

UNITED STATES PATENT OFFICE.

FERDINAND VICTOR KALLAB, OF OFFENBACH, GERMANY, ASSIGNOR TO THE
FIRM OF K. OEHLER, OF SAME PLACE.

DYEING ANILIN-BLACK.

SPECIFICATION forming part of Letters Patent No. 529,498, dated November 20, 1894.

Application filed October 16, 1891. Serial No. 408,949. (No specimens.) Patented in Germany September 28, 1891, No. 68,887; in Belgium October 3, 1891, No. 96,660, April 11, 1892, No. 99,184, and June 14, 1892, No. 100,119; in England October 7, 1891, No. 17,082, and April 22, 1892, No. 7,638; in Italy November 6, 1891, XXV, 30,563, LX, 79, January 14, 1892, XXVI, 31,123, LXII, 257, and January 29, 1892, XXVI, 31,193, LXII, 321; in Spain November 16, 1891, No. 12,599, and July 14, 1892, No. 13,172; in France December 12, 1891, No. 218,013; in Norway April 9, 1892, No. 2,760, and in Austria-Hungary August 31, 1893, No. 48,007 and No. 22,018.

To all whom it may concern:

Be it known that I, FERDINAND VICTOR KALLAB, a subject of the Emperor of Austria-Hungary, residing at Offenbach, near Frankfurt-on-the-Main, in the Empire of Germany, have invented the following new and useful improvements in the production of anilin-black on wool, hair, and other animal substances or mixed textile fabrics containing either of these substances, (for which foreign patents have been granted as follows, viz: in Germany, No. 68,887, dated September 28, 1891; in Belgium, No. 96,660, dated October 3, 1891, No. 99,184, dated April 11, 1892, and No. 100,119, dated June 14, 1892; in Great Britain, No. 17,082, dated October 7, 1891, and No. 7,638, dated April 22, 1892; in Italy, Vols. XXV and LX, Nos. 30,563 and 79, dated November 6, 1891, Vols. XXVI and LXII, Nos. 31,123 and 257, dated January 14, 1892, and Vols. XXVI and LXII, Nos. 31,193 and 321, dated January 29, 1892; in Spain, No. 12,599, dated November 16, 1891, and No. 13,172, dated July 14, 1892; in France, No. 218,013, dated December 12, 1891; in Norway, No. 2,760, dated April 9, 1892, and in Austria-Hungary, No. 48,007 and No. 22,018, dated August 31, 1893,) of which the following is a specification.

My new process is the following: The goods are well washed and treated while still moist, at the ordinary temperature for one half to one hour in a bath containing about from six per cent. (for printing) to ten per cent. (for plain black) of hypochlorite of lime and about from nine to fifteen per cent. muriatic acid of 34° Twaddle of the weight of the goods. By this treatment an oxidation is produced which is so feeble that the white of the wool is but little affected. After this oxidation the goods are well washed, dried and padded or printed with a mixture suitable for producing steam anilin black on cotton.

Example 1.—Padding: Four hundred and five grams equal fourteen and one-third ounces chlorhydrate of anilin or toluidin or a mixture of both. One hundred and fifty

grams equal five and one-third ounces chlorate of soda. Two hundred and sixty grams equal nine and one-fourth ounces yellow prussiate of potash, are dissolved, each by itself, in as little water as possible, mixed and diluted with water to three thousand one hundred and fifty cubic centimetres, equal two and four-fifths pints of 1.096 density. A quantity of glycerin or sugar of about half the weight of the anilin salt added to this mixture produces a more intense black and the wool remains softer. It is also of advantage to add some tartaric acid.

Example 2.—Printing: Eight hundred grams equal twenty-eight and one-third ounces leigomme water 1.1. Two hundred grams equal seven and one-tenth ounces chlorhydrate of anilin or toluidin or of a mixture of both. Seventy-five grams equal two and two-thirds ounces chlorate of soda. One hundred and thirty grams equal four and two-thirds ounces yellow prussiate of potash. Two hundred and sixty grams equal nine and one-fourth ounces water. Forty grams equal one and four-tenths ounces tartaric acid.

The fabrics padded or printed are dried and then steamed for from a few minutes to three-quarters of an hour or more, washed and if necessary soaped or passed through a weak acid bath.

I do not confine myself to the use of chlorate of soda as equivalent quantities of the salts of potassium, ammonium or barium will serve as well; also the yellow prussiate of potash (respectively of soda or ammonium) can be replaced by the red prussiate or by a mixture of both and the chlorhydrate of anilin or toluidin by the nitrates.

The concentration of the padding solution or of the printing color can be varied according to the intensity of the black wanted. The proportion of the anilin salt to the oxidizing agents and that of the glycerin or sugar and tartaric acid is also variable.

Although I give the preference to the preparing process by the mixture of hypochlorite of lime and muriatic acid, I do not exclude

the following modifications: muriatic acid and hypochlorite of lime, separately, cold or warm at 176° Fahrenheit, sulfuric acid and hypochlorite of lime separately or mixed in
 5 a bath, cold or warm, at 176° Fahrenheit; cold watery solution of chlorin.

Mixtures developing hypochlorous acid instead of chlorin for instance the hypochlorite of lime and acetic acid, render the wool very
 10 yellow and can only be used for plain goods; and besides hypochlorite of lime, other hypochlorites also and other oxidizing agents, for instance permanganate of potash or mixtures of chromic acid and hydrogen dioxid may
 15 serve as well. I would prefer the latter, using it at the temperature of 86° Fahrenheit in a concentrated solution of about three per cent. and neutralized with ammonium until it gives a slight alkaline reaction.

20 What I claim as my invention, and desire to secure by Letters Patent, is—

1. The process herein described of producing anilin black on wool, hair and other ani-

mal substances or mixed textile fabrics containing either of these substances and consisting in first oxidizing the goods, second padding or printing with a mixture suitable for producing steam anilin black on cotton, and finally developing the black by steaming.

2. The process herein described of producing anilin black on wool, hair and other animal substances or mixed textile fabrics containing either of these substances and consisting in first subjecting the goods to such a feeble oxidation that the white of the wool is
 35 but little affected, second padding or printing with a mixture suitable for producing steam anilin black on cotton, and finally developing the black by steaming.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FERDINAND VICTOR KALLAB.

Witnesses:

FRANZ HAPLACHER,
 JOSEPH PATRICK.