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MANUFACTURE OF TEXTILE FABRICS.

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This invention relates to the manufacture of fabrics consisting wholly or partly of artificial yarns or threads hereinafter referred to as yarns of reconstituted cellulose, such as those consisting of denitrated nitrocellulose or made from viscose solutions, or from cuprammonium-cellulose solutions or solutions of cellulose in other solvents. The object of the invention is to produce fabrics of this character presenting new or improved crêpe effects.

As is well known, permanent crêpe effects on fabrics made with yarns of natural silk, are obtained by employing highly twisted silk yarns in the gummed state in weaving the fabric, and subsequently boiling off wholly or partly the silk gum, which usually constitutes about 20–25 per cent of the weight of the silk fibre, and drying, the crêpe effect being thus obtained. Usually it is only weft yarns which are highly twisted, but in some cases both weft and warp yarns having a high twist are employed. In most cases one employs both right hand twisted yarns and left hand twisted yarns in the fabric in order to obtain a flat lying fabric; for example right hand twisted weft yarns may alternate with left hand twisted weft yarns in the fabric or be woven in other desired relation thereto.

It has now been found that fabrics presenting new or improved permanent crêpe effects can be obtained with yarns of reconstituted cellulose such as referred to.

For this purpose according to the invention the yarns of reconstituted cellulose used to give the crêpe effect are provided with a protective coating or dressing (hereinafter included in the term coating) of a colloid substance before receiving the high or relatively high twist (hereinafter for brevity included in the term high twist), the protective coating being subsequently wholly or partially removed from said yarns in the woven fabric, after the weaving operation the operation of removing said coating may with advantage at the same time serve as the crêping wetting.

The said coating may consist of any suitable colloidal materials. For example one may treat or impregnate the said yarns or threads with boiled-off liquor or with solutions or preparations containing gums, gelatine, starch, glucose, so-called "sizes" or sizing preparations, especially those consisting of or capable of leaving on the yarns a coating of a plastic or semi-plastic character consisting for example of starch, glucose and oil, or with mixtures of or containing any of the foregoing, or with any other suitable dressings or preparations. I weave fabrics with weft yarns of such coated or dressed highly or relatively highly twisted yarns and I afterwards remove the coating wholly or partly from the said yarns by treating the fabric with boiling or hot water or soap solutions or with other suitable baths or other suitable means.

This operation of removing the coating preferably serves as the wetting treatment of the crêping operation, the fabrics being subsequently dried, usually under stentering or like tension in order to secure the right width of the crêpe effect fabric. It is understood, however, that a separate crêping wetting treatment may be applied to the fabrics after removal of the protective coating or dressing from the yarns provided therewith, and generally that any known or suitable baths or wetting means may be employed for the purpose or any other suitable means may be applied for effecting the crêping shrinkage.

The weft may consist wholly of the highly or relatively highly twisted and coated or dressed yarns of reconstituted cellulose, or partly of such yarns and partly of yarns of other material. The warp may consist of yarns of reconstituted cellulose, or of yarns of other material or materials, or partly of yarns of reconstituted cellulose and partly of yarns of other material or materials.

The warp threads will usually be of relatively low twist or much lower twist than the crêpe effect weft yarns, but in some cases highly twisted or relatively highly twisted warp threads may be employed. When warp yarns of reconstituted cellulose are employed these may likewise be provided with a coating or dressing such as referred to.

The high or relatively highly twisted coated weft yarns of reconstituted cellulose may of course be employed throughout the fabric or only at desired parts thereof according to whether the crêpe effect to be obtained with them shall extend generally over the fabric or only appear at parts. The weaving may in fact be generally similar to that practised in making fabrics with permanent crêpe effects, and the crêpe-effect-

producing yarns may be of opposite twists as before referred to in order to secure a flat lying fabric.

The degree of twist imparted to the yarns of reconstituted cellulose serving to give the crêpe effect may be similar to what is usual in weft yarns in the manufacture of silk crêpe, crêpe de chine, crêpe marocain or other crêpes by the known methods, but any other suitable high or relatively high twist may be employed.

The crêpe effect may be more or less pronounced or of any desired degree, according to the number of twists given to the yarns and to the degree of shrinkage. Also any desired deniers of threads or yarns may be used, as for instance 30, 45, 50, 60, 100, 150, 200 and more. High deniers may in particular be used with preference for fabrics such as crêpe marocain. It is also to be understood that the deniers employed may consist of a single "end" or be built up of two or more "ends" to make the total denier. In the latter case the "ends" may be separately coated or dressed before being twisted together or before receiving the high or relatively high twist.

The yarns of reconstituted cellulose employed for the purposes of the invention will usually be composed of continuous filaments, though in some cases they may be spun from short length or chappe fibres of this material.

