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(54) **Cycling sport garment**

(57) Skin-tight sports garment for cycling, comprising portions with differentiated breathability, and having substantially a top part (1) with greater breathability, suitable for performing the function of underwear, and a bottom portion (2) with less breathability, suitable for performing the trousers function.

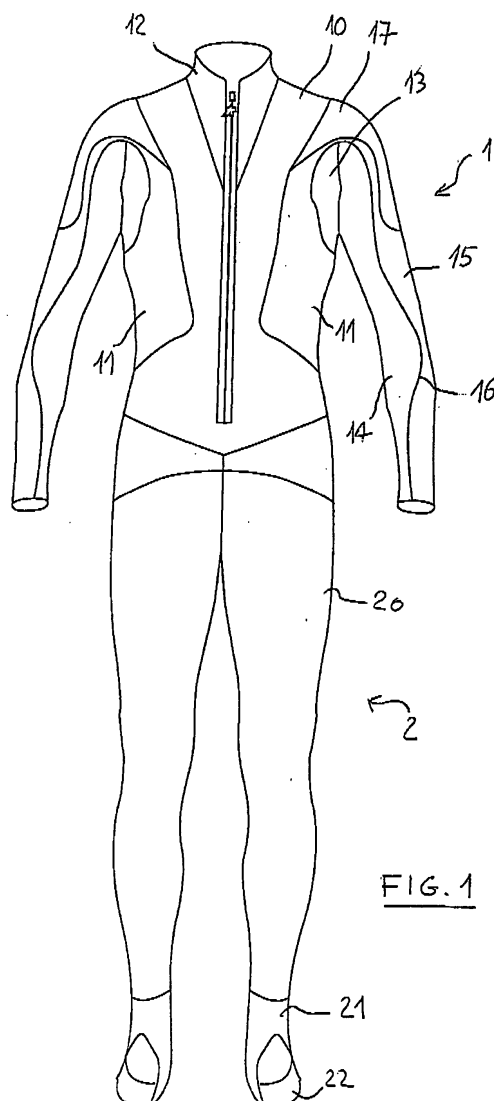


FIG. 1

Description

Field of application

[0001] The present invention refers, in its most general aspect, to a skin-tight sports garment, in particular for cycling.

Prior art

[0002] Known sports garments, in particular cycling garments, are made in various types that comprise summer shorts with suspenders, long trousers with jacket for the winter, etc.

[0003] Winter or autumn clothing normally also comprises underwear to be worn under the jacket, and that is made from so-called "thermal" material, i.e. a fabric capable of protecting from the cold by maintaining a suitable thermal comfort. In sports jargon underwear is defined as the garment in contact with the skin, and the most outer garment (e.g. jacket) that acts as thermal insulator and barrier against atmospheric agents is defined as "shell" or else "outfit".

[0004] The underwear and shell have different characteristics of breathability and permeability to air. Underwear in particular must satisfy some technical requirements, including maintaining the temperature of the skin and a certain ability to absorb sweat and keep the skin dry (absorbent material). Such requirements are generally not met by the fabrics or materials of the shell, especially if it is for winter use, which must ensure protection from the cold and/or wind.

[0005] Underwear, however, generally does not have the same characteristics as the sports garment in terms of elasticity and skin-tightness/fit, and tends to form creases or wrinkles more easily. It should be noted that perfect skin-tightness is an extremely important characteristic for sports garments, in which even a small crease or wrinkle can rub against the cyclist's skin causing discomfort or even pain. In garments intended for athletes and for obtaining maximum performance, perfect skin-tightness is also sought to reduce aerodynamic resistance.

[0006] In greater detail, the sports garment is the subject of in-depth study, with a suitable choice of elasticised materials and distribution of the padding, so that it almost constitutes a "second skin". Such characteristics of perfect skin-tightness and fit, which are important in achieving high technical performance, are increasingly sought after and appreciated not only by professional sportspeople, but also by amateurs and simple hobbyists.

[0007] Basically, in the prior art the shell is not generally suitable for direct contact with the skin, typical of underwear; on the other hand, the use of underwear tends to nullify some of the advantages of the skin-tight outer garment, for the reasons outlined above.

Summary of the invention

[0008] The technical problem forming the basis of the present invention is to devise and provide a sports garment, in particular for cycling, capable of overcoming the quoted drawbacks with reference to the prior art, i.e. to ensure that the cyclist has an excellent fit and suitable thermal comfort without using further underwear, in a simple and effective manner.

[0009] This problem is also solved, according to the invention, by a skin-tight sports garment for cycling, characterised in that it comprises portions with differentiated breathability, and having substantially a top part suitable for performing the function of underwear, and a bottom part with shorts function.

[0010] The term differentiated breathability is used to mean that selected portions of the garment have a respective breathability index (or level), whereas other selected portions of the same garment have a different respective breathability index.

