Feb. 4, 1936. B. J. KAPLAN 2,029,377

DECORATIVE PATENT LEATHER AND METHOD OF MAKING THE SAME

Filed Oct. 10, 1934

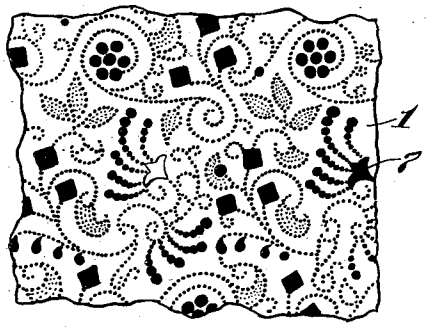


Fig. 1

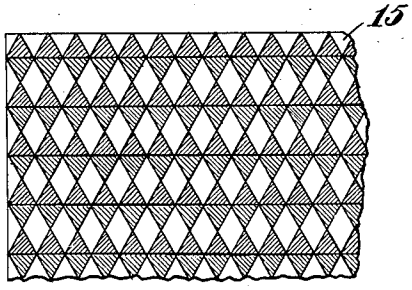


Fig. 2

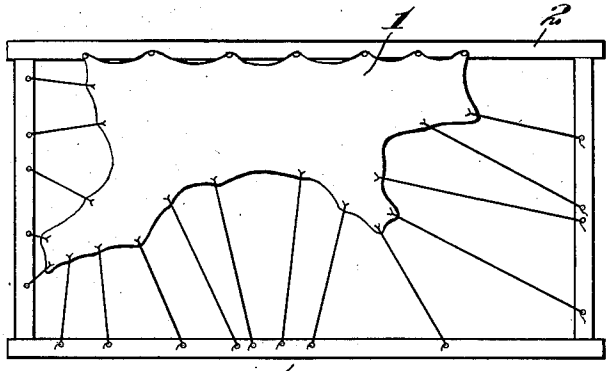


Fig. 3

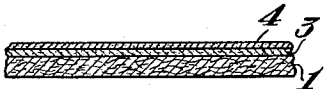


Fig. 4



Fig. 6



Fig. 8

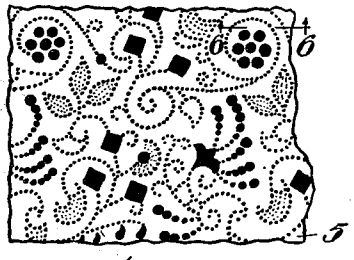


Fig. 5

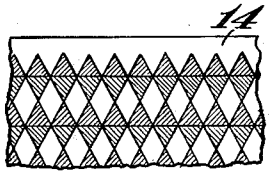


Fig. 5a

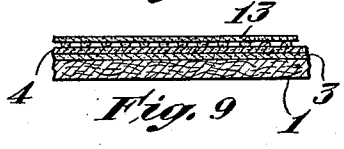


Fig. 9

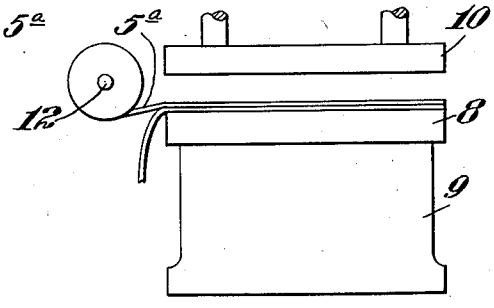


Fig. 7



Fig. 10

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DECORATIVE PATENT LEATHER AND METHOD OF MAKING THE SAME

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Application October 10, 1934, Serial No. 747,767

