

June 30, 1936.

G. D. SART

2,046,000

ORNAMENTED LEATHER WITH ARTIFICIAL GRAIN AND METHOD OF MAKING SAME

Filed Sept. 23, 1935



Fig. 1.



Fig. 2.

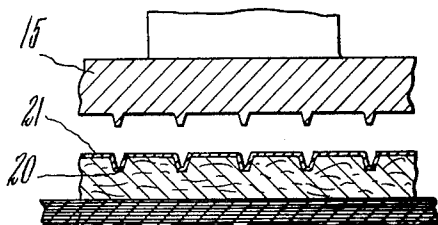


Fig. 3.



Fig. 4.

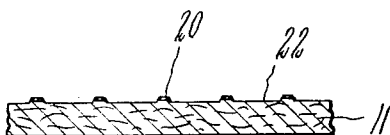


Fig. 5.

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UNITED STATES PATENT OFFICE

2,046,000

ORNAMENTED LEATHER WITH ARTIFICIAL
GRAIN AND METHOD OF MAKING SAMEGilbert D. Sart, Salem, Mass., assignor to Orna-
mented Leather, Inc., Boston, Mass., a corpo-
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Application September 23, 1935, Serial No. 41,712

5 Claims. (Cl. 41—24)

This invention relates to improvements in re-versed-embossed leather, so-called, and in improved methods of finishing such leather with novel color effects. In my patent No. 2,002,792 there is described a method of reverse-embossing leather and of dyeing such leather with certain types of dyes which act selectively on the pattern-forming grain and suede areas on the grain side of the skin. According to the present invention, an artificial grain surface is produced prior to the embossing, the artificial surface making possible many color effects which cannot be obtained with the natural grain. The present invention moreover relates more especially to leathers finished in light tones, including whites, which may form designs with contrasting areas of other light tones colors or with dark shades. In finishing with light tones, I may employ pigments to obtain color effects which cannot be obtained by the use of dyes owing to the penetration of dyes into the leather, and to the tendency on the part of dyes to "bleed" when the leather is treated in a subsequent liquid bath.

One advantage flowing from the present invention is that defective skins and even "splits" can be used to make high-grade ornamented leather.

Various other advantages will be apparent to one skilled in the art from the more complete description of the invention which follows and from the illustration thereof in the drawing, of which

Figure 1 shows in section a piece of leather which is in the process of having the grain surface removed.

Figure 2 is a sectional view of the same piece of leather after it has been coated to form an artificial grain surface.

Figure 3 illustrates the embossing operation.

Figure 4 illustrates the removal of the raised portions of the embossed pattern.

Figure 5 is a sectional view of the leather after swelling treatment to restore its original density.

Before coating leather to form an artificial grain surface thereon, it is preferable to remove the natural grain surface 10 from the body 11 of the leather, as indicated in Figure 1. This may be done on a buzzle buffer or by any other suitable means. In the buffing operation, surface imperfections may be ground off so that many skins which would be otherwise unsalable as first quality can be corrected and finished as first quality skins. Furthermore, "splits", i. e. the flesh portion of a hide or skin from which

the grain portion has been sliced, can be treated as hereinafter described to form high-grade ornamented leather. The removal of the natural grain surface in one way or another is practically necessary since lacquers or equivalent finishes do not adhere to the natural grain surface with sufficient tenacity, whereas satisfactory results can be obtained when the lacquer or finish is applied to a surface having exposed fiber ends.

The lacquer finish must be capable of forming a soft flexible film impervious to water and to the various substances customarily used in finishing leather. For this purpose certain lacquers having a nitro-cellulose or cellulose acetate base are satisfactory. Other finishing compounds may be used, such as a natural or artificial dispersion of rubber mixed with albuminous material such as casein, blood albumen, or the like. For example, the following formulas may be employed, although it is to be understood that the invention is in nowise limited thereto.

A suitable lacquer can be made by dissolving eight ounces of half-second cotton in one gallon of butyl acetate. This is cut with an equal quantity of thinner consisting of three parts acetone, one part butyl acetate, four parts alcohol, two parts ethyl acetate. To this is added a suitable quantity of a plasticizer, such as dibutyl phthalate, to ensure proper pliability of the film.

Finishing material of the albuminous type may be made by mixing together eight ounces of latex, four ounces of water, four ounces of a pigment solution and eight ounces of a binder. The binder may be prepared by mixing one quart of Irish moss with one pint of casein solution and twenty-four ounces of shellac.

