No. 746,784. Patented December 15, 1903.

UNITED STATES PATENT OFFICE.

RENÉ BOHN, OF MANNHEIM, GERMANY, ASSIGNOR TO BADISCHE ANILIN & SODA FABRIK, OF LUDWIGSHAFEN-ON-THE-RHINE, GERMANY, A CORPORATION OF BADEN.

PROCESS OF DYEING TEXTILE FIBER BLUE.

SPECIFICATION forming part of Letters Patent No. 746,784, dated December 15, 1903.

Application filed February 25, 1901. Serial No. 48,793. (No specimens.)

To all whom it may concern:

Be it known that I, RENÉ BOHN, doctor of philosophy and chemist, a citizen of the Swiss Republic, residing at Mannheim, in the Grand Duchy of Baden, Germany, have invented new and useful Improvements in Dyeing Textile Fiber Blue Shades, of which the following is a specification.

In United States Letters Patent No. 682,523, granted to me September 10, 1901, I have shown that by melting beta-amido-anthraquinone with caustic alkali—for instance, caustic potash—under the conditions therein set forth and oxidizing the leuco body obtained with air a new coloring-matter can be obtained, with the properties there given, which coloring-matter is known in trade literature and commerce as "indanthrene," and which name I hereinafter apply to said coloring-matter.

My present application for Letters Patent relates to the production of blue shades on or within textile fiber by converting the said new coloring-matter into its soluble form by treating it with suitable reducing agents—such as sodium hydrosulfite and caustic soda, zinc-dust and caustic lime, or any other equivalent method—thus producing a vat, and dyeing the said fiber in the said vat. The shades thus produced are of great brilliancy and excellent fastness and resemble to some extent those produced by ordinary indigo They are, however, brighter than these.

The following example will serve to illustrate the nature of my invention and the manner in which the same may be carried into practical effect; but the invention is not confined to the example. The parts are by weight.

Example: Suspend one (1) part of my new coloring-matter in the form of a paste in five hundred (500) to one thousand (1,000) parts of water at a temperature of fifty (50) to sixty (60) degrees centigrade. Add twenty (20) to thirty (30) parts, by volume, of a sodium-hydrosulfite solution (containing ten per cent. of sodium hydrosulfite) and ten (10) to fifteen (15) parts of caustic-soda lye, (containing about twenty-four per cent. of NaOH.) In about half an hour it will have dissolved, forming a blue solution.

Textile fiber can be dyed directly in the vat obtained as described above. The procedure is similar to that employed when dyeing said materials from an ordinary indigo-vat.

Textile fiber which has been dyed with indanthrene can be distinguished from textile fiber dyed with any other hitherto known blue dye as follows: When suitably treated with chlorin, nitric acid, or chromic acid, the color changes from the original blue to a green or yellow, which green or yellow is again changed to blue by suitable treatment with hydrosulfite of soda.

Herein I employ the term "textile fiber" to include yarn, cloth, knit or woven material.

Now what I claim is—

1. The process of producing blue shades on textile fiber by converting indanthrene into its soluble form by acting on it with a suitable reducing agent and dyeing the fiber in a solution of the so-obtained reduction product.

2. The process of producing blue shades on textile fiber by exposing the said fiber to the action of the soluble form of indanthrene which can be obtained from indanthrene and sodium hydrosulfite.

3. As a new article of manufacture textile fiber dyed blue with indanthrene, which when treated with chlorin, nitric acid, or chromic acid turns green or yellow, which green or yellow color is again changed to blue by treatment with sodium hydrosulfite.

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

RENÉ BOHN.

Witnesses:
ROBERT HOHLMANN,
JOHN L. HEINKE.