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(54) **SPORTS GARMENT**

SPORTKLEIDUNGSSTÜCK

VÊTEMENT DE SPORT

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Description

Field of the invention

[0001] The invention relates to the field of sportswear preferably for cycling. The invention in particular relates to shorts of the type provided with upper braces designed to encircle the shoulders.

Prior art

[0002] Specialised cycling shorts are a known example of hi-tech articles which are designed to adhere very closely to the body so as to practically form a second skin. This close adherence is necessary to avoid discomfort to the cyclist during intense and prolonged use and to properly assist the pedalling movement.

[0003] Document IT UA20 164 354 A1 discloses a sports garment according to the preamble of claim 1.

[0004] The invention relates to the garments which are known as "bibs" which are essentially shorts provided with upper braces. Often these shorts are made internally with materials acting as "first layer" which are designed to make direct contact with the body and may comprise a seat pad in the seating area. Depending on the climate and temperature the cyclist may wear in addition another garment over the shorts, for example a jacket.

[0005] The shorts of the type hereafter considered having upper braces are popular with cyclists for their ability to maintain the correct fit without being too tight around the waist. However, it is clear that wearing or removing a garment of this type is more time-consuming compared to the conventional shorts without braces.

[0006] The invention addresses a need felt by the cyclists, which is the necessity to temporarily remove the shorts for fulfilling physiological needs particularly to urinate. During trainings or competitions, if necessary, the cyclist must be able to remove the shorts to expose the genital zone and subsequently to put the shorts back on as quickly as possible.

[0007] Clearly, this requirement is also felt for shorts used in other sports when is necessary to fulfil a physiological need as quickly as possible while minimising the impediments to resume the training session or the competition in the shortest possible time.

[0008] Pulling off the upper braces to lower the shorts can be uncomfortable and laborious especially when wearing a jacket over the garment, and it can be embarrassing for a woman. Therefore, it is necessary to design shorts that allow exposing the genital area without requiring to completely remove the garment.

[0009] For this purpose, it has been proposed garments having an opening in the rear zone, substantially at the height of the flanks, realised for example with one or two zip fasteners. Such design allows the shorts to be opened to expose the genital area and the rear area of the body. Unfortunately, this operation is still rather uncomfortable. Another drawback of this design is that the

zip fastener may be bothersome during normal use; the zip is a rigid element which reduces the elasticity of the garment and its ability to adapt to the body.

[0010] Another proposed solution consists in providing detachable braces. However, even this solution is also not entirely satisfactory: the operation of pulling on the braces may be uncomfortable especially if they retract underneath the jacket due to their elasticity.

[0011] Traditional shorts are subject to significant stretching when the shorts are worn and the releases one end of the braces causing a kind of "sling" effect so that the braces retract underneath the jacket and recovering it becomes a tedious operation. It can be understood that these drawbacks are particularly felt during a training session or in a cycling competition when the stop must be as quickly as possible. Furthermore, the operation of releasing and re-attaching the braces can be laborious and difficult to be performed within a single movement. It has also been proposed, a design having a front transverse band which retains the braces thus preventing them from sliding along the back. Unfortunately, said band rests against the cyclist's neck and can be uncomfortable.

[0012] Obviously, the aforementioned drawbacks arise especially in the case of female's shorts since women must be able to assume a squatting position to fulfil their physiological needs and the shorts must allow to do so. Consequently, in the case of female's shorts, it is even more desirable to be able to lower the shorts with a certain ease.

Summary of the invention

[0013] The object of the invention is to solve the aforementioned drawback and to provide a sports garment, of the type comprising shorts and an upper brace section arranged to expose the genital area without having to remove the entire garment. A further object is that this functionality should not adversely affect the performance of the garment and comfort during pedalling.

[0014] This object is achieved with a sports garment according to claim 1. The garment comprising shorts and an upper brace section, wherein the brace section comprises a bottom-rear portion which has a greater elongation resistance than the remaining portion of the brace section and which portion is fastened at the rear of the shorts by means of at least one releasable magnetic connector.

[0015] The magnetic connector allows quick release and quick re-engagement even with only one hand and without requiring to visualise the connector. In particular, the operation of re-engagement of the connector does not require force and particular attention is not required to align the parts since the engagement is aided and guided by the magnetic force. Therefore, the engaging operation can be easily performed even with one hand behind the back.

