G. D. BURTON.

PROCESS OF UNHAIRING ANIMAL HIDES OR SKINS.

(Application filed Mar. 5, 1898.)

(No Model.)

2 Sheets—Sheet 2.

INVENTOR

Witnesses

Frances Jane Burton

Chas. W. Parker

THE WORMS PETERS CO., PHILADELPHIA, WASHINGTON, D.C.
UNITED STATES PATENT OFFICE.

GEORGE D. BURTON, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE UNITED STATES ELECTRICAL LEATHER PROCESS COMPANY, OF MAINE.

PROCESS OF UNHAIRING ANIMAL HIDES OR SKINS.


Application filed March 6, 1899. Serial No. 672,798. [No specimen.]

To all whom it may concern:

Be it known that I, GEORGE D. BURTON, a citizen of the United States of America, residing at Boston, in the county of Suffolk, in the State of Massachusetts, have invented certain new and useful improvements in Processes of Unhauling Animal Hides or Skins, of which the following is a specification.

This invention consists in subjecting the hides or skins to be unhauled to the action of a suitable unhailing solution and a current of electricity, which is passed through the solution in which the hides or skins are placed. It is believed that the electricity has a tendency to raise the hair somewhat from the hides or skins and prevent its becoming matted thereon, and consequently the unhailing liquid has a freer circulation around the pores or hair-cells and softens the substance which holds the hair in such pores or cells more rapidly than in the ordinary unhailing operation.

Figure 1 of the accompanying drawings is a view of an apparatus for carrying out this process, comprising an electric generator, a switch-table, and a tank for containing the unhailing solution through which the electricity is passed, the generator and table being shown in side elevation and the tank in longitudinal vertical section. Fig. 2 represents a plan view of the apparatus. Fig. 3 represents a vertical transverse section of the tank on line \( x \) \( x \) of Fig. 2.

The same reference-letters indicate corresponding parts in all the figures.

In carrying out this process the hides or skins to be unhauled are placed in any suitable unhailing solution, and an electric current is passed through said solution containing the hides or skins. The current of electricity may vary from one to twenty volts and from thirty to seventy-five amperes, more or less, according to the volume and specific gravity of the solution and the number of the hides or skins placed therein. A solution which I have found very effective for this purpose consists of quicklime, red sulphur of arsenic, and water. I have used these ingredients in the proportions of seventy gallons of water to ten pounds of quicklime and one pound of red sulphur of arsenic. After mixing these ingredients the bath is stirred briskly for a few minutes until the lime becomes slaked and the arsenic dissolved.

The solution then has sufficient density to cause the necessary action to take place. When the solution is formed with the ingredients specified in the proportions stated, the solution will have a specific gravity of about 1.025 at 60° Fahrenheit. The bath will of course assume the temperature of the surrounding atmosphere in which it is used. The hides or skins, which have been previously broken or softened by soaking in water or in a proper solution, are then placed in the bath or solution and allowed to remain there until the hair-cells become sufficiently softened to allow the hair to slip. I have found that a period of from one hour to one and a half, more or less, is required for kangaroo, calf, or goat skins. For ox and other hides a longer period may be required. The skins are then removed from the bath or solution, and the hair is easily brushed or scraped off in the ordinary manner. Then the skins are subjected to a thorough washing, preferably in cold water, and they may then be subjected immediately to the tanning process after being fleshed.

Under the ordinary process for removing the hair the hides or skins have to remain in the solution for from fourteen to twenty days, and this process leaves the skins after they are unhauled in a condition whereby they have to be soaked in a prepared solution for some time in order to bring them to a proper state to be treated by the tanning process. I have also used a solution composed of seventy gallons of water, ten pounds of quicklime, one pound of red sulphur of arsenic, and one pound of alum. The addition of the alum causes the hair pores or cells to rapidly contract as soon as the hair has been removed from the skin. By this process a heating of the solution beyond the temperature of the hide or skin when on the animal may be avoided, whereas in the ordinary process the large quantity of quicklime used is liable to
heat the solution beyond the point stated, and such heating tends to cause the hide or skin to pucker and shrink, and thus reduces the size of the finished skin.

