the tendency of colored patterns so applied to work free of the surface as the leather is used. Moreover, in the case of suede leather there are present at the surface a multiplicity of very fine projections which give to suede leather its characteristic soft feel. These projections present a surface which resists the uniform application of color. The result is that attempts to form patterns in color on suede leather using the processes known to the art have not given practical results because of poor adhesion of the color to the leather and a pronounced tendency to give a blurred outline, particularly where the stencil is cut to include relatively fine lines.

Accordingly, the principal object of the present invention is to provide processes for applying colored patterns to leather surfaces and on the surfaces of other base materials as well.

A further object is to provide a process for bringing about a strong adhesive bond between a leather surface and an adhesive which is either colored or which carries with it on one side a colored element such as a metal film of gold, silver or the like.

A further object is to provide a process for applying colored designs such as lace to leather surfaces.

The processes of the present invention are described hereinafter in detail, reference being had to the accompanying drawings in which:

Fig. 1 is a plan view showing a piece of leather on which there is spread a lace stencil.

Fig. 2 is a fragmentary longitudinal substantially enlarged sectional view with a pressure element shown above in elevation.

Fig. 3 is a corresponding longitudinal sectional view showing the elements of Fig. 2 after the application of pressure.

Fig. 4 is a longitudinal sectional view showing the finished product.

Fig. 5 is an enlarged plan view of a portion of the finished product of Fig. 4.

Fig. 6 is a plan view of an alternate form of the invention showing a piece of leather with a lace pattern spread over its surface.

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Fig. 7 is a fragmentary longitudinal enlarged sectional view with a pressure element shown above in elevation.

Fig. 8 is a corresponding longitudinal sectional view showing the elements of Fig. 7 after the application of pressure.

Fig. 9 is a longitudinal sectional view of the finished product.

It will be appreciated that the process is applicable to base materials other than leather, although leather has been selected as one example of base material in the description which follows.

In practicing the process illustrated in Figs. 1 to 5 inclusive a piece of leather 10 is selected and spread out on a flat surface. The size of the leather piece may vary but in general will correspond to the skin sizes available. A stencil 11 is then spread over the leather piece as shown in Fig. 1. This pattern preferably consists of a relatively thin, finely formed fabric of lace or the like having open spaces separated merely by threads.

In a separate operation the combination to be used in applying the color to the leather through the pattern is prepared. This is accomplished by selecting a suitable support material 12 in the form of a sheet of glassine paper or regenerated cellulose and applying a suitable colored adhesive to one surface thereof. A releasable material 13 such as bees wax or resins which are fusible under pressure may be applied to the support prior to the application of the colored adhesive but this step is not essential. However, where a release layer is not used the support must be moistened as hereinafter noted at the time it is removed from the adhesive. The adhesive 14 is applied to the support sheet 12 by applying a uniform thin layer of adhesive to the support by means of a doctor blade or the like or by spraying in successive thin layers. Each layer is permitted to set sufficiently to acquire a degree of firmness and successive layers are applied in the same way. This procedure is repeated until six successive layers of adhesive have been applied. The final layer is permitted to acquire a partial set prior to application of the adhesive combination to the leather as hereinafter described in detail. It is also possible to apply the adhesive by means of a roller coating machine which is adjusted to give the desired thickness of adhesive coating in a single application.

The combination comprising the support 12 and its adhesive coating is then placed upon the pattern 11 overlying the leather piece 10. The partially set adhesive side of the combination is placed on the stencil 11 and pressure is applied

from above by means of the pressure element 15. This pressure should be of the order of about 1000 pounds per square inch and is applied for a period of from about 5 seconds to about 10 seconds thus forcing the adhesive through the stencil openings and into contact with the leather. The pressure element 15 is then withdrawn and the support material 12 is stripped from the adhesive which is now firmly attached to the leather. Where a release material is not used the back of the support is thoroughly wetted with water and is then stripped from the adhesive while still moist. As shown in Fig. 3, the application of pressure forces the adhesive 14 through the openings of the stencil 11 into contact with the leather. After removal of the support material 12, the adhesive is left firmly affixed to the leather in the areas underlying the openings in the stencil 11. The stencil is then removed leaving a colored design on a background corresponding to the original color of the leather piece. This color may be selected as desired to provide a contrast in the finished piece. As shown in Fig. 5, colored adhesive portions 16 are clearly separated from each other with the background color 17 of the leather piece visible between the colored adhesive portions.