[0016] The magnetic connector can refer to a single

connector or a plurality of connectors. For example, the garment may comprise two braces each with a respective magnetic connector. The following references to a magnetic connector are to be understood as being applicable to two or more magnetic connectors depending on the embodiments.

[0017] The portion with a greater elongation resistance has a greater resistance to elastic deformability than the remaining portion of the brace section in at least one direction of elongation which can be defined as being vertical and longitudinal. Said vertical and longitudinal direction relates to the garment when worn and represents the main elongation direction of the brace part.

[0018] More precisely it can be understood that the portion with a greater resistance has a higher modulus of elasticity than the remaining brace portion, in at least said vertical and longitudinal elongated direction. During use, the portion with greater resistance has a lower elongation at parity of traction than the rest of the brace section.

[0019] The advantage of the present invention is essentially in the combination of the aforementioned technologies, i.e. the design of the rear brace portion having an improved resistance and the fastening to the shorts by means of a magnetic connector.

[0020] The bottom-rear portion of the brace with increased elongation resistance provides greater stability to the garment. It essentially works as a stabiliser between the two sides of the garment. This effect is particularly noticeable in the case of a cycling garment since it stabilises the garment during pedalling. Moreover, since said brace portion is relatively rigid, it tends to remain in position also when the magnetic connector is released therefore, it does not slip back inside the jacket as such the engaging operation is facilitated even without direct visibility. Moreover, it allows the magnetic connector (or connectors, if there are more than one) to be positioned behind the back in a position which does not prevent or disturb the pedalling during use.

[0021] The magnetic connector generally comprises an element which is fixed to the brace section and an element fixed to the shorts. Said two elements can be for example the male and female parts of the connector.

[0022] When the connector (or connectors, if more than one) is/are disengaged, the brace section is released from the rear of the shorts. The shorts can be easily lowered and the urogenital area exposed while still wearing the garment and without having to remove the braces. The magnetic connector is particularly advantageous during the re-engagement operation which is aided by the magnetic attraction force. Owing to the attraction force, the user can locate the correct position for engagement of the two elements of the connector even using only one hand and without visualising the connector which is located behind the back. In practice, it is sufficient to move the elements of the connector close to each other to perform re-engagement and re-wear of the garment correctly.

Preferred embodiments

[0023] The magnetic connector advantageously comprises a male element and a female element which engage together by means of magnetic attraction. For example, the magnetic connector may comprise a male button element and female element shaped as a seat for receiving the button.

[0024] Said at least one magnetic connector achieves the rear fastening between the upper brace section and the shorts. Preferably, the bottom-rear portion with an increased elongating resistance terminates in said at least one connector, i.e. it engages directly with the shorts.

[0025] The brace portion with greater elongation resistance may extend from a fastening zone to an upper end which preferably remains below the shoulders when the garment is worn. Preferably, said upper end of the increased resistance portion is located approximately halfway up the rear portion of the garment, such that it is approximately situated about halfway up the back when the garment is worn.

[0026] In a particularly preferred embodiment, the rear fastening of the brace section on the shorts is located below the waistline of the shorts. In other words, preferably, the brace is not fixed at the rear (for example sewn) to the upper edge of the shorts, but rather below said edge. This expedient improves the tensioning state of the shorts in use because the traction point of the brace is moved below the waistline. This fastening system also improves the adherence and comfort as well as the capacity of the garment to adapt to the pedalling movement.

[0027] The shorts may comprise an inner seat pad which is located in the sitting area, i.e. in the so-called crotch zone between the legs. The seat pad may be padded using technology known per se in the field of cycling shorts. Generally, the seat pad comprises a cover having one or more layers and at least a pair of right-hand and left-hand pads positioned in the seating area. When the shorts comprise such a seat pad, the strap section preferably is fastened to the shorts at or close to the rear edge of the seat pad.

[0028] The term "fastening" can denote a stitch or other fastening technique.

[0029] Preferably, the portion with increased resistance to elongation comprises two braces, each terminating with a respective magnetic connector for fastening to the shorts. For example, the elongation resistant portion comprises two braces or brace segments which are arranged to form essentially an inverted V.

