

UNITED STATES PATENT OFFICE.

EMIL ELSÄSSER, OF LANGERFELD, GERMANY.

PROCESS FOR TREATMENT OF WOOL.

1,008,249.

Specification of Letters Patent.

Patented Nov. 7, 1911.

No Drawing.

Application filed July 8, 1910. Serial No. 570,980.

To all whom it may concern:

Be it known that I, EMIL ELSÄSSER, a subject of the German Emperor, residing at Langerfeld, Westphalia, Germany, have invented a new and useful Process for the Treatment of Wool; and I do hereby declare the following to be a full, clear, and exact description of the same.

The object of my invention is to beautify or improve wool and the like especially by increasing its gloss without affecting its solidity. To this end, the wool is heated with so strong a bisulfite solution that the wool shrinks and assumes a rubber-like condition in which it may be extended to almost double length according to the kind of wool, and fixed in this stretched condition. The product obtained in this way displays a considerably higher gloss and a greater affinity for dye-stuffs than the untreated material while the strength of the stretched material is greater than that of the unstretched one and sometimes also that of the untreated material. The concentration of the bisulfite solution necessary for producing this result cannot be limited in degrees, because it depends upon the temperature, the duration of the treatment and the kind of the wool. In each case, the solution should be so strong that the wool tends to shrink and assumes a rubber-like condition. Instead of stretching the material after shrinkage during the treatment or immediately thereafter, the material can also be kept stretched to prevent shrinkage. The fixing of the stretched wool fiber may be effected in various ways, for example by prolonged boiling in water preferably with the addition of a smaller percentage of sulfuric acid, or by the action of baths, containing substances which decompose or combine with the bisulfite, such as chlorin, metallic salts like alumina salts, basic bodies, formaldehyde and the like, or by damping or steaming or by drying and decomposition of the bisulfite by means of gaseous substances with subsequent damping and steaming, or by cooling or cold washing. Instead of bisulfite solutions there may be employed double compounds of bisulfite, which split up at higher temperature, such as acetone-bisulfite.

The wool can be used in any desired form,

that is as loose wool, wool-containing yarn, fabric and the like. Other substances such as hair, feathers, and in sufficiently thin form even horn, fish bones and the like, behave similarly to wool in presence of bisulfite.

The carrying out of the process for the production of a heightened gloss and a finer yarn-count may take place in practice for example in the following manner: Woolen yarn in the skein is treated at heat by boiling for about five minutes in a solution of sodium bisulfite (one part by volume of bisulfite solution of 40 degrees Baumé diluted with five to six parts of water). At the same time the wool is stretched by means of any suitable mechanical arrangement to the desired length. Then in the stretched condition the wool is transferred to a second bath which contains about 2 per cent. of mineral acid and boiled herein for an hour; it is then washed out and dried. Or the boiled and stretched wool is cooled or washed and cooled whereby the shrinkage action of the bisulfite is stopped and the fixing of the wool fiber can now be completed in the loose condition of the wool by the above-mentioned means.

The process closely resembles the known mercerization of cotton; all the experiences gained in connection with mercerizing may find appropriate application herein.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:

1. A process for the improvement of wool consisting in heating the wool with so strong a solution of alkali metal bisulfite that the wool tends to shrink and assumes a rubber-like condition, keeping it stretched until the shrinkage action of the bisulfite is stopped.

2. A process for the improvement of wool consisting in heating the wool with so strong a solution of alkali metal bisulfite that the wool tends to shrink and assumes a rubber-like condition, leaving it to shrink, stretching it afterward and keeping it stretched until the shrinkage action of the bisulfite is stopped.

3. A process for the improvement of wool consisting in heating the wool with so strong

a solution of alkali metal bisulfite that the wool tends to shrink and assumes a rubber-like condition, tensioning it whereafter the shrinkage action of the bisulfite is suspended by cooling it and the wool is then fixed in the loose condition.

In testimony whereof, I have signed my

name to this specification in the presence of two subscribing witnesses.

EMIL ELSÄSSER. [L. s.]

Witnesses:

CHAS. J. WRIGHT,
WALTER VONNEGUT.