

UNITED STATES PATENT OFFICE.

ADOLPH MÜLLER, OF SAN FRANCISCO, CALIFORNIA.

IMPROVEMENT IN DYEING AND COLORING FURS.

Specification forming part of Letters Patent No. 116,211, dated June 20, 1871.

To all whom it may concern:

Be it known that I, ADOLPH MÜLLER, of the city and county of San Francisco and State of California, have made an Improvement in the Art or Process of Dyeing or Coloring that class of Furs to which belong fur-seal, beaver, otter, &c.

The purpose of my invention is to impart, in a higher degree and more perfectly than has hitherto been done, that pleasing gradation of colors from the dark exterior to the lighter shade next to the skin, and also those peculiarly pure and delicate tints of blended dark brown, copper, and golden hues, with their attendant luster, which are so universally admired and sought for in furs. Although most of the treatments to which the furs are subjected during my entire process are old, yet it will greatly aid in understanding and practicing my invention if I give the main features of several of these old treatments.

The process commences after the skins are picked, tanned, and dried.

I.

The hair is freed from grease and prepared to absorb color by a mixture of one part, by weight, of aqua fortis and four parts of water. It is applied with a brush upon the top in the usual way at a temperature from 100° to 110° Fahrenheit. A second and even a third application may be required, but before each the skins should be dry.

II. *Ground Dye.*

Two pounds catechu, two ounces blue vitriol, one-quarter ounce sal-ammonia, and eight pounds of water.

After boiling and stirring till the ingredients are dissolved it is brought to a temperature as hot as the hand can bear—about 110° Fahrenheit—and the skins immersed and allowed to remain twelve hours. Below the temperature above indicated the warmer the skins and dye are kept the better. Instead of soaking the skins in the dye it may be liberally applied with a brush. The skins are next aired two hours, but not allowed to become dry.

III. *Secondary Dye.*

Two ounces of bichromate of potash, forty-

eight drops of oxide of iron, and four pounds of water.

Use this at the same temperature and in the same way as the ground dye, except that it must be thoroughly applied so as to reach every part of the fur and as uniformly as possible by kneading or otherwise. Then dry slowly for two or three days, when the desired color will appear. Then wash in the usual way.

IV. *To Preserve the Leather.*

Draw the water out on the beam. When half dry grease the leather very little. When dry clean the fur well with sand and sawdust in the usual way. Now stretch each skin on a frame by stitching with twine.

V. *Lime Killing.*

One pound of fresh unslaked lime and sixteen pounds of water. This proportion should be varied according to the character of the skins. Those of females and pups require less lime. The rule on this subject as well as the mode of using are well known to fur-dyers.

VI. *Chemical Killing.*

Two ounces of blue vitriol and four pounds of water.

Dissolve and apply warm upon the top. After two or three hours, and while the fur is still damp, apply also upon the top a solution of one ounce of prussiate of potash and four pounds of water. These two solutions, thus applied, produce by their chemical action a brown copper-colored paste on the fur. After remaining twelve hours, dry in mild temperature, never in the sun. Then wash well upon the top with a brush, and when dry apply the vitriol solution again.

VII. *For Luster.*

One-quarter ounce of pyrogallie acid and two pounds of water.

Apply upon the top, and dry and repeat till the desired brown luster appears.

VIII. *To Darken.*

Thirty to fifty drops of oxide of iron and one pound of cold water.

Apply on top and dry. If the color is too dark use the pyrogallie dilution till the proper

shade is attained, if possible. In case of failure use the vitriol solution once more and follow it with the pyrogallic dilution. This must always be the last one of these two applications. The skins are now removed from the frames and cleaned with sawdust, mahogany preferred. This completes the process.

While the skins are on the frames all washing should be with a brush and not by beating; and while the fur is lying under any treatment for color or luster the skins should be laid together in pairs with the hairy sides in contact with each other.

Having thus described my invention, what I

claim as new, and desire to secure by Letters Patent, is—

The process herein recited for dyeing furs, consisting of, first, the employment of the frames; second, the employment of the blue vitriol in conjunction with the prussiate of potash; third, the employment of pyrogallic acid; all in the manner and for the purposes substantially as set forth.

ADOLPH MÜLLER.

Witnesses:

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