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(11) **EP 1 514 485 A1**

(12) **EUROPEAN PATENT APPLICATION**  
published in accordance with Art. 158(3) EPC

(43) Date of publication:  
**16.03.2005 Bulletin 2005/11**

(51) Int Cl.7: **A41D 7/00, A41D 13/02**

(21) Application number: **02735429.9**

(86) International application number:  
**PCT/ES2002/000236**

(22) Date of filing: **17.05.2002**

(87) International publication number:  
**WO 2003/096829 (27.11.2003 Gazette 2003/48)**

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

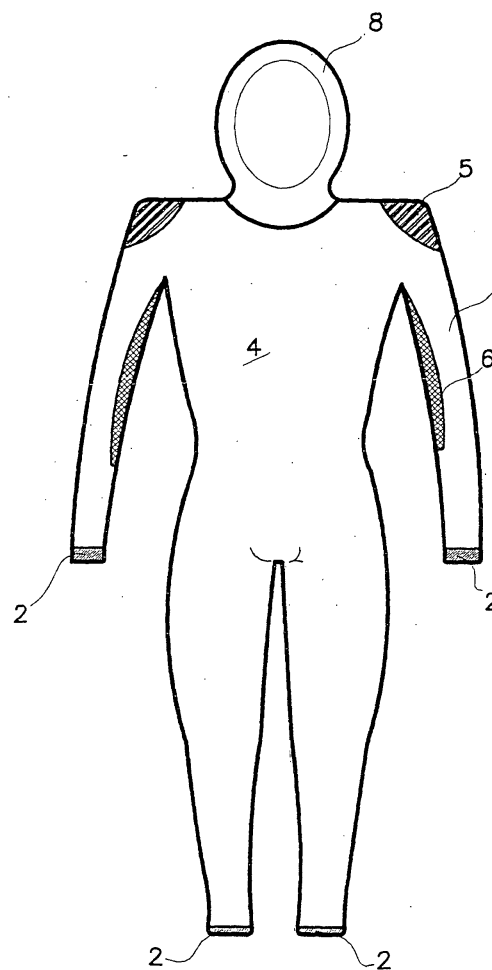
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(54) **SPORTS GARMENT**

(57) Made from a lightweight, elastic and adaptable fabric (1), that comprises at least one first strip (2) with a polymer or copolymer in contact with the user's skin, that covers up at least, part of the users body, at least a second strip (3) with a polymer or copolymer, in the area of the trunk or around the user's neck, in contact with at least one part of the sports garment (4), and at least one preformed portion (5) in at least one prominent or articulated area of the human body.



**Fig. 1**

## Description

**[0001]** Sports garment of the type that is made from a lightweight, elastic and adaptable fabric, comprising a first strip of a polymer or copolymer in contact with the user's skin, which covers up at least one part of the user's body, a second strip of a polymer or copolymer, in the trunk area or around the user's neck, in contact with a part of the sports garment, and a preformed portion in prominent or articulated parts of the human body.

## BACKGROUND OF THE INVENTION

**[0002]** European patent No. 1.110.464 is known in the state of the art, which protects a clothes garment, particularly swimsuits, that incorporate panels or pieces of elastic and extendible fabric, said panels or pieces being attached by seaming and shaped like certain active muscles in the human body, particularly in the abdominal and interbuttocks region.

**[0003]** In other words, a piece or panel of extendible, elastic material has been shaped specifically according to the particular outline of at least one of the so-called active muscles or the muscles that make a particular effort, in order to join said piece or panel of fabric to the remainder of the garment, by seaming, so that once the user has put on the garment in question, said piece or panel coincides with the active muscle that has shaped it.

**[0004]** Furthermore US patent No. 4.625.336 is known, in the name of NIKE INC., that particularly distinguishes tights or leggings for runners where, in particular, the so-called fragile muscles and tendons are protected by means of heat producing panels. At the same time, said panels are joined together with special seams.

## BRIEF DESCRIPTION OF THE PATENT OF INVENTION

**[0005]** This invention relates to a major development in the manufacturing sector, particularly with reference to sports garments.

**[0006]** At present, in those sports where a stopwatch comes into play, the reduction of one hundredth of a second can mean the difference between success or failure.

**[0007]** Therefore, the clothing worn by sportsmen, as well as the instruments and tools that they use, are developing over time, and they are made in new materials with more streamlined and lightweight shapes, to obtain greater records.

**[0008]** In this way, the swimming sector has been developing in an attempt to obtain the least possible friction between the human body and the swimming pool water. First of all, swimming caps were used to cover the hair and avoid it from causing friction. Subsequently, men shaved their body to prevent said friction, and lately they

also shave their head because swimming caps produce greater friction than a completely shaved head.