[0030] Preferably the two braces are separate elements which extend from a front fastening point to a rear fastening point and are not connected by any transverse element along their extension between said fastening points.

[0031] In a preferred embodiment, the top section of the garment comprises a pair of braces with an intersection situated on the back and said portion with increased

elongation resistance extends below the intersection comprising the brace segments below the intersection.

[0032] In a preferred embodiment the top part comprises two braces; each brace comprises a first segment which extends from a front fastening on the garment to an intermediate joining point, and a second segment extending from said intermediate joining point to a rear fastening on the garment; said second segment having an improved elongation resistance than the first segment in the longitudinal direction.

[0033] Said intermediate joint can be an intersection zone of the braces located in the rear zone of the garment, for example situated about halfway up the back when the garment is worn. In this latter case, the braces form essentially an X-cross on the back, when the garment is worn, the portion with greater resistance comprising the two bottom legs of the X.

[0034] The garment facilitates to fulfil the personal needs without requiring to undress; it is advantageous both for men and in particular for women. For the aforementioned reasons the invention proves to be particularly advantageous for the production of a garment intended for female users. Therefore, the garment according to the invention is preferably a female's cycling garment.

Description of an embodiment

[0035] Fig. 1 shows a female cycling garment according to an embodiment of the invention.

[0036] The garment essentially comprises upper section 1 configured as a pair of braces and a bottom short section 2.

[0037] The braces form an intersection 3 approximately halfway up the back of the garment i.e. approximately mid-back. Each brace comprises a bottom-rear segment 4, located between the intersection 3 and the rear fastening point on the shorts 2, said segment having an increased elongation resistance than the remaining segment 5 forming the front and rear-upper part of the brace (above the intersection 3).

[0038] The brace segment 4 exhibits such increased resistance to elongation at least along its longitudinal direction. In use, the brace segment 4 therefore tends to undergo less elongation than the remaining brace segment 5.

[0039] The brace segments 4 diverge towards the fastening point such that the brace portion with increased resistance essentially has the form of an inverted V. In the example, since there is a brace of the X-type, it may be said that the portion with increased resistance forms essentially the two bottom legs of the X.

[0040] Each brace terminates with a quick engagement and quick release magnetic connector 6 for performing reversible fastening to the shorts 2. In greater detail a magnetic connector 6 comprises a first connector element fixed to the end of the respective brace and a second connector element fixed to a panel 7; said panel 7 is in turn fixed (for example sewn) to the shorts 2. The

said two connector elements are designed to magnetically engage, comprising opposite-sign magnets which attract each other.

[0041] It should be noted that the bottom-rear fastening of the braces, which can be released by means of the magnetic connectors 6, is advantageously located underneath the waistline 8 of the shorts 2. This location of the rear fastening, which moves the traction point of the braces below the waist, allows the garment to adapt in an optimum manner to the forwards bent-over position typically assumed by a cyclist when sat on the saddle. In the example, the fastening line is represented by a line 9 which is located substantially along at the rear edge of a seat pad provided in the seating area 10 of the garment. Even more advantageously, as shown in the figure, there are two right-hand and left-hand rear fastening points located along lines descending from the centre of the garment towards the sides thereof.

[0042] By disengaging the magnetic connectors 6 it is possible to open the garment and lower the shorts 2 as desired. In this situation, the garment maintains a correct position also owing to the greater rigidity of the portions 4. The operation of re-wearing the shorts and re-connecting the fastening system is facilitated by the magnetic connector.

Claims

1. Sports garment comprising shorts (2) and an upper brace section (1), **characterized in that** the brace section:
 - comprises a bottom-rear portion (4) which has a greater elongation resistance than the remaining portion of the brace section,
 - and **in that** the brace section is fastened at the rear to the shorts by means of at least one releasable magnetic connector (6).
2. Garment according to claim 1, wherein said at least one magnetic connector comprises a male element and a female element which engage together by means of magnetic attraction.
3. Garment according to claim 2, wherein the connector comprises a male element in the form of a button and female element configured as a seat for receiving the button.
4. Garment according to one of the previous claims, wherein the brace section (1) is fastened at the rear to the shorts in a rear fastening zone which is situated underneath the waistline (8) of the shorts.
5. Garment according to claim 4, wherein the shorts comprise an inner seat pad located in the seating area (10) and said rear fastening zone is located at

or close to the rear edge of the seat pad.

