# UNITED STATES PATENT OFFICE.

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## COMPOSITION FOR TANNING.

SPECIFICATION forming part of Letters Patent No. 309,701, dated December 23, 1884.

Application filed May 26, 1881. (No specimens.)

*To all whom it may concern:*

Be it known that I, SAMUEL S. EDDY, a citizen of the United States, residing at Rochester, New York, have invented new and useful Improvements in Tanning Compositions, of which the following is a specification.

My invention relates to tanning compositions, more especially applicable to the tanning of those skins which it is desired to convert into kid leather. Hitherto in tanning such skins it has been necessary when taken from the pickle (or what are known as "pickled" sheep-skins) to extract or kill the pickle, and it has been found that the processes used therefor are apt to injure the skin and detract from the quality of the finished leather.

The object of my invention is to furnish a composition by the use of which the art of tanning may proceed without killing or extracting the pickle which may be in the skin, and to produce economically a high grade of leather, always soft and pliable, and capable of receiving and reliably retaining and holding the color or dye imparted to it, the process for carrying out such being set forth in an application for Letters Patent filed in the United States Patent Office April 10, 1884.

Suppose the number to be treated is twelve dozen sheep-skins taken from the pickle, (what are known as "pickled" sheep-skins.) For this number the first solution or composition used is made in about the following proportions: eighty-four pounds of wheat-bran fermented in one hundred and twenty gallons of water; seventy-five pounds of salt; fifteen pounds of sulphuric acid or oil of vitriol of 66° strength; five pounds of quercitron-bark. The bark should be boiled in four or five gallons of water to extract the strength therefrom before mixing it with the other ingredients. The composition thus made is intended for white leather. When it is intended to color the leather, it is preferable to add to the composition noted about eight pounds of terra japonica dissolved in a suitable amount of water.

The ingredients of this solution possess qualities peculiarly adapting it for the desired effects on the skins as a preliminary step in the tanning operation. The wheat-bran tends to soften the skins, while at the same time it possesses mild tanning properties. The salt is cleansing in its action, as is also the oil of vitriol, while the two when mixed form a tanning agent. The quercitron is a well-known tanning agent, giving body or strength to the composition and strengthening or toughening the skins.

Into this composition the skins are thrown, preferably single, in order that every part of the skin may be affected thereby. They are to be kept therein about ten hours, when they should be taken out and washed off with or in lukewarm or cool water, and then hung upon a horse or rack and allowed to drain for an hour or more, when they are ready for a second solution or composition, which may be termed the "completing solution." This is composed of sixty gallons of water, three pints of soft soap, one pound of glycerine, twelve ounces of saleratus, and six ounces of borax. The saleratus and borax should be separately dissolved in a little water before being added to the other ingredients.

In this composition the use of the soap softens, cleanses, and strengthens the skins, while the glycerine, in addition to its preservative qualities, tends to keep them soft and pliable. The borax whitens and bleaches the skin, while it and the saleratus, being alkalies, neutralize any acid remaining in the skins from their treatment in the first solution.

In treating the skins in this solution it is preferable to treat a much small number at once than the twelve dozen for which the entire solution is intended. It is best, therefore, to place about five gallons of this second composition in any suitable tub or receptacle and place one dozen skins therein, which are then to be handled in the solution for five minutes. This liquor is then to be thrown away and a fresh five gallons used with the next dozen in the same way, and so on until all the skins have had a few minutes' handling in this second composition. They are then to be hung up in a hot room until dry. After drying they are to be seasoned by dipping quickly in water and packing in a box. They should remain so packed for some hours—ten or twelve, or, say, over night—after which the next step is to perch out with an arm-stake and subjected to a solution for cleansing composed of thirty-six gallons of water, six pounds of alum, and three pounds of salt, or in lieu of such be subjected to a solution composed of

pound of tallow-soap and half a pound of raw linseed-oil, said ingredients being dissolved in about twelve gallons of water, in either of which solutions the skins should be thoroughly handled or treaded for about from five to fifteen minutes, this latter solution being for eight dozen skins of the ordinary size and character.

The skins are now ready for dyeing or coloring and finishing, or for finishing, if white leather is desired; if to be colored, they are colored or worked in the manner usual with kid-finished leather.

After a charge of the first solution or composition has been made of the strength and proportions set forth, or thereabout, and used as described, it may serve as a base for the next lot, as it may be strengthened and restored to its original activity by adding to what is left of it fifty pounds of bran fermented as before set out, five to six pounds of sulphuric acid, and twenty-five to thirty pounds of salt, with the necessary quantity of water. The second solution or composition, however, cannot be strengthened, and must be made fresh for each lot to be treated, the spent liquor being simply thrown away.

While I have stated what I conceive to be the best proportions of ingredients for the solutions or compositions used, it is of course evident that they may be somewhat varied to meet the conditions of different sizes and character of skins.

It will be noted that the conjoint action of both compositions 1 and 2, though used at different times, is needed to complete the tanning, the preliminary step being accomplished by the first composition, which is an acid tanning solution, when action is supplemented and finished by the second, which is an alkaline tanning solution, their action being aided by the intervening and succeeding operations of washing, draining, and packing, the final solution acting as an ordinary cleansing solution after the changes necessary to forming leather have been completed in the hide, the pickle in the hides having been neutralized by the conjoint effect of the acid and the alkaline tanning solutions.

With these compositions I am enabled to proceed with the tanning of pickled skins without first killing or extracting the pickle, and to easily and economically produce a strong leather of the highest and best kid finish, soft and pliable, and capable of receiving a good color and durably retaining and holding it. The leather produced is also free from any bad or offensive odor, the effect of the compositions used being to destroy any such odors which might arise from the decomposition or change in the animal fibers.

Having thus described my invention, what I claim is—

1. The improved composition for use as a preliminary step in the art of tanning, consisting of wheat-bran, salt, sulphuric acid, quercitron-bark, and water, substantially in about the proportions specified.

2. The improved composition for use as a finishing composition in the art of tanning, consisting of soft soap, glycerine, saleratus, borax, and water, substantially as described, in about the proportions specified.

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

SAMUEL S. EDDY.

Witnesses:
JAMES L. NORRIS,
GEORGE W. REU.