

# UNITED STATES PATENT OFFICE.

EZRA W. AVERY, OF PLYMOUTH, NEW HAMPSHIRE.

## PROCESS OF MAKING LEATHER.

SPECIFICATION forming part of Letters Patent No. 261,073, dated July 11, 1882.

Application filed May 8, 1882. (No specimens.)

*To all whom it may concern:*

Be it known that I, EZRA W. AVERY, of Plymouth, in the county of Grafton and State of New Hampshire, have invented an Improved Process of Making Leather; and I do hereby declare that the following is a full and exact description thereof.

In the old process, upon which my present process is an improvement, after the skins have been limed and fleshed, milled with oil, and dried, they are again milled with potash and soda in water until the oil is all cut and washed out. The fat liquor which is drawn off from this washing is composed of oil, water, potash, and soda and glue from the skins. This is treated with common oil of vitriol to recover this oil and glue, which mixture rises, like cream, on the surface of the liquor, which liquor is called "sod-oil liquor," and heretofore has been thrown away as useless.

My improvement consists in utilizing this sod-oil liquor in the treatment of the skins at a certain stage of the process, whereby I am enabled to take all the glue from the skins (which heretofore has not been accomplished) and to greatly improve the leather in various respects. I will proceed to specify the method of applying this liquor in connection with the other and well-known parts of the process.

The skins, as usual, are first limed till the hair will come off and then the hair and flesh are neatly taken off. It is after this part of the process that I apply the sod-oil liquor obtained from a previous working of the process. I put the skins in the sod-oil liquor (enough to cover them) and allow them to remain therein from one to eight days, according to the thickness of the skins. No absolutely definite rule as to time can here be given; but the workman readily learns by experience when the skins are in condition to take out of the liquor. The effect of this soaking in the sod-oil liquor is to completely soften the glue all through the skins, so that it will mix with the oil in the subsequent part of the process and all wash out—an essential result for making perfect leather by the process. The skins are then

milled with fish-oil in the usual way until the oil is worked completely through them. They are then taken out and hung up to dry until the oil becomes candied; then put in water enough to cover them, into which common potash and soda-ash in equal parts are dissolved, to cut the oil in the skins, and milled till this is effected. The water or liquid is then drawn off and more water added and drawn off till the oil is all washed out. The skins are then hung up to dry, then colored, and finished on an emery-wheel, ready for use. The latter part of the process, after the treatment in the sod-oil liquor, is the usual method, and is here briefly stated to show the complete process and the connection of my improvement therewith.

The treatment of the fat liquor washed out of the skins is well known to those skilled in the art. The quantity of sulphuric acid used in recovering the oil and glue of course varies with the quantity of oil and glue in the liquor, and no definite statement of proportion can be given. About ten pounds of the acid to fifty gallons of the liquor may be stated as an approximately average quantity.

The leather made by this improved process, being completely freed from the glue of the skins, is very superior in toughness and strength, in elasticity, pliability, freedom from stiffness after wetting, and in warmth and cloth-like quality.

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

The improvement in the process of making leather, which consists in treating the skins with sod-oil liquor after the depilation of the same, whereby the glue in the skins is softened and made capable of mixing and of being washed out with the oil used in the subsequent treatment of the skins, substantially as and for the purpose herein specified.

EZRA W. AVERY.

Witnesses:

JOSEPH BURROWS,  
CHARLES A. JEWELL.