

# UNITED STATES PATENT OFFICE.

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## ART OF TAWING SKINS.

SPECIFICATION forming part of Letters Patent No. 504,014, dated August 29, 1893.

Application filed January 3, 1893. Serial No. 457,140. (No specimens.)

*To all whom it may concern:*

Be it known that I, WILLIAM ZAHN, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in the Art of Tawing Skins or Hides; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My present invention has reference to a novel process in the art of tawing skins or hides for the purpose of making kid or other leather, and the process consists essentially in the treatment of the skins or hides with certain novel chemical compositions consisting of chromic oxide salts and a zinc salt, to which is added manganese sulphate, and to the action of which the skins or hides are exposed, whereby the leather is rendered waterproof, soft and flexible, and by the employment of which much time and labor are saved. I have found by careful experiments, that chromic oxide salts used in combination with a zinc salt and a sulphide of an alkali or any other alkali produces a very good result, and the skins or hides thus treated will produce a soft and elastic and a marketable leather.

The chemical reaction which takes place when using the chemical compositions herein above mentioned, during the process of tawing the skins or hides is similar to that described in my previous application herein above mentioned, in that the chromic oxide is partly precipitated as hydroxide and the zinc salt and the manganese salt precipitated as sulphides which are taken up by the skins or hides and firmly unite with the fiber of the same.

The following proportions are used in the herein described process for tawing the hides or skins: For one thousand pounds of prepared hides or skins, I prefer to use fifty pounds chrome alum, thirty pounds zinc sulphate, six pounds manganese sulphate, ten pounds sodium chloride and ten pounds of potassium sulphide. The temperature of the bath or baths thus prepared is maintained at a uniform temperature of say about 85° Fahr-

enheit, and the method of procedure of tawing the hides or skins and an exact description of the bath used, is as follows: The required quantities of chrome alum, zinc sulphate, sulphate of manganese and sodium chloride are dissolved in hot water, to which is then added enough water to cover the skins or hides which are then placed in this bath. Sulphide of potassium, which has been previously dissolved in as little water as possible is then added, and after the skins or hides have remained in this bath a sufficient length of time, which is about eight hours, the skins or hides are taken out and drained, and surplus water is pressed out, after which they are finished in the usual manner.

I have found it advantageous to place the hides or skins, first, into a weak (one-half per cent.) solution of crystallized chromic acid, during half an hour or one hour, according to their thickness, and then I place them into the above mentioned metallic salts bath, which acts best when made gradually more and more concentrated.

It will be evident that the metallic salts baths may be divided into several baths, preferably free, which are of the desirable concentration, and into which baths the hides or skins are placed, the chemical reduction taking about eight hours, more or less, according to the thickness of the skins or hides to be tawed. The liquor in which the skins are placed may be analyzed after the removal of the skins and again brought to the proper concentration required, when it can be used for the treatment of a second batch of skins or hides to be tawed. Leather made in this manner will be perfectly waterproof, elastic and strong. The duration of the process is short and can be used for skins or hides of every description. Of course it will be evident, that the exact proportions of the several ingredients employed in my process of tanning hides or skins may be varied, without departing from the scope of my present invention.

Having thus described my invention, what I claim is—

1. In the art of tawing skins or hides, the herein described process, which consists in treating the same with a bath comprising

therein a composition consisting of chromic oxide salts, zinc salts and manganese salts, and adding a sulphide of an alkali, for the purposes set forth.

5 2. In the art of tawing skins or hides, the herein above mentioned composition consisting of chrome alum, manganese sulphate, chloride of sodium and sulphide of potassium, substantially as set forth.

10 3. In the art of tawing skins or hides, the herein above mentioned composition consist-

ing of chrome alum, zinc sulphate, manganese sulphate, sodium chloride, and sulphide of potassium, substantially as set forth.

In testimony that I claim the invention set forth above I have hereunto set my hand this 31st day of December, 1892.

WILLIAM ZAHN.

Witnesses:

FREDK. C. FRAENTZEL,  
CHAS. MUELLER.