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M. SECKEL

2,491,396

ADHESIVE THREAD AND FABRIC

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Fig. 1.

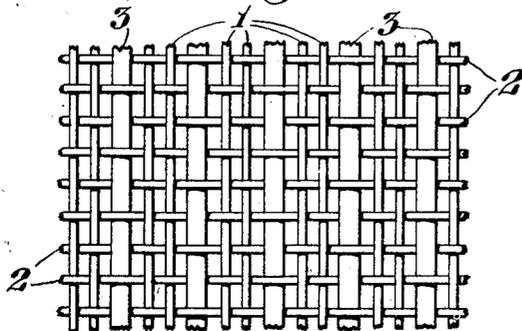


Fig. 2

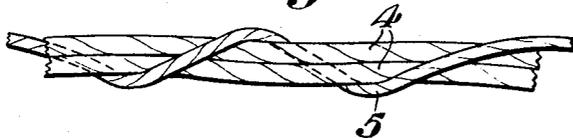
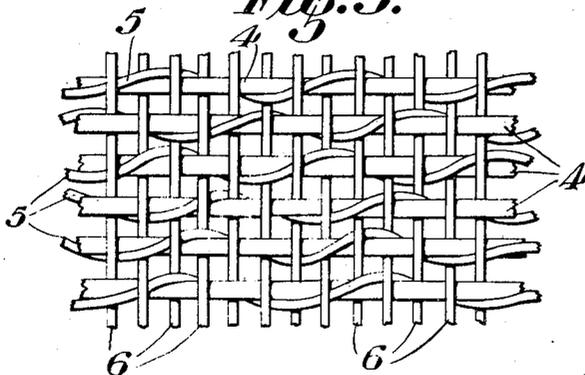


Fig. 3.



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ADHESIVE THREAD AND FABRIC

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4 Claims. (Cl. 57—140)

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It is known that a fabric may be stiffened by incorporating threads made of acetate silk, introducing the said fabric into a medium by which the acetate silk is dissolved and subsequently stiffening the fabric by heating the same. This idea is realized in various ways and for all kinds of purposes and, besides acetate silk, other cellulose derivatives or other suitable materials may be used in the process, such as vinyl- and similar synthetic resins, resoles of phenolic condensation products. As a solvent one may use liquid acetone or acetone vapour or methyl alcohol or other substances having the property of rendering threads temporarily adhesive. For the sake of brevity only those threads which after weaving may be temporarily rendered adhesive will be denoted as threads having latent adhesive properties.

When sticking a fabric containing threads with latent adhesive properties on to some other textile fabric, one will experience difficulties caused by the difference in the shrinking properties of the said fabrics. Especially fabrics originating from different factories generally show a different resistance to shrinking, so that it takes a great deal of work and care to obtain a product that will be smooth and will remain so after having been applied to another fabric, and will still look well after having been repeatedly washed or washed and ironed. Up to the present it has not been possible to use "sanforized" and "non-sanforized" fabrics with one and the same connecting fabric. In British Patent specification No. 502,701 it is stated that if "sanforized" outer fabrics are used, the connecting fabric should also be "sanforized." The expression "sanforized" refers to the treatment for rendering fabrics shrink-resistant, particularly those which are commonly laundered. This process is covered by the patent of Sanford Cluett No. 1,861,422, and others relating to the same subject matter. In that case the choice of the materials is very limited. The weaving of fabrics the weft threads of which partially consist of threads having latent adhesive properties also will give rise to difficulties on account of the differences in the manner of interlacing which are needed for the various kinds of threads. Because of this, adhesive fabrics of this kind as well as the finished product in which they have been used, will be comparatively expensive.

The present invention has for its purpose to reduce or even to obviate completely both the drawbacks connected with the difference in re-

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sistance to shrinking and those related to the weaving of the product.

According to the invention there is provided a connecting fabric characterized in that either the weft or the warp or both the weft and the warp entirely consist of two or more threads combined to form a thread having latent adhesive properties, of which threads one at least consists of or contains a cellulose derivative or some other material having latent adhesive properties, while the other thread(s) is (are) of a greater length than the thread first mentioned. According to a simple embodiment of the invention the said other thread(s) is (are) wound round the thread that is to be given latent adhesive properties.

It has been found effective to manufacture the said combination threads by winding a spun thread made of cotton or some other material that is insoluble in the solvent for the adhesive, round one or more untwisted continuous yarns having latent adhesive properties.

