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TREATMENT OF ANIMAL FUR

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My invention relates to the treatment of fur skins and, more particularly, is concerned with processing sheep skins or lamb skins in order to render them resistant to curling by reason of exposure to or contact with moisture. Wherever the term "skin" is used herein, it is intended to cover the skin together with the fur thereon. Thus, where reference is made to sheep skin, it will be understood to mean the skin of the sheep together with the wool thereon.

It has heretofore been proposed to apply water-repellent coatings, such as fats, fatty substances, rosins, linseed oil, and the like, to sheep skins and other skins, which skins were treated to simulate or imitate more expensive natural furs, for example, beaver and fox, by subjection to known steps, including a lustering treatment. All of these processes, to my knowledge, leave something to be desired and none has been sufficiently completely successful to meet the demands of the industry.

It is accordingly an object of my invention to process or treat pelts or furs, particularly those of sheep and lambs, to render the hair or wool thereon largely free of the tendency to curl by reason of exposure to moisture or the like.

Another object of my invention is to produce dyed pelts or furs, particularly those of sheet and lambs, in imitation of more expensive furs but largely free from the defects which formerly characterized such articles, particularly from the standpoint of the effect of moisture thereon.

Other objects, not specifically set out above, will become apparent hereinafter in connection with a detailed description of the invention.

In general, my invention consists in providing a coating on the hair or wool which is substantive thereto, which is water repellent or water-insoluble, which is produced at relatively low temperatures, forms a continuous film on the hair, and adheres thereto. I have found that there are various chemicals which are substantive to the hair or wool but which, as such, are soluble and unsuitable for my purposes. However, I have found that these substantive chemicals can be combined with another chemical which will produce an insoluble reaction product in the form of an insoluble coating.

I have found that various amines are substantive to the hair or wool and are effective for my purposes. These compounds can be utilized to impregnate the animal skin, after which the skin is subjected to treatment with an aldehyde whereby a water-insoluble reaction product is

produced which is effective for my purposes. Among the amines which I may employ are such compounds as aniline, toluidine, aminophenols, diamines such as paraphenylenediamine, 2:4 diaminophenol, 1:4 naphthylenediamine, and similar nuclear polyamines, and nuclear polyaminophenols. The aldehydes which I may utilize include formaldehyde, benzaldehyde, trioxymethylene, and similar aldehydes which form water-insoluble products at low temperatures by reaction with the amines. I have found that the amines are particularly suitable for my purposes when used in connection with known dyeing practices, as described hereinafter.

It is well recognized that furs in general, including sheep skins, are frequently dyed with nuclear polyamine bases such as diamine bases, for example, paraphenylenediamine, and the like. I am able to take advantage of this practice in connection with my present invention. In other words, I have found that, after dyeing the sheep skin or the like with dyes such as paraphenylenediamine, I am able to contact the dyed skin with formaldehyde or other similar aldehyde whereby a water-insoluble reaction product in the form of a coating on the wool or hair is formed. This has resulted in a material improvement in the water resistant characteristics of the sheep skin or the like. Alternatively, I have dyed furs such as sheep skin with nuclear polyamine dyes, rinsed the dye from the furs, and then dipped the resulting dyed furs in a bath having formaldehyde in an acid solution. This, too, has resulted in overcoming to a considerable extent the lack of water resistance of the sheep skin or the like.

In order to still further improve the water resistant characteristics of the sheep skin or other fur, I have subjected a dyed skin to the action of a solution of an amine such as aniline or aniline acetate, after which the dyed skin, with the absorbed amine, was treated with a solution of formaldehyde. This procedure resulted in a considerable improvement. As illustrative of how my invention may be practiced with good results, I refer to the following examples. It will be understood, however, that these are simply illustrative of specific embodiments of my invention and are not to be construed as limitative in any way of the scope of my invention, such being pointed out in the appended claims.

Example A.—A dyed sheep skin weighing 190 grams was impregnated with a mixture of 60 grams of aniline and 50 cc. of acetic acid diluted sufficiently with water to cover the skin. After

a period of about 3 hours, the impregnated skin was removed and then contacted with 50 grams of formaldehyde dissolved in water and allowed to stand for a few hours. The sheep skin was then washed and dried.

Example B.—A dyed sheep skin was immersed in a 20% solution of urea in water containing 2% aluminum acetate and allowed to remain therein for about ten minutes. It was then removed and immersed in a concentrated solution of formaldehyde for about two hours. The sheep skin was then removed, washed and dried.

It will be understood that, after the treatment disclosed above, the sheepskin may be subjected to conventional and known lustering operations. These operations involve brushing a coating of an oil, such as coconut oil or other vegetable or similar oils, on the hair or wool of the sheepskin after which the skin is "electrified," milled in dry sawdust, combed and sheared. Frequently, it is desirable to repeat the oiling and electrifying steps more than once.

It is evident that, with different amines, the character of the results will vary. It is also evident, that various solvents for the amines may be employed, including water, alcohol, carbon tetrachloride, acetone, and the like, water and alcohol being the most practical for my present purposes.

While the reaction which produces the water-insoluble or water-resisting coating on the hair or wool of the skins may be carried out in an alkaline, neutral or acid medium, in general, I have found that my best results are produced in an acid medium.

While I have disclosed my process as involving the use of amines, I have also found that phenols

such as hydroquinone, phenol, resorcinol, pyrogallol, cresols, naphthols, and the like may be utilized. I have found, however, that the amines are very much superior for my present purposes.

The concentrations of the various ingredients, the time and temperature of treatment, and similar procedural details will vary and will govern in degree the nature of the results obtained. Those skilled in the art will, however, readily understand these matters in the light of the foregoing description.

What I claim as new and desire to protect by Letters Patent of the United States is:

1. The process of treating animal furs, particularly sheepskin, which have been dyed with dyestuffs containing a reactive amine group which comprises subjecting said dyed furs to the action of an aldehyde having the property of reacting with said group to produce a substantially water-insoluble compound, whereby the tendency of the hair or wool on said furs to curl due to exposure to moisture is substantially retarded.

2. The process of claim 1, wherein the animal fur is sheepskin and the aldehyde comprises formaldehyde.

3. The process of claim 1, wherein the dyestuff comprises paraphenylenediamine.

4. The process of treating sheepskins which have been dyed with nuclear polyamine dyestuffs to substantially decrease the tendency of the wool thereon to curl due to exposure to moisture which includes the step of contacting the dyed sheepskins with an acid-formaldehyde solution.

5. The process of claim 4 wherein the dyestuff is paraphenylenediamine.

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