

UNITED STATES PATENT OFFICE

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DELAWARE

METHOD OF AND AGENT FOR DEPILATING HIDES

No Drawing.

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This invention relates to a method of, and an agent adapted for use in, depilating hides.

5 The commonly practiced method of depilating hides, consisting essentially in soaking them for a number of days in milk of lime which has been sharpened by the addition thereto of about an equal amount by weight of an alkaline metal sulfide, is open to the objection that the hides so depilated often do not possess the full plumpness desired, and that an undue period of time, generally about six days, is consumed in the depilation. This refers to the regular beam house practice where the hair is recovered. When rapid dehairing is desired without recovery of the hair, it is necessary to use a very appreciable quantity of sodium sulfide, but this procedure has certain undesirable effects on the hides, such as overplumpness, harshness of grain, and other characteristics of the so treated hides.

25 I have now found a process whereby the period of time necessary for the depilation, without saving the hair, may be shortened to the same time as when using a large excess of sulfide and still secure a desirably full, solid plumpness of the stock. This process consists substantially in depilating the hides in a watery mixture comprising milk of lime and a hydrosulfide, to which mixture a relatively small amount of an alkaline metal sulfide has been added. The hydrosulfides found useful in this process are those of the alkali metals, alkaline earth metals, and/or ammonium hydrosulfide, such as hydrosulfides of sodium, calcium, ammonium, or the like. Such a depilating agent has been found to have a depilatory strength many times that of the agents heretofore used, thus making possible the complete removal of hair from ordinary hides and even difficultly depilated hides in a very short time. The hides so treated show no destruction of the grain, or diminution of strength of the fresh stock, and are particularly characterized by pronounced full, solid plumpness, and at the same time have much softer feel.

50 With respect to the amount of hydrosul-

fide to be admixed with the milk of lime and sodium sulfide, I have found that very rapid depilatory action obtains by the use of such proportions where the hydrosulfide is in molecular excess over the alkaline sulfide as represented, for instance, by a solution containing about 2½% by weight of lime, from 1¼ to 1¾% by weight of sodium hydrosulfide, and from .5 to .7% of sodium sulfide, the amounts being based on the weight of the green, wet hides undergoing the depilatory treatment. Treatment of hides with depilatory agents of this strength results in complete removal of all hair within three to five hours. The attack of the hair starts at the tip which curls up and the hair is completely destroyed and removed in the above relatively short time.

The invention will be described more fully by recourse to the following example, it being understood that the invention is not limited to the use of any particular alkaline hydrosulfide or to the exact proportions and/or conditions hereinafter set out:

75 2,700# of well washed steer hides were introduced into a paddle wheel containing 2,700 gallons of water in which were dissolved 67.5# lime, 17.5# sodium sulfide, and 44.5# sodium hydrosulfide. After paddling for 10 minutes, the hair of the hides showed evidence of curling. At the end of 3½ hours treatment, the hides were found to be free of all hair, including the difficulty attacked "ground hairs". The hides were then separated from the depilating agent and, after washing, showed a more solid plumpness with smoother and more mellow grain, and a very marked softness. The hides, after this treatment, were submitted to the usual standard tanning operations, in which no modifications are required when using hides depilated by my novel process.

Repetition of the above operation in which there was substituted for the sodium hydrosulfide, calcium hydrosulfide and ammonium hydrosulfide, respectively, established the fact that the depilatory action is not dependent upon the particular alkali radical but is dependent upon the hydrosulfide radi-

cal in combination with the earth alkali metal hydroxide and alkali metal sulfide.

One-half of the depilating agents used in the above bath is consumed by the depilatory action. The liquor, after removal of the hair, can be sweetened and used for subsequent operations by adding thereto one-half of the original amounts of lime, hydrosulfide and sulfide.

It appears that the ratio of hydrosulfide to sulfide is important for obtaining the full successful results of my process, but the presence of both hydrosulfide and sulfide is also essential. Hydrosulfide and lime alone will not produce complete depilation in a short time; the addition of sodium sulfide thereto is essential for successful removal of the hair.

For the practical application of my novel process it is sometimes advisable to furnish the tanner with a tanning compound containing the sodium sulfide and sodium hydrosulfide mixed in the correct proportions. This is easily produced by mixing concentrated solutions of sodium sulfide or other alkali metal sulfides with the hydrosulfide and concentrating these solutions to high percentage of solids, usually 60 to 75% active ingredients, the balance consisting principally of combined water. Such mixed products have the same physical appearance as ordinary fused sodium sulfide and dissolve readily in water.

A very useful depilating salt contains a molecular ratio of sodium sulfide to sodium hydrosulfide of 1:2 or higher. Such intimate mixtures containing sodium sulfide and hydrosulfide in molecular ratios as high as 1:5 can easily be prepared in this manner, and I prefer to use salts containing the active ingredient within the above limits as they correspond to the proportions most useful in carrying out my novel depilating process. It is to be understood that for purposes of this invention the hydroxide of an alkaline earth metal is the functional equivalent of an oxide of said alkaline earth metal. For example, it is obvious that a dry composition suitable for solution in water to the formation of a depilatory solution may be prepared from an alkaline earth metal oxide, an alkaline metal sulfide, and the hydrosulfide of an alkali or alkaline earth metal, and that said composition in aqueous solution will contain the hydroxide rather than the oxide of the alkaline earth metal. Therefore, in the appended claims, the names "alkaline earth metal oxide" and "lime" (calcium oxide) embrace both the hydrated and non-hydrated oxides. Likewise, it is to be understood that by the expressions "alkaline sulfides" and "alkaline hydrosulfides" I intend to include respectively sulfides and hydrosulfides of the strong base-forming elements or radicals such as sodium,

potassium, calcium, magnesium, and ammonium.

I claim:

1. Process of depilating hides which comprises treating the hides with an aqueous solution obtained by dissolving in water an alkaline earth metal oxide, an alkaline sulfide, and an alkaline hydrosulfide.

2. Process of depilating hides which comprises treating the hides with an aqueous solution obtained by dissolving in water milk of lime, an alkaline sulfide, and an alkaline hydrosulfide, the molecular amount of hydrosulfide being in excess of that of the sulfide.

3. Process of depilating hides which comprises treating the hides with an aqueous solution obtained by dissolving in water milk of lime, sodium sulfide, and sodium hydrosulfide, the molecular amount of the hydrosulfide being in excess of that of the sulfide.

4. Process of depilating hides which comprises treating the hides with an aqueous solution obtained by dissolving in water 25 parts of lime, 6.5 parts of sodium sulfide, and 16.5 parts of sodium hydrosulfide for each thousand parts of green, wet hides.

5. As a composition of matter useful for the preparation of a depilating bath, an intimate mixture of sodium sulfide and sodium hydrosulfide in which the molecular ratio of the sulfide to the hydrosulfide is within the limits of about 1:2 and 1:5.

In testimony whereof I affix my signature.

EDWARD A. TAYLOR.