J. P. DERBY.

Press Dyeing.

No. 15,959. Patented Oct. 21, 1856.

Fig. 1.

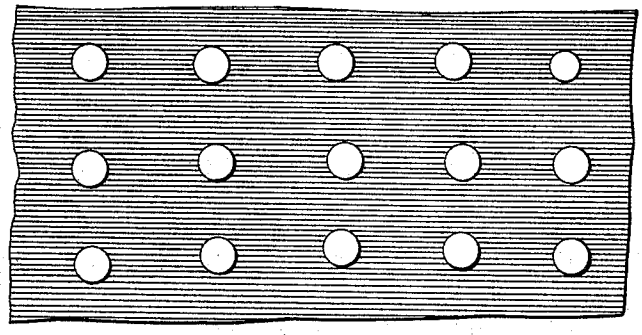


Fig. 2.

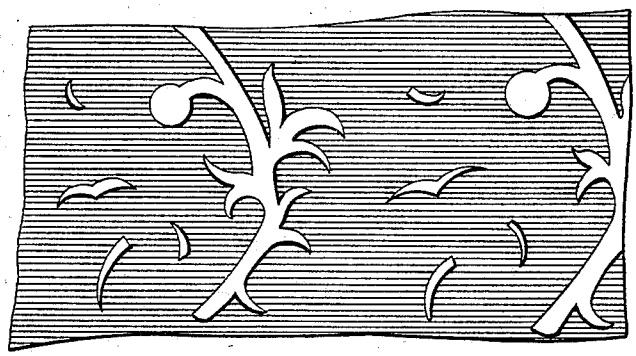
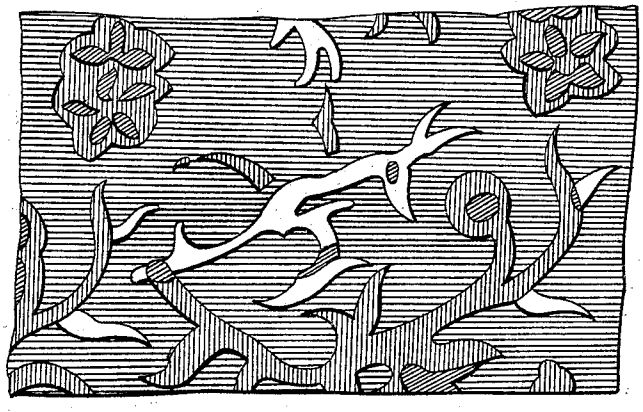


Fig. 3.



AM. PHOTO-LITHO. CO. N.Y. (OSBORNE'S PROCESS.)

UNITED STATES PATENT OFFICE.

JOHN P. DERBY, OF AMESBURY, MASSACHUSETTS, ASSIGNOR TO SALISBURY MANUFG. CO., OF AMESBURY, MASSACHUSETTS.

DYEING.

Specification of Letters Patent No. 15,959, dated October 21, 1856.

To all whom it may concern:

Be it known that I, JOHN P. DERBY, of Amesbury, in the county of Essex and State of Massachusetts have invented certain new and useful Improvements in Dyeing, by which I am enabled to produce two or more different colors upon the same piece of goods, and to arrange these colors in figures, stripes, or spots as may be required; and I hereby declare the following to be a full, clear, and exact description of the same, and of the peculiarities which distinguish it from everything heretofore known or practiced.

My invention has for its object to dye woolen or other manufactured goods by any known process, and to leave certain portions of the fabric so dyed of the original color, such uncolored portions being arranged in spots stripes or figures as may be required, and I am also enabled to produce figures of various colors upon the same piece of goods, the said colors being all produced by dyeing and not by printing and consequently showing with equal brightness upon each side of the goods.

My invention consists in protecting those portions of the material which are not to be affected by the dye, by a varnish which shall resist its action, and in removing such resisting or protective varnish, after the material has been dyed.

To enable others skilled in the art to make and use my invention I will proceed to describe its nature and operation, reference being had to the annexed drawings making part of this specification.

I take rosin and dissolve it in alcohol making a varnish of about the consistence of printers' ink or so stiff that it may be applied to the material from a block such as is ordinarily used for the purpose of printing in colors upon woolen or other manufactured goods. This resinuous mixture or varnish is then applied to the material which it penetrates so as entirely to protect it upon both sides. The goods are then dyed in the ordinary manner, and subsequently the rosin is removed from those portions of the goods to which it was applied (in a manner which will hereafter be described) leaving such portions untouched by the dyeing liquor and with their original color unchanged. Figures of great variety of color may thus be produced, all the colors being firmly dyed into the material and not superficially applied as is the case where the figures are printed upon one surface, from which a "right" and "wrong" surface results; by the process above described both surfaces as before explained are thoroughly and equally dyed.

In Figure 1 is seen an instance in which the material operated upon was originally white, the figures having been printed with the resinous mixture, and the material afterward dyed red. On cleansing the "resist" or varnish from the cloth the figures remain uncolored, and the balance of the cloth of a uniform red.

In Fig. 2 the whole cloth is first dyed pink, the portions marked *a* are then protected by the "resist" in the manner before explained, and the material is thrown into a mordant which modifies the color of the unprotected portions as seen at *b*.

In Fig. 3 four distinct colors are produced by twice dyeing the material as follows: The white and the red portions are first protected by printing in the manner described with the resinuous mixture, and the cloth is dyed a uniform blue; after being cleansed, the white and the blue portions are again printed with the resin mixture, and the whole is subjected to a scarlet dye which colors the portions which are unprotected (*c* in the drawing) scarlet, while all the other unprotected portions of the goods *d* which before were blue are changed by the scarlet dye to purple. These examples serve to illustrate my invention, and are but a few of a great variety of effects and combinations which may be produced by it.

In order to eradicate the resinous compound from the material after the latter has been dyed, if the resin were applied to a surface previously dyed as in Fig. 2, it is simply necessary to wash the goods in water, which effectually removes the "resist" or varnish from the goods. Where it has been applied to the wool in its natural or undyed state, water alone will not answer the purpose, an addition of alcohol to the water being requisite to loosen the hold of the resin upon the fibers of the wool.

Other resinous materials may answer the purpose of resisting the action of the dye equally well with the rosin. I have however found the latter substance to answer the purpose perfectly well, and I therefore prefer it above all others on account of its

cheapness. Fullers' earth, acetic acid, and naphtha may also be employed for the purpose of removing the protective varnish from the materials after it is dyed. I do not therefore confine myself to the use of any one of these articles.

I am aware that in Parsoz's work on printing of textiles, published in Paris, in 1846, a varnish composed of resins, is essayed, to be applied hot as a resist in dyeing, the fabrics being subjected to the liquid dye of a temperature below the meeting point of the resins.

In so far as this description explains a perfect and entire process, I do not claim it, because the means of afterward removing the resist, so far from being divulged, is actually concealed, but

What I do claim as of my invention or discovery and desire to secure by Letters Patent in the process of dyeing is—

The protecting of certain portions of the fabric from the action of the dye, by a resinous compound, which may be applied cold, and afterward removing the same by water, diluted alcohol, or the other means herein enumerated, and substantially as set forth.

JOHN P. DERBY.

Witnesses:
T. P. MORRILL,
CHAS. W. THOMPSON.