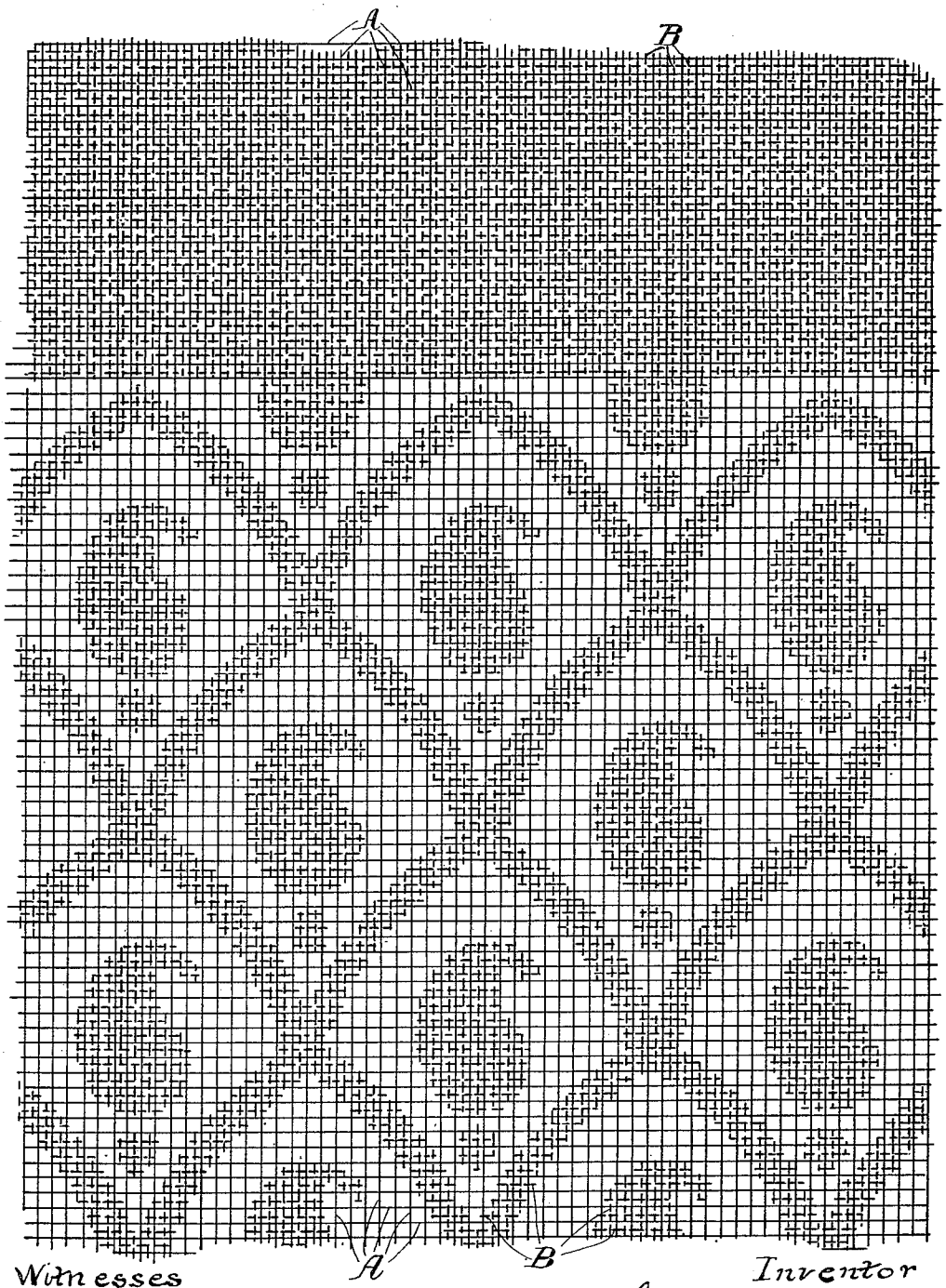
No. 880,983. PATENTED MAR. 3, 1908.

C. W. FULTON.

PRODUCTION OF PATTERNS, DESIGNS, OR OTHER SIMILAR MARKINGS IN FABRICS.

