UNITED STATES PATENT OFFICE.

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PROCESS FOR PRODUCING PATTERNED TEXTILE FABRICS AND THE RESULTING PRODUCT.

1,425,520. Specification of Letters Patent. Patented Aug. 15, 1922.

No Drawing. Application filed November 10, 1914. Serial No. 871,283.

To all whom it may concern:

Be it known that I, HENRY GIESLER, subject of the Emperor of Germany, residing at Brussels, Belgium, 34 Rue Amazone, have invented new and useful Improvements in or Relating to Processes for Producing Patterned Textile Fabrics and the Resulting Product, of which the following is a specification.

This invention relates to a process for producing fancy or patterned textile vegetable fabric.

Designs have hitherto been produced on mixed fabrics (composed of vegetable matters and animal matters) by carbonization. The desired design is printed on the fabric with acid solutions (such as sulphuric acid or hydrochloric acid) or magnesium chloride, aluminum chloride, etc., to the desired extent, generally of from 3° to 7°. The printed fabrics are then passed into a chamber heated to the degree necessary for the elimination of vegetable matters (carbonization). There is produced in this way a fabric the foundation of which is composed of vegetable matters and animal matters, and the design of which includes only animal matters. The process is reversed by passing the fabric into an acid bath, generally between 3° and 5° and immediately drying the fabric at a low temperature and by printing the design with an alkaline solution neutralizing the acid which is found in the fibres forming the said design. Finally this is passed through the chamber heated to the necessary degree to produce carbonization at the places not protected. In this case there is obtained a pure wool foundation and designs composed of mixed fibres.

The process forming the subject of the present invention consists in introducing into these fabrics composed solely of vegetable fibres, threads of any vegetable matter (cotton, linen, artificial silk for example), previously prepared; they are introduced either into the weft or warp or into both.

The preparation consists in impregnating the threads with a solution of sulphuric acid, hydrochloric acid, etc., or with aluminium chloride, magnesium chloride, etc., generally between 3° and 7° and drying them at low temperature. These prepared threads may be of cotton, mercerized cotton, artificial silk, flax, jute and the like, grey, bleached, dyed, or printed. These prepared threads are introduced into the fabric proper either in the warp or in the weft or in both. On these fabrics the designs are then imprinted by rollers, plates, or other suitable means, with any solution (such as soda, ammonia or caustic soda) for the purpose of neutralizing the effect of the impregnation. These fabrics are then treated at high temperature, until the materials prepared before weaving and not protected in the fabric are completely carbonized. All the carbonized parts are eliminated by passing the fabric through a brushing machine or beater or milling machine or by other suitable treatment, and the fabric is then submitted to bleaching, dyeing and finishing processes.

Example 1.

A "voile" cotton cloth is made and woven with a supplementary warp consisting of cotton threads impregnated previously with aluminium chloride at 7°. The cloth consists of prepared and unprepared threads, but the "voile" effect will only be produced by the unprepared threads. On these fabrics are printed designs with a solution for example of soda, sufficiently strong to neutralize the effect of the aluminium chloride. The fabric is then passed into a room with the necessary temperature for carbonization and from there through a beater, milling machine or the like. In this way the whole supplementary warp is eliminated, except at the places printed and there is obtained a ground of voile fabric with strong design in imitation of embroidery.

The process can be used for the decoration of all kinds of fabrics made on ordinary or circular looms, for example, jerseys, voiles, curtains and fancy table cloths.

As will be understood, the carbonization in place of being effected in warm rooms may be effected by heat generally in any suitable manner.

The prepared threads introduced into the

fabric may be in the warp, or in the weft, and may be twisted or formed of a mixture of prepared and unprepared threads, i. e. partially prepared threads.

By the term "substantially all vegetable yarn" and "substantially all vegetable fabric" as hereinafter used in the claims, I wish to be understood as meaning a fabric having little or no animal fiber or yarn; that is to say, having no, or so little animal fiber or yarn that the ground of the fabric could not be constituted alone of such animal fiber or yarn, but would require vegetable fiber or yarn to give it its necessary strength for the uses for which it was intended.