[0011] Hence, a garment according to the invention has at least two different breathability levels, in predetermined portions corresponding to respective areas of the body. According to preferred embodiments, there can be two or more than two breathability levels of different portions of the garment.

[0012] Such differences in breathability are obtained according to the invention with different materials or with the same material having a different thickness and/or subjected to different processing.

[0013] In accordance with an embodiment of the invention, the sports garment has first portions having a first breathability index, and second portions having a second breathability index, greater than the first. The aforementioned first portions, with low breathability index, are positioned in the bottom or shorts part, and at least partially in the top part, at the areas of the torso and arm most exposed to the outside air and that require the most thermal insulation.

[0014] In particular, according to the invention, for the top part of the garment, and specifically for the portions intended for contact with the skin, with underwear function, so-called "first layer" materials are used, for example polyester or polypropylene-based or a mixture of these materials. For the bottom shorts part any suitable material can be used, for example a three-layer fabric (coupled with a membrane) or a Polyamide/Elastan mixture or Lycra or another that is *per se* known.

[0015] The garment can be made in specific versions for different seasons and therefore temperatures, in particular in winter long trousers version and in lighter shorts version. The top portion can also consequently be more or less light by adopting a suitable type of fabric or by making short sleeves.

[0016] According to another aspect of the invention, the garment is characterised by portions having differentiated weight, i.e. portions that are more or less heavy, respectively, for the trousers part and for the underwear

part.

[0017] The garment, moreover, can, according to needs, be provided with reinforcements and/or padding, for example at the shoulders, elbows, crotch. According to a particularly preferred embodiment, a padded area is provided at the crotch, and said padded area is obtained with at least two shaped pads associated with the garment, positioned symmetrically with respect to a middle sitting line.

[0018] The substantial advantage of the invention consists of the fact that the top part of the garment, thanks to the areas with differentiated breathability, also performs the function of underwear and, consequently, separate underwear is no longer necessary. The advantage for the sportsperson is therefore to wear a single garment even in the cold seasons, instead of two garments one on top of the other. The improvement in terms of skin-tightness and fit is substantial; the garment, as a whole, remains perfectly skin-tight on the cyclist, eliminating the aforementioned problem of creases due to the presence of two different garments (for example underwear plus jacket).

[0019] The garment according to the invention, basically, is able to simultaneously perform the function of a shell and of underwear, ensuring a much better fit compared to the ensemble of two different garments, still currently used.

[0020] The better fit implies a better technical performance of the garment, in remaining skin-tight on the cyclist's body and in following his movements, in particular pedalling, without forming potentially uncomfortable creases as the origin of rubbing against the skin. Moreover, the complete skin-tightness of the garment improves the aerodynamics and reduces the resistance to forward motion to the minimum possible value.

[0021] Further characteristics and advantages of the present invention shall become clearer from the following description of a preferred example embodiment thereof, given for indicating and not limiting purposes with reference to the attached drawings.

Brief description of the drawings

[0022]

Fig. 1 schematically represents a front view of a cycling outfit according to the present invention, and Fig. 2 represents a rear view of the garment of Fig. 1.

Detailed description of a preferred embodiment

[0023] With reference to the figures, an all-in-one sports garment, for cycling, is shown, which comprises a top part 1, with a jacket and underwear function and a bottom part 2, with trousers function.

[0024] The bottom part 2 of the garment is made from a suitable elasticised fabric, for example Lycra, preferably of greater consistency than the fabric used for the top

part 1, and essentially comprises leg portions 20, which constitute the trousers, and end portions 21 with an underfoot elastic strap 22.

[0025] The top part 1 essentially comprises:

- a portion 10 shaped like overalls or braces, which extends from the hips to the shoulders, covering the central part of the torso and of the back, and it is preferably equipped with microfibre mesh;
- two portions 11 extending between the waist and the area beneath the armpit, wrapping around the side part of the torso and of the back;
- a corresponding collar portion 12 of the garment;
- armpit portions 13;
- sleeve portions 14 and 15, respectively covering the inside and the back of the arm, joined along a seam 16;
- shoulder portions 17, advantageously equipped with padding made with inserts made from soft material, according to a *per se* known technique. At least some of the portions 10-17 are made with a higher breathability than the bottom trouser part 2, such as to allow the top part 1 of the garment to also perform the underwear function, suitable for direct contact with the skin.

[0026] In the crotch area (fig. 2) there are two pads 23 made from a soft material like expanded polyurethane, foam rubber, gel or similar. The pads are preferably shaped and arranged symmetrically with respect to the middle sitting line 24; they are associated with the garment through sewing, taping, coupling, heat-sealing, laser stitching, ultrasound stitching, gluing or similar, which are *per se* conventional.