**[0009]** In a few years, a range of swimsuits have been developed from this basis, in an attempt to obtain the least possible friction and the greatest thrust, as indicated previously in European patent No. 1.110.464.

**[0010]** As for athletics, the first evidence of clothing development was when the garments were made as breathable as possible, and consequently shirts with straps and short trousers were selected.

**[0011]** Subsequently, in the Seoul Olympics in 1988, the Olympic champion Florence Griffith-Joyner appeared in the 200 m race dressed in a garment called a "catsuit", made from an ultra-lightweight material and which was distinguishable because it included a hood or cap that prevented her hair from causing friction with the air.

**[0012]** Currently, it is normal to see runners in speed races wearing garments inspired in this one.

**[0013]** In cycling, the Italian Francesco Moser revolutionised the world of cycling and cycling garments in his attempt at the world record in Mexico in 1984. Moser appeared with a totally aerodynamic bicycle, and completely skin-tight jersey, which reduced as much as possible the friction between his body and the air.

**[0014]** From then onwards, cycling jerseys were developed to obtain even lesser friction and maximum comfort, particularly in timed races.

**[0015]** This patent revolutionises the field of clothing for sportsmen and women who race against the clock, since with only small alterations, it can be used for different sports, thus economising the manufacturing cost of these sports garments.

**[0016]** The aim was to achieve maximum comfort for the sportsman or sportswoman, by reducing as much as possible the friction between the garment and either the air or water.

**[0017]** This garment does not include a zipper, which greatly reduces friction as well as the discomfort that said zipper causes to the sportsmen.

**[0018]** Furthermore, most of the seams have been omitted, and replaced with preformed portions, thus achieving a double effect; preventing friction and increasing comfort.

**[0019]** The fabrics are very lightweight and do not have any channels and therefore they are not noticeable, thus creating the effect of "a second skin".

**[0020]** At the same time, a pleat has been formed in the interbuttocks area whereby said fabric can adapt to the sportsman's shape, adhering to their figure and preventing friction.

**[0021]** A series of strips have been produced with a polymer or copolymer, in contact with the skin or in contact with the clothes garment proper, which prevent air or water from entering the garment.

**[0022]** Therefore, a very comfortable and practical garment has been obtained, which offers very little resistance to the elements (water or air) the sportsman

strives to overcome.

## BRIEF DESCRIPTION OF THE DRAWINGS

**[0023]** In order to facilitate understanding, this invention includes seven pages of drawings in which two practical embodiments are illustrated, which are provided as a non-limiting example of the scope of this invention.

- Figure 1 is a front view of the sports garment, in the one piece version,
- Figure 2 is a rear view of Figure 1,
- Figure 3 is a front view of the garment in the two parts version,
- Figure 4 is a front view of Figure 3, particularly the top part,
- Figure 5 is a front view of Figure 3, particularly the lower part,
- Figure 6 is a rear view of Figure 3, particularly the top part,
- Figure 7 is a rear view of Figure 3, particularly the lower part.

## PREFERRED EMBODIMENT OF THE PATENT APPLICATION

**[0024]** Therefore, the above-mentioned figures illustrate a lightweight, elastic and adaptable fabric 1, a first strip 2 of a polymer or copolymer that is in contact with the user's skin, a second strip 3 of a polymer or copolymer, the sports garment 4, the preformed portions 5 in at least one prominent or articulated area of the human body, a thrust area 6 provided with an area of knitting having a specific knot, a pleat 7 and a head covering element or swimming cap 8 made according to the preformed portion technique.

**[0025]** This particular embodiment explains the case of a swimsuit, although this invention could also be applied to other sports garments, for example, to a cyclist's or athlete's jersey.

**[0026]** In the case of the complete swimsuit (Figures 1 and 2), the swimmer steps into the swimsuit 4 through the opening at the back, which is covered by the second strip 3.

**[0027]** Once the swimmer has put on the garment 4, he/she finds that on his/her prominent body parts or articulations, or at least in some of them a preformed portion 5 has been provided to avoid seams and the accumulation of air or water, and to give the garment shape.

**[0028]** Also at the ends of the swimsuit, there are cuffs and turn ups, and the use of a polymer or copolymer strip 2, for example, silicone, has been envisaged to stop water from entering the swimsuit 4.

**[0029]** The strip 3, on the rear of the swimsuit, made in or with a polymer or copolymer, for example adhesive polyurethane lines, close the opening so that the swimsuit can be worn, which stops the water from entering,

thus obtaining the above-mentioned "second skin" effect. Said adhesive polyurethane lines can also be used in the strips 2, instead of the silicone.

