

# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN DYEING AND PRINTING WITH ANILINE COLORS.

Specification forming part of Letters Patent No. 34,840, dated April 1, 1862.

*To all whom it may concern:*

Be it known that we, NATHANIEL LLOYD, of Church, near Accrington, in the county of Lancaster, Great Britain, and JOHN GALLEMORE DALE, of the same place, chemist, have invented certain Improvements in Dyeing and Printing Textile Materials and Fabrics; and we do hereby declare that the following is a full and exact description thereof.

Our invention relates to a method of dyeing and printing with those coloring-matters—such as mauve and magenta—which are derived from aniline or analogous substances; and the essential character thereof consists in the use of an insoluble, or nearly insoluble, tannate for holding the coloring-matter upon the material to be dyed or printed. This condition we have found may be attained by precipitating the tannin with tartarized antimony, or with salts of lead, mercury, and chromium; but these last mentioned give less satisfactory results.

The order of applying the different substances and the strengths at which they are used may be varied, as will be understood by all practical printers and dyers; but in order to put our invention in the clearest light we will describe particularly how it may be carried into practical operation.

Suppose it is desired to print with a mauve, magenta, or other such color, the following course may be pursued: to one gallon of gum-water or other suitable thickening add one pound of tannin, and then the coloring-matter, according to the shade required. This compound we print upon "unprepared" cloth and "age" for one night. We then steam the goods for three-quarters of an hour at a temperature about equivalent to one pound to the square inch, and subsequently pass them through a

solution of tartarized antimony of the strength of about two to four ounces per gallon of water at the boiling-temperature. When such colors as aforesaid are to be fixed by the process of dyeing we first apply the tannin to the goods by padding or otherwise, and then age for one night and steam, and then pass through a bath of tartarized antimony. After this the goods are well washed and dyed in a slightly-acid solution of the coloring-matter. The strength of the solution of tannin must be varied according to the depth of shade required; but as a guide we may state that for a dark color the proportions may be one gallon of gum solution to twenty ounces of tannin, for a light color one gallon of the gum solution to three ounces of tannin, and intermediate shades in proportion. The goods having been dyed, which operation will take from one hour to one hour and a half, they are dried and the whites cleaned, if that operation be required, after the manner pursued in madder-work—that is, with chloride of lime and subsequently with boiling soap and water.

We claim as our invention—

The use of tannin and tartarized or other soluble salt of antimony capable of dilution with water, or a soluble salt of lead, mercury, or chromium, substantially as herein described, for the purpose of fixing colors derived from aniline or analogous substances upon textile materials or fabrics.

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