(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 2 967 390 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the grant of the patent:
25.04.2018 Bulletin 2018/17

(21) Application number: **14774013.8**

(22) Date of filing: **07.03.2014**

(51) Int Cl.:
A61B 5/0408 *(2006.01)* ***A41D 13/12*** *(2006.01)*
A61B 5/00 *(2006.01)*

(86) International application number:
PCT/US2014/021887

(87) International publication number:
WO 2014/159081 (02.10.2014 Gazette 2014/40)

(54) TELEMETRICALLY ENHANCED ATHLETIC APPAREL

TELEMETRISCH OPTIMIERTE SPORTBEKLEIDUNG

HABILLEMENT ATHLÉTIQUE AVEC AMÉLIORATION TÉLÉMÉTRIQUE

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

(30) Priority: **14.03.2013 US 201313828893**

(43) Date of publication of application:
20.01.2016 Bulletin 2016/03

(73) Proprietor: **NIKE Innovate C.V.**
Beaverton, OR 97005-6453 (US)

(72) Inventor: **NORDSTROM, Matthew D.**
Beaverton, Oregon 97005-6453 (US)

(74) Representative: **Tombling, Adrian George**
Withers & Rogers LLP
4 More London Riverside
London SE1 2AU (GB)

(56) References cited:
EP-A2- 2 505 090
US-A1- 2004 138 546
US-A1- 2007 285 868
US-A1- 2010 185 398
US-A1- 2010 234 715
US-A1- 2012 165 645
US-A1- 2012 238 910

EP 2 967 390 B1

Printed by Jouve, 75001 PARIS (FR)

Description

FIELD OF THE INVENTION

[0001] The present invention relates to athletic apparel. More particularly, the present invention relates to articles of clothing capable of receiving telemetry devices and exercise telemetry kits.

BACKGROUND OF THE INVENTION

[0002] In the modern information age, both professional and amateur athletes are increasingly interested in quantifying their performance. Various existing devices such as GPS-enabled watches or microchips implanted in shoes measure stride, distance traveled, pace, and other aspects of a user's performance. Other devices measure physiological aspects of a user's performance, such as heart rate. Conventional systems for gathering user performance data, however, are often inconvenient, cumbersome, or difficult to implement. For example, heart rate monitors provide a user with heart rate information, but the user must endure the inconvenience and discomfort of wearing a chest strap and monitoring device.

[0003] US 2012/01 65645 discloses an article of clothing to which a monitoring device can be attached. US 2010/0185398 discloses a system for monitoring biometric data of an athlete participating in a sporting event comprises at least one biometric sensor carried by the athlete. The sensor senses biometric data for the athlete and delivers the data to a transmitter located on the athlete. The transmitter automatically transmits the biometric data to a wireless telephony network as the athlete participates in the sporting event. There is no disclosure of an article of clothing having a retaining ring for receiving a telemetry device wherein the retaining ring and the telemetry device are located on opposite sides of a fabric surface forming part of the article of clothing.

SUMMARY OF THE INVENTION

[0004] This Summary is provided to introduce a selection of concepts in a simplified form that are further described below in the Detailed Description. This Summary is not intended to identify key features or essential features of the claimed subject matter, nor is it intended to be used as an aid in determining the scope of the claimed subject matter.

[0005] An article of clothing is provided as defined in claims 1 and 2.

BRIEF DESCRIPTION OF THE DRAWING

[0006] The present invention is described in detail below with reference to the attached drawing figures, wherein:

FIG. 1 is a perspective view of the back of an exemplary telemetrically enhanced shirt in accordance with an example of the present invention;

FIG. 2 is a perspective view of the front of an exemplary telemetrically enhanced shirt in accordance with an example of the present invention;

FIG. 3A is a side perspective view of a telemetry device receivable by an exemplary article of clothing in accordance with an example of the present invention;

FIG. 3B is a perspective view of the telemetry device of FIG. 3B;

FIG. 4 is a side perspective view of a telemetry device receivable by an exemplary article of clothing in accordance with an example of the present invention, the telemetry device having a lip;

FIG. 5 is a perspective view of a telemetry device receivable by an exemplary article of clothing in accordance with an example of the present invention, the telemetry device being narrower at one end than the other;

FIG. 6 is a perspective view of an exemplary retaining ring adhered to an exemplary fabric layer in accordance with an example of the present invention;

FIG. 7A is a cross-sectional view of an exemplary retaining ring and fabric layer in accordance with an example of the present invention;

