

# UNITED STATES PATENT OFFICE.

JACOB MELLINGER, OF WAVERLY, MARYLAND.

## PROCESS OF UNHAIRING HIDES.

SPECIFICATION forming part of Letters Patent No. 490,791, dated January 31, 1893.

Application filed September 14, 1892. Serial No. 445,912. (No specimens.)

### *To all whom it may concern:*

Be it known that I, JACOB MELLINGER, a citizen of the United States, and a resident of Waverly, in the city of Baltimore and State of Maryland, have invented certain new and useful Improvements in the Process of Unhairing Hides, of which the following is a specification.

My invention relates to a new compound and process for the removal of hair from green hides. The methods of removing hair heretofore in use, have several disadvantages; first, they consume greater or less time, generally from three to eight days. The lime treatment which is the one most largely used has the bad effect of producing a too great effect upon the hide, converting valuable and important portions of it into soluble compounds and destroying some of the gelatine and other oils of the skin. It also has the effect of contracting the surface of the skin around the hair in such a way as to make it difficult to remove it.

My process consists in the application of a compound made as follows: First. Fifteen (15) pounds of hydrated sulphide of sodium are dissolved by pouring upon it about one hundred gallons of boiling water. Second. Five (5) pounds of starch are first made into a paste with boiling water and then the paste thinned with cold water until the whole amounts to about five (5) gallons. Third. White creosote—eight (8) ounces. This is added to the first solution after the chemical has been thoroughly dissolved in the boiling water and the solution has become cold. Fourth. The solution No. 2, of starch, is then added to the first solution and thoroughly mixed. Fifth. Four (4) pints of solution of crude carbolic acid about fifty per cent. Baumé is added to the former solution and the whole well stirred. This is the compound with which the hair is removed from the hide. It is used in the following manner:

The hide should be thoroughly soaked in cold water for twenty-four hours before being treated, the water then drawn off and a solution made of the one hundred gallons of chemical heretofore described with two hundred gallons of cold water added so as to make three hundred gallons in all. This mixture is placed in a vat provided with a conveyer

which will transfer the hides from the first vat into a second one which contains the solution and out again into a third which is filled with pure water. By means of the conveyer the hides are carried through the solution at a greater or less speed so as to expose them to the action of the solution for a period varying from fifteen to thirty minutes. The effect of the solution upon the hair is to dissolve it entirely, both that portion which is above the surface and also the glands which are connected to the lower ends. The hardened cells of the epidermis swell up and soften the rete Malpighi and the hair, and loosen the roots of the hair, dissolving the whole hair and roots and converting it into a soft gelatine-like mass which adheres to the surface of the hide like a paste. The solution also has the effect of opening up the fiber of the hide, thus exposing a greater surface to the subsequent tanning solutions. The function of causing the epidermis to swell up and soften the rete Malpighi and loosening the roots of the hair, opening up the fiber of the hide and exposing the interior thereof to the subsequent tanning operation, is a very important function of the creosote employed in this solution. This is of special importance in dressing leather which is afterward tanned in sweet liquors and which must have the superficial cementing material dissolved and removed so as to give the leather flexibility. The opening up of the pores of the leather in the treatment of sole leather has the important effect of increasing the weight and firmness of the hides, causing plumping. The compound also acts upon the fat in the hide in an advantageous way, converting it into an insoluble soap and so preventing its injurious effect on the solutions employed in the subsequent tanning operations, and also the leather. The hair having been dissolved in the solution, will form a thick gelatine-like paste on the surface of the hide. This must be removed in the pure water vat into which the hides pass, by any suitable means such as scraping, shaking or otherwise.

The compound heretofore described is the one which gives the most satisfactory results in practice, but all of its elements are not essential for the accomplishment of the removal

of hair from green hides. A compound of fifteen pounds of hydrated sulphide of soda in one hundred gallons of water as heretofore described with eight ounces of white creosote  
5 mixed thoroughly with it, will accomplish a good result.

If to the composition just described the four pounds of fifty per cent. solution of carbolic acid be added the effect will be still further  
10 improved by the arresting of putrefaction in the hide, and this compound may be employed without the starch.

The addition of starch as a fourth element to the unhairing compound is important for  
15 many reasons although not essential. Its chief function is to form a base for the paste which forms upon the surface of the hide from the dissolved hair, which paste when collected in the subsequent treatment is employed for  
20 another purpose, which will be made the subject of another application for patent. The starch also serves the function of neutralizing whatever acid may be formed in the process of unhairing the hide.

25 After a batch of hides has been treated the impurities left in the solutions must be removed and a small portion of fresh solution added. The active solution should always have a specific gravity of about 1.065.

30 Having thus described my invention, what

I claim and desire to secure by Letters Patent, is

1. A composition for removing hair from hides which consists of the following ingredients in approximately the proportions heretofore described—hydrated sulphide of soda  
35 fifteen pounds, starch five pounds, white creosote eight ounces, four pounds of fifty per cent. Baumé solution of carbolic acid, mixed in the manner substantially as hereinbefore  
40 described.

2. A composition for removing hair from hides which consists of the following ingredients—hydrated sulphide of soda fifteen pounds, white creosote eight ounces, mixed  
45 and applied in the manner substantially as described.

3. A composition for removing hair from hides which consists of the following ingredients—hydrated sulphide of soda fifteen  
50 pounds, white creosote eight ounces, carbolic acid four pounds fifty per cent. Baumé solution.

Signed at Baltimore, in the State of Maryland, this 5th day of September, A. D. 1892.

JACOB MELLINGER.

Witnesses:

H. MACCARTHY,  
M. TURNER.