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# EUROPEAN PATENT APPLICATION

⑰ Application number: 86202086.4

⑤① Int. Cl.4: **A41D 27/06** , A41D 31/02

⑳ Date of filing: 24.11.86

③① Priority: 03.12.85 IT 6801385

④③ Date of publication of application:  
10.06.87 Bulletin 87/24

⑧④ Designated Contracting States:  
**AT BE DE ES FR GB**

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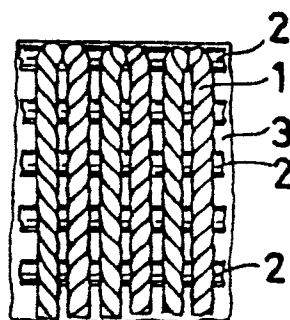
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⑤④ **Textile conglomerate for use as a reinforcement in clothings, perimetally weldable to the fabric of the clothing, method for its manufacturing and process of application thereof.**

⑤⑦ A textile conglomerate for use as a reinforcement in clothings is formed by a layer of parallel and unidirectional coplanar threads, on which there are disposed rods of adhesive material which extend perpendicularly to the threads and on which an agglomerate of knitted fibres is adhesively disposed; the threads and the agglomerate are previously tensioned so that the agglomerate during its incorporation in the clothing will retract to a higher extent from the threads and therefore the conglomerate will result having a stepped perimetral edge in which the ends of the threads projecting beyond the edges of the agglomerate diverge-converge in couples so as to uncover bars of adhesive material by means of which the conglomerate will be made to adhere to the fabric before the seam is carried out.

**Fig. 4**



**TEXTILE CONGLOMERATE FOR USE AS A REINFORCEMENT IN CLOTHINGS, PERIMETRALLY WELDABLE TO THE FABRIC OF THE CLOTHING, METHOD FOR ITS MANUFACTURING AND PROCESS OF APPLICATION THEREOF**

The invention relates to a textile conglomerate for use as a reinforcement in clothings, perimetally weldable to the fabric of the clothing, a method for the manufacture thereof and a process for its utilization.

For the manufacturing of clothings it is known to "aid" the clothing in assuming its shape in the breast region of the dresses for men or for women by using textile reinforcement products called interlinings, which are normally formed by coupling the components by means of seams and partial cuts or by means of resins melted on the surface of the components.

These fabrics are positioned in the interstice between the fabric of the clothing and the lining and have a semi-rigid consistency just in order to form a support for the fabric of the clothing.

For coupling said fabrics both to the fabric of the clothing and the lining known connection methods by means of thermoplastic resins are used.

The desired shape is obtained by cutting a plurality of pieces of fabric and by connecting them to each other by means of suitable cuts and seams or by means of resins, so as to obtain an appropriate force of reaction against the folds; this operation is laborious and requires much time because the manufacturer is compelled to use fabrics of different types and to carry out suitable cuts and seams or glueings in order to unite and shape them in a suitable manner.

These problems are overcome by means of the product which, produced in accordance with the method which will be described later, can be used to reinforce the clothings without requiring the provision of "pincers" and without having to use more components, still obtaining the same feel of cloth and the same force of reaction against the folds, because the product is per se already two-component and thermoformable and thus does not require any cuts and seams for assuming the desired shape, with obvious advantages of saving time and material together with the advantage of lower storage costs and handling easiness of only one product.

To reach these and further objects which will be clearer apparent from the following description, the invention proposes to provide a textile conglomerate to be used as a reinforcement in clothings, characterized in that it is manufactured by the following operative stages:

a) positioning on a plane a plurality of threads under tension, parallel to each other and unidirectional and formed each by at least two

components, one of them being of artificial or synthetic nature and the other of animal or vegetable nature, wound with a twist direction S and Z and located alternately on said plane;

5 b) applying onto said dehumidified threads laterally with respect to the plane they individualize, an adhesive means in the form of bars, such as to compact the threads with each other;

10 c) applying onto said threads, laterally with respect to the adhesive material, an agglomerate of knitted threads, previously tensioned and heated in order to make it adhere to the bars of resin and stick to the layer of threads;

15 d) calendering and subsequently cooling the obtained conglomerate for preparing it for the final use.