FIG. 7B is a cross-sectional view of the exemplary retaining ring and fabric layer of FIG. 7A in which the exemplary telemetry device shown in FIG. 3 has been partially inserted;

FIG. 7C is a cross-sectional view of the exemplary retaining ring and fabric layer of FIG. 7A in which the exemplary telemetry device shown in FIG. 3 is received;

FIG. 8A is a cross-sectional view of an exemplary retaining ring and fabric layer in accordance with an example of the present invention;

FIG. 8B is a cross-sectional view of the exemplary retaining ring and fabric layer of FIG. 8A in which the exemplary telemetry device shown in FIG. 4 has been partially inserted;

FIG. 8C is a cross-sectional view of the exemplary retaining ring and fabric layer of FIG. 8A in which the exemplary telemetry device shown in FIG. 4 is received;

FIG. 9A is a cross-sectional view of an exemplary retaining ring and fabric layer in accordance with an example of the present invention;

FIG. 9B is a cross-sectional view of the exemplary retaining ring and fabric layer of FIG. 9A in which the exemplary telemetry device shown in FIG. 3 has been partially inserted;

FIG. 9C is a cross-sectional view of the exemplary retaining ring and fabric layer of FIG. 9A in which the exemplary telemetry device shown in FIG. 3 is received;

FIG. 10A is a cross-sectional view of an exemplary

retaining ring and fabric layer;

FIG. 10B is a cross-sectional view of the exemplary retaining ring and fabric layer of FIG. 10A in which the exemplary telemetry device shown in FIG. 3 has been partially inserted;

FIG. 10C is a cross-sectional view of the exemplary retaining ring and fabric layer of FIG. 10A in which the exemplary telemetry device shown in FIG. 3 is received;

FIG. 11 is a side perspective view of a telemetry device receivable by an exemplary article of clothing in accordance with an example of the present invention, the telemetry device having a protrusion for ease of insertion and alignment; and

FIG. 12 is an exaggerated plan view of an exemplary thermal applique including a retaining ring and electrically conductive traces.

DETAILED DESCRIPTION OF THE INVENTION

[0007] Conventional systems for gathering user performance data are often inconvenient and cumbersome. The present invention provides articles of clothing capable of receiving a telemetry device, the articles of clothing allowing convenient gathering and storage and/or transmission of user performance data. A retaining ring receives and secures the telemetry device to the article of clothing. Sensors in contact with the user's skin and traces extending between the sensors and the retaining ring are integrated into the article of clothing to provide the received telemetry device with physiological user performance data. The traces are brought into electrical contact with the telemetry device when the device is received in the retaining ring. Data can be stored locally in the telemetry device while the user is exercising and can be subsequently uploaded for analysis. Data can also be transmitted wirelessly from the telemetry device to a second device for storage and/or analysis. Examples of the present invention are illustrated in FIGS. 1-12.

[0008] FIG. 1 illustrates a shirt 100. Shirt 100 is an article of clothing capable of receiving a telemetry device. FIG. 1 illustrates front portion 102 of shirt 100. Shirt 100 comprises a fabric layer 104. Fabric layer 104 has an inside surface (not shown) and an outside surface (visible in FIG. 1). The inside surface faces a user's body when the shirt is worn by the user, and the outside surface faces away from the user's body when the shirt is worn by the user. Sensors 106 and 108 are attached to the inside surface of fabric layer 104 such that when shirt 100 is worn by a user, sensors 106 and 108 are in contact with the user's skin. Sensors 106 and 108 are capable of measuring physiological parameters of the user. In one example, sensors 106 and 108 are capable of measuring heart rate. Sensors 106 and 108 can be any of a number of known sensor types. Shirt 100 may be designed to be form fitting such that sensors 106 and 108 remain in contact with the user's skin while shirt 100 is worn.

[0009] Two electrically conductive traces 110 and 112 extend along fabric layer 104. Trace 110 is connected at a first end to sensor 106, and trace 112 is connected at a first end to sensor 108. As shown in FIG. 1 using dotted lines, traces 110 and 112 extend along the inside surface of fabric layer 104. In some examples, either or both of traces 110 and 112 cross through from the inside surface of fabric layer 104 to the outside surface of fabric layer 104 and extend along the outside surface of fabric layer 104. In other examples, all or some traces may be replaced with radio frequency or other wireless signal transmission technologies.