11 Claims. (Cl. 41—33)

This invention pertains to decorative patent leather and to a method of making the same. Most commonly patent leather has a densely black color and a smooth and glossy surface, and the materials used and the methods employed in the preparation of patent leather have been so perfected that well made leather of this type may be expected to retain its surface gloss and depth of color throughout a long period of use, even though subjected to repeated cleanings or washings. While black patent leather is by far the most common, I am aware that patent leather of other colors has been made and that patent leather exhibiting a metallic luster has been prepared by applying a continuous layer or film of bronze powder or the like to the material at some stage in the manufacturing process. I am also informed that it has been proposed to ornament patent leather shoes by the application of imitation stitches in a contrasting color to a selected shoe part after such part has been cut to shape and either before or after assembly of the part with others in the manufacture of a shoe. However, ornamentation applied after the patent leather has been finished is not of so permanent a character as though embodied in the material during the process of manufacture, and such superficially applied ornamentation tends to wipe or wear off and to lose its distinctive character after a short period of use. Furthermore, it has been proposed to ornament ordinary leather (not patent leather) by the application of a design intended for example to simulate reptile skin, or other materials of distinctive texture, but the character of patent leather, particularly its dense, glossy and impervious surface, has apparently deterred others from successfully ornamenting it and, so far as I am aware, manufacturers have always previously made patent leather of a uniform color.

After a long period of experimentation, based upon many years of experience in the manufacture of patent leather, I have now devised a commercially practical method of preparing decorative patent leather, that is to say, patent leather having a predetermined pattern of ornamental character preferably extending over the entire surface of the material upon a background of substantially uniform contrasting color and so incorporated, during manufacture of the leather, as to retain its sharpness of outline, color and pleasing effect throughout the life of the leather regardless of the exposure of the latter to wear or repeated cleaning operations.

While in accordance with the broader aspects of my invention I contemplate the preparation of decorative patent leather by methods useful in making relatively small areas of leather, I believe that for practical purposes it will usually be preferable to employ method steps, in accordance with the present invention, which are capable of application in the preparation of patent leather from whole sides or skins.

In the accompanying drawing, wherein I have illustrated patent leather decorated (in accordance with the present invention) with certain desirable types of ornamental pattern and wherein certain method steps useful in accomplishing the desired result have also been indicated,—

Fig. 1 is a plan view of a small piece of decorative patent leather provided with a floral design in contrasting color on a uniform background, as produced by the practice of my improved method;

Fig. 2 is a view similar to Fig. 1 but showing a piece of leather provided with a two-color geometrical pattern;

Fig. 3 is a diagrammatic plan view of a skin or side of leather stretched in a frame ready for the application of one or more of the usual preliminary layers of hardened japanner's varnish commonly used in the preparation of leather;

Fig. 4 is a fragmentary section to large scale showing leather which has received two coats of varnish;

Fig. 5 is a plan view of a transfer sheet provided with a pattern for transfer to the material shown in Fig. 4;

Fig. 5ª is a fragmentary view showing a transfer sheet useful in making a two color design such as illustrated in Fig. 2;

Fig. 6 is a section to very large scale substantially on the line 6—6 of Fig. 5;

Fig. 7 is a diagrammatic elevation of a press such as may be employed in applying a decorative pattern to the leather;

Fig. 8 is a section similar to that of Fig. 4 but showing the leather and the transfer sheet assembled, and indicating the step of peeling off the backing member of the transfer sheet after the transfer of the pattern has been completed;

Fig. 9 is a similar section showing the leather with its pattern layer and with a protective coating of japanner's varnish superposed upon the decorative material; and

Fig. 10 is a plan view of a completed skin or side of patent leather having a decorative pat-

tern thereon as produced in accordance with my invention.

Referring to the drawing, I have illustrated tanned leather, for example, a tanned "side" 1 of calf, kip, or the like, appropriate for use in making patent leather, stretched on an open frame 2 in accordance with the usual practice preparatory to the manufacture of patent leather. After stretching the leather in the frame, a first or "daub" coat 3 (Fig. 4) is applied to its grain surface. This daub coat preferably consists of so-called japanner's varnish,—a substance well known to those versed in patent leather manufacture, and commonly comprising as principal ingredients raw linseed oil and an appropriate dryer. After this first layer or daub coat has been brushed onto the leather and dried, it may be baked and/or exposed to sunlight as preferred, and then a so-called finishing coat 4 is applied over the daub coat. This finishing coat or background layer 4 is also of a type familiar to those skilled in patent leather manufacture, comprising as principal ingredients, linseed oil, dryer, and a pigment of the color desired to form the background of the finished leather. Ordinarily a black pigment is employed. This finishing coat is also baked in the manner common in patent leather manufacture, for example, in an appropriate oven at a temperature of the order of 140° F. If desired, a second and generally similar finishing coat may be applied, although this is not usually necessary. Preferably, after the background layer 4 has been applied, baked, and, if desired, exposed to sunlight, said layer may be rubbed down and smoothed with some appropriate material. For example, it may be rubbed with wash leather wet with turpentine, and polished with dry wash leather immediately prior to the succeeding step in the process.

