

UNITED STATES PATENT OFFICE.

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TANNING.

SPECIFICATION forming part of Letters Patent No. 254,962, dated March 14, 1882.

Application filed December 29, 1881. (No specimens.)

To all whom it may concern:

Be it known that I, JOHN W. HAMMOND, a citizen of the United States of America, residing at Osceola, in the county of Tioga and State of Pennsylvania, have invented certain new and useful Improvements in the Art of Tanning 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.

The objects of my invention are to primarily treat hides and skins so as to render them less liable to become spotted, pitted, and rotted by subsequent and usual processes of tanning, and to thereby increase the weight as well as the quality of the leather produced by any subsequent treatment in the process of tanning.

It is well known that during the continued submersion of hides in vats of water the variations in the temperature of the weather and of the water and in the quality and purity of the latter, which is constantly being rendered poor or unfit for its designed purpose by the continued accumulation of decomposed particles of flesh and fiber from the hides, there is more or less damage and injury to the hides, which suffer a loss of gelatine and fiber and appear spotted in what are known as "black rot," black or yellow spots, and damage in the process of sweating or liming, usually called "pricks," "pitted," and "frieze," and it follows that if these natural results of the necessary steps of procedure in tanning are overcome the product will not only have a clearer superficial appearance, but its texture and fiber will be more uniformly of natural thickness and of desired firmness than is now the case.

In the usual first step in the art of tanning—that is, soaking the hides in clean water—they are liable to become injured, as above specified. In other words, pricks, pitted, frieze, and black spots originate in the first step in the art—viz., soaking. The hide decomposes in soaking before it is properly softened sufficient to cause the above-named injuries, and no subsequent use of saltpeter or any other restorative can prevent them.

The term "prick" indicates an appearance

such as would be produced by puncturing the hide with pins, and this injury is produced in soaking for too long a time, especially in hot weather, and it may also be produced in a subsequent step in the art, known as "sweating."

"Pitted" indicates an appearance much similar to the above, but the holes are much larger.

"Frieze" is principally caused in the subsequent step of sweating when the grain of the hide is inclined to be tender and has the appearance of being scraped off. "Black spots" are small blotches of dark color, and when the hide is tanned, rolled hard, and finished these spots cannot be buffed off, and sometimes cover the whole side of leather. They originate in soaking and sweating. As these injuries originate directly or indirectly in the soaking of the hides at the commencement of the process of tanning, the use of a preventative at that time is of great importance. Hence I use the saltpeter in the first step in the procedure, because if not used until after soaking the hides it does not and cannot prevent the damages caused by soaking.

I have discovered that by subjecting hides, either dry or green, to the action of water containing a proper proportion of saltpeter or nitrate of potassa for a proper length of time and at a proper temperature they are the better prepared to withstand the deleterious effects of the usual subsequent liming and sweating processes and of the process of plumping and coloring in the handlers.

The principle upon which my invention is based is that before subjecting the hides to the decomposing and destructive action of the sweating and liming processes, in order to swell and soften the fiber, to the end that the hair may be removed and the pores opened for the entrance of the tanning agents, this swelling and softening should be accomplished through the medium of an agency which will at the same time act to preserve the life and fiber of the hide, instead of hastening its waste and decomposition.

I am aware that the use of saltpeter in tanning is not new, that it has been used as an ingredient in tanning liquor, and do not claim such as of my invention; but my experience has shown that desirable results are not se-

cured in so great measure by such use as when its effects are given solely and primarily and under the conditions hereinafter stated.

In practice I have found that the use of this preparatory treatment depends upon circumstances, as to quantity, temperature, and time, that are within the discretion of the skilled tanner, and this from the variableness of the condition and quality of the hides to be treated, the temperature of the atmosphere, and the state of the weather; but as a basis or rule of general application the following-mentioned proportions and particulars are practical and beneficial in result, though changes may be made in them by reason of the before-mentioned conditional circumstances, so that the exact proportions, temperature, and time are not vital essentials:

For twenty-five hundred pounds of dry hides and the same proportion of green hides I use sufficient water to cover or hold that quantity of hides, and intermix with the water before putting in the hides from one to six pounds of saltpeter, the same being dissolved in warm water and then added to the water in the vat, the hides being subjected to submersion therein, with more or less frequent handling to uniformly expose each hide to the full effects of the liquor for from two to thirty days and at a medium temperature.

It will be seen that the temperature of the liquor should be comparatively higher in cold and

lower in warm weather, the proportion of saltpeter increased with the increased proportion or quantity of hides, as also the time of treatment, all of which is a matter of judgment in the province of one skilled in the usual methods of tanning.

Hides so treated assume a plumpness and firmness, the pores are opened, and the hair-cells are softened and distended, rendering the subsequent liming and sweating processes short and effective and the subsequent tanning by submersion less destructive to substance and fiber, and reducing liability to spot. Hides so treated can be worked in the process of soaking and sweating with much higher temperature of weather and water than by the ordinary well-known processes.

Having described my invention, what I claim as new, and wish to secure by Letters Patent, is—

The improvement in the art of tanning hides and skins, which consists in first subjecting them to submersion in a liquor consisting solely of saltpeter and water, substantially as and for the purpose set forth.

In testimony whereof I have affixed my signature in presence of two witnesses.

JOHN W. HAMMOND.

Witnesses:

G. G. DOWANE,
WM. HOLLANDS.