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(54) **COMPOSITE YARN WITH AN UNTWISTED COTTON SHEATH**

(57) The Invention relates to a composite yarn with an untwisted cotton sheath, of the type including a central supporting yarn element and a sheath element which surrounds the central supporting yarn element. The invention is **characterised in that** it is formed from a compact

mass of untwisted cotton fibres, originating from a carding or combing process in the form of a ribbon. Said cotton ribbon mass is joined to the supporting yarn (2) such as to surround same uniformly and the ribbon mass (3) remains solidly connected to the supporting yarn (2).



FIG. 2

Description

OBJECT OF THE INVENTION

[0001] The present invention, as expressed in the heading of this specification, relates to a composite yarn with an untwisted cotton sheath which has the purpose of producing an economical and resistant yarn with acceptable quality, intended for the application of fabrics of few uses, without rejecting other possible applications. Another additional purpose Included within the sustained growth and maximum use of raw materials consists (said purpose) of making use of the small cotton fibres discarded in the typical procedures of the industry.

BACKGROUND OF THE INVENTION

[0002] Different documentation is known in the state of the art are known which relate to the formation of ribbons produced from cutting the joint of a cotton lap from a carding with a series of normal yarns glued thereto. The ribbon thus produced has working difficulties for the normal textile machinery given the non-roundness of its structure.

DESCRIPTION OF THE INVENTION

[0003] The composite yarn with an untwisted cotton sheath is produced from a compact mass of short or long cotton fibres, or of both types, a mass originating from a carding or combing process in the form of a ribbon, whose width may vary between two and fifteen times and even more with respect to the average diameter of the supporting yarn.

[0004] The weight and thickness are directly proportional to the characteristics of the fabric whereto one wants to apply the yarn with a sheath of the invention.

[0005] The ribbon mass of untwisted cotton fibres is joined to the supporting yarn such as to surround same uniformly and is secured to it so that the form achieved of a round composite yarn is totally suitable for any textile operation. The resulting yarn is of a titre greater than the supporting yarn, so that the Denier of the yarn with a sheath is the same as the Denier of the supporting yarn plus the Denier of the sheath.

[0006] The joining process of the untwisted cotton ribbon to the supporting yarn for the formation of the yarn of the invention is carried out via one or several operations of immersion in a solution of water with water-soluble glue or any other method that seeks the same purpose.

[0007] If the immersion procedure is used, the mass attraction phenomenon is manifested, achieving that the cotton fibre ribbon uniformly surrounds the supporting yarn.

[0008] The yarns of the invention thus produced have a greater volume than normally twisted yarns of the same titre or Denier and without detriment to their mechanical

resistance due to the supporting yarn they incorporate. This makes the final product cheaper and it is also increased due to making use of the short cotton fibres discarded in conventional processes.

[0009] Below, in order to facilitate a better understanding of this specification and forming an integral part thereof, figures are attached wherein, with illustrative and non-limiting character, the object of the invention has been represented.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010]

Figure 1.- Is a view of the front cut of the yarn with an untwisted cotton sheath, object of the invention. This essentially represents the supporting yarn with the untwisted cotton sheath which uniformly surrounds same.

Figure 2.- Is a cross-section of the yarn with the untwisted cotton sheath. It essentially shows the uniform distribution of the cotton fibres from the ribbon obtained from the carding or combing operations.

Figure 3.- Shows a sketch of the immersion procedure to produce the yarn object of the invention. It shows the order of the procedure.

DESCRIPTION OF A PREFERRED EMBODIMENT

[0011] Below, we will describe the Invention making reference to the numbering adopted in the figures.

[0012] Thus, the yarns of the invention have a yarn with an untwisted cotton sheath 1, produced by a procedure of immersion in a tank 4 wherein a solution of water with water-soluble glue has been poured.

[0013] The resulting yarn 1 is formed by the supporting yarn 2 and the sheath of the cotton fibres 3 originating from the ribbon produced by the previous carding or combing operations.

[0014] The yarn produced 1 from the immersion tank or tanks 4 is subjected to a common drying system and a special winding depending on the loom or other textile machine where it is going to be processed.

[0015] Hence, the round yarn with regular untwisted cotton sheath obtained is very economical, with good resistance and a very acceptable quality bearing in mind the intention of few uses of the fabrics the round yarn with an untwisted cotton sheath of the invention will be applied to.

[0016] The yarn produced 1, as previously stated, is formed from a supporting yarn 2 whose Denier number depends on the purpose of the garment to be made with the yarn with a sheath 1 object of the invention.

[0017] The yarn produced is of greater volume than a conventional one of the same length and it is also of a greater Denier titre given the adhered presence of the untwisted cotton sheath 3. It also has the possibility of making use of the shortest cotton fibres for the formation

of the sheath 3, as previously stated.

