UNITED STATES PATENT OFFICE.

JAMES C. McCONNELL, OF CORNELIA, GEORGIA.

PROCESS OF MANUFACTURING LEATHER.

SPECIFICATION forming part of Letters Patent No. 677,368, dated July 2, 1901.

Application filed November 13, 1900. Serial No. 36,421. (No specimens.)

To all whom it may concern:

Be it known that I, JAMES C. MCCONNELL, a citizen of the United States, and a resident of Cornelia, in the county of Habersham and State of Georgia, have invented new and useful Improvements in Processes of Manufacturing Leather, of which the following is a full, clear, and exact description.

The object of this invention is to provide a simple and effective method of manufacturing leather especially adapted for belt, shoe, and other laces by the chrome process, whereby the leather is rendered peculiarly suitable for such purposes in that it will be practically fireproof, as well as soft and pliable and exceedingly durable, strong, and tough, as more fully hereinafter set forth.

According to my process the hides are dehaired by liming and bating and washing in a beam-room in the usual way for chrome tan, then put into a drum or paddle-wheel with about two pounds of alum and four pounds of common salt to each one hundred pounds of wet hides, and run in the drum or paddle-wheel until the alum and salt are entirely absorbed by the hides, the hides carrying sufficient water as they come from the wash to absorb the dissolved alum and salt. After this treatment they are packed down until nearly all the water presses out and drains off them. They are then hung up until they reach the condition known to tanners as "sammied," (*i. e.*, damp, soft, and yet not wet,) after which they are taken down and split and shaved in the usual manner. The split and shaved hides are then put into a drum or paddle-wheel and tanned thoroughly with chrome or other mineral tannage of any kind. The hides are then put into a wash-wheel and washed with clean water, and then the water is run out of them by means of a slicker, in use by all tanners, and hung up until they become sammied again, which puts them into proper condition for stuffing. The stuffing-wheel is heated to about 150° Fahrenheit, and the stuffing for each one hundred pounds of leather is preferably made as follows: Four ounces of common potash or other alkali and one-half gallon of clear water are boiled together until the alkali is thoroughly dissolved. Then two pounds of any good degras and four pounds of tallow are added and the whole brought to a quick boil, the boiling action being conducted slowly until the compound is thoroughly cooked. Then one-quarter gallon of neat's-foot oil is added and the compound stirred until its temperature reaches a little below boiling. Then the compound while still hot is poured into the stuffing-wheel. After the leather is stuffed it is set out and oiled off on the grain side with a light coat of neat's-foot oil, then tacked out in frames until thoroughly dry, and then put down in damp sawdust until it is sammied again. Then it is staked out with any staking-machine for the purpose of stretching and softening the leather. Then it is hung up until nearly dry. After this it is taken down and staked a second time and then trimmed and coated on both sides with a light coat of paste made with tallow, starch-flour, soap, and water boiled together. Then the leather is hung up until dry, after which it is finished in the usual way.

I desire it understood that I do not limit myself to the exact proportions of ingredients named herein, nor do I desire to limit myself to the particular ingredients mentioned, as any equivalents thereof may be used.

The special virtue in the salt-and-alum treatment lies in the fact that it pickles or preserves the hides while they are being split and shaved. The hides would have to be put into the tan immediately after they came out of the bate if they were not preserved in this manner. By this pickling they will keep indefinitely without rotting. This salt-and-alum treatment also keeps the hides from shriveling or drawing up when they are first put into the tan.

As is well known, the raw hides as they come from the washer in the beam-room are thoroughly drenched and are in the initial stage of decomposition, and therefore must be preserved at once if they are to be worked or operated on before being placed in the tan-vat. Wishing to avoid tanning any surplus, I have experimented to find a method of preserving the hides while they were being put into condition for shaving and also during the shaving operation, and I have discovered that the salt-and-alum treatment above described not only sufficiently preserves the

hides until they can be sammied, but also puts them in splendid condition for shaving; and I have also discovered that this pickling of the raw hides puts them in the best possible condition of pliancy and softness for splitting without injury to the fiber, thus avoiding the injury to the leather and machinery that results from splitting the hides after being tanned. I have also ascertained that the hides after this preservative treatment are more susceptible of tan than when they are put into the tan directly from the wash-wheel. This method of pickling the hides could not be employed successfully in making harness and other kinds of leather sold by weight, as such leathers are made by plumping up the hides with certain liquors while the hides are in the raw state and keeping them plump until tanned, so that they will be susceptible to heavy oils and grease, while my method of preserving pickles the hides and prevents them plumping, so that they shall not be too thick and heavy for sale by linear measure for lacing purposes, while at the same time they shall retain all their strength.

A special feature of my process is that I treat chrome-tanned leather in a way to render it suitable for lacing purposes, and I believe myself to be the first to do this. My lace-leather is distinguished from all other lace-leathers that I am acquainted with in the important respect that it does not harden from long use and friction, but remains strong and pliable until worn out.

Another feature of importance lies in the fact that the salt-and-alum treatment permits the leather to be stuffed at a higher temperature than is possible with leather tanned in the ordinary way, thus insuring a more thorough impregnation of the leather with the stuffing compound, which will impart to the leather the maximum degree of elasticity and durability and render it peculiarly suitable for laces. I have found this to be so from actual practice, and my theory is that the salt and alum preserve or protect the fiber from the injurious action of the highly-heated compound while the compound is being worked into the pores.

In view of the fact that the salt and alum resist the penetration of the stuffing in practice I find that I cannot effectually stuff at a temperature lower than 175° Fahrenheit.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The process of tanning hides, consisting in first dehairing the hides, then impregnating them with a solution of alum, then sammying them, then splitting them, and then mineral-tanning them, for the purposes set forth.

2. The process of tanning hides, consisting in first dehairing the hides, then impregnating them with a solution of alum and salt, then sammying them, then splitting them, then tanning them, and then stuffing them, for the purposes set forth.

3. The art of tanning hides, consisting of dehairing the hides, then impregnating them with a preserving and protecting substance, such as alum, then sammying them, then splitting them, then mineral-tanning them, and then stuffing them, for the purposes set forth.

4. The process of tanning hides, consisting of first dehairing the hides, then impregnating them with a preservative astringent in solution, then sammying them, then splitting them, then tanning them, and then stuffing them.

5. The art of tanning hides, consisting of dehairing the hides, then impregnating them with alum and salt, then mineral-tanning them, and then stuffing them at a high temperature, namely at 175° Fahrenheit or above as and for the purposes set forth.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 2d day of November, 1900.

JAMES C. McCONNELL.

Witnesses:

P. F. GRANT,

CHARLES R. IVIE.