[0010] FIG. 2 illustrates back portion 114 of shirt 100. Electrically conductive traces 110 and 112 extend along the inside surface of fabric layer 104 from sensors 106 and 108 in FIG. 1, around to back portion 114, and up to elastic retaining ring 116 in FIG. 2. Retaining ring 116, which may also be referred to as a bezel, may be adhered to fabric layer 104 near a second end of electrically conductive traces 110 and 112. The shape of retaining ring 116 may be selected to correspond to a telemetry device, and need not be circular in all examples of apparel in accordance with the present invention. Retaining ring 116 is capable of receiving a telemetry device and forming a compression connection between the perimeter of the telemetry device and retaining ring 116 such that when the telemetry device is received in retaining ring 116, the second ends of electrically conductive traces 110 and 112 are in electrical contact with the telemetry device. Thus, a runner, for example, can simply pull on shirt 100, insert a telemetry device into retaining ring 116, and conveniently begin her run while user performance data, such as physiological data, is measured by sensors 106 and 108 and transmitted through traces 110 and 112 to a received telemetry device.

[0011] Although a shirt is illustrated in FIGS. 1 and 2, examples of the invention include a variety of articles of clothing, including clothing designed for specifically for men or women. Additionally, it should be understood that the location of sensors 106 and 108 and traces 110 and 112 in FIG. 1 are exemplary. A variety of sensor placements and trace routing patterns are contemplated. In one example, a women's shirt is designed such that sensors and/or traces are placed to accommodate a sports bra or other support garment underneath the shirt. Elastic retaining ring 116 can be adhered at a variety of locations on shirt 100, and any number of sensors and traces are contemplated. In the example shown in FIG. 2, retaining ring 116 is adhered to fabric layer 104 in an area corresponding to the upper back between a user's shoulder blades. In some examples, retaining ring 116 is adhered to the outside surface of fabric layer 104 as shown in FIG. 2. Any other location may be selected for a retaining ring on a garment in accordance with the present invention. In other examples, retaining ring 116 is adhered to the inside surface of fabric layer 104.

[0012] FIGS. 3A-5 illustrate exemplary telemetry devices that can be inserted into an article of clothing in

accordance with the present invention. FIG. 3A is a side perspective view of telemetry device 300 receivable by an exemplary article of clothing in accordance with an example of the present invention. FIG. 3B shows an additional perspective view of telemetry device 300 of FIG. 3A. Telemetry device 300 has a substantially circular footprint. Other telemetry devices having different footprints are contemplated.

[0013] FIG. 4 is a side perspective view of a telemetry device 400 receivable by an exemplary article of clothing in accordance with an example of the present invention. Telemetry device 400 may have a lip 402 around the perimeter of device 400. Lip 402 acts to provide additional force to secure telemetry device 400 in a retaining ring and to "snap" the device 400 into place, as is illustrated below in FIGS. 8A-8C. Lip 402 may also be referred to as a flange or other terms. Lip 402 may be constructed of the same or different material than the body of telemetry device 400. The thickness and width of lip 402 may vary based upon the properties of the materials used and/or the stresses expected to be applied to telemetry device 400.

[0014] FIG. 5 is a perspective view of telemetry device 500. In contrast to telemetry device 300 of FIGS. 3A and 3B, telemetry device 500 has a footprint resembling a simplified ice cream cone, with a rounded triangular portion combined with a semi-circle. Such a footprint allows a user to immediately identify the orientation of device 500 visually and/or tactilely, because one end is narrower than the other. The example shape illustrated in FIG. 5 comprises only one example of a large number of potential shapes of a telemetry device that may provide an inherent alignment indication. Telemetry devices may have other geometries that allow quick identification of orientation. The user is then able to insert telemetry device 500 in the proper orientation into a retaining ring such as retaining ring 116 in FIG. 2 to ensure electrical contact is made between device 500 and electrically conductive traces such as traces 110 and 112 in FIGS. 1 and 2.

[0015] As used in this application, a "telemetry device" is a device capable of storing and/or relaying user performance data including physiological data such as heart rate and non-physiological data such as pace, time, and distance traveled. A telemetry device may simply store data until a user decides to upload the data to a computing device. Alternatively or additionally, a telemetry device may include a wireless transmitter for transmitting received data to a second device or external storage unit. A telemetry device may additionally make measurements, for example by containing a GPS receiver and measuring distance traveled. In one example, a telemetry device receivable by an article of clothing in accordance with the present invention includes at least one electrical contact. The at least one electrical contact makes an electrical connection with at least one electrically conductive trace in the article of clothing, thereby allowing the telemetry device to receive signals from sensors connected to the at least one trace. "Telemetrically enhanced" is used in this application to describe an article of clothing with the ability to receive a telemetry device and bring the received device into electrical contact with one or more sensors. Telemetry devices in accordance with the present invention may also have various displays, indicators, lights, etc., that may be used to indicate the status of the device, such as on/off, or to output information gathered by the device.

