

UNITED STATES PATENT OFFICE.

R. GOULD, OF WHITEWATER, WISCONSIN.

IMPROVEMENT IN TANNING.

Specification forming part of Letters Patent No. 14,399, dated March 11, 1856.

To all whom it may concern:

Be it known that I, ROSELOUS GOULD, of Whitewater, in the county of Walworth, in the State of Wisconsin, have invented or discovered a new and Improved Mode of Tanning Leather; and I do hereby declare that the following is a full and exact description thereof.

The nature of my invention consists in the use of saltpeter and alum in connection with catechu in tanning all kinds of skins and hides.

To enable others skilled in the art to make use of my invention, I will proceed to describe the process of tanning by means of my invention.

The process of tanning cowhides is as follows: I take, say, twenty pieces and prepare them for tanning by any of the known processes. I then place them in a vat or vessel large enough to contain them. (The vessel should be of copper, wood, or some other material which will not act chemically on the solution hereinafter described.) I then dissolve about twenty pounds of catechu in water sufficient to cover the hides and pour the solution over them. After the hides have remained in the above-described solution about forty-eight hours I dissolve about thirty pounds or more of catechu and about ten ounces of saltpeter in water and add to the first solution. After adding the catechu and saltpeter the hides remain in the solution until they are tanned through, which in cowhides is usually about six days after adding the catechu and saltpeter. I then take the hides out and prepare a second solution of about ten pounds of catechu and about thirty pounds of alum dissolved in sufficient water to cover the hides, and place the hides in it the same as in the first solution. They remain in this solution until they become plump and firm, usually from two to three days. Daily during the whole process I take the hides out and hang them up, exposed to the action of the air, for from one to two hours, and while the hides are being thus aired I heat the solution from which I have just taken the hides until the scum or sediment rises to the surface, when it is skimmed off. The solution should be heated in a vessel of copper, wood, or some other substance which will not act chemically on the solution. The solution is thus heated and

skimmed to prevent it from becoming thick, and thereby impeding the process of tanning. When the solution has cooled to about blood heat I replace the hides in it. For tanning any greater or less number than twenty hides the quantity of the respective ingredients of the solution above described is proportionately increased or diminished. After the hides are tanned as above they are taken out of the solution and finished in any of the known methods for finishing leather.

For tanning calf-skins and other skins which are lighter than ordinary cowhides the process is the same as above described; but the time required in the process and the quantities of the several materials placed in solution are decreased proportionately as the skins to be tanned are lighter than ordinary cowhides, while if, on the contrary, the skins to be tanned are heavier, the time required in the process and the quantities of the several materials placed in solution are proportionately increased.

For tanning sole-leather the process is the same as the above, except that the quantity of alum in the second solution is about one-third more than is first hereinbefore stated.

For tanning harness-leather the process is the same as the above, except that the quantity of alum in the second solution is about one-half less than the quantity first hereinbefore stated.

The strength of the solutions above described and the relative proportions of catechu and saltpeter used in making the first solution and of catechu, saltpeter, and alum used in making the second solution may be varied to a considerable extent, and will produce proportionate effects without at all deviating from my invention. Therefore I do not confine myself to any particular strength of the solutions above described, nor to any particular quantity of either of the ingredients composing the said solutions; but the strength of the solutions and the quantities above described of the respective ingredients composing said solutions are what I have found best and which I prefer.

In all known processes of tanning leather the animal fibers on the surface of the skin absorb most readily the tanning principles,

and thereby obstruct in some degree their passage into the interior fibers. The saltpeter placed in solution with the tanning principle overcomes that obstacle and promotes the penetration of the tan.

In tanning leather quickly by a solution of catechu, or of galls, or of barks, the skin combines with but a comparatively small quantity of extractive matter, and consequently the leather thus tanned is flat, spongy, and porous. The use of alum in solution with the tanning principle supplies the requisite quantity of extractive matter, closes the pores of the skin, and renders the leather plump and firm and less susceptible of the action of water.

I do not claim the use of catechu in the process of tanning as my invention, for its use has long been known.

I do not claim to have discovered any new property of catechu or niter or of alum in relation to their employment in tanning operations; but I do claim to have discovered that in order to improve the proper exercise of the preparations of these substances in tanning they must be used in a certain manner different from the mode in which they have hitherto been known to be used. I claim to have discovered that in order to use these substances effectually for tanning they must be em-

ployed substantially according to the process set forth in my application; and I claim to have discovered that when these three substances or their chemical equivalents have been employed together they have and must fail, as they are to some extent incompatible when so used.

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

The use, in the process of the tanning of hides and skins for the making of leather, of the two solutions above described, used and applied each separately or at different times, and in the order following, viz: first, by using a combined solution of catechu (or any other material its equivalent as containing the tanning properties) and saltpeter, substantially in the mode of application as my equivalent, as above described; second, by using a combined solution of catechu (or any other material its equivalent as containing the tanning properties) and alum, substantially in the mode of application above described, or any mode of application equivalent thereto.

ROSELOUS GOULD.

Witnesses:

E. F. BOIES,

J. W. M. WILLIAMS.