The product will now be described with reference to the annexed drawing in which;

20 Figure 1 is a longitudinal cross-section of the finished product;

Figure 2 shows the composition and the particular twisting of two-component threads which form a layer of the laminate;

25 Figure 3 is a plan view showing a portion of the cut product;

Figure 4 is an enlarged view of a detail of the edge after the steaming and the consequent shrinkage of the layer of knitted fibers.

30 The product is formed by a layer of coplanar and parallel threads.

Laid upon the layer of threads 1 is a layer 2 of thermoplastic resin in the form of bars extending transversely relative to the longitudinal axis of the threads of the layer 1.

35 A fibrous support 3 formed by fibres knitted to each other or knitted on a polyester or polyether support is coupled with the layer of threads 1 by means of the bars of resin 2.

40 The manufacturing method and the operative properties of the product will now be described with reference to the drawing.

45 Threads 1 of mixed animal or vegetable composition 1' and of synthetic or artificial composition 1'' are wound with a twist direction S, and other threads of equal composition are wound with a twist direction Z, as shown in Fig. 2.

50 The threads will be maintained coplanar and parallel with each other and moreover threads having a twisting direction S and threads having a twisting direction Z will be approached alternately.

The surface thus obtained will be passed through a dividing comb and then heated; subsequently, the threads 1 pass into the machine which applies onto them a thermoplastic resin in the form of transversal bars (Figures 1 and 4); the fibrous support 3 enters another portion of the machine. This support is heated, thus to dry it and render it suitable for being connected to the layer of threads 1 by means of pressure; said connection becomes stable by means of the thermoplastic resin bars 2 previously laid on the groups of threads 1 as the cooling is carried out.

A suitable tension both of the threads 1 and the fibrous support 3 is necessary for obtaining, during the operation, a differentiated shrinkage of the layers of the laminate obtained, consisting in that the support 3 will shrink more, as shown in Figure 1, during the stage of application. As a result of this particularity, the product, after having been suitably shaped, will be enabled to adhere to the fabric and to the interlinings by thermomelting and only peripherally; in fact, under the action of a jet of steam the threads of the layer 1, owing to their different twist and composition S and Z, will shrink and will bent their ends inwards, a thread having a twist S against a thread having a twist Z: from the area left free at the ends wherever the cut will take place, thermoplastic resin of layer 2 will appear on the surface, as shown in Fig. 4.

This may be exploited advantageously on a shaped press in such a manner as to produce the melting of the resin only in correspondence with the zones left uncovered by the threads 1 on the edges of the laminate which will stick to the fabric to be reinforced only in the desired zones, whereas at the points where this will not take place there will be no coupling between the laminate and the fabric, so as to avoid replasticization.

A plasticization of the resin and a deformation in the fibre conglomerate will take place under the action of the steam, which conglomerate will assume the shape of the press and will keep it firmly during the cooling.

Furthermore, the differentiated shrinkage of the threads and the knitted support will give rise to a degrading behaviour of edge as shown in Fig. 1, i.e. a reproduction of the thickness of the laminate in correspondence with the edges, which turns to the full advantage of the connections to the fabric, which connections will become more shaded and thus less noticeable when the dress is out on.

What will be obtained, after all, will have the characteristics of a loose structure and will have to be incorporated into the seams, as in the case of analogous products, with the advantages described hereinabove; in fact, it will result adhering, in its shape, but not hardened, with the advantage of a particularly reduced time of application.

