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(54) **Process for manufacturing a textile article in pure cashmere**

(57) The process according to the invention permits the manufacture of an article of pure cashmere starting from an association of pure cashmere fibres with ther-

mosoluble material fibres, which is then submitted to weaving. The fabric thus obtained is then submitted to thermal treatment that completely eliminates the ther-mosoluble fibres.

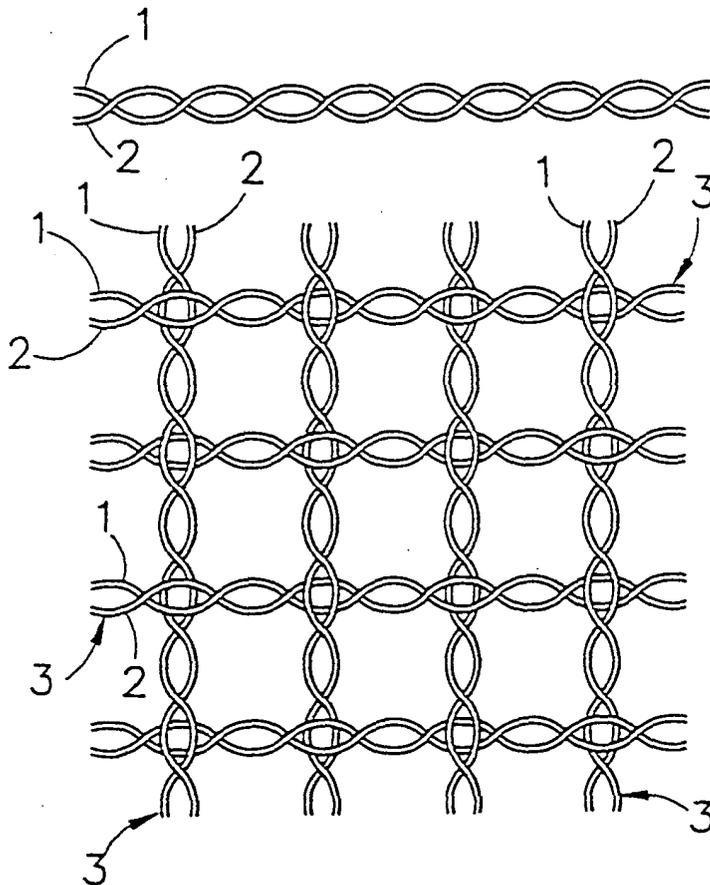


FIG. 1

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Description

[0001] The present invention refers to a process for manufacturing a textile article in pure cashmere, whether it is a properly called fabric or a knit fabric or a Jersey fabric.

[0002] Cashmere is well known to be a precious material that is requested by high level clients.

[0003] At the same time it is also a material that at the pure state and with a fibre count higher than a certain maximum value has such a low mechanical resistance that makes weaving it impossible.

[0004] The same Applicant (EP-A-1061162) has already proposed a process for obtaining pure cashmere fabrics, that provides for the initial association of pure cashmere fibres with water-soluble material fibres, then the weaving of the association obtained in this manner and finally the dissolution of the water-soluble material fibres by means of a lightly acid liquid solution at high temperature.

[0005] In this manner it is possible to obtain a textile article in pure cashmere produced with an extremely fine yarn, at a low price and in a decidedly ecological manner.

[0006] The object of the present invention is now to produce a different process, even simpler, cheaper and more ecological, to obtain a textile article with similar characteristics.

[0007] In accordance with the present invention, this object is achieved by means of a process characterised in that it comprises the following working processes in sequence:

- a) association of pure cashmere fibres with thermosoluble material fibres,
- b) weaving of the association obtained in this manner,
- c) dissolution of the thermosoluble material fibres by means of thermal treatment.

[0008] The thermosoluble material fibres are preferably of a prevalently vegetable character (cotton, viscose, linen, etc.) treated with a suitable product to make them thermosoluble. In particular, the abovementioned fibres are soaked with a product composed of about 85% thickening agent and approximately 15% sodium bisulphate, which at an ambient temperature soaks the fibres themselves without damaging them. The successive thermal treatment, preferably at the temperature of 145-155 °C and taking from 2.5 to 7 minutes, determines the development of a corrosive chemical reaction, such to completely eliminate the thermosoluble fibres.

[0009] Moreover the use of thermosoluble fibres of a different material is not to be excluded, for example synthetic fibres and in particular polyvinyl fibres.