**[0030]** The preformed portions 5 allow greater adaptability, at the same time as they prevent air pockets and spaces forming where water could circulate.

**[0031]** The pleat in the interbuttocks area favours the garment's adaptability to the different shaped interbuttocks and back of the swimmers, by ensuring that the sportsman feels comfortable at all times, while the garment adheres sufficiently tightly to the sportsman's body, without projections or elements that may increase friction in the water. At the same time, seams and zippers which are uncomfortable for the swimmer are avoided.

**[0032]** Also, a covering element or swimming cap 8 has been envisaged, that is made almost completely with the preformed portion technique, and which is integral to the swimsuit 4, and a further embodiment has been envisaged wherein the swimming cap 8 is independent, in which case some strips 3 must be fitted around the end thereof, and once said swimming cap 8 has been put on, said strips 3 would be positioned on top of the swimsuit 4, to prevent water from entering the swimming cap 8.

**[0033]** The swimsuit 4 is also provided with a thrust area 6, in this particular embodiment, in the form of an area of knitting having a specific knot, although it could be another material. Said area will vary depending on the swimming style in which the swimmer specialises, in other words, these thrust areas would not be the same if the swimmer specialised in crawl, breaststroke, butterfly or backstroke, since the thrust areas vary according to the swimming style used.

**[0034]** It has been envisaged to provide a special area particularly intended to allow the fabric to breathe (not illustrated in the drawings), when the user is required to swim in the water for a long time, such as for example, during the triathlon.

**[0035]** Figures 3 to 7 correspond to the embodiment of said swimsuit 4 in two parts 4a and 4b.

**[0036]** Figures 4 and 6 correspond to the top half of the swimsuit 4a, comprising the strips 2 made from a polymer or copolymer in contact with the user's skin, the strip 3 made from a polymer or copolymer that wraps completely around the swimsuit 4, the preformed portions 5, the thrust area 6 with an area of knitting having a specific knot 6, and a covering element or swimming cap 8 made according to the preformed portion technique.

**[0037]** The part 4b corresponds to the lower part and includes trousers, with a dungarees and straps. Furthermore, as in earlier embodiments, it comprises one or some strips of a polymer or copolymer that is in contact with the user's skin, where it is particularly important that these strips be positioned in the area of the dungaree straps. Also the preformed portions 5 and the pleat 7 will be used to provide greater garment adaptability.

**[0038]** Therefore, once the lower part 4b of the swimsuit has been put on, the top part 4a is put on over the head, and via the straps 3, provided on the top part 4a of the swimsuit, said swimsuit is attached definitely, forming a whole.

**[0039]** Certain areas have been treated with an elastomer so as to increase speed in the water.

**[0040]** This patent of invention describes a new sports garment. The examples mentioned herein are not limitations of this invention, which consequently can have different applications and/or adaptations, all within the scope of the following claims.

## Claims

1. Sports garment of the type made from a lightweight, elastic and adaptable fabric (1), **characterised in that** it comprises:

- at least one first strip (2) with a polymer or copolymer in contact with the user's skin, that covers up at least part of the user's body,
- at least a second strip (3) with a polymer or copolymer, in the area of the trunk or around the user's neck, in contact with at least one part of the sports garment (4), and
- at least one preformed portion (5) in at least one prominent or articulated area of the human body.

2. Sports garment according to claim 1, **characterised in that** it incorporates at least one thrust area (6).

3. Sports garment according to claim 2, **characterised in that** the said thrust area (6) is an area of knitting having a specific knot.

4. Sports garment according to claim 1 or 2 or 3, **characterised in that** it incorporates at least one pleat (7) in the interbuttocks area.

5. Garment according to at least one of the preceding claims, **characterised in that** it comprises an element (8) that covers the head and neck, manufactured according to the preformed portion technique.

6. Garment according to the preceding claim, **characterised in that** the said covering element (8) is integral to the garment (4).

7. Garment according to some of the preceding claims, **characterised in that** it is made up of one single piece.

8. Garment according to some of the preceding claims, **characterised in that** it is made up of two

pieces (4a and 4b).

9. Garment according to some of the preceding claims, **characterised in that** certain areas are treated with an elastomer.

10. Garment according to some of the preceding claims, **characterised in that** it includes at least one area that allows the human body to breathe.