Claims:

1. Process of producing fancy or patterned fabrics of substantially all vegetable yarn, which comprises weaving a fabric of substantially all vegetable yarns, some of which have been previously treated with a chemical so affecting them as to aid carbonization, then applying a neutralizing agent to certain areas of the fabric including both the treated and untreated vegetable yarns of the fabric and according to the design to be produced, then subjecting the fabric to carbonization and then removing the carbonized yarns.

2. Process of producing fancy or patterned textile fabrics of substantially all vegetable yarn, which comprises treating vegetable yarn with an agent so affecting it as to aid carbonization, weaving said treated yarn with substantially no other than cotton yarn not so treated, to produce a substantially all cotton fabric, then applying a neutralizing agent to certain areas of the fabric according to the pattern to be produced, then subjecting the fabric to carbonization, and then removing the carbonized yarn.

3. Process of producing fancy or patterned textile fabrics of substantially all vegetable yarn, which comprises weaving a fabric of substantially all vegetable yarn some of which has been previously treated with an agent so affecting it as to aid carbonization, weaving said treated and untreated vegetable yarn in close alternation one with the other so as to produce a plain or homogeneously woven fabric, then determining the design to be produced by applying a neutralizing agent to certain areas of the fabric which in accordance with the design are to contrast with the remaining areas, then subjecting the fabric to carbonization and removing the carbonized yarn.

4. Process of producing fancy or patterned fabrics of substantially all vegetable yarn, which comprises weaving a fabric of substantially all vegetable yarn, said yarn being of at least two classes, the yarn of one class being of materially larger size than that of the other, said larger yarn having been previously treated with a chemical so affecting it as to aid carbonization thereof, then applying a neutralizing agent to certain areas of the fabric, including both the treated and untreated yarns and according to the pattern to be produced, then subjecting the fabric to carbonization and removing the destroyed large fibers, whereby there is produced a substantially all cotton fabric having pattern effects demarked by the areas of the thicker yarn which was neutralized, in contrast with the areas of thinner yarn from which the thicker yarn has been removed.

5. Process of producing fancy or patterned fabrics of substantially all vegetable yarn, which comprises weaving the fabric substantially entirely of vegetable yarn substantially free from animal fibers, a portion of which yarn has been previously treated with an agent adapted to hasten carbonization when the fabric is heated, the remaining portion of said yarn being free from such agent and held free from it throughout the entire process, printing upon the fabric according to the pattern to be produced, with an agent adapted to neutralize said first agent to render the neutralized portions inoperative in aiding carbonization, subjecting the fabric to a carbonizing process, and removing the carbonized yarn.

6. Process of producing fancy or patterned textile fabrics of substantially all vegetable yarn, which comprises treating vegetable yarn with an agent which will liberate acid upon subsequent heating of the yarn so as to aid carbonization but which will not liberate acid until heated, weaving said treated yarn with substantially no other than cotton yarn not so treated, to produce a substantially all cotton fabric, then applying a neutralizing agent to certain areas of the fabric according to the pattern to be produced, then subjecting the fabric to carbonization, and then removing the carbonized yarn.

7. A fancy or patterned fabric of substantially all vegetable yarn the pattern of which is demarked by the contrast of relatively thick portions with relatively thin portions, the thin portions having been effected by carbonizing and removing certain parts of the vegetable yarn which yarn before weaving was treated with a chemical to aid carbonization, and the relatively thick portions having been maintained by neutralizing said pretreated yarn in said thick portions prior to carbonization, to prevent carbonization.

8. As a new product of manufacture, a textile fabric woven of substantially all vegetable yarn some of which vegetable yarn was treated with acid before weaving, the fabric having pattern effects demarked by relatively thick portions containing all of

the vegetable yarn woven in such portions, contrasting with a ground of relatively thin portions having warp and weft yarn which is substantially all vegetable yarn and from which ground portions, the acid-treated yarn has been eliminated to produce such contrast.

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

HENRY GIESLER.

Witnesses:
M. DE REESE,
CHARLES ROY NASMITH.