APPLICATION FILED AUG. 7, 1905.



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UNITED STATES PATENT OFFICE.

CHARLES WILLIAM FULTON, OF PAISLEY, SCOTLAND.

PRODUCTION OF PATTERNS, DESIGNS, OR OTHER SIMILAR MARKINGS IN FABRICS.

No. 880,983. Specification of Letters Patent. Patented March 3, 1908.

Application filed August 7, 1905. Serial No. 273,215.

To all whom it may concern:

Be it known that I, CHARLES WILLIAM FULTON, a subject of the King of England, residing at Paisley, in Scotland, have invented certain new and useful Improvements in or Relating to the Production of Patterns, Designs, or other Similar Markings in Fabrics, of which the following is a specification.

This invention relates to the production of patterns or designs or other similar markings in textile fabrics and refers particularly to patterns or the like which are produced by the removal of parts of the threads or fibers of which the fabric is composed.

According to this invention parts of the fabric are chemically treated to remove or destroy parts of some of the threads or fibers, thus leaving the parts so treated more open or wider in mesh than the main body of the fabric.

The accompanying drawing shows a section of fabric, the upper portion of which is represented as normal or untreated and the lower portion having the design produced therein according to the present invention.

In addition to removing the threads, the chemical employed may be such as will change the color of the threads which it does not destroy, or it may have combined with it a substance for changing the color of the threads remaining and constituting the body of the pattern.

The chemical substance for destroying the threads may be applied in various ways, for example, it may be applied by rollers having on them the pattern to be reproduced, these rollers being similar to what are usually employed for printing colored designs on fabrics. The chemical used may be in the form of a liquid applied as a thin coating so as not to run over the fabric and thereby leave uneven edges, or it may be in the form of a semi-fluid or a paste and applied in any convenient manner. Further, it may be a substance which acts to destroy the required threads without any further process than the mere application, or it may be of such a nature that it will not act until heated or subjected to some other treatment.

When applied to a fabric composed of more than one material, say a fabric having wool and cotton threads arranged alternately, or in other order or proportion, either in the warp or weft or in both, the chemical employed may be such that it will destroy the cotton threads without affecting the woolen threads. The parts of the fabric pattern so treated will ultimately be of an open or gauze-like nature, since, the cotton threads having been destroyed at these parts, the woolen threads only will remain. Instead however of having an open or gauze-like portion composed of woolen threads only and the untreated portions of the material consisting of wool and cotton threads, the chemical employed may be such that it will destroy the woolen threads and leave the cotton. Both effects may be combined, that is to say the cotton threads may be removed at certain parts of the fabric and at other parts the woolen threads but never both at the same part, as one series of threads, at least, must remain to produce the gauze-like or open-work effect. By this means a further effect can be produced, since if the woolen and cotton threads differ in color, the open-work or gauze-like effect will show one color where the cotton threads have been destroyed and another color where woolen threads have been destroyed.

It is not intended to limit the invention to the use of any one substance for removing the threads, but, when treating a fabric composed of woolen and cotton threads it is preferred to employ aluminic chlorid, which is conveniently applied in a pasty or semi-fluid state by a printing roller, to destroy the cotton threads in parts of the fabric where it is desired to produce the gauze effect. After being treated with the aluminic chlorid the fabric is preferably subjected to a dry heat to liberate the acid and thus destroy the cotton threads in the part treated, after which the remains of the destroyed threads may be removed by friction or otherwise.

Fabrics having more than two materials in their composition may be similarly treated and parts of the threads, or some of the substances which may exist in either or both the warp and the weft, may be destroyed by suitable chemicals applied one after the other, for example, by a separate roller for each chemical or chemical compound or otherwise, or a single chemical agent may be employed which will destroy the threads of more than one of the substances simultaneously. In all cases however, whether one chemical substance or more are used, at least one series of fibers or threads or the fibers or threads of at least one of the materials composing the fabric, remain at the parts treated to produce the gauze-like effect.

Any textile fabric having more than one material in its composition may be treated as above described without necessitating any special process of weaving but it is to be appreciated that owing to the nature of the process the ultimate effects produced can be greatly varied by preconceiving these effects and weaving the fabric accordingly, for example, openwork or gauze-like effects differing in fineness or in structure may be produced at different places in the fabric by arranging the weaving accordingly.