6. Garment according to any one of the preceding claims, wherein said portion with a greater elongation resistance comprises two braces or brace segments (4), each terminating with a releasable magnetic connector (6) for fastening to the shorts (2).
7. Garment according to claim 6, wherein the top section (1) forms a pair of braces with a rear intersection (3) and said portion with a greater elongation resistance extends underneath the intersection.
8. Garment according to claim 7, wherein the upper section forms an X in the rear part of the garment and said portion with a greater elongation resistance includes the two bottom legs of the X.
9. Garment according to one of the previous claims, wherein the garment is a female garment.
10. Garment according to any one of the previous claims, wherein the garment is a cycling garment.

Patentansprüche

1. Sportbekleidungsstück, umfassend eine kurze Hose (2) und einen oberen Hosenträgerteil (1), **dadurch gekennzeichnet, dass**
 der Hosenträgerteil einen unteren hinteren Abschnitt (4) aufweist, der einen größeren Dehnungswiderstand besitzt als der übrige Teil des Hosenträgerabschnitts, und dass der Hosenträgerabschnitt mittels wenigstens eines lösbaren magnetischen Verbinders (6) rückseitig an der Hose befestigt ist.
2. Bekleidungsstück nach Anspruch 1, wobei der wenigstens eine magnetische Verbinders ein männliches Element und ein weibliches Element umfasst, die durch magnetische Anziehungsmittel ineinandergreifen.
3. Bekleidungsstück nach Anspruch 2, wobei der Verbinders ein männliches Element in Form eines Knopfes und ein weibliches Element, das als Sitz zum Aufnehmen des Knopfes konfiguriert ist, umfasst.
4. Bekleidungsstück nach einem der vorhergehenden Ansprüche, wobei der Hosenträgerabschnitt (1) hinten an der kurzen Hose in einem hinteren Befestigungsbereich befestigt ist, der unterhalb der Taille (8) der kurzen Hose angeordnet ist.
5. Bekleidungsstück nach Anspruch 4, wobei die kurze Hose einen inneren Sitzpolster umfasst, das sich im

Sitzbereich (10) befindet, und wobei die hintere Befestigungszone an oder nahe der Hinterkante des Sitzpolsters angeordnet ist.

6. Bekleidungsstück nach einem der vorhergehenden Ansprüche, wobei der Abschnitt mit einem größeren Dehnungswiderstand zwei Hosenträger oder Hosenträgersegmente (4) umfasst, die jeweils mit einem lösbaren magnetischen Verbinders (6) zum Befestigen an der Hose (2) enden.
7. Bekleidungsstück nach Anspruch 6, wobei der obere Abschnitt (1) ein Paar von Hosenträgern mit einem hinteren Schnittpunkt (3) bildet und wobei sich der Abschnitt mit einem größeren Dehnungswiderstand unterhalb des Schnittpunkts erstreckt.
8. Bekleidungsstück nach Anspruch 7, wobei der obere Abschnitt im hinteren Teil des Kleidungsstücks ein X bildet und wobei der Abschnitt mit einem größeren Dehnungswiderstand die beiden unteren Schenkel des X umfasst.
9. Bekleidungsstück nach einem der vorhergehenden Ansprüche, wobei das Kleidungsstück ein Bekleidungsstück für Frauen ist.
10. Bekleidungsstück nach einem der vorhergehenden Ansprüche, wobei das Bekleidungsstück ein Fahrradbekleidungsstück ist.

Revendications

1. Vêtement de sport comprenant un short (2) et une section de bretelles supérieures (1), **caractérisé en ce que** la section de bretelles :
 comprend une section inférieure arrière (4) qui présente une résistance supérieure à l'élongation que la partie restante de la section de bretelles,
et en ce que la section de bretelles est fixée à l'arrière du short au moyen d'au moins un connecteur magnétique amovible (6).
2. Vêtement selon la revendication 1, dans lequel ledit au moins un connecteur magnétique comprend un élément mâle et un élément femelle qui s'engagent ensemble par attraction magnétique.
3. Vêtement selon la revendication 2, dans lequel le connecteur comprend un élément mâle sous la forme d'un bouton et un élément femelle configuré sous la forme d'un siège destiné à recevoir le bouton.
4. Vêtement selon une des revendications précédentes, dans lequel la section de bretelles (1) est fixée

à l'arrière du short dans une zone de fixation arrière qui est située sous la taille (8) du short.

