

UNITED STATES PATENT OFFICE.

WILLIAM M. NORRIS, OF PRINCETON, NEW JERSEY.

METHOD OF COLORING LEATHER.

SPECIFICATION forming part of Letters Patent No. 588,000, dated August 10, 1897.

Application filed October 19, 1896. Serial No. 609,359. (No specimens.)

To all whom it may concern:

Be it known that I, WILLIAM M. NORRIS, a citizen of the United States, and a resident of Princeton, New Jersey, have invented certain Improvements in Methods of Coloring Leather, of which the following is a specification.

My invention consists of certain improvements in methods of coloring leather, whereby I can with economy obtain more even shades of color than usual and attain other advantages which are duly set forth hereinafter.

My process is especially adapted to chrome-tanned stock, upon which heretofore it has been difficult to produce even and satisfactory shades of color owing to the nature of the tanning materials employed. The oxid of chromium formed in the leather when this method of tanning is practiced does not supply an effective base or mordant for any of the coal-tar colors, and if, as is likely to be the case, some of the sulfurous acid, which is largely employed as a reducing agent in the manufacture of chrome-tanned leather, remains in the latter in spite of the thorough washing to which it is subjected such sulfurous acid acts as a bleaching agent, which injuriously affects the coloring materials used and tends to prevent the proper coloring of the leather.

Heretofore in making colored leather from chrome-tanned stock the skins are, after being tanned and washed, put into a solution of some vegetable tanning matter, such as some bark or wood extract or gambier, and then placed in another bath containing some coal-tar color or anilin. I find in the working of this process that owing to the conditions referred to above an uneven, unsatisfactory color is often the result and that the vegetable tanning agent employed causes deterioration in the quality of the leather. These difficulties are avoided by my improved process, which is practiced as follows:

In a reel containing about six hundred and fifty gallons of water I dissolve three pounds of permanganate of potash, the temperature of the bath being about 98° Fahrenheit. Into this solution I place about one thousand pounds of stock which has been thoroughly washed after being removed from the hypsulphite or reducing bath. At the end of half

an hour the stock should be removed from this bath, washed to remove any of the permanganate which has not combined with it, "struck out," and finished in the usual way. This treatment alone produces a yellowish-brown color, which is now in demand, but if other colors or shades of color are desired the stock, after being washed to remove the free permanganate, is placed in a solution of any suitable coal-tar, anilin, or other coloring-matter, depending upon the color desired, and then finished in the usual way. Permanganate of potash destroys any sulfurous acid which may remain in the stock and is rapidly reduced by the skins themselves, the insoluble compound of manganese formed in the stock being of a yellowish-brown color and supplying an effective mordant for other coloring-matters without altering or injuriously affecting the quality of the leather.

In order to impart to the flesh side of the skin the bluish color which is now generally adopted when the grain side of the skin is black, the skin should be first treated by the permanganate solution referred to above, then washed, and then placed in a drum with a very dilute solution of some suitable anilin, such as methyl-violet. In this way a good penetration of color can be secured and a good foundation-color for the black formed on the grain side of the skin, there being no injury to the skins such as follows the use of large quantities of logwood and soda, which are now employed in the endeavor to secure a penetration of color on chrome-tanned stock.

Increased firmness and rigidity of the leather may be secured by subjecting the skins to a bath consisting of a dilute solution of ferrocyanid of potassium, (yellow prussiate of potash,) say about five pounds of the ferrocyanid to six hundred and fifty gallons of water, preparatory to treatment with the bath of permanganate of potash, as described above.

In working my process I have found that the best results are obtained by using the proportions specified, but I do not confine myself to these proportions, although in using such an article as permanganate of potash, which is a powerful oxidizing agent, dilute solutions only should be employed.

Having thus described my invention, I

claim and desire to secure by Letters Patent—

1. The within-described process of coloring chrome-tanned leather, which consists in sub-
5 jecting it to the action of a solution of permanganate of potash, substantially as specified.
2. The within-described process of coloring chrome-tanned leather, which consists in sub-
10 jecting it to the action of a solution of permanganate of potash, and then to the action of a solution of anilin or other coloring-matter, substantially as specified.
3. The within-described process of treating
15 chrome-tanned leather, which consists in subjecting it to the action of a solution of ferrocyanid of potassium and then to the action of

a solution of permanganate of potash, substantially as and for the purpose specified.

4. The within-described process of treating 20
chrome-tanned leather, which consists in subjecting it to the action of a solution of ferrocyanid of potassium, then to the action of a solution of permanganate of potash, and then
25 to the action of a solution of anilin or other coloring-matter, substantially as and for the purpose specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM M. NORRIS.

Witnesses:

JACOB P. LEIGH,
H. S. ROBINSON.