By way of example, a process to be followed after having cut the product to the desired shape, consists of the following operations:

a) positioning the front part of the dress onto a shaped press;

b) positioning the shaped product in the region which is to be reinforced:

c) steaming for 5 seconds by means of steam coming from the underside, with the plates in the openend condition;

d) closing the plates with contemporaneous steaming of the dress and the respective support for 5 seconds on both sides;

e) cooling, with the suction of the plates closed, for 3 seconds;

f) opening of the press and discharging the material

## Claims

1.-A method for manufacturing a textile conglomerate to be used as a reinforcement in clothings, characterized the following operations:

a) positioning on a plane a plurality of threads under tension, parallel with each other and unidirectional and formed each by at least two components, one of these latter being of artificial or synthetic nature and the other of animal or vegetable nature, wound with a twist direction S and Z and located alternately on said plane;

b) applying onto said dehumidified threads laterally with respect to the plane they individualize, an adhesive means in the form of bars, such as compact the threads with each other;

c) applying onto said threads, laterally with respect to the adhesive material, an agglomerate of knitted threads, previously tensioned and heated in order to make it adhere to the bars of resin and stick to the layer of threads;

d) calendering and subsequently cooling the obtained conglomerate, for preparing it for the final use.

2.-A method as claimed in Claim 1, characterized in that the tension of the threads and agglomerate is differentiated.

3.-A textile conglomerate for use as a reinforcement in clothings, obtained by the method claimed in the preceding Claims.

4.-A textile conglomerate as claimed in Claim 3, characterized in that it is interposed between the interlining of the fabric of the clothing and the inner lining, with the threads turned towards the fabric and with the knitted part turned towards the lining.

5.-A process for producing a clothing by means of a textile conglomerate as claimed in Claim 3, characterized in that the obtained conglomerate is introduced into a press and subjected

to the action of a jet of steam which gives rise to a larger retraction of the agglomerate as compared with that of the threads so as to form a step in correspondence with the perimetral edges of the conglomerate itself; said jet producing also a deformation of the ends of the adjacent threads along the edge of the conglomerate such as to uncover an adhesive in correspondence with the portion of threads which projects from the agglomerate and to make the conglomerate adhere to the fabric of the clothing along the adhesive projecting from said perimetral edges.

6.-A process for producing a clothing as claimed in Claim 5 and by means of textile conglomerate according to Claims 3 and 4, characterized in that it includes the following operations:

- a) positioning the front part of the dress onto a shaped press;
- b) positioning the shaped conglomerate in the dress zone which is to be reinforced;
- c) steaming, with the plates in their open condition, by means of steam coming from the underside;
- d) closing the plates with contemporaneous steaming of the dress and the conglomerate on both sides;
- e) cooling with the suction of the plates closed;
- f) opening the press and discharging the obtained product.

7.-A process as claimed in Claim 6, characterized in that under the action of the steam a plasticization of the resin and a deformation of the conglomerate take place, which conglomerate assumes the shape of the press and firmly keeps shape even after the cooling.

8.-A clothing obtained by means of the conglomerate and the process which are claimed in the preceding Claims.

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Fig.1

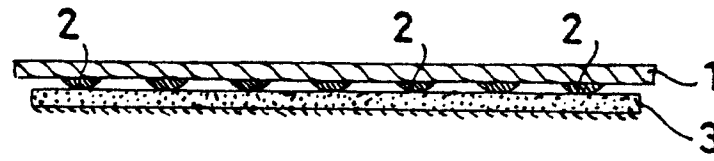


Fig.2

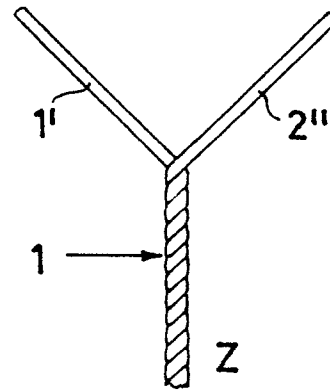
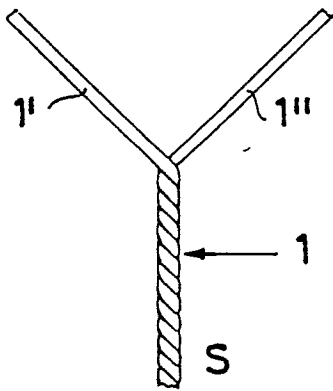


Fig.3

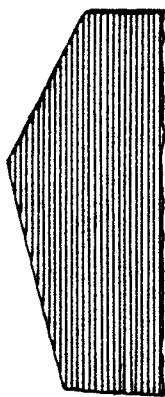


Fig.4

