

UNITED STATES PATENT OFFICE.

EDGAR HOLLIDAY AND EUGENE RAU, OF BROOKLYN, N. Y.

DYEING WITH BASIC ANILINE.

SPECIFICATION forming part of Letters Patent No. 357,281, dated February 8, 1887.

Application filed March 31, 1884. Serial No. 126,180. (No specimens.)

To all whom it may concern:

Be it known that we, EDGAR HOLLIDAY, of the city of Brooklyn, county of Kings, and State of New York, and EUGENE RAU, a citizen of Würtemberg, Germany, now residing in Brooklyn, county of Kings, and State of New York, have invented a new and useful Improvement in Dyeing, of which the following is a full, true, and exact description.

Our invention relates to an improved process of dyeing silk, or a mixture of cotton and silk, or cotton, silk, and wool, either in the raw state or in the piece.

Our invention is also applicable to the dyeing of cotton alone or wool alone, but is especially applicable to the dyeing of silk or of silk mixtures.

Many attempts have heretofore been made to dye or redye silk fabrics, especially plushes, velvets, and faille silks in the piece; but until the employment of the process here described no one of these processes has proved commercially practicable.

Our invention relates to the preparation of colors in a peculiar way, by which they are rendered soluble in other baths besides water, and in the employment of these colors in a peculiar way in the processes of dyeing.

In carrying out our invention practically we proceed as follows: We take such of the basic coal-tar colors as are soluble in fatty acids—as, for instance, rosaniline, saffronine, and methyl violets, yellows, blues, greens, &c.—and we reduce these colors to their fatty salts by mingling fatty acid—such as stearic or oleic acid oil—and then heating the mixture to a temperature sufficient to dissolve the color in the fatty acid. We thereby produce the fatty salts of the basic coal-tar colors. For instance, we take rosaniline crystals—the hydrochloral rosaniline of commerce—and dissolve it in water and precipitate it down with soda, preferably caustic soda. We thus have rosaniline in its basic form, and when it is dry three or four parts of oleic acid is added and the color dissolved. We then dissolve the colors so prepared in a bath, preferably of the kind known as “petroleum-spirit,” though we may employ baths of oil and others of the

petroleum series of either of spirits of turpentine, of sulphide of carbon, or of ethylic or methylic alcohols. We then proceed as follows: We take the material to be dyed, preferably without the use of any mordant, and dye it in the bath so prepared. In certain cases, especially in mixtures of silk and cotton, we mordant the fabric, in order to increase the dyeing capacity of the cotton, in the well-known manner. The goods are preferably continuously passed through this bath, and the surplus color is removed from them by forcing them between a pair of rollers, allowing the surplus color to flow back into the bath. The material is then preferably passed through a steam-box, and the superfluous oil is then removed from it by washing in a bath of benzine, and the so-prepared material is then preferably placed in a steam-box and subjected to steam under considerable pressure. In this operation the pressure of the steam will vary, depending upon the character of the material and the color.

The reason of subjecting the material to the first steam-box before its washing in benzine is to sufficiently fix the color to prevent its removal in the benzine, while at the same time the benzine will remove the oil. We also preferably dry the goods by subjecting them to the action of a current of hot air before passing them into the first steam-box.

We do not claim in this application the process of dyeing independent of the colors hereinbefore described, nor the colors independent of the process of dyeing; but

What we do claim, and desire to secure by Letters Patent, is—

1. The process of dyeing herein described, which consists in dyeing the material in a bath composed of the fatty salts of the basic coal-tar colors in a solution of benzine, or of some other suitable hydrocarbon or similar solvent capable of maintaining said color in solution, so as to present it to the material to be dyed, of then removing the surplus color by washing in benzine, and of then fixing the color in a steam-box, substantially as described.

2. The process of dyeing herein described, which consists in dyeing the material in a bath

composed of the fatty salts of the basic coal-
tar colors in a solution of benzine, or of some
other suitable hydrocarbon or similar solvent
capable of maintaining said color in solution,
5 so as to present it to the material to be dyed,
of then subjecting said material to the action
of steam, and of then removing the surplus
color by washing in benzine, and of then fix-

ing the color in a steam-box, substantially as
described.

EDGAR HOLLIDAY.
EUGENE RAU.

Witnesses:

A. C. HOCKEMEYER,
ELIAS H. STEVENS.

Correction in Letters Patent No. 357,281.

It is hereby certified that in Letters Patent No. 357,281, granted February 8, 1887, upon the application of Edgar Holliday and Eugene Rau, of Brooklyn, New York, for an improvement in "Dyeing with Basic Anilines," an error appears in the printed specification requiring correction, as follows: In lines 40-41, page 1, the word "hydrochloral" should read *hydrochlorate*; and that the Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 22d day of February, A. D. 1887.

[SEAL.]

D. L. HAWKINS,
Acting Secretary of the Interior.

Countersigned:

R. B. VANCE,
Acting Commissioner of Patents.