

# UNITED STATES PATENT OFFICE

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## METHOD OF ENAMELING GRAIN SIDE OF LEATHER.

SPECIFICATION forming part of Letters Patent No. 654,830, dated July 31, 1900.

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*To all whom it may concern:*

Be it known that I, ALBERT A. GUIGUES, a citizen of the United States, residing at Newark, county of Essex, State of New Jersey, have  
5 invented certain new and useful Improvements in Methods of Preparing the Grain Side of Leather for Enameling, fully described and represented in the following specification.

The object of the present invention is to produce a patent-leather of superior quality and finish by applying the enamel coatings to the grain side of the leather, which is naturally of finer texture and smoother surface than the flesh side.

15 It is well known that the so-called "grain" upon the outer or hair side of leather is a thin layer of superficial character, which comprises finer fibers more closely knit together than the remainder of the skin and possesses  
20 naturally a smooth surface. Upon the contrary, the flesh side is naturally rough and loose in texture and can only be adapted for receiving enamel coatings by careful shaving, leveling, and smoothing. Notwithstanding  
25 the superiority of the skin side, it has not been common to enamel upon that side of the skin, because the enamel coatings do not adhere readily thereto. Upon whichever side the leather may be enameled it is common to  
30 apply a so-called "daub" of rather stiff consistency adapted to adhere without absorption, as the absorption of oils or pigments would tend materially to clog the pores of the leather and destroy its flexibility. This tends  
35 to produce cracks in the leather when in use, and it is therefore essential that the enamel should be united to the leather without material absorption.

It is the object of the present invention to  
40 furnish a means for causing the adhesion of the coatings to the grain side of the leather without impairing its flexibility.

The adhesion of the coating to the leather is attained by converting a portion of the grain  
45 into projecting fibers adapted to entangle and attach the coating. By converting a portion of the grain into projecting fibers the smoothness characteristic of the grain is largely preserved, as well as a portion of the strength,  
50 which is due to its fine and closely-knit texture. The primary coating or so-called "daub" is then applied to the leather by rub-

bing the daub back and forth upon the surface of the leather by means of a stiff brush to engage all sides of the fibers with the daub, 55 and thus secure the most perfect attachment of the latter. The preparation of the leather is thus the exact contrary of that required where the daub is applied upon the flesh side, which is smoothed as carefully as possible 60 instead of roughened, as is the grain side in the present invention. With the grain side roughened in the manner described the leather may be coated by any of the compositions ordinarily employed in making patent 65 or enameled leather.

In applying the daub to the flesh side of leather a slicker or scraping-knife is commonly employed and the daub is made very stiff; but it is obvious that the application 70 of such a daub by a slicker would tend in the case of a roughened grain to press down the fibers which are intentionally formed by roughening the grain and would not erect the fibers nor entangle them completely with the 75 daub, as is designed in roughening the grain by my invention. In coating the grain side of the leather prepared by my invention I make the daub somewhat thinner than usual and rub it thoroughly into the roughened 80 grain with a stiff brush.

My improved method of treating the grain is particularly valuable in enameling skins of the goat and kangaroo, which are extensively used for making the finest patent- 85 leather for shoes, and the invention is practiced as follows: The grain side of the leather is abraded by means of an emery-wheel, a grinder, a shaving-machine, or other agent adapted to scratch the surface and convert 90 a portion of the grain into projecting fibers. The grain side of the leather may be pressed by the hand against a revolving emery-wheel, the pressure being graduated so as to loosen and roughen the surface of the 95 grain rather than to cut away and remove its substance. Such operation is wholly manual; but the roughening may be performed mechanically by first shaving the flesh side in a shaving-machine adapted to reduce the 100 leather to uniform thickness throughout and then supporting the flesh side upon a roller and feeding the skin through the machine to scratch and abrade its surface uniformly.



The roughening of the grain mechanically is preferable in this respect, that it can be performed with much greater rapidity; but where it is undesirable for any reason to reduce the leather to uniform thickness throughout the grain may be roughened in an equally-perfect manner by the manual process described above. In coating the prepared skin it is laid upon a flat table and the daub is rubbed into the same with a stiff brush, the bristles of the brush serving to distribute the daub among the numerous fibers of the grain and the rubbing of the brush back and forth serving to twist the fibers in every direction and to entangle them most effectively with the daub, so as to attach it to the skin. The primary coating is then dried and rubbed smooth in the usual manner, and one or more additional coats of daub are similarly applied and rubbed down, as may be required, before applying the final coating. The coatings are then finished by the varnish or enamel, which is dried in the usual manner.

I have manufactured patent-leather extensively with kangaroo-skins roughened upon the grain side and find that the most perfect adhesion of the enamel to the leather is secured, so that it may be bent and strained in the severest manner without cracking the enamel. The enamel laid upon the grain side is, I find, smoother than that laid upon the flesh side of the skin, and the product thus presents a handsomer appearance.

The expense of my treatment is very small, while it adapts the leather perfectly to receive the enamel upon the grain side, and thus produces an article of greater beauty and value.

It should be understood that my invention is of great value in the preparation of goat and kangaroo skins for enameling, as the flesh

side of such skins does not furnish a suitable foundation for the finest and smoothest enamel, while the natural grain side of such leather is too smooth to retain the enamel with the desired tenacity.

Calf-skin leather has been commonly enameled upon the flesh side; but very little enameling has been done upon the leather of goat and kangaroo skins, as the experiments of enameling upon either side of such skins have not secured the best results. By my invention the best results are easily and cheaply obtained, and although the treatment is simple it is the result of much study and experiment and furnishes the means of obtaining practically a new and valuable product.

Having thus set forth the nature of the invention, what is claimed herein is—

1. In the manufacture of patent-leather, the method of preparing the leather to cause the adhesion of the coating, which method consists in converting a portion of the so-called "grain" into projecting fibers adapted to entangle and attach the coating, whereby the strength of the grain is largely preserved.

2. In the manufacture of patent-leather, the method of preparing the leather for enameling, which consists in first shaving the flesh side to make the leather of uniform thickness, and second, supporting the leather upon the flesh side and simultaneously abrading the "grain" side to convert a portion of the grain into projecting fibers.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ALBERT A. GUIGUES.

Witnesses:

ELBERT S. GREEN,  
THOMAS S. CRANE.