Preparatory to the next step in treating the leather, and in accordance with the present invention, I preferably provide a flexible transfer sheet bearing the design which it is desired to impose upon the leather. In preparing this transfer sheet I select a flexible but tough backing material 5, (Fig. 6) for example thin but strong paper. To one side of this backing sheet I prefer applying a coating or layer 6 of a waxy nature, for example, carnauba wax which I find does not tend to stain the leather or produce a greasy film on the latter. Upon this waxy coating I now apply a discontinuous layer of coloring material which, for convenience, I shall hereinafter refer to as "ink" to form the desired design. This design layer is "discontinuous", in the sense that it consists of distinctive pattern figures with interspersed spaces through which a background color is exposed,—in this respect differing materially from a continuous uninterrupted color film devoid of design characteristics. Moreover, this pattern is of "all over" type, that is to say it extends over the entire superficial area of the leather and is not confined to any particular portion of the leather or to relatively small areas thereof. This type of design is conveniently applied by a printing or equivalent process.

The ink which I employ preferably comprises linseed oil as an ingredient, since linseed oil has a selective affinity for the background layer 4 which has been applied to the leather as above described, and tends to adhere to said layer more strongly than to the waxy surface of the backing material. This ink also contains an appropriate pigment of the color desired for the design. For example, for a white design to be used on a dark background, I find titanium dioxide (TiO_2) to be very effective, by reason of its density and brilliancy. Due to necessary limitations in illustration, the pattern or design layer has here been shown in black, while the background layer on the leather is shown in white, but in most instances, in actual practice, this relation is reversed.

After the design has been applied to the wax coated paper, the ink is permitted to dry thoroughly. If the transfer sheet thus produced is not of sufficient size to cover the entire surface of the coated side of leather (which may be many feet in length), several of the transfer sheets are united at their edges by an appropriate adhesive (taking care to match the design at the joints) so as to form a continuous sheet 5ª (Fig. 7) adapted to cover the entire area of a side of leather.

The coated leather 1, or so much of it as the available press is able to accommodate at one time, is now disposed upon the lower platen 8 of a suitable press 9 and the transfer sheet 5ª is disposed upon the leather with the inked design in contact with the background layer 4 as illustrated in Fig. 8. The upper movable platen 10 of the press, which is kept at a temperature of approximately 170° F. by appropriate means, is now brought down upon the transfer sheet with a total pressure which may be of the order of 20 tons, distributed over an area which may, for example, be 36" in one direction by 50" in the other direction.

After keeping the material under pressure for a short period, for example ten seconds, the upper laten 10 is raised, and if the entire area of the leather 1 could not be disposed between the press platens for this first pressing operation, the leather is pulled along (together with the transfer sheet) so as to dispose a fresh area between the platens, whereupon the press is again actuated, and this progressive pressing of the leather is continued until the entire length of the side has had the pattern transferred thereto. To facilitate handling the transfer sheet, the latter may be wound upon a roller 12 suitably supported, so as readily to be drawn off into contact with the leather as the latter is moved along step-by-step through the press.

When the transfer has been applied to the entire surface of the skin or side of leather, the backing material 5 may be peeled off, (Fig. 8) leaving the inked design layer 7 adhering to the background layer 4 for which, as above noted, it has a greater selective adhesion than for the waxy surface 6 of the transfer sheet. By following the method just outlined, it is possible to apply the design to an entire side of leather, since the flexible transfer sheet is able to accommodate itself to inequalities in thickness of the leather, and, since the transfer sheet may be made of sufficient size to cover the entire side of leather, accuracy in the application of the design is assured.

