UNITED STATES PATENT OFFICE.

FRANK P. PEARSON, OF NORTH ADAMS, MASSACHUSETTS, ASSIGNOR TO THE ARNOLD PRINT WORKS, OF SAME PLACE.

PRINTING COLORS WITH ANILINE-BLACK.

SPECIFICATION forming part of Letters Patent No. 491,951, dated February 14, 1893.

Application filed November 29, 1892. Serial No. 453,517. (No specimens.)

To all whom it may concern:

Be it known that I, FRANK P. PEARSON, of North Adams, in the county of Berkshire and Commonwealth of Massachusetts, have invented an improvement in the process of producing and fixing colored figures other than black in conjunction with aniline-black upon cotton fabrics and yarns, of which the following is a specification.

My improvement relates to the process of producing colors upon or in conjunction with aniline black, by the use of coloring matters derived from coal-tar such as anilines and a mordant which will fix this class of colors, such as tannic acid or other astringent agents, or arsenic compounds, may be used for the purpose in some cases.

My invention is an improvement upon the process described in application Serial No. 441,727, and produces substantially the same results; but with a considerable saving of time, labor and expense by dispensing with the preliminary operation of mordanting the fabric, and it consists in, first, padding the fabric with an ordinary standard aniline mixture which will produce a good aniline black, then drying the fabric at a low temperature, and printing thereon the desired patterns with a "color resist" consisting of an aniline or coal-tar color, tannic acid or other astringent or arsenical fixing agent, and an aniline-black resist, that is, an agent which will prevent the development of the said black, such as acetate of sodium, then steaming or aging to develop the aniline-black and fix the other color printed thereon, and finally, washing, drying and finishing in the usual manner.

For ordinary practical purposes, the color other than the black, will be sufficiently well fixed in the cotton material by the action of the astringent agent when that is used, but if further precaution be desired, greater stability may be obtained by passing the material through a solution containing a metallic salt such as tartar emetic, before the final washing.

Producing colored figures or patterns upon aniline-black grounds, by discharging the black and applying the color by what is known as topical printing, that is, holding pigment colors upon the fabric mechanically by means of albumen, has been heretofore known and practiced for a number of years, Prudhomme's method for this purpose being described in "The Textile Colourist" of September 15, 1888, but my improvement is to be distinguished from this, it being a wholly chemical process and never within my knowledge have the great advantages of clearness, brilliancy, variety and durability of coal-tar colors printed upon fabrics with an aniline-black ground been obtained, until the process disclosed in the specification of the above-named application Serial No. 441,727, to which process my present invention is supplemental.

A specific example of the application of my process is as follows:—

First, pad the fabric with a good aniline black mixture, for instance:—Six pounds of chlorate of potash dissolved in six galons of hot water. Fifteen pounds of ferro-cyanide of potash dissolved in six gallons of hot water. Mix the two solutions together, and when they cool, add six quarts of aniline oil and six quarts of hydrochloric acid (32° Twaddell) which have been mixed and cooled. Dry the padded fabric at a low temperature.

Second, print the fabric in the desired pattern or figures with a "color resist" made in the proportions as follows: Eight ounces acetic acid. One ounce aniline green dissolved. Add four ounces of hot water. Then add, two ounces wheat starch, two ounces gum-tragacanth paste, boil to thicken and when cool, add eight ounces acetate of sodium, two ounces tannic acid solution (eight pounds to the gallon).

Third, steam or age to develop the aniline-black and fix the other colors, then wash and finish.

If it be desired to give the color other than the black greater stability, the fabric should be passed through a solution containing a salt of antimony; for instance, tartar emetic in the proportion of one to one and one-half ounces to each gallon of water.

This method may be employed for producing variegated cotton warps, such as are used in weaving ginghams, by padding the warps with the aniline black mixture, and then printing with a "color-resist," as above described.

It will be understood that the ingredients and proportions of ingredients as above given, may be varied without departing from the process.

I claim as my invention—

1. The process of producing and fixing upon cotton materials, colored patterns in conjunction with aniline-black, which consists in padding the material with an aniline mixture which will produce an aniline black, then printing upon the material as desired with a color-resist composed of a coal-tar color, a mordant which has chemical affinity for such color and an aniline-black resist, then steaming or aging to develop and fix the colors, substantially as described.

2. The process of producing and fixing upon cotton materials colored patterns, in conjunction with aniline black, which consists in, first, padding the material with an aniline mixture which will produce aniline black; second, printing upon the goods as desired with a color resist, composed of an astringent fixing agent, coloring matter for which such agent has chemical affinity, and an aniline black resist; third, steaming or aging to develop and fix said colors, and finally, passing the material through a solution containing a salt of antimony or of tin, substantially as described.

FRANK P. PEARSON.

Witnesses:
JAS. L. SKIDMORE,
ALBERT POPKINS.