11. Garment according to some of the preceding claims from 1 to 10, **characterised in that** it consists of a swimsuit.

12. Garment according to some of the claims from 1 to 10, **characterised in that** it consists of an athletics jersey.

13. Garment according to some of the claims from 1 to 10, **characterised in that** it consists of a cyclist's jersey.

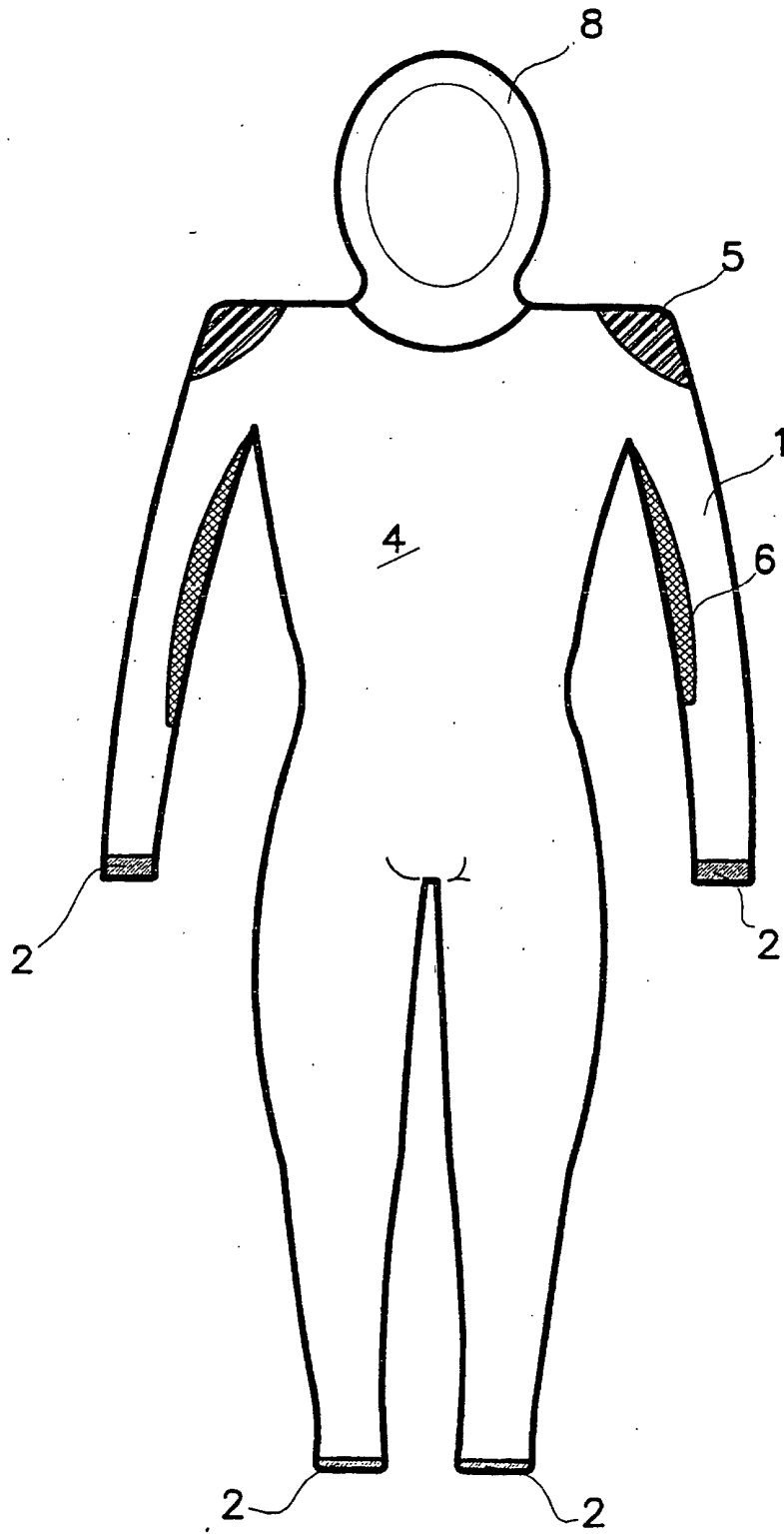


Fig. 1

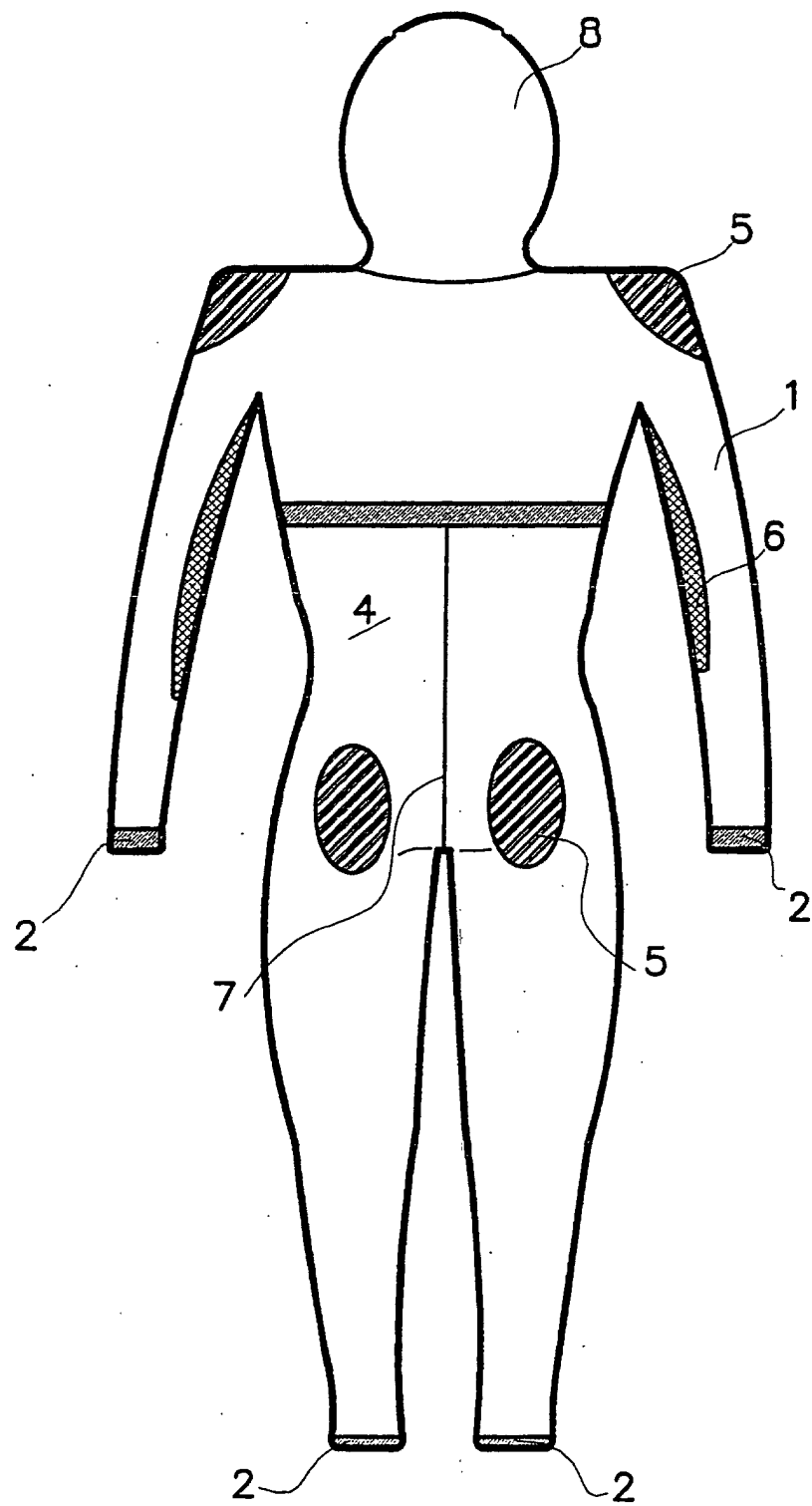


Fig. 2

