



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
06.10.2004 Bulletin 2004/41

(51) Int Cl.7: **D03D 15/04, D03D 27/02**

(21) Application number: **03293352.5**

(22) Date of filing: **31.12.2003**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HU IE IT LI LU MC NL PT RO SE SI SK TR
Designated Extension States:
AL LT LV MK

(30) Priority: **03.04.2003 KR 2003021086**

(71) Applicant: **SAEHAN INDUSTRIES, INC.**
Kyongsangbuk-Do (KR)

(72) Inventors:
• **Yeo, Sang-Myun**
Susung-gu Daegu-si (KR)

• **Oh, Jong-Kyu**
Kyongsan-si Kyongsangbuk-do (KR)
• **Shon, Jang-Ik**
Daegu-si Kyongsangbuk-do (KR)
• **Im, Ki-Hyun**
Daegu-si Kyongsangbuk-do (KR)

(74) Representative: **Intès, Didier Gérard André et al**
Cabinet Beau de Loménie,
158, rue de l'Université
75340 Paris Cedex 07 (FR)

(54) **Manufacturing method of filament corduroy fabric**

(57) The present invention relates to a method for manufacturing a corduroy fabric using a microfiber or ultrafine microfiber filament yarn, which has the drapability and elasticity and soft handle feel peculiar to the filament. This method comprises the steps of weaving a cotton or synthetic yarn into a corduroy texture and cutting the pile warp of the corduroy texture to form wales, the method being characterized in that either filament yarns as a warp and a weft, or a filament yarn as

the warp and a cotton yarn as the weft, are used, and after the weaving step but before the cutting step, a shrinking step of a grey fabric is additionally performed such that the space between a bottom yarn and a pile yarn is formed. Thus, the filament corduroy fabric of the present invention can be used in a far wider range of applications than the existing staple corduroy fabric.

Description**Field of the Invention**

5 [0001] The present invention relates to a method for manufacturing a corduroy fabric using a microfiber or ultrafine microfiber filament yarn, which has the drapability and elasticity and soft handle feel peculiar to the filament.

Background of the Related Art

10 [0002] Generally, a corduroy fabric is a velveteen-like woven cut pile fabric with wales, and called "a needle cord. This fabric has various colors, is formed of various layers each having wide or narrow wales, and is durable and practical. Thus, it is frequently used as a cloth for work wears, casual wears, children's wears, and the like.

[0003] The warp/weft of the prior corduroy fabric is made of a staple fiber, such as cotton/cotton, cotton/polyester, and cotton/polyester-rayon mixture, so that the fabric feels soft. Thus, this fabric is suitable for use in trousers, but
15 unsuitable for woman's dresses or jackets where a soft feel is required.

SUMMARY OF THE INVENTION

20 [0004] Accordingly, an object of the present invention is to provide a method for manufacturing a filament corduroy fabric which has the drapability, elasticity, tensile strength, friction fastness and wash shrinkage peculiar to filaments, and also a soft feel caused by an ultrafine microfiber, so that it can be used in a far wider range of applications than the prior staple corduroy fabric.

[0005] When the prior method for manufacturing a staple corduroy fabric is applied as it is, there is a problem in that, upon pile cutting, a knife cannot be smoothly passed between a bottom yarn and a pile yarn because of a characteristic
25 of the filament, and a needle is passed over the pile yarn, so that the miss cutting of the pile yarn occurs. Thus, in the present invention, the filament yarn is woven into a conventional corduroy texture to produce a grey fabric, and then the grey fabric is subjected to a shrinking process to form a given space between a bottom yarn and a pile yarn, so that a knife can be smoothly passed between the bottom yarn and the pile yarn, and miss cutting does not occur, whereby a corduroy fabric with excellent properties can be manufactured.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

30 [0006] Accordingly, the present invention has been made to solve the above-mentioned problem occurring in the prior art, and an object of the present invention is to provide a method capable of manufacturing a corduroy fabric with an excellent drapability, the improved elasticity, tensile strength, friction fastness and wash shrinkage, and a soft feel, in a simple manner.

