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FINISHING OF LEATHER

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5 Claims. (Cl. 149—6)

This application corresponds to the applications of Arthur Frederick Richmond Cotton, Serial Nos. 19,185/38, 19,186/38, 19,187/38 and 19,188/38 which were filed in Great Britain on June 28, 1938, and Serial No. 5,377/39, which was filed in Great Britain on February 17, 1939.

This invention relates to the finishing of leather, that is to say to the processing of leather subsequent to tanning.

It has already been proposed to apply intense heat, by means of a blow lamp, to the flesh side of leather for the purpose of shrinking that side and in consequence wrinkling or puckering the opposite side, that is, the grain side or display side of the leather. It has also been proposed to subject leather uniformly on both sides to the action of hot water, oil or steam, at or above the temperature of boiling water. In general, however, the application of heat, and certainly of heat at a temperature above 220° F. has hitherto been deprecated in the leather trade owing to the general assumption that the fibres and the substance of the leather would be impaired or even destroyed.

This invention provides a process for the finishing of leather, that is, treatment subsequent to tanning, which consists in contracting the fibres of the leather by applying heat at a temperature of 240° F.-600° F. to the tanned skin by means of a hot plate against which the skin is pressed under a pressure which does not exceed 30 lbs. per square inch. In this way the substance of the leather is improved and a much finer and closer grain is produced.

Use of hot plates for pressing or plating leather and of hot irons for the purpose of smoothing out a grain is already known in the art. It is, however, a characteristic of these known processes that they are carried out at temperatures below the range with which this invention is concerned and/or under conditions such that no substantial contraction is obtained. For example in the normal processing of leather by plating very high pressures, of the order of 1200 to 1400 lbs. per square inch are applied to the leather in conjunction with comparatively low temperatures, e. g. usually 140° F. to 180° F. These pressures are applied by presses designed to obtain a smooth or flat surface but owing to the fact that they compress the fibres the process has a tendency to harden the leather or to cause an abnormal "break" in the grain surface. As opposed to the expansion of the surface area which results from the compression used in the normal plating process, the application of heat according to this invention is carried out in such manner as to effect substantial contraction at one or each side of the leather with a proportionate increase in substance or corresponding closing of the pores and/or fibres of the leather. Thus, care is taken to ensure that only a comparatively light pressure is exerted, normally less than 30 lbs. per square inch. In some cases the pressure may be only just sufficient to ensure contact between the heating element and the leather surface, e. g. 1 to 5 lbs. per square inch or even less.

In one application of the invention, heat is applied selectively to the flesh side of the tanned skin or hide to contract the fibres and throw the grain side into relief, the heating being to a temperature of about 350° to 400° F. although a temperature of up to 600° may be used depending upon the tannage, prior preparation and substance of the leather as well as upon the moisture content of the leather. In one example of this form of the invention a sheep skin which had been semi-chromed and fat liquored by the usual methods was then dyed and plated and subsequently heated on the flesh side to a temperature between 350° and 400° F. As a result a pattern was thrown on the grain side comparable with that of a crocodile or large "scaled" skin. The sample was then grained by the usual process with the result that the depressions on the surface were varied considerably in area and thus also in distance apart. The same sample was then moistened with water on the flesh side and again treated on that side with "abnormal" heat, with the result that a much bolder and closer grain was obtained together with a decrease in area and increase in tensile strength.

In one form of the invention the heat is applied selectively to the grain side of the tanned skin to contract the pores and produce a much finer and closer grain, the heating being to a temperature in the region of 300° F. In this way a very defective scarred skin which is too coarse for ordinary purposes may be substantially improved in grain and substance and a finished leather obtained in which the natural defects are considerably obscured.

In a further form of the invention, the heat is applied in succession to each side of the tanned skin.

In carrying out the present invention it is preferable to employ chrome tanned or semi-chrome tanned leathers, because they are capable of withstanding extremely high temperatures.

Other mineral tannage may, however, be employed and vegetable tanned skins which have been semi-chromed by the known method of partially stripping the vegetable tannage and subsequently treating the skins in a chrome bath, may also be used. In some cases skins which have been subjected to the so-called synthetic tannages may also be used, but in such cases it may be necessary to treat the skins, e. g. by impregnation with a mineral compound, in order to render them suitable for withstanding the abnormal heat applied in carrying out the invention.

The invention may be employed in conjunction with known leather finishing operations such as dyeing, glazing, plating, graining, boarding and the like, the application of "abnormal" heat to the flesh and/or grain side being effected either at an intermediate stage in the usual operations or subsequent thereto.

In every case it is preferable that before the skin is processed according to the invention the leather shall have been subjected to the normal fat liquoring process employed in the manufacture of leather or to an analogous process.

The invention includes leather when finished by the process according to the invention.

I claim:

1. A process for the finishing of leather, that is, treatment subsequent to tanning, which consists in contracting the fibres of the leather by applying heat at a temperature of 240° F.–600° F. to the tanned skin by pressing the skin against a hot surface under an applied pressure which does not exceed 30 lbs. per square inch, and maintaining said skin free from tension along lines lying in the plane of the skin during the application of the heat and pressure.

2. A process for the finishing of leather, that is, treatment subsequent to tanning, which consists in contracting the fibres of the leather by applying heat at a temperature in the region of 300° F. selectively to the grain side of the tanned skin by pressing the grain side of the skin against a hot plate under an applied pressure which does not exceed 30 lbs. per square inch, and maintaining said skin free from tension along lines lying in the plane of the skin during the application of the heat and pressure.

3. A process for the finishing of leather, that is, treatment subsequent to tanning, which consists in contracting the fibres of the leather by applying heat at a temperature of 240° F.–600° F. in succession to each side of the tanned skin by pressing the skin against a hot plate under an applied pressure which does not exceed 30 lbs. per square inch, and maintaining said skin free from tension along lines lying in the plane of the skin during the application of the heat and pressure.

4. A process for the finishing of leather, that is, treatment subsequent to tanning, which comprises contracting the fibres of the leather by applying heat at a temperature of about 200° to 400° F. to the flesh side of the tanned skin while said skin is moist, whereby the fibres on the flesh side are contracted and the grain on the opposite side thrown into relief.

5. A process as claimed in claim 4 in which the application of the heat is accompanied by the positive application to the leather of a pressure of not over 30 lbs. per square inch.

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