When the fabric to be treated contains woolen or silk threads and it is desired to destroy parts of these, this can be done by employing a caustic alkali paste.

The threads or fibers composing the fabric may be all of the same color to start with and the chemical agent employed may be of such a nature that in addition to removing certain threads, it will change the color or shade of the threads which it does not remove, or there may be combined with the chemical a bleaching agent or substance which will change the color or shade of the threads unattached by the destroying chemical.

Additional effects may be produced by using a fabric, composed say of cotton and woolen threads, in which the cotton threads are one color and the woolen threads another. After treatment the gauze-like part or pattern will only show threads of one color whereas the untreated portions of the fabric will be composed of a mixture of threads of two colors. The same process for producing patterns or designs may be employed with fabrics the fibers of which are all of the same material. In this case some of the threads composing the fabric will be treated, before being woven into the fabric, by a substance which will render them impervious to the action of the destroying agent. The threads so treated may exist both in the warp and the weft and be arranged with untreated threads in any proportion and manner desired, so that when the fabric is subjected to the action of the destroying chemical, the previously treated threads will not be acted upon, while those which have not been treated will be destroyed as above described, the result being the same as in the previous case, that is to say, the treated portions of the fabric will be of more open texture or gauze-like in its nature than the untreated portions of the fabric.

Where a fabric is to be subjected to some rough or constant usage or to frequent washing or cleaning the raw edges of the pattern may be stitched, bound or corded so as to prevent the ready displacement of the broken threads, but this may not be necessary if the fabric is of comparatively closely woven nature.

In the drawing the letter A represents in full lines the warp and the letter D in dotted lines the weft threads of the fabric. In the lower portion of the drawing the design has been produced by the application of the destroying agent, with the result that at the places treated the threads represented by the dotted lines have been completely removed.

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

1. The process of producing patterns in previously woven textile fabric embodying fibers of different chemical characteristics which consists in chemically destroying part only of the fibers of one character constituting the fabric and only in portions of the fabric bounded by the design to be produced; substantially as described.

2. The process of producing patterns in previously woven fabric which consists in applying a chemical fiber destroying agent to portions of the fabric bounded by the design to be produced, and destroying part only of the fiber in such portions.

3. The process of producing patterns in previously woven fabric composed of fibers having different chemical characteristics, which consists in applying a chemical fiber destroying agent to portions of the fabric bounded by the design to be produced and destroying that part only of the fibers constituting the fabric which are of a nature to be acted on by the destroying agent.

4. The process of producing patterns of open-work or gauze-like nature in previously woven textile fabrics which consists in chemically destroying part only of the fibers constituting the fabric and only in portions of the fabric bounded by the design to be produced and simultaneously altering in color the undestroyed fibers.

5. The process of producing patterns of open-work or gauze-like nature in textile fabrics, which consists in weaving the fabric with certain fibers arranged to accord with the pattern to be produced and then chemically destroying part only of the fibers constituting the fabric and only in portions of the fabric bounded by the design to be produced.

6. The process of producing patterns of open-work or gauze-like nature in textile fabric composed of fibers having different chemical characteristics disposed throughout the fabric, which consists in chemically destroying one set of fibers in portions of the fabric bounded by the design to be produced and leaving unaffected the fibers in the other portions of the fabric.

7. The process of producing patterns of open-work or gauze-like nature in textile fabrics composed of fibers of animal and of vegetable fiber distributed substantially uniformly throughout the fabric, which consists in chemically destroying one set of

fibers in portions of the fabric bounded by the design to be produced and leaving unaffected the fibers in the other portions of the fabric.

8. As an article of manufacture, a woven textile fabric having open work or gauze like patterns therein and characterized by this, that the body part of the design is formed by uniformly distributed fibers of different chemical characteristics and the open work or gauze like portion is composed of fibers corresponding to one only of the sets of fibers in the body of the design.

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

CHARLES WILLIAM FULTON.

Witnesses:

JNO. M. FADZEAU,

CLAUDE GILLIES