[0007] Hereinafter, the method of the present invention will be described.

[0008] Warp/weft which are used in manufacturing the corduroy fabric according to the present invention are made of polyester filament/polyester filament, polyester filament/filament such as nylon-polyester (NP) split yarn, or filament/
40 staple fiber. The filament is preferably made of at least one selected from the group consisting of a microfiber, an ultrafine microfiber, a NP split yarn, a sea-island yarn, a drawn yarn, an undrawn yarn (UDY), a partially oriented yarn (POY), a flat yarn (FY), and a draw textured yarn (DTY), and has less than 1 denier monofilament.

[0009] If the monofilament denier is more than 1 denier, the fabric will have a stiff feel and a rough surface, and thus a soft feel cannot be obtained.

45 [0010] Furthermore, the microfiber or the ultrafine microfiber has an excellent soft feel, the sea-island yarn has a soft feels and also special gloss and suede effects, and the drawn yarn has a dull suede effect, and thus, they are very suitable filaments for a corduroy fabric.

[0011] In the method of the present invention, the filament yarn is subjected to the conventional corduroy-manufacturing processes, including false twisting, sizing, weaving, cutting, dyeing and finishing processes, but a shrinking
50 process of a grey fabric is additionally performed after the weaving process but before the cutting process without conducting a separate brushing process, so as to form a given space between a bottom yarn and a pile yarn, such that a cutting knife can be smoothly passed between the bottom yarn and the pile yarn. Also, in the present invention, cutting speed can be adjusted, and a specially-made knife for corduroy can be used. Thus, in the method of the present invention, the miss cutting of the pile yarn does not occur.

55 [0012] In the method of the present invention, a filament yarn, such as a microfiber filament yarn with less than 1 denier monofilament obtained by spinning a general polyester chip in the conventional method, a nylon-polyester (NP) split yarn obtained by spinning a nylon/polyester conjugate, a partially oriented yarn (POY), a draw textured yarn (DTY), an undrawn yarn (UDY), a flat yarn (FY), or a sea-island yarn, is subjected to false twisting to make it bulky and crimping.

Then, after the warp is starched and dried to improve weaving efficiency, the filament yarn is woven into a conventional corduroy texture to form a grey fabric. Before cutting the pile yarn of the woven corduroy texture, the grey fabric is subjected to a shrinking process such that a given space between the bottom yarn and the pile yarn can be formed. Then, the pile yarn is cut with a specially made knife, and the resulting fabric is dyed and finished, thereby producing a filament corduroy fabric of the present invention. Moreover, in producing the corduroy fabric to the present invention, the miss cutting of the pile yarn does not occur, and the produced corduroy fabric has the drapability, elasticity and soft feel peculiar to the filament and thus can be used in a far wider range of applications than the existing staple corduroy fabric.

[0013] The present invention will hereinafter be described in further detail by examples and comparative examples. It will however be obvious to a person skilled in the art that that the present invention is not limited to or by the examples. In the examples and the comparative examples, the physical properties of a corduroy fabric were measured in the following manner:

(1) Tensile strength: the tensile strength of a fabric was measured in the warp and weft directions according to KSK 0520.

(2) Wash shrinkage: the wash shrinkage of a fabric was measured in the warp and weft directions according to KSK 0600.

(3) Friction fastness: dry and wet friction fastness values were measured by conducting dry and wet tests, respectively, according to KSK 0650.

(4) Drapability, elasticity and soft handling: such properties were observed and evaluated visually or by hand.

