

UNITED STATES PATENT OFFICE.

CLEMENS LOHMANN, OF COLOGNE-ON-THE-RHINE, PRUSSIA, GERMANY.

PROCESS OF DYEING WOOL AZODIPHENYL BLUE.

SPECIFICATION forming part of Letters Patent No. 354,714, dated December 21, 1886.

Application filed June 28, 1886. Serial No. 206,497. (Specimens.)

To all whom it may concern:

Be it known that I, CLEMENS LOHMANN, a subject of the King of Prussia, and residing at Cologne-on-the-Rhine, Kingdom of Prussia, Germany, have invented new and useful Improvements in Dyeing Blue, especially adapted for wool, whereof the following is a specification.

My invention consists in a new process for dyeing wool and other animal fibrous materials blue, which is performable more easily and at a lower cost than the present process of dyeing with indigo, and whereby a perfectly fast or unchangeable coloring is obtained.

The dyeing substances used in the process are azodiphenyl blue, extract of logwood, (Campeachy wood,) blue vitriol, (sulphate of peroxide of copper,) and green vitriol, (sulphate of protoxide of iron.) These are advantageously mixed in the following proportion: thirty-four pounds of azodiphenyl blue; thirty pounds of extract of logwood, (weighed in dry state;) sixteen pounds of blue vitriol; twenty pounds of green vitriol; but from these proportional numbers deviations may take place.

In preparing the dyeing-bath an alkalic bisulphate, preferably bisulphate of soda, and oxalic acid are added to the said mixture. For a dark-blue color it is advisable to employ upon one hundred pounds of wool ten pounds of the mixture, ten pounds of bisulphate of soda, and six pounds of oxalic acid. Lighter tints require of all substances proportionately less. The substances are mixed and treated with hot water for dissolving them, and their solution may be promoted by boiling. Subsequently so much cold water is added to the liquor thus obtained as is required for a bath adapted to contain the quantity of wool to be dyed. The wool, previously moistened, is then brought into the bath and efficiently boiled for about an hour and a half. If tints

darker than those to be obtained from this bath are desired, they may be produced by a further addition of blue vitriol, (about five pounds to one hundred pounds of wool,) and by continuing to boil until the desired shade is attained.

In one bath repeated dyeing operations may be carried out, provided that the substances absorbed by the wool in one operation be replaced for the next one.

The described process is adapted for dyeing loose wool and other animal fibrous materials, as well as the yarns and cloths prepared therefrom. The color is not affected by washing, by light, and by air, and it is completely resistant against acids. The process requires but a single bath without previous boiling or mordanting of the material to be dyed, and its cost is but about the fourth part of that of dyeing with indigo.

I am aware that the various agents used in my process have before been used separately and in other combinations for dyeing purposes; but none of such combinations has resulted in a blue that is lasting against all influences, and none, so far as I am aware, has permitted the dyeing operations to be performed in one single bath.

I claim as my invention—

The process of dyeing wool and other animal fibrous materials blue by boiling them in a watery solution of azodiphenyl blue, extract of logwood, blue vitriol, green vitriol, an alkalic bisulphate, and oxalic acid, substantially as hereinbefore specified.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

CLEMENS LOHMANN.

Witnesses:

HENRY SPRINGMANN,
B. Roi.