After the design has been applied to the background layer and after the backing material 5 has been pulled off, I may, if desired, subject the leather to a further baking or drying operation so as firmly to set or harden the ink forming the design and to integrate the latter with the background layer. However, the use of the heated press for transferring the design is ordinarily sufficient to produce this hardening and integrating action without further baking. Since the inked design on the transfer sheet is dry before

application of the sheet to the leather, and since the inked design does not become freely fluid during transfer, and as the transfer sheet is not moved laterally relative to the leather while the transfer operation is taking place, there is no danger of blurring the design or daubing the surface of the leather, as might be the case, were it attempted to print the design with a fluid ink or to apply the design with a stencil or the like.

According to a preferred mode of procedure, I now impose one or more layers 13 of a transparent coating material for example transparent japanner's varnish or lacquer over the entire surface of the leather, so as to cover the inked design and to produce a substantially smooth and level surface. After applying this protective or surface coat, the leather is again dried, or baked at a temperature of the order of 140° F. if the varnish is used, and thereafter the leather is preferably exposed to sunlight for a final drying in accordance with usual practices in the manufacture of patent leather. This final protective coat is preferably quite fluid when applied so that it readily fills up the slight depressions resulting from the imposed decorative layer of ink and so as to produce a level and glossy finish. This final coating may be applied by spraying or by the use of a brush as desired and since the ink forming the design has been set and hardened prior to the application of this final surface layer, there is no danger of causing a blurring of the design or clouding of the finishing layer in applying the latter.

By following the above described procedure it is possible for the patent leather manufacturer to produce whole sides of decorated patent leather of a character appropriate for many purposes. By employing a transfer sheet 14 as shown in Fig. 5a, having portions of the design in different colors, leather 15 (Fig. 2) decorated with composite designs of highly ornamental and complex character may readily be prepared. Material thus decorated in one or more colors may be used, for example, with pleasing effect for costume design where several parts of a complete costume ensemble, for example, hat trim, belt, and shoes may be made from patent leather decorated with the same design, and the range of designs made available by this process opens a wide field to which ordinary patent leather has not been applicable or in which its use has been very limited.

As above noted, the method of applying the design by dry transfer from a transfer sheet is highly advantageous and apparently substantially essential in the manufacture of whole sides of patent leather, but in its broadest aspects I contemplate the application of an all-over design to pieces of leather of relatively small dimensions by the use of processes such as printing or lithographing, but with the necessary limitation that the ink employed shall have the general characteristics above outlined, and with the further provision that the inked design shall be embodied in the leather during the process of manufacturing the latter and covered and protected by a smooth surface layer preferably having the permanency, glossiness, transparency and waterproof character which are to be found in the surface coat of patent leather as usually made.

While I have described a certain procedure and specific materials as illustrative of the present invention, I wish it to be understood that the process is capable of variation in these particulars and that any and all materials and the several steps in the procedure outlined may be varied within the scope of the appended claims without departing from the invention.

I claim:

1. As a new article of manufacture, patent leather having a decorative patent coating such coating comprising a layer of hardened japanner's varnish constituting a background of substantially uniform color, a discontinuous decorative layer adhering to said background layer, said decorative layer being of a color contrasting with the background color and arranged to form a predetermined all-over pattern upon the background, and a transparent protective layer superposed upon the decorative layer.

2. As a new article of manufacture, decorative patent leather comprising leather provided with a plurality of superposed hardened coatings of japanner's varnish constituting a smooth substantially uniform black background layer, a discontinuous decorative layer adhering to said background layer, said decorative layer comprising colors contrasting with the black background and arranged to form a predetermined all-over pattern upon the black background, and a hardened coating of transparent varnish forming a glossy decorative layer overlying the decorative layer, said layers constituting the patent coating of the leather.

3. As a new article of manufacture, a side of patent leather comprising a patent surface coating consisting of a layer of hardened japanner's varnish constituting a background of a substantially uniform color, and a discontinuous decorative layer adhering to said background layer, said decorative layer being of a color contrasting with the background layer and arranged to form a predetermined all-over pattern upon the background, said pattern extending over substantially the entire superficial area of the side of leather.