Example 1

[0014] A DTY yarn as a wrap, and a DTY split yarn as a weft, were subjected to the conventional corduroy-manufacturing processes, including false twisting, sizing, weaving, cutting, dyeing and finishing processes. However, after the weaving process but before the cutting process, the grey fabric was subjected to a shrinking process without being subjected to a separate brushing process. Thus, an 8-wale filament corduroy fabric was produced and measured for its physical properties. The measured results are given in Table 1.

Example 2

[0015] A DTY yarn as a wrap, and a DTY covering yarn and a split yarn as a weft, were subjected to the conventional corduroy-manufacturing processes, including false twisting, sizing, weaving, cutting, dyeing and finishing processes. However, after the weaving process but before the cutting process, the grey fabric was subjected to a shrinking process without being subjected to a separate brushing process. Thus, a 20-wale elastic corduroy fabric was produced and measured for its physical properties. The measured results are given in Table 1.

Comparative Example 1

[0016] Cotton yarns as warp and weft were subjected to the conventional corduroy-manufacturing processes, including false twisting, sizing, weaving, cutting, dyeing and finishing processes. Thus, an 8-wale cotton corduroy fabric was manufactured and measured for its physical properties. The measured results are given in Table 1.

Comparative Example 2

[0017] Cotton yarns as warp and weft were subjected to the conventional corduroy-manufacturing processes, including false twisting, sizing, weaving, cutting, dyeing and finishing processes. Thus, a 20-wale cotton elastic corduroy fabric was manufactured and measured for its physical properties. The measured results are given in Table 1.

Table 1:

	Example 1	Comparative Example 1	Example 2	Comparative Example 2
Tensile strength (warp; kg)	78.3	36.1	105.5	39.1
Tensile strength (weft; kg)	56.7	25.9	48.8	31.9
Wash shrinkage (warp; %)	0.4	0.8	0.1	-0.6
Wash shrinkage (weft; %)	0.1	0.8	-0.4	-0.6

Table 1: (continued)

	Example 1	Comparative Example 1	Example 2	Comparative Example 2
Friction fastness (dry)	4.5	3.5	4	3.5
Friction fastness (wet)	4	1	4	1.5
Handling	Soft	Stiff	Soft	Stiff
Drapability	High	Middle	High	Middle
Elasticity	High	Middle	High	Middle

[0018] As can be seen in Table 1, the filament corduroy fabric manufactured according to the present invention was excellent in all properties, including tensile strength, wash shrinkage, friction fastness, handling, drapability and elasticity, as compared to the existing staple (cotton) corduroy fabric.

[0019] As described above, the present invention provides the filament corduroy fabric, which has the improved tensile strength, wash shrinkage, friction fastness, drapability, elasticity and soft handling, as compared to the existing staple corduroy fabric using cotton as a staple. Thus, the filament corduroy fabric of the present invention can be used in a far wider range of applications than the existing staple corduroy fabric.

[0020] The forgoing embodiments are merely exemplary and are not to be construed as limiting the present invention. The present teachings can be readily applied to other types of apparatuses. The description of the present invention is intended to be illustrative, and not to limit the scope of the claims. Many alternatives, modifications, and variations will be apparent to those skilled in the art.

Claims

1. A method for manufacturing a corduroy fabric comprising the steps of weaving a cotton or synthetic yarn into a corduroy texture and cutting the pile warp of the corduroy texture to form wales, the method being **characterized in that** either filament yarns as a warp and a weft, or a filament yarn as the warp and a cotton yarn as the weft, are used, and after the weaving step but before the cutting step, a shrinking step of a grey fabric is additionally performed such that the space between a bottom yarn and a pile yarn is formed.
2. The method of Claim 1, wherein the filament yarn is made of at least one selected from the group consisting of a microfiber, an ultrafine microfiber, a NP split yarn, a sea-island yarn, a drawn yarn, an undrawn yarn (UDY), a partially oriented yarn (POY), a flat yarn (FY), and a draw textured yarn (DTY).
3. The method of Claim 1, wherein the filament yarn is made of a polyester filament yarn or a nylon filament yarn.