Claims

- 5
1. COMPOSITE YARN WITH AN UNTWISTED COT-
TON SHEATH, which including a central supporting
yarn element and a sheath element which surrounds
the central yarn, is **characterised in that** it is formed
from a composite mass of untwisted cotton fibres (3) 10
originating from a carding or combing process in the
form of a ribbon, the cotton ribbon mass joined to
the supporting yarn (2) such as to surround same
uniformly and the ribbon mass (3) remaining solidly 15
connected to the supporting yarn (2), configuring a
resulting yarn of circular section (1) with the appear-
ance and consistency of a single body, the support-
ing yarn (2) being concentrically disposed with re-
spect to the untwisted cotton sheath (3). 20
2. COMPOSITE YARN WITH AN UNTWISTED COT-
TON SHEATH, according to claim 1, **characterized**
in that the cotton mass in the form of a ribbon (3)
has a width at least two times greater than the diam- 25
eter of the supporting yarn (2). 25
3. COMPOSITE YARN WITH AN UNTWISTED COT-
TON SHEATH, according to any one of the preced-
ing claims, **characterized in that** the weight of the
untwisted cotton sheath (3) is proportional to the fea- 30
tures of the fabric whereto one wants to apply the
resulting yarn (1). 30

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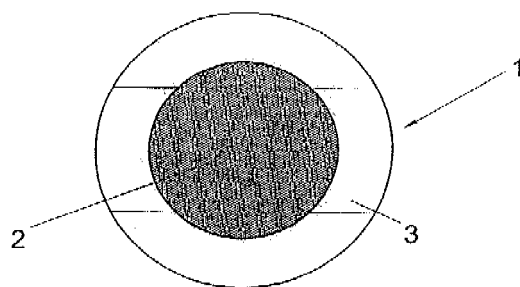


FIG. 1

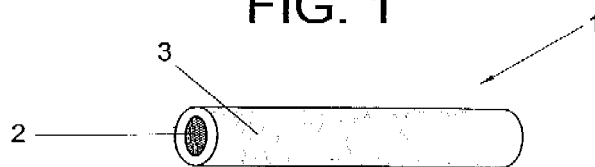


FIG. 2

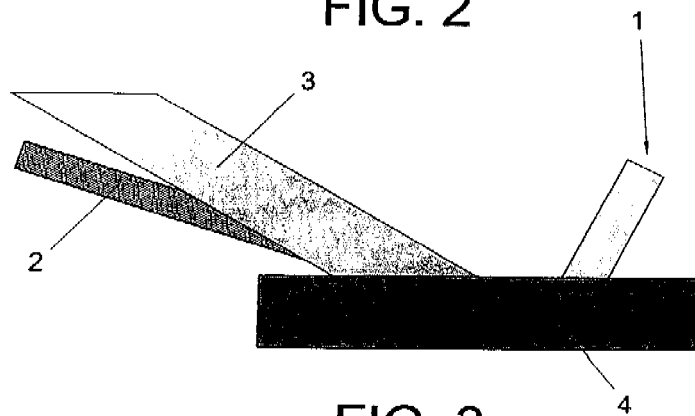


FIG. 3

INTERNATIONAL SEARCH REPORT

International application No.

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A. CLASSIFICATION OF SUBJECT MATTER

see extra sheet

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

D02G

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

INVENES,EPODOC,WPL. Untwisted/non-twisted/no-twist/non-torqued, cotton, sliver.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0249074 A2 (BURLINGTON INDUSTRIES INC) 16.12.1987, abstract; column 5, lines 23- 57; column 7, line 14 - column 8, line 32; column 9, lines 5-13; figures 7,8.	1-3
X	US 4711079 A (NEWTON et al.) 08.12.1987, abstract; column 1, lines 35-54; column 2, line 67 - column 3, line 54; figures 5,6a,6b.	1-3
X	ES 2102929 A1 (TT1U SL) 01.08.1997, the whole document.	1-3
A	WO 8000419 A1 (BRUNSWICK CORP) 20.03.1980, column 3, line 48 - column 4, line 60; figure 2.	1
A	WO 0171073 A1 (BAKER PAUL W JR) 27.09.2001, page 2, line 26 - page 3, line 10; page 4, lines 19-23; page 6, line 21 - page 7, line 3; page 7, line 12 - page 8, line 4; page 8, line 21 - page 9, line 3; page 11, lines 10-29; figure 4.	1

☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance.		
"E" earlier document but published on or after the international filing date		
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"O" document referring to an oral disclosure use, exhibition, or other means	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other documents, such combination being obvious to a person skilled in the art
"P" document published prior to the international filing date but later than the priority date claimed		
	"&"	document member of the same patent family

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INTERNATIONAL SEARCH REPORT

International application No.

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C (continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of documents, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 3828544 A (ALKER et al.) 13.08.1974, column 1, line 57 - column 2, line 2; figures 1,2.	1
A	US 3439491 A (SCRUGGS et al.) 22.04.1969, column 2, lines 6-58; column 3, lines 22-35; column 4, lines 8-13; figures 2,3.	1

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/ ES 2008/000629

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International application No.

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D02G 3/36 (2006.01)

D02G 3/02 (2006.01)

D02G 3/40 (2006.01)