[0016] FIG. 6 is a perspective view of an exemplary retaining ring 600 adhered to an exemplary fabric layer 602. Retaining ring 600 may be elastic, thereby permitting a telemetry device to be easily inserted into and secured by retaining ring 600. In some examples, retaining ring 600 is substantially made of silicone, and it is the elastic properties of silicone that allow easy insertion and securing of a telemetry device. Alternatively/additionally, the textile used in constructing apparel in accordance with the present invention may have sufficient elasticity to permit a telemetry device to be inserted into even a relatively rigid retaining ring. The size of a retaining ring may vary based, for example, on its material and location. For example, a silicone retaining ring may be approximately one sixteenth of an inch thick.

[0017] FIGS. 7A-7C, 8A-8C, 9A-9C, and 10A-10C illustrate in detail examples of how a telemetry device is inserted into retaining rings adhered to either the inside surface or outside surface of a fabric layer. Similarly, a telemetry device may be inserted from either the inside or outside of a garment, regardless as to which side of the fabric layer a retaining ring is located. FIGS. 7A-7C illustrate an example in which elastic retaining ring 702 is adhered to the interior surface 704 of fabric layer 706 and electrically conductive trace ends 708 and 710 are on the outside surface 712 of fabric layer 706. Trace ends 708 and 710 are inside the area bounded by retaining ring 702. The traces for which ends 708 and 710 are shown are connected at their other ends to sensors attached to inside surface 704. Thus, at some point in the path from the sensors to retaining ring 702, the traces were brought through the article of clothing to outside surface 712 of fabric layer 704. In some examples, the traces are brought through fabric layer 704 to one surface or the other as needed for the particular design. The traces may be brought through fabric layer 704 by a variety of methods, including integrating the traces in the weaving or knitting of fabric layer 704 in such a way that the traces switch from one surface to the other through the weave or knit of fabric layer 704; running the traces through a hole in fabric layer 704; or through other methods.

[0018] FIG. 7B illustrates insertion of a telemetry device 714 into retaining ring 702. In this example, telemetry device 714 is inserted from outside surface 712 of fabric layer 704 because this will make possible an electrical connection between trace ends 708 and 710, which are on outside surface 712. FIG. C illustrates telemetry device 714 being received in retaining ring 702. When te-

lemetry device 714 is received in retaining ring 702, telemetry device 714 is in contact with outside surface 712 of fabric layer 704 and a portion of fabric layer 704 is between retaining ring 702 and received telemetry device 714. Thus, while a compression connection is formed between the perimeter of telemetry device 714 and retaining ring 702 in this example, telemetry device 714 is not in direct contact with retaining ring 702. In the examples shown in this application, the electrical contact areas of telemetry device 714 are not shown. A variety of placements and sizes of contact areas are contemplated.

[0019] Thus, in the example illustrated in FIGS. 7A-7C, retaining ring 702 is on the inside of a user's article of clothing, and telemetry device 714 is inserted from the outside of the user's clothing. In addition to providing a mechanical connection that secures telemetry device 714 to the article of clothing, the compression connection between the perimeter of telemetry device 714 and retaining ring 702 maintains the electrical connection between trace ends 708 and 712 and telemetry device 714. Maintaining the electrical connection through compression eliminates the need for a cumbersome socket-type electrical connector.

[0020] FIGS. 8A-8C illustrate another example where a retaining ring is on the inside of the article of clothing, and the telemetry device is inserted from the outside of the clothing. FIGS. 9A-9C illustrate an example where the retaining ring is on the outside of the article of clothing, and the telemetry device is inserted from the inside of the clothing. FIGS. 10A-10C illustrate an example where the retaining ring is on the outside of the article of clothing and the telemetry device is also inserted from the outside of the article of clothing.