[0027] Alternatively, there can be more than two shaped pads, preferably four, two front and two rear, arranged mirroring one another. Advantageously, at the inner side of the pads (which makes contact with the cyclist's skin), a processing is carried out selected from the group comprising scraping, raising or grinding, most preferably selecting grinding. Said processing obtains fluffing that makes said side soft and comfortable with an effect typical of "pile" fabric. This provision is advantageously used above all in the crotch area, which must withstand contact with the bicycle saddle.

[0028] With reference to fig. 2, areas 25 are also shown with differentiated elasticity with respect to the trousers portion 20; reference numeral 26 indicates rear sewing of the trousers in the leg area.

[0029] As an alternative to what has been illustrated, the garment can be made in a shorts version 20, suitable for intermediate temperatures (spring/autumn), possibly lightened in the top part 1.

Claims

1. Skin-tight sports garment for cycling, **characterised**

in that it comprises portions with differentiated breathability, and having substantially a top part (1) suitable for performing the function of underwear, and a bottom portion (2) with trousers function.

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2. Garment according to claim 1, wherein the differentiated breathability of respective portions of the garment itself is obtained by making said garment portions with different materials or with the same material having a different thickness and/or subjected to different processing. 10
3. Garment according to claim 1 or 2, wherein the top part (1) comprises portions (10-17) having greater breathability than said bottom trousers portion (2). 15
4. Garment according to claim 3, wherein portions with a lower breathability index are positioned in the bottom or shorts part, and at least partially in the top part, at the areas of the torso and arm most exposed to the outside air and that require greater thermal insulation. 20
5. Garment according to any one of the previous claims, **characterised by** portions having differentiated weight. 25
6. Garment according to any one of the previous claims, comprising at least one padded area at the crotch, wherein said padded area is obtained with at least two shaped pads (23) associated with the garment, positioned symmetrically with respect to a middle sitting line (24). 30

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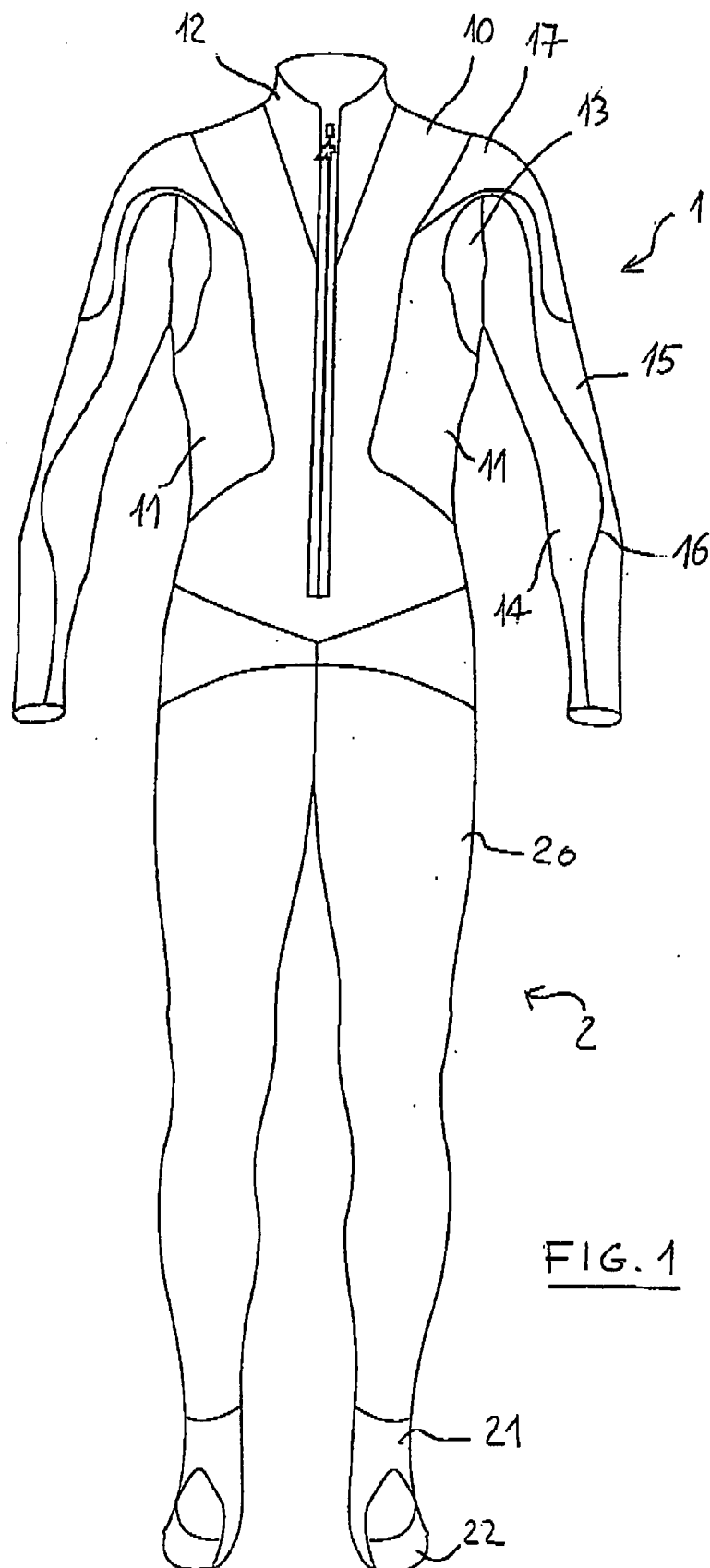


