

UNITED STATES PATENT OFFICE.

AUGUSTE DE MERITENS, OF PARIS, FRANCE.

IMPROVEMENT IN PROCESSES OF TANNING HIDES.

Specification forming part of Letters Patent No. **165,314**, dated July 6, 1875; application filed June 11, 1875.

To all whom it may concern:

Be it known that I, AUGUSTE DE MERITENS, of Paris, France, have invented certain new and useful Improvements in Tanning Hides by Means of Electricity, of which the following is a specification:

If through a solution of the bark of the oak, chestnut, or birch tree, or of any other matter containing tannin, there be passed an electric current, in such manner that one of the poles will be at the bottom of the receptacle, (comprehending, as far as possible, all of the bottom or lower surface of said receptacle,) while the other pole occupies, in like manner, the upper surface of the receptacle, and if the hides to be tanned be placed between the two poles, a continual movement takes place from one pole to the other. The basic elements move toward the negative pole, and the acid elements toward the positive pole. There results from this a general molecular movement, which acts on all the hides, and traverses them without cessation. The absorption of tannin is thus effected under excellent conditions, and with much more rapidity than is ordinarily the case. The most resistant material will be completely tanned in from thirty to thirty-five days—a very great gain over the old methods, which require from twelve to fifteen months.

If the tanning solution and the hides are put in communication with the two poles of an electric pile it is absolutely necessary that the positive anode should be insoluble. If this anode were made of any metal the current, in dissolving it, would produce a metallic tannate, which would injuriously affect the leather itself, and would retard the tanning operation. The combination of tannin alone with the organic matter would no longer take place.

In order, therefore, to effect the tanning under proper conditions, I proceed as follows: The bottom of my vat is formed of a plate of a carbon or charcoal conductor, or by a bed of this carbon, coarsely ground, and spread over several plates of the same substance. A copper wire, covered with gutta-percha or other insulating material, is in contact with the carbon, ascends the vertical wall of the vat, and,

on the outside, connects with the positive pole of the electric pile.

A layer of bark, containing tannin properly impregnated with water, is spread over the carbon; over this is spread a hide, then a new layer of bark, then another hide, and so on. On top of the charge is placed a plate of zinc, which rests on a layer of bark, and above the zinc is a final layer of wet bark. The negative pole of the electric pile communicates with the zinc. Through the charge thus prepared the electric current is caused to pass. The carbon remains undissolved, and a movement of transmission is established from one pole to the other through the skins. The basic elements go to the negative pole, the acids to the positive pole. From this results a constant molecular movement in all the hides, and the tannin alone is in action.

It is preferable to divide the poles each into several surfaces, according to the depth of the vat and the number of hides they contain. In this way time will be saved, and the skins will be more equally acted on; but under all circumstances there remains the one indispensable condition of an insoluble anode at the positive pole.

The above arrangement is productive of advantage in tanning independently of the application of electricity derived from an independent machine or apparatus.

I would remark that I may apply an induction-current, derived from Ruhmkorff coil or other induction apparatus, to effect the tanning of hides in the same way as the continuous current of an electric pile, or that derived from a magneto-electric machine. This application enables me to effect a considerable saving in expense; and, besides, does not require an insoluble anode.

The molecular movement imparted to all the organic matter by the electric current hastens the tanning of the hides, and is itself a tanning agent.

Static electricity produces exactly the same effects as dynamic electricity, and for the same reasons of molecular action.

I claim as my invention—

1. The described method of tanning hides, which consists in arranging the wet bark and

hides in alternate layers between positive and negative anodes, which connect with an electric pile or other source of electric action, as described, and passing the electric current through the charge, all in the manner substantially as set forth.

2. As an improvement in the art of tanning, the arrangement of the hides and wet bark in alternate horizontal layers, the one resting on the other, between zinc or its equivalent on

top, and carbon or its equivalent below, as herein described.

In testimony whereof I have signed my name to this specification before two subscribing witnesses.

AUGUSTE DE MERITENS.

Witnesses:

ROBT. M. HOOPER,
EMILE RICHARD.