[0010] The advantages of the process according to the present invention compared to the known technique

mentioned above, can thus be summed up as:

- the cashmere is not processed in an acid-base water solution, therefore its animal fibre is not in any manner damaged or affected,
- the thermosoluble materials have a much lower cost of the water-soluble fibres, in substance less than half at the same fibre count, and this entails considerable savings, above all taking into account that it concerns fibres to be eliminated,
- the process is much simpler and easier compared to the case of the water-soluble yarns, that are easily subject to deterioration and to hygroscopic shocks,
- the thermosoluble materials are much easier to find on the market.

[0011] The characteristics and advantages of the present invention will be apparent from the following detailed description of an embodiment thereof, illustrated as non-limiting example in the enclosed drawings, in which:

Figure 1 shows a doubled cashmere and synthetic yarn before weaving;

Figure 2 shows a portion of plain weave obtained by weaving doubled yarns such as that in Fig. 1;

Figure 3 shows the same portion of weave after the dissolution operation has been carried out.

[0012] In the drawings the cashmere yarn is indicated with 1 and the thermosoluble yarn is indicated with 2. The doubled yarn composed of a cashmere yarn and a thermosoluble yarn is indicated with 3.

[0013] The cashmere yarn can have a fibre count varying from 85 dtex to 250 dtex, over which dimension the cashmere yarn has sufficient strength to enable it to be woven without any support yarn. According to a currently preferred embodiment of the present invention the cashmere yarn used has a fibre count of 130 dtex.

[0014] The thermosoluble material yarn is of the previously mentioned type, that is it is preferably a prevalently vegetable fibre yarn (cotton, viscose, linen, etc.) made thermosoluble by treatment with a product composed of approximately 85% thickening agent and approximately 15% sodium bisulphate. In alternative, a synthetic fibre can be used, that does not require a pre-treatment. The fibre count of thermosoluble fibre is preferably analogous to the one of cashmere yarn.

[0015] The doubling operation is carried out inversely to that of the single yarn, that is with S twist.

[0016] The doubled yarn 3 thus obtained is submitted to a weaving operation according to the known technique, for example to obtain a plain weave like that shown in Figure 2.

[0017] Other type of weaves can be used, such as Batavia 2/2, Saglie, etc., or even Jacquard. A knit or jersey weave can also be used.

[0018] The thermosoluble yarn 2 is then eliminated by means of thermal treatment, preferably at the temperature of 145-155 °C and taking from 2.5 to 7 minutes.

[0019] The process described leaves no type of residual on the fabric obtained, not even on the selvedge, where it is more closely woven, thus guaranteeing very high quality standards.

[0020] The fabric thus obtained is then submitted to a dyeing treatment, for example comprising washing in a neutral bath for 10 min at 80 °C, dyeing with acid colours for 100 min at 80 °C and fulling with damp cleaning compounds containing enzyme at ambient temperature for 25 min.

[0021] Finally the article thus obtained is dried and submitted to steam treatment.

Claims

1. Process for manufacturing a textile article in pure cashmere, **characterised in that** it comprises the following working processes in sequence:
 - d) association of pure cashmere fibres with thermosoluble material fibres,
 - e) weaving of the association obtained in this manner,
 - a) dissolution of the thermosoluble material fibres by means of thermal treatment.
2. Process according to claim 1, **characterised in that** said thermosoluble material fibres consist of prevalently vegetable fibres, such as cotton, viscose, linen, etc. treated with a product suitable for making them thermosoluble.
3. Process according to claim 2, **characterised in that** said product is composed of approximately 85% thickening agent and approximately 15% sodium bisulphate.
4. Process according with any claims 1-3, **characterised in that** said thermal treatment is carried out at temperatures of 145-155 °C and takes from 2.5 to 7 minutes.
5. Process according to claim 1, **characterised in that** said thermosoluble material fibres consist of synthetic fibres.
6. Process according with any claims 1-5, **characterised in that** said association is obtained by means of an operation of doubling a yarn of pure cashmere (1) with a yarn of thermosoluble fibre (2).
7. Process according to claim 6, **characterised in that** the yarn of pure cashmere (1) has a fibre count of between 85 dtex and 250 dtex.
8. Process according to claim 7, **characterised in that** the yarn of pure cashmere (1) has a fibre count of 130 dtex.
9. Process according with any claims 1-8, **characterised in that** dissolution follows treatments of washing, dyeing and fulling the fabric.
10. Process according to claim 9, **characterised in that** the washing of the fabric is carried out in a neutral bath.
11. Process according to claim 9 or 10, **characterised in that** the dyeing is carried out with acid colours.
12. Process according to claim 9, 10 or 11, **characterised in that** fulling is carried out with damp cleaning compounds containing enzyme.