FIG. 1

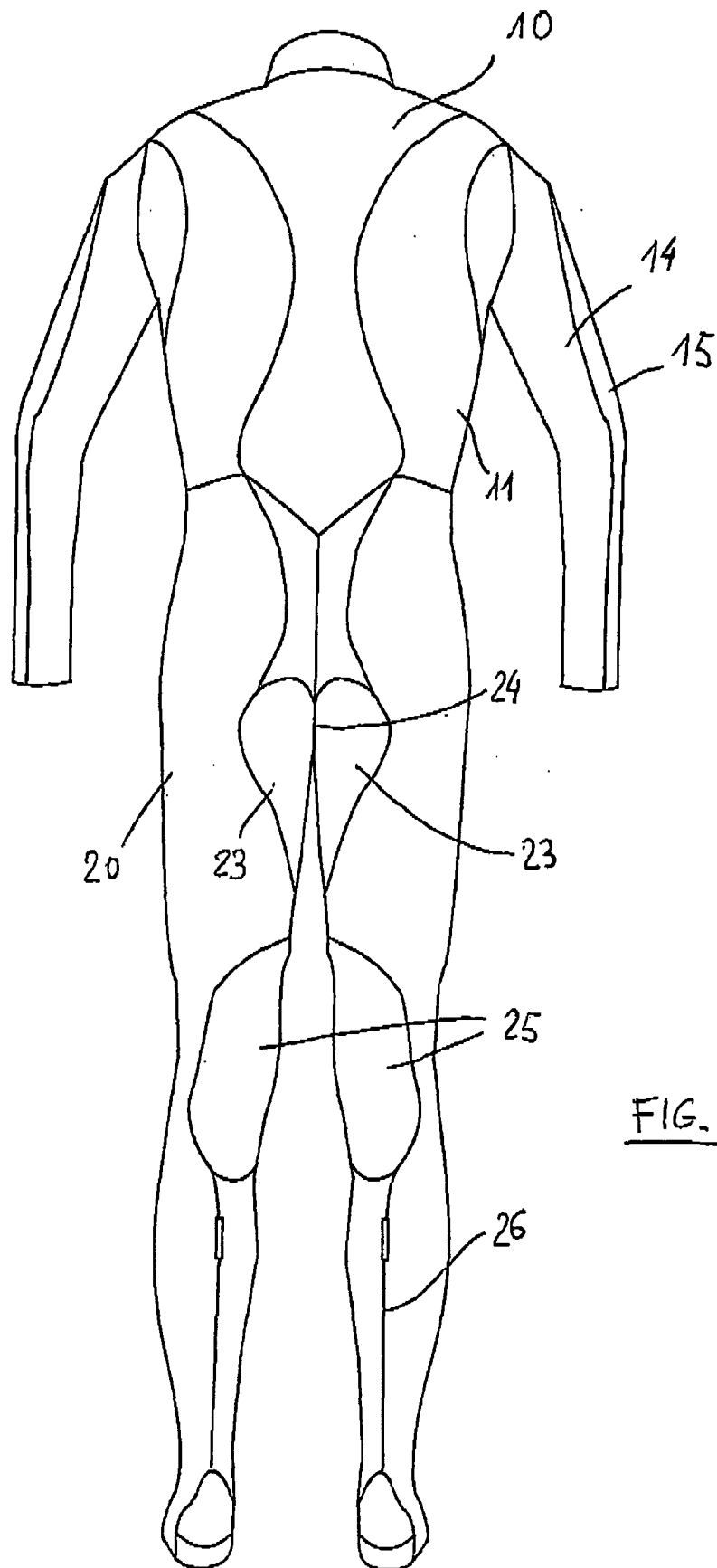


FIG. 2



European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 07 02 4731

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TECHNICAL FIELDS SEARCHED (IPC)					
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The present search report has been drawn up for all claims					
Place of search The Hague		Date of completion of the search 19 May 2008	Examiner D'Souza, Jennifer		
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**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 07 02 4731

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