

UNITED STATES PATENT OFFICE.

WILLIAM ZAHN, OF NEWARK, NEW JERSEY.

PROCESS OF TANNING HIDES OR SKINS.

SPECIFICATION forming part of Letters Patent No. 504,013, dated August 29, 1893.

Application filed December 16, 1892. Serial No. 455,385. (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 Processes of Tanning 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 relates to an improved process of tanning skins or hides for making kid leather, and has reference more especially to a new method of reducing skins or hides tanned with chromic acid or chromic acid salts by arsenite salts, whereby leather is produced which is made water-proof, durable and flexible, and which process is also very short.

It is well-known, that chromic acid or chromic acid salts, convert hides or skins into leather, but leather made in this manner is not water-proof, since the chromic acid compounds can easily be removed from the skins or hides by water or moisture, whereby the leather is partly reconverted into its original untanned state.

I am well aware that only when the chromic acid is reduced to chromic oxide, will the leather produced be water-proof, and by many experiments I have been able to demonstrate that a reduction with an arsenite salt in sour solution of nitrate of potassium or sodium showed the best results. The action of the arsenite salts with the chromic acid compounds is to reduce them to chromic oxide which unites with the fiber of the skin or hides, thereby forming a protecting surface of the insoluble chromic oxide, and producing perfectly waterproof leather.

In order that a clear understanding may be had of my present invention and the manner in which the same is to be put into practice, I will now give a description of the same.

For preparing the skins or hides and producing a strong, flexible and water-proof leather in a much shorter time than heretofore, I subject the skins or hides, after they have been previously prepared in the usual manner, to two baths.

For the first bath I take the following chemicals, viz:—bichromate of potash, common salt and muriatic acid or any other acid. The previously prepared and cleaned skins or hides are then placed in this solution and left therein from four to eight hours, according to their thickness, so as to be thoroughly impregnated by the solution. In order to judge whether the skins have remained a sufficient length of time in this solution, I cut off a piece of skin from the thickest part and when the same shows an equally distributed yellow color, I remove the skins or hides, drain them and the surplus water is pressed out. The skins or hides are then transferred to the second bath, which consists of nitrate of sodium or potassium, (saltpeter,) arsenite of sodium or potassium and muriatic acid or any other acid. This second bath or solution is prepared by first dissolving the nitrate of sodium or potassium (saltpeter,) in a sufficient quantity of water to cover the skins; the arsenite of sodium or potassium, which have been previously dissolved, and the acid is then added, after which the skins or hides are placed with the solution into a tub, and in order to obtain an equal reduction it is essential that the skins are agitated or moved in the solution for a short time after being placed in the bath. The chemical reduction takes about five hours, more or less, according to the thickness of the skins or hides. When the skins or hides have been in this second solution the proper length of time, they are taken out, drained and the surplus water pressed out, when they are finally finished in the usual manner.

The reduction of chromic acid compounds by arsenite salts is new in the process of tanning hides and skins, and by this means I have been able to produce leather which is durable, flexible and perfectly waterproof.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The method herein described of tanning skins or hides, which consists, first, in subjecting the previously prepared skins or hides to a bath containing bichromate of potash, common salt and muriatic, or other like acid, and secondly, subjecting the skins or hides thus treated, to a bath containing saltpeter, an ar-

senite salt, such as arsenite of sodium or potassium, and muriatic or other like acid, substantially as set forth.

2. In the process herein described of tanning skins or hides, the reduction of chromic acid compounds by arsenite salts, substantially as set forth.

In testimony that I claim the invention set forth above I have hereunto set my hand this 13th day of December, 1892.

WILLIAM ZAHN.

Witnesses:

FREDK. C. FRAENTZEL,
CHAS. MUELLER.