5. Vêtement selon la revendication 4, dans lequel le short comprend un coussin de siège intérieur situé dans la zone de siège (10) et ladite zone de fixation arrière est située au niveau ou à proximité du bord arrière du coussin de siège. 5
6. Vêtement selon une quelconque des revendications précédentes, dans lequel ladite partie avec une résistance supérieure à l'élongation comprend deux bretelles ou segments de bretelles (4), chacune se terminant avec un connecteur magnétique amovible (6) pour fixation au short (2). 10 15
7. Vêtement selon la revendication 6, dans lequel la section supérieure (1) forme une paire de bretelles avec une intersection arrière (3) et ladite partie avec une résistance supérieure à l'élongation s'étend en-dessous de l'intersection. 20
8. Vêtement selon la revendication 7, dans lequel la section supérieure forme un X dans la partie arrière du vêtement et ladite partie avec une résistance supérieure à l'élongation comporte les deux jambes inférieures du X. 25
9. Vêtement selon une des revendications précédentes, dans lequel le vêtement est un vêtement féminin. 30
10. Vêtement selon une quelconque des revendications précédentes, dans lequel le vêtement est un vêtement de cycliste. 35

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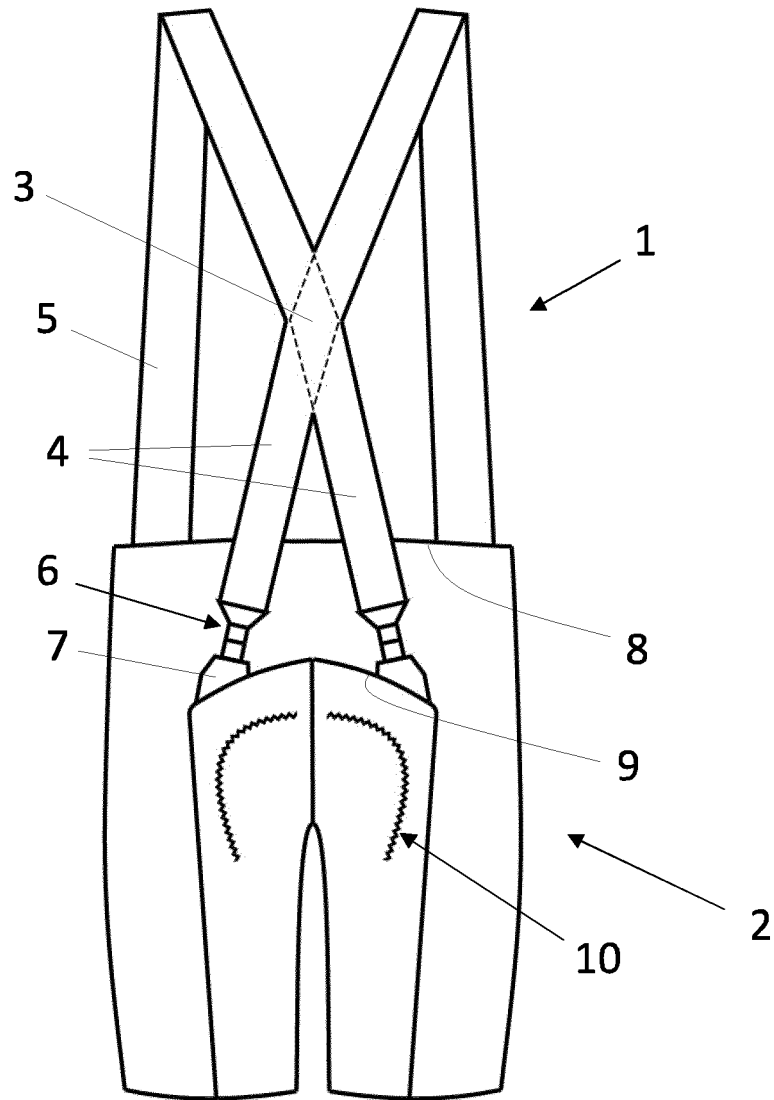


FIG. 1

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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