The invention also relates to a process of manufacturing a thread having latent adhesive properties for a fabric according to the invention, characterized in that one or more threads of a predetermined length and made of a cellulose derivative or of some other material having latent adhesive properties is combined with one or more threads that is (are) made of cotton or of some other material without latent adhesive properties and that is (are) of a greater length, in order to form a thread having latent adhesive properties, in such a way that the thread without latent adhesive properties is disposed with spaced coils round the thread having latent adhesive properties, and the invention also relates to the threads having latent adhesive properties which have been produced by means of the present process.

The invention may also be applied to fabrics consisting of two or more interwoven layers and is characterized in that case by the fact that one of the connecting layers of thread in the direction of the weft or/and in the direction of the warp, consists of threads having latent adhesive properties according to the invention.

By carrying into practice the idea according to the present invention, one will obtain in the fabric a certain amount of latent space that will allow of all kinds of combinations without the necessity of paying attention to any possible differences in the shrinking properties of the combination thread and the other threads. Owing to the fact that a plain fabric thread of greater

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length is combined with the thread having latent adhesive properties, the latter after sticking and stiffening will be present in the fabric in a greater length and consequently will not produce any shrinkage of the connecting layer and irregularities in the surface of the interconnected layer(s) of fabric.

The invention will be explained with the aid of the drawing in which

Fig. 1 is a diagram of a fabric manufactured in the ordinary manner,

Fig. 2 represents a combination thread for a fabric according to the invention on an enlarged scale.

Fig. 3 is a diagram of a fabric containing adhesive threads according to the invention.

In Fig. 1 the reference numeral 1 represents the warp threads, while 2 represents the weft threads, both threads being made of cotton, whereas 3 represents the acetate silk threads. The weaving of such a fabric is very difficult on account of the necessary difference in the interlacing of the cotton warp threads 1 and the acetate threads 3. If such a fabric is combined with one or more layers of some other ordinary textile fabric, this will cause difficulties, if the resistance to shrinkage is not the same in both fabrics, so that e. g. the combination of a "sanforized" fabric with a "non-sanforized" adhesive fabric will be very difficult. Moreover the product will be rather expensive.

The said difficulties are obviated by the present invention. The thread according to Fig. 2 consists of a core 4 of two or more threads of untwisted acetate silk and of a cotton thread 5 wound round the same, which cotton thread 5 has been obtained by joining or twisting together the said two kinds of thread, the cotton thread being supplied at a higher rate.

When using such threads in fabrics for the weft and/or for the warp, there is no need of paying any attention to the difference in the interlacing of the same and after the activation and the setting of those threads, in the combination threads which have latent adhesive properties, the threads 5 will have an undulated form and consequently will be able to adapt themselves to the stretching and the shrinkage of the fabric connected with the same while retaining their excellent connecting properties.

Fig. 3 represents a fabric according to the invention prior to dissolving and subsequent setting of the threads 4. The warp threads are denoted by 6.

It is not imperative to connect the threads 4, 5 in the manner indicated in Fig. 3; any other suitable binding may be used and the thread may be woven into two layer or multiple layer fabrics, so that there will be no need of a separate adhe-

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sive fabric. The adhesive fabric according to the invention may be used for interconnecting all kinds of fabrics and one may of course choose the material, the number, the thickness, the distance and the nature of the different threads, as well as the ratio between the lengths of the threads 4 and 5, so as to be suitable for the purpose for which the finished product is intended. As examples may be mentioned: removable inner shoe soles, parts or accessories of jackets, coats, shirts, and shirts with starched fronts, and also multiple layer linings for shoes and bags etc.

What is claimed is:

1. A woven fabric adapted for use in the uniting together of two other layers of fabric, in which each of the threads woven in at least one of the two directions has potential adhesive properties, characterized in that said threads are composed of at least one thread of a potentially adhesive material and at least one thread of greater length than the first mentioned thread, the latter mentioned thread being disposed in spaced windings around the first mentioned thread.

2. A composite potentially adhesive thread for use in a woven fabric composed of at least one thread of a potentially adhesive material and at least one thread of a material which is not potentially adhesive disposed in spaced windings around the thread of potentially adhesive material.

3. A composite potentially adhesive thread for use in a woven fabric composed of at least one thread of a cellulose derivative and at least one thread of cotton disposed in spaced windings around the thread of cellulose derivative.

4. A multilayer woven fabric, produced by uniting at least two layers with the interposition of at least one intermediate layer of the kind as claimed in claim 1, characterized in that after the activation and stiffening of the composite potentially adhesive threads, the remaining threads of the said composite threads are disposed in a non-stretched condition between the two layers to be united.

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