UNITED STATES PATENT OFFICE.

ARMAND JULIUS STIEGELMANN, OF LUDWIGSHAFEN-ON-THE-RHINE, GERMANY, ASSIGNOR TO THE BADISCHE ANILIN UND SODA FABRIK, OF LUDWIGSHAFEN-ON-THE-RHINE, GERMANY, A CORPORATION.

INCREASING THE FASTNESS OF INDIGO DYEINGS.

SPECIFICATION forming part of Letters Patent No. 720,501, dated February 10, 1903.

Application filed August 30, 1902. Serial No. 121,681. (No specimens.)

To all whom it may concern:

Be it known that I, ARMAND JULIUS STIEGELMANN, doctor of philosophy and chemist, a subject of the Emperor of Germany, residing at Ludwigshafen-on-the-Rhine, in the Kingdom of Bavaria, Germany, have invented new and useful Improvements in the Treatment of Indigo Dyeings on Vegetable Fiber, of which the following is a specification.

Indigo dyeings on vegetable fiber (whether produced by natural indigo or by artificial indigo) are not so fast against the action of chlorin and washing as is desirable. Various means have been proposed for increasing the fastness; but such proposed means have had but small effect and have not been satisfactory in practice.

I have discovered means whereby indigo dyeings on vegetable fibers are rendered so fast against washing and the action of chlorin as to fulfil all ordinary requirements of the trade as regards such fastness.

According to this invention the dyeings are treated with Turkey-red oil, either alone or in conjunction with aluminum salts, in a manner, for instance, similar to that practiced in Turkey-red dyeing. The treatment can be performed once or several times, the material being dried between each treatment. A subsequent short steaming further increases the fastness of the dyeings. The treatment according to this invention is applicable to dyeings with either natural indigo or artificial indigo.

The following example will serve to further illustrate the nature of this invention, which, however, is not confined to this example.

Example: Work yarn which has been dyed with indigo in a bath made up of ten (10) parts, by weight, of Turkey-red oil (sulfonated castor-oil) and ninety (90) parts, by weight, of water until the said yarn is evenly impregnated. Then wring the said yarn out and dry it well for about twelve (12) hours at a temperature of from fifty to seventy degrees centigrade (50° to 70°) and pass it through a seven (7) per cent. solution of aluminum acetate until it is evenly impregnated therewith and then wring it out and again thoroughly dry it.

I claim—

1. The process of increasing the fastness against washing and chlorin of indigo dyeings on vegetable fiber, by subjecting the said dyeings to the successive action of Turkey-red oil, an aluminum salt and steam.

2. The process of increasing the fastness against washing and chlorin of indigo dyeings on vegetable fiber, by subjecting the said dyeings to the successive action of Turkey-red oil and an aluminum salt.

3. The process of increasing the fastness against washing and chlorin of indigo dyeings on vegetable fiber, by subjecting the said dyeings to the action of Turkey-red oil.

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

ARMAND JULIUS STIEGELMANN.

Witnesses:
JOHN LEATHART HEINKE,
H. W. HARRIS.