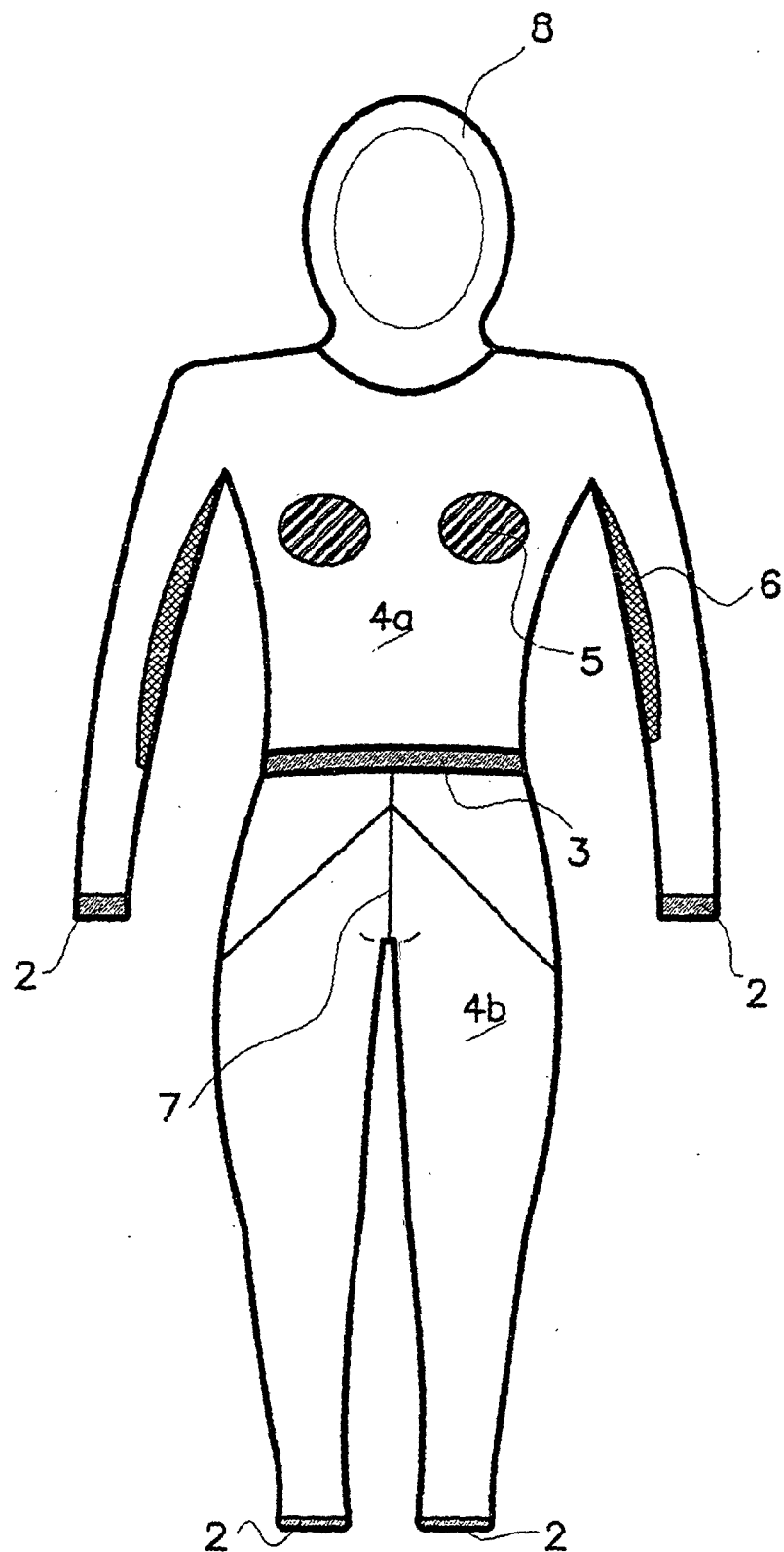


Fig. 3

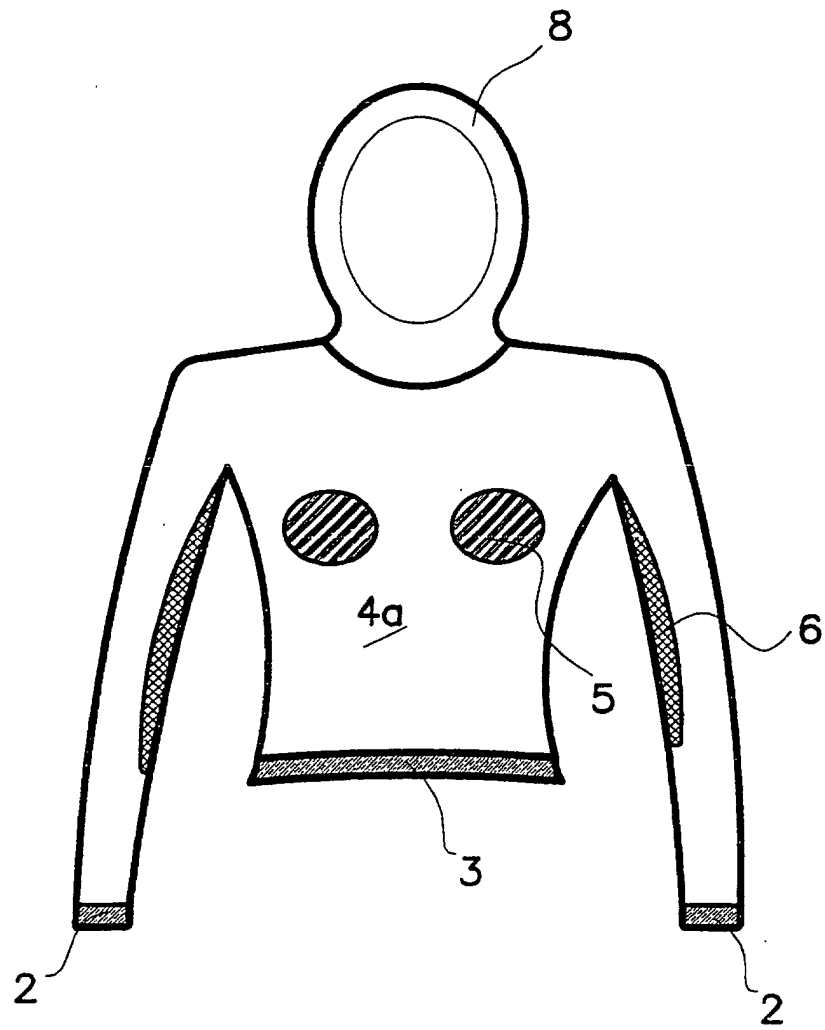


Fig. 4



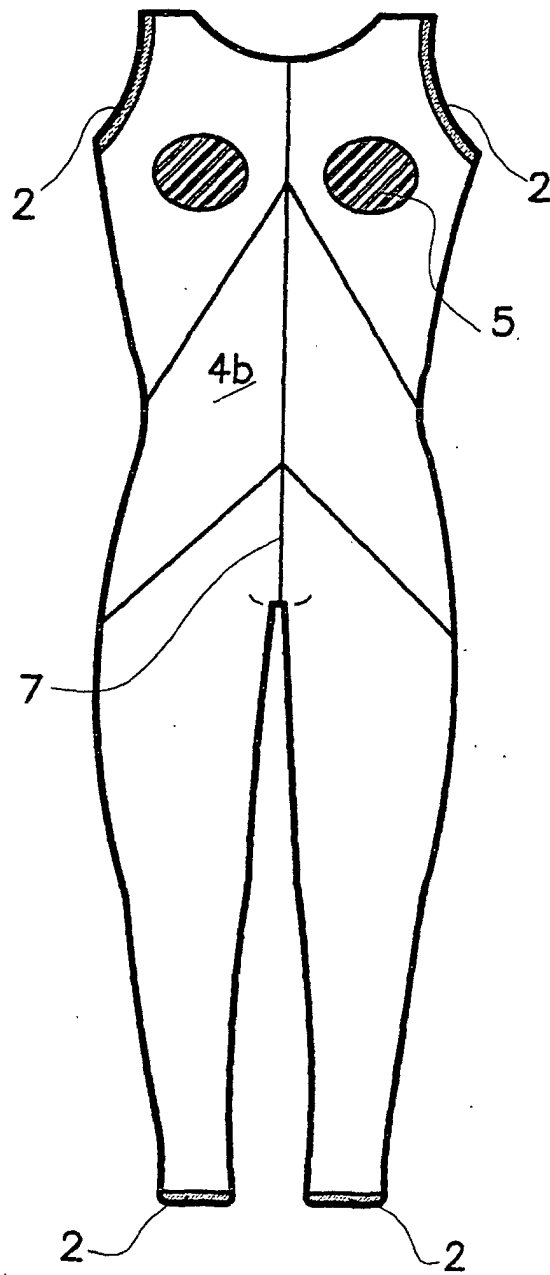


Fig. 5

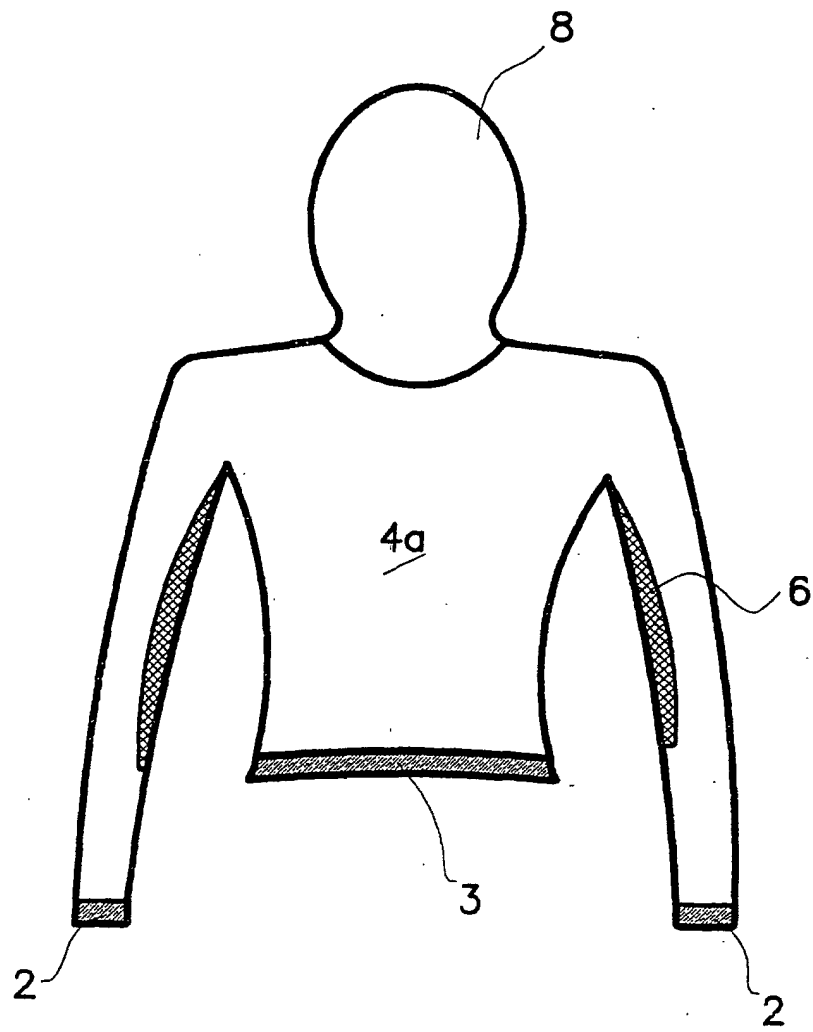


Fig. 6

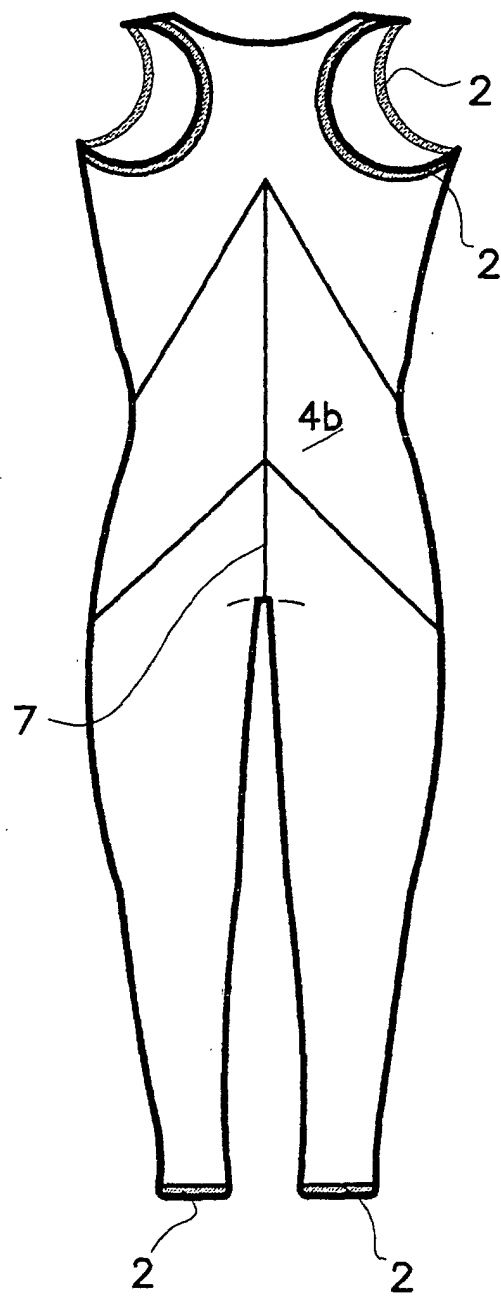


Fig. 7

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/ES 02/00236

A. CLASSIFICATION OF SUBJECT MATTER		
IPC 7 A41D 7/00, 13/02		
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)		
IPC 7 A41D		
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)		
OEPM PAT, EPO DOC, WPI, PAJ		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	ES 2051413 T (DESCENTE LTD.) 16.06.1994; <b>The whole document.</b>	1-5,7,9-13
Y	EP 1127500 A (ADIDAS INTERNACIONAL B.V.) 29.08.2001 <b>The whole document.</b>	1-5,7,9-13
A	EP 1110464 A (SPEEDO INTERNACIONAL LTD.) 27.06.2001; <b>Column 4-10, figures.</b>	1-4,7-9,11
A	US 5282277 A (SHOJI ONOZAWA) 01.02.1994. <b>The whole document.</b>	1-4,7,9,10,12,13
A	GB 2105573 A (SCAN-DIVING SYSTEMS LTD) 30.03.1983. <b>The whole document.</b>	1,5-7,9
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.		
* Special categories of cited documents: "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) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "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 "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 "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 such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search		Date of mailing of the international search report
05 February 2003 (05. 02. 03)		20 February 2003 (20. 02. 03)
Name and mailing address of the ISA/ E. P. O.		Authorized officer
Facsimile No.		Telephone No.

Form PCT/ISA/210 (second sheet) (July 1992)

**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International Application No

PCT/ES 02/00236

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