The lacquer or finish may be colored as desired by the admixture therewith of suitable dyes, pigments, metallic powders or the like, the latter being added if a metallic effect is desired on the finished leather.

After one or more coats of lacquer or finish have been applied to the face of a skin, the skin may be embossed by being pressed with a suitable heated plate 15 in the usual manner, the plate having the desired design on the face thereof. For the embossing operation, the leather may be laid on a suitable support such as a thick layer of paper 16. To form the pattern, the plate 15 presses in certain areas of the leather as at 20, leaving the remaining areas raised or embossed as at 21. The surface of the leather is then buffed again to remove the lacquer film from embossed areas as at 22, leaving the depressed areas 20 untouched. The drawing shows the

pressed leather having only two levels on its embossed face, namely, the low areas 20 and the high areas 21, but it is to be understood that the pressing plate 15 may be so formed as to produce three or more levels. In such case, the buffing may be carried out in such a manner as to remove the lacquer film entirely from the highest areas and to buff off varying thicknesses of the film on lower areas, leaving the lowest areas untouched. The leather is then ready to be swelled to original uniform density by suitable liquid treatment. This restores to previous thickness the portions of the leather under the pressed areas 20. As a result, these areas then stand out in relief, as indicated in Figure 5, compared with the surrounding areas 22 from which material has been buffed following the pressing operation to form the design. During or after this swelling treatment the leather can be dyed, the dye taking hold strongly on the suede areas but having little or no effect on the lacquered areas.

If it is desired to finish the suede areas of chrome tanned leather in white or in a color not obtainable by the use of dyes, the leather after being embossed and buffed is treated with an acid, preferably oxalic acid, to acidify the leather to an approximate pH value of $3\frac{1}{2}$. Oxalic acid has the advantage of not only acidifying the leather but also of stripping the chrome tan to a considerable extent. This treatment prepares the leather for treatment with a synthetic tan having bleaching properties. Synthetic tanning and bleaching compounds are well known in the industry, one such compound being known as "Leukanol." The leather is then washed and treated with a suitable white pigment, many such being well known in the art and including white colloidal clay, so-called "Titanox" (titanium dioxide and barium sulphate), and "Lithopone" (zinc sulphide and barium sulphate). The pigment may be agitated in a water bath in the color wheel, sufficient pigment working into the pores of the suede areas of the leather to whiten the same. If desired, a small amount of aniline dye may be added to the bath to give a slight color tinge to the pigment. The leather, after this treatment, is fat-liquored and finished in the usual way, so that the finished product will be soft and pliable.

If instead of a chrome tanned skin, a white tanned skin is operated on, the grain surface is buffed and corrected by the removal of imperfections. This surface is then coated with finish containing white or colored pigment. The leather is then embossed, buffed and wet back in

the wheel. If desired, any suitable pigment may be added to the bath when the leather is being wet back. If white pigment is employed, the leather may be slightly retanned with a white retan either before or after the application of the pigment.

It is evident from the foregoing that many modifications may be made in the herein described steps of treating leather, which are mentioned not by way of limitation but only to illustrate the invention which is not limited thereto.

I claim:—

1. Leather of natural density throughout, having an embossed design on the face thereof with relatively raised and depressed areas, and a flexible film of finishing material covering and limited to said raised areas.

2. The method of making ornamented leather, which comprises buffing a face of a piece of leather, coating the buffed face with a flexible film, indenting portions of the coated face to form an embossed design thereon, buffing the embossed face to remove said film from the raised portions only, and treating the leather with liquid to restore its original condition of uniform density.

3. The method of making ornamented leather, which comprises coating an entire face thereof with a flexible film impervious to water, indenting portions of the coated face to form an embossed design thereon, buffing off the high portions of said embossed face, and treating the leather with liquid to swell the pressed areas whereby the pressed areas rise into relief relative to the buffed areas.

4. The method of making ornamented leather, which comprises removing the original grain surface, coating the resulting surface with a flexible film impervious to water, indenting the coated face to form an embossed design thereon, buffing the embossed face to remove the film on the raised areas, acidifying the leather, treating the acidified leather with a synthetic tan and bleach compound, washing, and treating with a pigment suspended in an aqueous bath.

5. The method of making ornamented leather, which comprises coating a face of a piece of leather with a flexible film containing a pigment, embossing the coated face to form a relief design thereon, buffing off the raised areas of relief design to form suede areas, swelling the residual coated areas into relief relative to the suede areas, and treating the leather with a pigment contrasting with the coating material.

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