4. As a new article of manufacture, a side of patent leather comprising a daub coat and a finishing coat, a discontinuous decorative layer adhering to the finishing coat, said decorative layer being of a color contrasting with that of the finishing coat and arranged to form a predetermined all-over pattern, said pattern extending over substantially the entire superficial area of the side of leather, and a substantially transparent, tough and durable surface coat covering the decorative layer and providing a substantially smooth and level surface, the daub, finishing, and surface coats forming the patent surface coating of the leather.

5. As a new article of manufacture, a side of patent leather comprising leather having a decorative coating on the surface thereof, such coating consisting of hardened black japanner's varnish constituting a background layer, a white discontinuous coating comprising titanium dioxide adhering to said background layer and constituting a decorative layer, said decorative layer forming a predetermined all-over pattern upon the black background layer and extending over substantially the entire superficial area of the side of leather, and a transparent layer of hardened japanner's varnish covering the decorative layer, the decorative leather being incorporated in and forming a part of the patent coating.

6. That method of making patent leather with a decorative patent coating which comprises as steps coating leather with japanner's varnish, causing said coating to harden whereby to produce a substantially waterproof layer constituting a background, so applying to said background layer a decorative substance capable of adhering

to the background layer and of a color contrasting with that of the background as to form an all-over predetermined discontinuous pattern upon said background, causing said decorative substance to harden, and thereafter superposing a predetermined transparent coating upon the decorative substance whereby the pattern of the decorative substance is incorporated in the patent coating.

7. That method of making patent leather with a decorative patent coating which comprises as steps providing leather with a plurality of superposed coatings of hardened japanner's varnish thereby to form a smooth background layer of substantially uniform color, preparing a flexible transfer sheet having thereon a discontinuous decorative layer of a substance contrasting in color with that of the aforesaid background layer, said decorative layer being disposed on the transfer sheet to form a predetermined all-over pattern, causing the decorative layer of the transfer sheet to contact under heat and pressure with the background layer so as to adhere to the latter, stripping off the transfer sheet so as to leave the decorative layer adhering to the background layer, and applying a transparent and glossy protective layer to the decorative layer whereby the decorative layer is incorporated in the patent coating.

8. That method of making patent leather having a decorative design incorporated within the patent coating which comprises as steps providing a side of tanned leather with a hardened coating of japanner's varnish, thereby to form a background layer of a substantially uniform color, preparing a flexible transfer sheet by coating thin flexible material with carnauba wax and with an inked all-over pattern layer adhering to the wax coating, said inked pattern-layer comprising pigment and linseed oil, permitting the inked pattern to harden, disposing the inked pattern-layer upon the background layer of the leather, subjecting the parts to physical conditions such as to cause the inked pattern-layer selectively to adhere to the background layer more strongly than to the wax surface of the transfer sheet, peeling off the transfer sheet, and imposing a substantially transparent glossy protective layer upon the pattern-layer whereby the decorative design is positioned between the background layer and the protective layer of the patent coating.

9. That method of making patent leather having a decorative design incorporated in the patent coating which comprises as steps providing a side of tanned leather with a background layer of predetermined substantially uniform color comprising a plurality of superposed hardened coatings of japanner's varnish, applying to the background layer a discontinuous layer of contrasting color to form a decorative design, applying a freely fluid coating of transparent japanner's varnish to the decorative layer which adheres to the background layer of the leather so as to coat the decorative layer and form a substantially smooth and level surface, and baking said transparent coating whereby the layer forming the design is incorporated in the patent coating beneath the surface thereof.

10. As a new article of manufacture, decorative patent leather comprising leather having the usual patent surface coating thereon with a decorative discontinuous layer of contrasting color incorporated in such coating.

11. That method in making patent leather having a decorative surface patent coating comprising as steps the providing of the tanned leather with a background layer of predetermined substantially uniform color, baking said layer, applying to said background layer a discontinuous layer of contrasting color to form a pattern layer, applying a coating of japanner's varnish, and baking and sunning the leather to form the patent coating with the design incorporated thereon.

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