

UNITED STATES PATENT OFFICE.

RENÉ BOHN, OF MANNHEIM, GERMANY, ASSIGNOR TO THE BADISCHE ANILIN AND SODA FABRIK, OF LUDWIGSHAFEN, GERMANY.

BLUE DYE AND PROCESS OF MAKING SAME.

SPECIFICATION forming part of Letters Patent No. 632,170, dated August 29, 1899.

Application filed June 23, 1898. Serial No. 684,284. (No specimens.)

To all whom it may concern:

Be it known that I, RENÉ BOHN, doctor of philosophy, a citizen of the Swiss Republic, residing at Mannheim, in the Grand Duchy of Baden and Empire of Germany, have invented new and useful Improvements in the Production of Coloring-Matters for Cotton, of which the following is a specification.

In the German Patents No. 88,236, of the 23d of November, 1895, and No. 92,471, of the 14th of June, 1896, and in the United States Patent No. 609,327, of August 16, 1898, it has been described that violet-blue to black coloring-matters suitable for dyeing wool are obtained by submitting 1.8-dinitro-naphthalene to the combined reducing action of an alkaline bisulfite on the one hand and to that of sodium sulfid, grape-sugar, milk-sugar, sodium stannite, or zinc-dust on the other hand.

This invention relates to the discovery that these coloring-matters, by heating moderately with sodium sulfid, with or without the addition of sulfur, can be converted into a new coloring-matter which directly dyes cotton in the cold-bath blue shades.

The following example will serve to illustrate the manner in which my invention can be carried into practical effect. The parts are by weight.

About fifty (50) parts of the dyestuff obtained from 1.8-dinitro-naphthalene by submitting it to the combined reducing action of an alkaline bisulfite on the one hand and to that of sodium sulfid, grape-sugar, milk-sugar, sodium stannite, or zinc-dust on the other hand are heated with about five hundred (500) parts of sodium sulfid, containing about sixty (60) parts of real Na_2S , and about fifty (50) parts of sulfur for one to two hours at a temperature of about ninety to one hundred degrees centigrade, (90° to 100° .)

The foregoing example can be varied in several respects. Thus the quantity of sulfur taken can be diminished, or even no sulfur can be added, while the temperature may be raised not beyond 60° centigrade. In the latter case the coloring-matter obtained shows a somewhat redder shade of blue.

The new coloring-matter so obtained is a dark powder which possesses the following properties: It readily dissolves in a sodium-sulfid solution with a blue color, and it dissolves with a bluish or violet-blue color in a dilute caustic-soda solution, especially on warming. It is practically insoluble in cold sodium-carbonate solution. When heated, it dissolves with a bluish color. In alcohol and in sulfuric acid it is but slightly soluble.

Now what I claim is—

1. As an article of manufacture the new blue coloring-matter which can be obtained from a reduced dinitro-naphthalene, substantially as described, and which, with cold sodium-sulfid solution gives a blue color, and with dilute caustic-soda solution especially on warming, gives a color within the range from bluish to violet-blue and which dyes cotton a blue shade directly in a cold bath, substantially as described.

2. The process for the production of a new blue coloring-matter which consists in heating with sodium sulfid and sulfur the herein-described coloring-matters, obtained from 1.8-dinitro-naphthalene by submitting it to the combined reducing action of an alkaline bisulfite on the one hand and that of sodium sulfid, grape-sugar, milk-sugar, sodium stannite or zinc-dust on the other hand, all substantially as hereinbefore described.

3. The process for the production of a new blue coloring-matter which consists in heating with sodium sulfid the herein-described coloring-matters obtained from 1.8-dinitro-naphthalene by submitting it to the combined reducing action of an alkaline bisulfite on the one hand and to that of sodium sulfid, grape-sugar, milk-sugar, sodium stannite or zinc-dust on the other hand, all substantially as hereinbefore described.

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

RENÉ BOHN.

Witnesses:

GUSTAV L. LITTENBERGER,
ADOLPH REUTHUZE.