In the embodiment of the invention shown in Figs. 6 to 9 inclusive, the characteristic color effect of a metal seen against a contrasting background is obtained. In this embodiment of the invention a lace stencil 21 is spread over a leather piece 20. A combination is then formed comprising a support material consisting of glassine paper or a regenerated cellulose 22, a releasable material 23, a metallic film layer 24 and an adhesive 25. The releasable layer 23 consists of a substance such as bees wax or a resin fusible under pressure. The metallic film 24 is a very thin layer which may be deposited on a releasable layer by cathodic deposition in ways well known to the art. A plurality of successive layers of adhesive is then applied to the metallic layer. The building up of the successive layers of adhesive is accomplished following the process set forth in connection with the description relating to Figs. 1 to 5 or may be applied in a single layer with a roller coating machine. The combination comprising the support 22 and its layers of releasable material metallic film and adhesive coating is then placed, adhesive side down, over the lace stencil 21 and pressure is applied from above by means of pressure element 26. After the application of a pressure of about 1000 pounds per square inch for from about 5 seconds to about 10 seconds, the pressure element 26 is withdrawn leaving the formation shown in Fig. 8. The support material 22 is then stripped away leaving a metallic film affixed to the leather in the areas corresponding to the openings of the pattern 21. The pattern is then removed leaving the formation shown in Fig. 9. The areas where adhesion takes place thus present a metallic coloration which may be of gold, silver or any suitable metal. Along the lines underlying the individual threads of pattern 21 there is no application either of adhesive or metallic film and consequently the original color of the suede leather, which may be black or any preferred color, is visible to provide a contrast with the metallic film areas.

The adhesive material used in the practice of both embodiments of the present invention as above described is a dispersion made up and consisting essentially of synthetic rubber and phenolic resin. One such dispersion that has pro-

vided particularly good results is a mixture in substantially equal parts of butadiene acrylonitrile and phenol formaldehyde resin. To this mixture the usual solvents and plasticizers are added. From mixtures of this character and adhesive suitable for the specific purpose may readily be selected.

Reference is hereby made to our copending application Serial No. 334,491 which is a division of this application, and in which certain features disclosed herein are claimed.

Having thus described our invention, we claim:

1. The process of applying a decorative design to leather consisting of placing a stencil over a piece of leather, placing on said stencil a combination sheet comprising a support material, an adhesive layer and a thin layer of metal between said support material and adhesive, said adhesive comprising butadiene acrylonitrile and phenol formaldehyde resin, placing said combination sheet with the adhesive layer next the stencil, applying pressure to the support layer, releasing said pressure, and removing said support material and said stencil from the leather.

2. The invention of claim 1 further characterized by the fact that the stencil consists of a lace fabric.

3. The process of applying a design to a base material comprising placing a stencil on the material, placing on said stencil a combination sheet comprising a support material, a releasable material on said support material, said releasable material comprising a solid fusible under pressure, and a distinct layer on said releasable material, applying pressure to force said base material, stencil and combination sheet together, maintaining said pressure for a time sufficient to fuse said fusible material, releasing the pressure, and stripping the support material from said distinct layer while the fusible material is in fused condition.

4. The process defined in claim 3 wherein the distinct layer comprises a colored coating material.

5. The process defined in claim 3 wherein the distinct layer comprises metal.

6. The process defined in claim 3 wherein the base material is leather.

7. The process defined in claim 6 wherein the distinct layer comprises a colored coating material.

8. The process defined in claim 6 wherein the distinct layer comprises metal.

9. The process defined in claim 3 wherein the stencil comprises lace fabric.

10. The process defined in claim 3 wherein the releasable material is a wax.

11. The process defined in claim 3 wherein the releasable material is bees wax and the support material is selected from the group consisting of glassine and regenerated cellulose.

12. The process of applying a decorative design to pliable materials having irregular surfaces consisting of placing a stencil over the material, placing on said stencil a combination comprising a support material, a thin layer of metal and an adhesive comprising butadiene acrylonitrile and phenol formaldehyde resin, applying pressure and thereby forcing said adhesive into the surface irregularities of said pliable materials while compressing the adhesive bond between said metal and said adhesive, and removing said support material and said stencil from said pliable material.

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13. The process of applying a decorative design to pliable materials having irregular surfaces consisting of placing a lace fabric stencil over the material, placing on said stencil a combination element comprising a support material, a thin layer of metal on said support material and an adhesive layer on said metal layer, said adhesive layer comprising a mixed dispersion of butadiene acrylo nitrile and phenol formaldehyde resin, applying a pressure of about 1000 pounds per square inch for from about 5 seconds to about 10 seconds, thereby concurrently forcing said adhesive and metal layers through portions of said stencil, imbedding said adhesive in the irregular surface of said pliable material, and removing said support material and said stencil, leaving said adhesive firmly affixed to the pliable material and said metallic layer affixed to said adhesive in a decorative design.

14. The process of applying a metallic layer to pliable materials having irregular surfaces, consisting of placing a lace fabric stencil over the pliable material, placing on said stencil a combination sheet comprising a support material, a layer of releasable material, a thin layer of metal attached to said releasable material and an adhesive layer attached to said layer of metal, applying a pressure of about 1000 pounds per square inch for from about 5 seconds to about 10 seconds, and removing said support material and said stencil, leaving similar portions of said adhesive and said metallic layer firmly affixed to

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the pliable material, and other similar portions thereof affixed to the lace fabric stencil.

15. The process of applying a decorative design to a base material comprising placing a stencil over the base material, placing on said stencil a combination sheet comprising a support material, an adhesive layer and a thin layer of metal between said support material and adhesive, said adhesive consisting of a material having capacity to adhere to said base material and to said thin metal, placing said combination sheet with the adhesive layer next the stencil, applying pressure to the support layer thereby forcing portions of said adhesive layer through the stencil against said base material, releasing the pressure, and removing said support material and said stencil from the base material.

ANDREW A. SCHOENBERG.

JOHN V. HASTINGS III.

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