

UNITED STATES PATENT OFFICE.

OTIS B. WATTLES, OF WADDINGTON, NEW YORK.

IMPROVEMENT IN TANNING COMPOUNDS.

Specification forming part of Letters Patent No. **13,443**, dated August 14, 1855.

To all whom it may concern:

Be it known that I, OTIS B. WATTLES, of Waddington, in the county of St. Lawrence and State of New York, have invented a new and useful Improvement in the Process of Tanning; and I do hereby declare that the following is a full, clear, and exact description of the same.

The nature of my invention consists in the employment or use of soap, combined during the process with salt, tanning-liquors, and in certain cases with lime.

I will describe three different modes or processes of tanning in order to show my improvement.

First: I place into a vat of the required size fifty "sides" or the same bulk of skins. A composition of strong lime-water, twenty-five pounds of salt, and three gallons of soap is then put in the vat, and the sides are handled or worked in the vat until the hair is loose. When the hair is removed the sides are placed in a vat containing soap-suds, from five to ten gallons of soap being used, and the sides are well handled for two or three days, and are then worked on a table with a stone set on the grain and an iron on the flesh side. The sides are worked until the lime is entirely out of them, and are then placed in a strong tanning-liquor made of any vegetable tannin and thoroughly mixed with from five to eight gallons of soap. The sides are handled and stirred constantly until the grain is set, the strength of the liquors being kept up until the sides are tanned, the same proportion of soap being used.

Second process: The hair may be "sweated off" in the usual way. This is considered by tanners preferable for sole-leather. Lime-water is thrown upon the sides while in the sweat, and quite often, if the weather be warm. After the hair is removed put them in a composition of one gallon of soap, three pounds of salt, and about ten gallons of water. Let them remain in this for two or three days, and handle them often while working off the flesh and fine hair. The sides are then placed in the tanning-liquor, mixed with soap, as described in Mode 1, and tanned through.

Third: Hides and skins with the hair or wool on are tanned as follows: The hides or

skins are soaked and washed in water until soft. They are then put into a composition of soap and salt and handled after three or four days, being worked in the meantime so as to be cleansed from flesh and filth. They are then put in the tanning-liquor with soap, as previously described, (a greater portion of soap will not injure them,) and are handled often, the strength of the liquor being sustained. After they are about half-tanned they should be shived by a currier, as they will tan faster.

The ordinary mode of unhairing hides is with lime alone, which injures the texture of the hide. The salt and soap softens the hide and prevents the lime from eating it and allows the lime to be easily worked out.

A patent has been granted to Hibbard for the use of potash with lime and salt to form a soap to cause the lime to be easily worked out from the hides; but the objection to Hibbard's plan is that a portion of the hide—gelatine—is taken to form the soap, as that unites with the potash. Thus it will be seen that to form the soap the potash is robbed or has an important part taken from it—that part which renders the leather soft and pliable. The soap bates, while cleansing out the lime, softens and opens the pores of the hide for the reception of the tanning-liquor, while the hennung, which is most commonly used, closes the pores and leaves them in such a condition that they must be kept a long time in acid liquor to prevent them being hard and of dark color.

Soap and salt solutions will prepare sweat-hides and kip-skins to make good pliable curried leather, which has been supposed by tanners impossible. Combinations of soap with strong tanning-liquors so mollifies or softens them that green hides may be immersed therein without danger of hardening them or closing the pores, causing the tannin to penetrate the hide and unite with the gelatine much quicker, neutralizing acidity, thereby preventing the loss of gelatine, and makes a good, firm, pliable quality of leather. It is a perfect remedy for the evils or extremes which tanners always strive to avoid—viz., weak, sour liquors, which make the leather open and spongy, and strong liquors, which make the leather hard, close the pores, and prevent the liquors from penetrating into the interior.

Common potash soap may be used, or what is commonly termed "soft soap."

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

1. The employment or use of soap combined with salt and lime for unhairing or depilating the hides.

2. The employment or use of soap, combined with the tan-liquor for tanning the hides, substantially as described.

OTIS B. WATTLES.

Witnesses:

JOHN PEACOCK,
GEORGE WATTLES.