

UNITED STATES PATENT OFFICE.

OTTO P. AMEND, OF NEW YORK, N. Y.

PROCESS OF TAWING.

SPECIFICATION forming part of Letters Patent No. 542,971, dated July 16, 1895.

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To all whom it may concern:

Be it known that I, OTTO P. AMEND, a citizen of the United States, residing in the city, county, and State of New York, have invented a new and useful Process of Tanning and Dyeing, of which the following is a specification.

My invention relates specially to the tanning and dyeing of hides, skins, pelts, and leather, and to the dyeing of hair and fur of fur-bearing and other animals, and feathers; yet it is useful for dyeing other material.

Hitherto it has been the custom to tan and dye hides, skins, or pelts at different times, for the reason that one process frequently seriously interferes with the other, and this is especially true of tanning the skin and dyeing the hair or fur of fur-bearing and other animals. What has been effective for the hide or skin has been destructive or detrimental to the hair or fur, and vice versa.

By the process described herein the tanning and dyeing are conducted simultaneously and with great advantage one to the other. In fact, the means employed to effect one is in part the means employed to attain the other. They are co-operative and co-ordinate parts of one and the same process.

In carrying out my invention, I first remove all fat and fatty matter from the article to be treated, by any well-known means, and then immerse the hides, skins, pelts, leather or feathers, as the case may be, in a cold aqueous solution of free chromic acid, by means of which a chemical change is effected in the constituents of the article treated or in some of them, the free chromic acid combining with the glutinous, keratin, and other compounds found therein, forming an organic chromate in the material. I then reduce the organic chromate, formed in the material by the combination of some of its parts with chromic acid, by the employment of an aromatic amine or a compound thereof. I have

found that by this organic reduction of the organic chromate a most thorough and complete tanning as well as dyeing process is effected simultaneously, and that by changing the amine used different colors may be obtained which are fixed and fast. I have also found that hair or fur attached to a hide or skin is very satisfactorily preserved and uniformly dyed by this process. It will also preserve and dye the hair or fur when separated from the skin.

I use a chromate solution of about one per cent. strength, made preferably with the ordinary commercial chromic acid and cold water. I reduce the organic chromate (formed in the articles by their exposure to the action of the chromic-acid solution) by immersing the material containing the organic chromate in an aromatic amine solution of about five per cent. strength, thus exposing the organic chromate to the action of the aromatic amine solution. The latter solution may be made from the salt or an aromatic amine compound.

I have used lactates, sulphates, bisulphates, acetates, formates, chlorides, and bichlorides of aniline. I have also used the nitrates, bromides, oxalates, fluorides, and other forms; but I prefer to use the ordinary chloride of aniline or the so-called "aniline salt" of commerce for the purpose.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

The process of tanning and dyeing which consists in subjecting the material to be treated to the action of a chromic acid solution, and then to the reducing action of an aromatic amine or a compound thereof, substantially as set forth.

OTTO P. AMEND.

Witnesses:

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