It is to be understood as before indicated that two or more "ends" of reconstituted cellulose may be twisted together with a high or relatively high twist for use as crêpe producing weft yarns.

In carrying out the invention, according to one example, to make a crêpe fabric of 45 denier for instance, I may take a 45 denier yarn of reconstituted cellulose such as that made from viscose or cuprammonium cellulose and treat or impregnate it with boiled off liquor or other suitable sizing, dressing or preparation of a suitable concentration so as to apply or leave on the yarn the desired amount of coating or solid material, for instance an amount about corresponding to that of the gum on natural silk, for example about 20–25 per cent or any desired less or greater amount, for instance between 5 and 20 per cent or 25–30 per cent or more, or even as low as between about 1 and 5 per cent. The yarn, dried if required, is given a suitably high twist, for instance a twist of between 44 and 86 turns per inch, or more or less than this, and is woven as weft into a fabric with warp yarns of reconstituted cellulose or other material, of the same denier as the weft threads, but of an ordinary degree of twist or of lower twist than said weft, for example of about 5 turns per inch. The warp yarn employed may or may not be coated or dressed similarly to the weft. The woven fabric is then heated with water or in a soap bath or treated with diastofor or any other suitable bath to remove the coating or dressing from the yarns and is dried under tension, and a fabric is thus obtained presenting the permanent crêpe effect.

It is of course understood that the foregoing example is given only by way of illustration and can be varied widely.

It is understood that the number of weft yarns employed in carrying out the invention should not be too great relatively to the number of warp yarns, as otherwise the crêping effect obtained after the shrinkage may be prejudiced. For this reason the number of weft yarns per inch counted lengthwise of the fabric should be substantially less than the number of warp yarns per inch counted transversely of the fabric. For instance with a fabric of 180 warp yarns per inch one may use about 40 to 80 weft threads per inch, it being of course understood that any other suitable numbers than these may be employed.

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

1. Process for the production of yarns for use in the manufacture of crêpe fabrics, comprising applying a protective coating of colloid substance to yarn composed of reconstituted cellulose, and twisting said coated yarn with a high twist.

2. In a process for the manufacture of crêpe effect fabrics, the employment of high twist weft yarns of reconstituted cellulose having a protective coating of colloid substance applied to them prior to receiving the high twist.

3. In a process for the manufacture of fabric presenting a permanent crêpe effect, weaving a fabric with high twist weft yarns of reconstituted cellulose having a protective coating of colloid substance applied to them prior to receiving the high twist, and subsequently removing the coating at least partially from the yarns in the woven fabric.

4. In a process for the manufacture of fabric presenting a permanent crêpe effect, weaving a fabric comprising high twist weft yarns of reconstituted cellulose having a protective coating of colloid substance applied to them prior to receiving the high twist, and subsequently removing the coating at least partially from said yarns in the woven fabric by treatment of the fabric with a liquid capable of dissolving off the coating.

5. In a process for the manufacture of fabric presenting a permanent crêpe effect, weaving a fabric with high twist weft yarns of reconstituted cellulose having a protective coating of colloid substance applied to them prior to receiving the high twist, and subsequently removing the coating at least partially from said yarns in the woven fabric

by treatment of the fabric with a hot aqueous liquid.

6. In a process for the manufacture of fabric presenting a permanent crêpe effect, weaving a fabric with high twist weft yarns of reconstituted cellulose having a protective coating of colloid substance applied to them prior to receiving the high twist, and subjecting the woven fabric to wetting and drying.

7. In a process for the manufacture of fabric presenting a permanent crêpe effect, weaving a fabric with high twist weft yarns of reconstituted cellulose having a protective coating of colloid substance applied to them prior to receiving the high twist, and subsequently removing the coating at least partially from said yarns in the woven fabric by treatment of the fabric with an aqueous liquid, said treatment likewise serving as wetting treatment for the crêping, and drying the fabric.

8. In a process for the manufacture of fabric presenting a permanent crêpe effect, weaving a fabric with high twist weft yarns of reconstituted cellulose having a protective coating of colloid substance applied to them prior to receiving the high twist, treating the woven fabric with a hot aqueous liquid whereby said coating is at least partially removed from said coated high twist weft yarns, said treatment likewise serving as wetting treatment for the crêping, and drying the fabric.

9. As new products applicable for the manufacture of crêpe fabrics, high twist yarns of reconstituted cellulose, said yarns comprising a protective coating of colloid substance.

10. As new products, woven fabrics comprising high twist weft yarns of reconstituted cellulose and presenting a permanent crêpe effect.

In testimony whereof I have hereunto subscribed my name.

HENRY DREYFUS.