5 The apparatus herein shown for carrying out the process comprises a tank A, containing the unhairing solution B. This tank is preferably composed of or lined with wood or other non-conducting substance. Two electrodes D D are disposed in the tank, preferably at opposite ends thereof. These electrodes are composed of any suitable material, preferably a material which will not dissolve in or be acted upon by the solution. To this end these electrodes are composed of a carbon composition of considerable density. These electrodes are connected by conductors H H with a switch F for controlling the electric current. This switch is connected by conductors J J with the dynamo D or other generator or source of electricity.

Screen C C, of wood or other non-conducting material, are disposed in the tank to prevent the hides or skins from coming in contact with the electrodes D D. A screen E, also of wood or other non-conducting material, is supported in the tank near the bottom thereof and serves to prevent the hides or skins from coming in direct contact with any lime which may settle in the bottom of the tank should the solution remain too long unstirred. This screen is composed of a non-conducting substance and is preferably perforated, as shown in Fig. 3, so as to permit the lime to pass therethrough.

In carrying out the process by the use of this apparatus one of the unhairing solutions herein described or any suitable unhairing solution is disposed in the tank A, and the hides or skins to be unhairied are placed therein above the screen E and between the screens C C. The electric current is then turned on, and the hides or skins are subjected to the combined action of the solution and the current passing therethrough until such hides or skins are in condition to permit the free removal of the hair. The proportions of the ingredients used in the bath described may vary according to the size of the tank and the number of hides or skins to be treated at one time and the quantity of liquid used, and the electric current may be varied to meet the requirements of the hides to be treated.

It is believed that either of the unhairing solutions specified has a tendency to preserve the hides or skins and in some degree to tan or put the hides or skins in condition to facilitate the tanning action.

60 The arrangement of the electrodes at opposite ends of the tank enables the electric current to pass through the solution in lines parallel with the layers of skins, and consequently the surfaces of the skins are exposed to the action of the current without necessary tainting its passage through the bodies thereof. I claim as my invention—

1. The process of unhairing animal hides or skins, which consists in subjecting the hides or skins to the action of an unhairing solution and a current of electricity passed through said solution, said current entering said solution and passing out therefrom at points away from the hides or skins, and being of sufficient volume to raise the hair and permit circulation through it.

2. The process of unhairing animal hides or skins, which consists in subjecting said hides or skins to the action of a solution of quicklime, and red sulfid of arsenic, and an 80 electric current passed through said solution, said current being of sufficient volume to raise the hair and permit circulation through it.

3. The process of unhairing hides or skins, which consists in subjecting said hides or skins to the action of a solution composed of quicklime, red sulfid of arsenic, and water in the proportions of about ten pounds of quicklime, one pound of red sulfid of arsenic, and seventy gallons of water, and an electric current passed through said solution containing the hides or skins, said current being of sufficient volume to raise the hair and permit circulation through it.

4. The process of unhairing animal hides or skins, which consists in subjecting said hides or skins to the action of an unhairing solution and a suitable electric current passed through said solution, and avoiding injury to said hides or skins by preventing their coming into direct contact with sediment should the solution remain too long unstirred, said current being of sufficient volume to raise the hair and permit circulation through it.

5. The process of unhairing animal hides or skins which consists in subjecting the hides or skins to the action of an unhairing solution and a current of electricity passed through said solution in lines parallel with the layers of hides or skins, said current entering the solution and passing out therefrom at points away from the hides or skins and being of sufficient volume to raise the hair and permit circulation through it.

In testimony that I claim the invention above set forth I affix my signature in presence of two witnesses.

GEO. D. BURTON.

Witnesses: O. P. ADAMS, GEO. STEINER.