UNITED STATES PATENT OFFICE.

WILLIAM ZAHN, OF NEWARK, NEW JERSEY.

TANNING PROCESS.

SPECIFICATION forming part of Letters Patent No. 385,222, dated June 26, 1888.

Application filed December 28, 1887. Serial No. 259,261. (No specimens.)

To all whom it may concern:

Be it known that I, WILLIAM ZAHN, of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Processes of Tanning, of which the following is a specification.

My invention relates to an improved process of tanning skins for making kid leather; and the process consists, first, in preparing the skins for tanning by treatment with sulphide of sodium or arsenic and unhairing the same, then treating it with dog-manure and a solution of salt and water. After this preparatory treatment the skins are exposed to the action of three different solutions, the first solution consisting of bichromate of potassium, salt, and muriatic acid, the second solution of hyposulphite of soda and sulphuric acid, and the third solution of a mixture of neat's-foot oil saponified by caustic soda and extract of quercitron-bark or other tannin-containing extract.

For preparing the skins and producing a strong and soft kid leather in a much shorter time than heretofore the skins are first treated with sulphide of sodium for about three or four days—for seven to eight days when arsenic is used. The skins are then unhaired, scraped, and placed in dog-manure for some time. The skins are then cleaned of the dog-manure and placed into a solution of five pounds of common salt and one hundred pounds of water, in which they are allowed to remain for about one-half an hour. They are then removed and exposed to the first bath, which consists for every hundred pounds of skins of a solution of five pounds of bichromate of potassium, two pounds of salt, and two and one-half pounds of muriatic acid in five gallons of water. The skins are placed with this solution into a tub and rotated by stirrers in the same for about thirty minutes, so as to be thoroughly impregnated by the solution. The skins are then allowed to remain in the solution for about three hours, after which they are again rotated for about thirty minutes with the same. Thinner skins have to be exposed to the action of the solution for a less length of time than thicker skins, which have to remain for a greater length of time in the solution, so as to be thoroughly impregnated by the same. The skins are then transferred to the second bath, which consists for every hundred pounds of skins of eight pounds of hyposulphite ($Na_2S_2O_3$) of soda and one and one-half pound of sulphuric acid of 6° Baumé, dissolved in ten gallons of water. The skins are placed with the solution into the tub and agitated in the same for about half an hour. After an intermission of half an hour they are again agitated for half an hour, and then allowed to remain in the same from two to ten hours, according to the thickness of the skins. They are then washed and placed into the third bath, by which the leather is made soft and strong, and which consists for every one hundred pounds of skins of a mixture of saponified neat's-foot oil and a tanning extract. This mixture is prepared of one and one-half pound of neat's-foot oil and two ounces of caustic soda, which are dissolved in one gallon of water and heated by steam until the neat's-foot oil is properly saponified. Then an extract of five pounds of quercitron-bark in five gallons of water, or any other suitable solution containing tannic acid, is added. The skins are placed with this solution in the so-called "pin-wheel," the last solution softening the skins and imparting the final tanning action to the same. The skins are exposed to the tannic-acid solution for about half an hour, after which the leather is removed and dyed in the usual manner.

For light colors the dye is given to the leather while it is in the pin-wheel, it being finally washed off and allowed to dry, while for dyeing black it is best to remove the leather to the working-bench and spread the color over the same. A coating of oil is then given to the leather on the grain side, after which it is dried at a temperature of from 70° to 80° Fahrenheit. If a gloss is to be imparted to the leather, a coating of some vegetable oil, preferably linseed-oil, is finally given, which renders the leather water-proof, soft, and durable.

By my improved method of tanning skins the same can be changed into leather in from fourteen to sixteen days, the process producing kid leather of superior quality.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The method herein described of tanning

skins, which consists in subjecting the prepared and depilated skins successively to the action of three different tanning solutions: first, to a solution of bichromate of potassium, muriatic acid, and water; secondly, to a solution of hyposulphite of soda, sulphuric acid, and water, and, thirdly, to a mixture of saponified neat's foot oil and a suitable bark extract, substantially as set forth.

2. The method herein described of tanning skins, which consists, first, in subjecting the skins to the preparatory treatment of unhairing, softening, and cleaning the same; second, subjecting the skins to the action of a solution of bichromate of potassium, salt, muriatic acid, and water; thirdly, to the action of a solution of hyposulphite of soda, sulphuric acid, and water, and, fourthly, to the action of a mixture of saponified neat's-foot oil with a suitable bark extract, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

WILLIAM ZAHN.

Witnesses:
PAUL GOEPEL,
JOHN A. STRALEY.