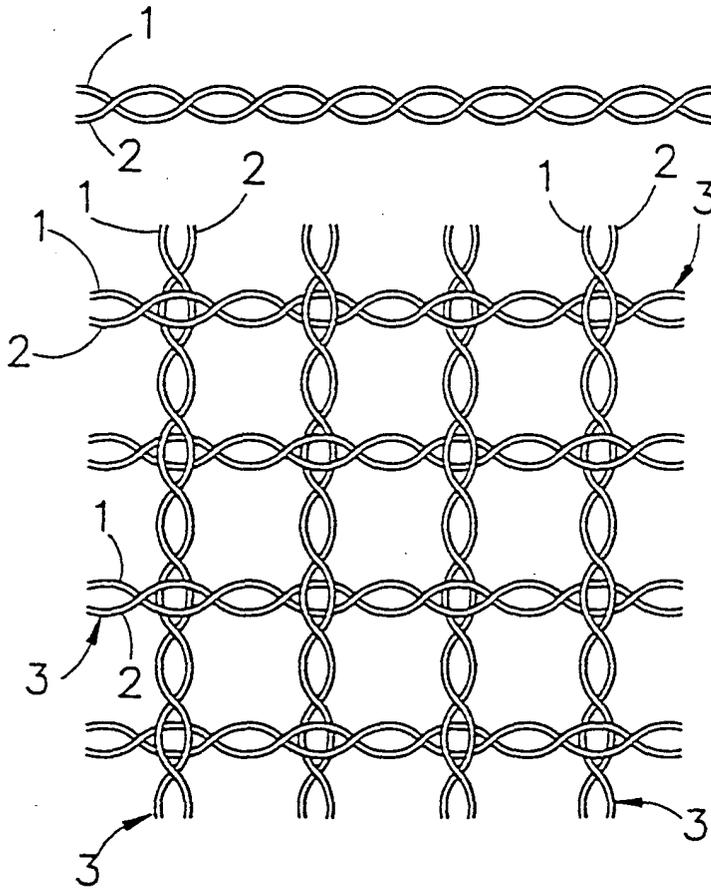


FIG.1

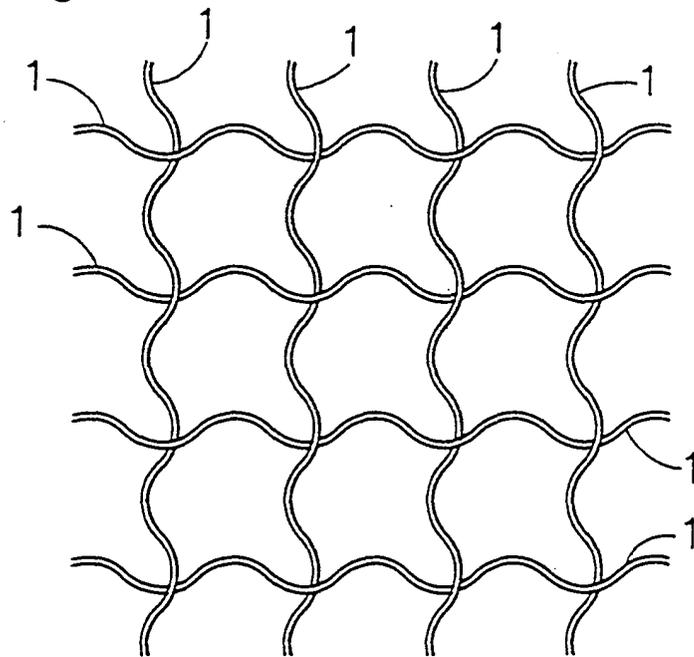


FIG.2

FIG.3



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EUROPEAN SEARCH REPORT

Application Number
EP 03 07 8225

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	EP 1 061 162 A (GERALDINI JACOPO) 20 December 2000 (2000-12-20) * the whole document * -----	1-12	D03D15/00 D02G3/02
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			D03D D02G
The present search report has been drawn up for all claims			
Place of search MUNICH		Date of completion of the search 26 January 2004	Examiner Louter, P
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 03 07 8225

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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26-01-2004

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82