

UNITED STATES PATENT OFFICE.

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PROCESS OF DYEING AND PRODUCT THEREOF.

972,066.

Specification of Letters Patent.

Patented Oct. 4, 1910.

No Drawing.

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To all whom it may concern:

Be it known that I, JOSEPH DEINET, citizen of the German Empire, residing at Elberfeld, Germany, have invented new and useful Improvements in Processes of Dyeing and Products Thereof, of which the following is a specification.

I have made the surprising discovery that the dibenzoyl-1.5-diaminoanthraquinone can be used as a valuable vat dye. It yields with alkaline reducing agents a vat which dyes the textile fiber a yellow shade of excellent fastness.

In order to illustrate my new process more fully the following example is given, the parts being by weight: Stir up 20 kilos of dibenzoyl-1.5-diaminoanthraquinone (10 per cent. paste) with 50 liters of warm water, add to this mixture 40 liters of a hydrosulfite solution 20° Bé. and 6 liters caustic soda lye 30° Bé. After a short time the color is completely dissolved.

Prepare a dye bath which should contain 2000 liters water, one-half liter caustic soda lye 30° Bé. and 2 liters hydrosulfite solution and 80 parts of common salt and add to this cold bath the dye solution prepared as above indicated, through a sieve. Stir the bath well, let stand during some minutes, enter 100 kilos well wetted out cotton and work for 1 hour in the cold bath. After dyeing, squeeze out well, rinse, and acidulate the goods in a bath containing 2 cem. sulfuric acid of 66° Bé. per liter, rinse and finally soap. A very fast clear yellow shade is thus obtained.

Wool is dyed in an analogous way: Stir up 10 kilos dibenzoyl-1.5-diaminoanthraquinone (10 per cent.) with 8-10 kilos caustic soda lye 30° Bé. and 30 liters of a hydrosulfite solution 17° Bé. When all the color is thoroughly dissolved, add this solution to the dye bath which consists of 1200-1500 liters of water of 30° C., to which $\frac{1}{2}$ liter caustic soda lye 30° Bé. and 2 liters of a hydrosulfite solution 17° Bé. and 20-40 kilos Glauber's salt has previously been added. Enter 50 kilos wool, work for $\frac{3}{4}$ to 1 hour at 30° C., the goods being continually im-

mersed in the liquor. After dyeing, squeeze out well, oxidize by exposure to air, rinse, acidulate, wash and dry. A very fast yellow shade is thus obtained.

Silk and charged silk is dyed in an analogous way.

I claim:—

1. The process of dyeing textile fiber which consists in reacting on dibenzoyl-1.5-diaminoanthraquinone with suitable reducing agents to form leuco compounds which are then applied to the fiber and finally oxidized, thus producing on the fiber a yellow shade of extreme fastness.

2. The process of dyeing textile fiber which consists in reacting on dibenzoyl-1.5-diaminoanthraquinone with alkaline reducing agents to form leuco compounds which are then applied to the fiber and finally oxidized, thus producing on the fiber a yellow shade of extreme fastness.

3. The process of dyeing textile fiber which consists in reacting on dibenzoyl-1.5-diaminoanthraquinone with hydrosulfite and caustic soda lye to form leuco compounds which are then applied to the fiber and finally oxidized, thus producing on the fiber a yellow shade of extreme fastness.

4. As a new article of manufacture, yellow colored textile fiber impregnated with the oxidation products of the leuco compound of dibenzoyl-1.5-diaminoanthraquinone which treated fiber remains unchanged upon boiling with 10% muriatic acid, and also remains unchanged when touched with cold concentrated sulfuric acid and dilute caustic potash; and which upon being touched with a watery solution containing 0.4% of anhydrous hydrosulfite of sodium and 0.8% of caustic soda changes its color of yellow to olive brown which on exposure to air assumes again its original appearance.

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

JOSEPH DEINET. [L. s.]

Witnesses:

OTTO KÖNIG,
C. J. WRIGHT.