

UNITED STATES PATENT OFFICE.

WILLIAM G. ROACH, OF CINCINNATI, OHIO, AND ALBERT C. ROACH, OF NEWPORT, KENTUCKY, ASSIGNORS TO THE CINCINNATI CHROME LEATHER COMPANY, OF CINCINNATI, OHIO, A CORPORATION OF OHIO.

PROCESS OF TANNING HIDES.

No. 839,206.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, WILLIAM G. ROACH, residing at Cincinnati, in the county of Hamilton and State of Ohio, and ALBERT C. ROACH, residing at Newport, in the county of Campbell and State of Kentucky, citizens of the United States, have invented certain new and useful Improvements in Processes of Tanning Hides, of which the following is a specification:

The object of our invention is to provide an improved process of tanning hides in which the tanning will be uniform throughout the hide fiber.

In carrying out our process the first steps may be similar to the steps taken in the two-bath methods up to the completion of the first bath. The first bath of the two-bath method consists in impregnating the hides with chromic acid. There are various methods for doing this, any one of which might be used for the first step in our process. We prefer, however, to use the following means for impregnating the hide with chromic acid. After the hides have been dehaired, batted, and washed we subject them to a bath made from four pounds of bichromate of potassium and four pounds of hydrochloric acid to four to six hundred pounds of water. This bath would be sufficient for one hundred pounds of hides, or in place of this bath we might use a bath of four pounds of bichromate of potassium, three pounds of sulfuric acid, and three pounds of alum to the same amount of water. The hides are left in this bath from twelve to forty-eight hours, in direct proportion to their thickness. After the hides have been thoroughly saturated thus they are removed from the bath and hung over horses or racks to drain until about one-fifth of the moisture in the hides has run off or evaporated. They are then removed from the racks, slicked out, and given a coat of glycerin. We prefer to apply the glycerin in its undiluted commercial form, but glycerin of a different state of purity or dilution may be used with good results. The amount of glycerin used is preferably slightly in excess of that which is absorbed by the hide under treatment. However, under the conditions of application there will be no substantial reducing action between the chromic acid and glycerin for a

considerable length of time, so that the glycerin will uniformly penetrate the hide before any substantial reduction takes place. This permits intimate and uniform association between the chromic acid and glycerin before reduction, so that when reduction does take place the chromic acid is uniformly deposited on the fiber of the hide. Thus it will be seen that the two substances, chromic acid and glycerin, are introduced into the hide in a substantially quiescent or non-active chemical state and become intimately and uniformly associated together and with the hide fiber before the reaction between them takes place. The hides are then laid in piles one upon the other in a flat condition and allowed to remain thus from twelve to forty-eight hours, according to the thickness of the hides. At the end of that time the chromic acid will have been thoroughly reduced. The reduction taking place uniformly throughout the hide will cause a uniform deposit of the chromic acid on the hide fibers, and consequently a uniformly-tanned leather. Then the hides are washed, dried, and stuffed in the usual manner, depending upon the kind of leather that is being made.

While we prefer to use glycerin to coat the hides after they have been removed from the first bath, we might use any saccharine solution of rapid penetrating power, varying the strength of the solution according to the thickness of the hide and the length of time it is allowed to remain in the bath. This saccharine solution may be made of any of the usual forms of sugar and is preferably applied at or near the point of saturation, although a weaker solution may be used with good results. In this case also the amount applied is preferably slightly in excess of that which is absorbed by the hide under treatment. The hide should be allowed to remain in the saccharine solution from ten to twenty minutes, this time likewise depending upon the thickness of the hide. After having been removed from the saccharine solution the hides are piled one upon the other in a flat condition to remain until the chromic acid has been reduced, which will take from two to three days. After that the hides are washed, dried, and stuffed, as aforedescribed.

We have found that with hides treated by our process the tannage or reduction of the

chromic acid to chromic oxid takes place uniformly throughout the hide fiber, making a hide which is firm and pliable and devoid of gristle or untanned portions, and that the exterior is not brittle or liable to crack.

We have described the steps commencing with the application of the glycerin or other saccharine solution as being applied to a hide after the first bath has been completed; but we have found that a hide tanned by either the usual one or two bath processes may be subjected to these steps with good results.

We claim as our invention—

1. The process of tanning hides which consists in the introduction of a reducible metallic substance and glycerin into the fibers of the hide, in a substantially inactive chemical state, and then establishing a condition under which the reaction between said substance and glycerin takes place, substantially as specified.

2. The process of tanning hides which consists in the introduction of chromic acid and glycerin into the fiber of the hide, in a substantially inactive chemical state, and then establishing a condition under which the reaction between the chromic acid and glycerin takes place, substantially as specified.

3. The process of tanning hides which consists in the introduction of a reducible substance, containing the elements of a tanning matter, and a reducing agent, into the fiber of the hide in a substantially inactive chemical state, and then stacking the hides in piles to establish a condition under which reduction will take place, substantially as specified.

4. The process of tanning hides which consists in the introduction of a reducible metallic compound and an organic reducing agent, into the fiber of the hide in a substantially inactive chemical state, and then stacking the hides in piles until reduction takes place, substantially as specified.

5. The process of tanning hides which consists in the introduction of chromic acid and an organic reducing agent into the fiber of the hide in a substantially inactive chemical state, and then stacking the hides in piles until reduction takes place, substantially as specified.

6. The process of tanning hides which consists in the introduction of chromic acid and glycerin into the fiber of the hide and then stacking the hides in piles, substantially as specified.

7. The process of tanning hides which consists in the introduction of chromic acid into their fibers; then the introduction of an organic reducing agent; and then stacking the hides in piles and leaving them thus stacked until it is desired to wash and stuff them, substantially as specified.

8. The process of tanning hides which consists in the introduction of chromic acid into their fibers; then the introduction of glycerin; and then stacking the hides in piles and leaving them thus stacked until it is desired to wash and stuff them, substantially as specified.

9. The process of tanning hides which consists in the introduction of chromic acid into their fibers; then coating the hides with an organic reducing agent, allowing them to stand in piles until the acid is reduced; and then finishing the hides, substantially as specified.

10. The process of tanning hides which consists in the introduction of chromic acid into their fibers; then coating the hides with glycerin, allowing them to stand in piles until the acid is reduced; and then finishing the hides, substantially as specified.

WILLIAM G. ROACH.
ALBERT C. ROACH.

Witnesses:

W. F. MURRAY,
A. McCORMACK.