[0021] FIGS. 8A-8C illustrate an example similar to that illustrated in FIGS. 7A-7C except that received telemetry device 814 has a lip 816 around the perimeter. Lip 816 provides an additional force to secure telemetry device 814 in retaining ring 802, as illustrated in FIG. 8C. When telemetry device 814 is received as shown in FIGS. 8B and 8C such that lip 816 is pushed through retaining ring 802 from the outside surface 812 of fabric layer 806, lip 816 presses back against retaining ring 802 with a force in the opposite direction from the direction in which telemetry device 814 was inserted, securing telemetry device 814 in retaining ring 802. Additionally, retaining ring 802 exerts a compressive force around the perimeter of telemetry device 814 as illustrated in FIGS. 7A-7C.

[0022] In FIGS. 9A-9C, retaining ring 902 is adhered to the outside surface 912 of fabric layer 906, and telemetry device 914 is inserted from the inside of the clothing. Electrically conductive trace ends 908 and 910 are on the inside surface 904 of fabric layer 906. When telemetry device 914 is received in retaining ring 902 as shown in FIG. 9C, telemetry device 914 is in contact with inside surface 904 of fabric layer 906 and a portion of fabric layer 906 is between retaining ring 902 and received telemetry device 914.

[0023] FIGS. 10A-10C show an example, which does not form part of the present invention, in which retaining ring 1002 is adhered to outside surface 1012 of fabric layer 1006. Electrically conductive trace ends 1008 and 1010 are attached to the interior perimeter of retaining ring 1002. In some examples, at least a portion of the interior perimeter of retaining ring 1002 is conductive and is electrically connected to trace ends 1008 and 1010. When telemetry device 1014 is received in retaining ring 1002, telemetry device 1014 is in direct contact with retaining ring 1002, and trace ends 1008 and 1010 are in electrical contact with telemetry device 1014. In one example, electrically conductive trace ends 1008 and 1010 are on outside surface 1012 of fabric layer 1006. In another example in which the retaining ring is adhered to the outside surface (not shown), the trace ends are on the inside surface of the fabric layer. In this example, when the telemetry device is received in the retaining ring, the telemetry device is in contact with the inside surface of the fabric layer and a portion of the fabric layer is between the retaining ring and the received telemetry device.

[0024] FIG. 11 is a side perspective view of another exemplary telemetry device 1100 receivable by a telemetrically enhanced article of clothing in accordance with an example of the present invention. Telemetry device 1100 has a protrusion 1102 for ease of insertion and alignment. In some examples, a telemetrically enhanced article of clothing is designed such that when protrusion 1102 is oriented in a specific way and/or aligned with a marking or indicator, telemetry device 1100 makes electrical connection with trace ends of traces connected to sensors attached to the interior surface of the article of clothing. Thus, protrusion 1102 acts as an alignment mechanism and as a convenient handhold for inserting and removing telemetry device 1100. It is contemplated that protrusion 1102 can be configured in a number of ways and that multiple protrusions may be included in any particular telemetry device.

[0025] In another example, which does not form part of the present invention, a retaining ring, trace ends, and/or electrically conductive traces may be incorporated together and attached to the fabric layer of an article of clothing using a heat transfer process. An exaggerated plan view of such a heat transfer 1200 is illustrated in FIG. 12. Heat transfer 1200 includes an adhesive layer 1202 that is applied against a fabric layer. Heat transfer 1200 may have a retaining ring 1204 and electrically conductive traces 1206 and 1208. In some examples, retaining ring 1204 is composed substantially of silicone and is electrically conductive. Heat transfer 1200 also includes carrier sheet 1210. When heat transfer 1200 of FIG. 12 may be applied to an article of clothing, for example, on the outside surface of the fabric layer, and a telemetry device may be received from the outside surface. Similarly, a heat transfer 1200 may be applied to the inside surface of an article of clothing, and a telemetry device is received from the inside surface. The space that receives a telemetry device may comprise an open-

ing left during the creation of a heat transfer or may comprise a structural portion of a heat transfer.

[0026] In yet another example, the trace ends are substantially larger than the traces themselves such that precise placement of the telemetry device is not required to bring the trace ends into electrical contact with the telemetry device. In another example, the electrical contacts on the telemetry device are large so that precise placement of the telemetry device is not required.

[0027] In still another example, an exercise telemetry kit is contemplated including a telemetrically enhanced article of clothing as described in any of the examples discussed above, such as a form-fitting shirt, and a rounded telemetry device having at least one electrical contact for receiving data and one of a wireless transmitter or memory.

[0028] The present invention has been described in relation to particular examples, which are intended in all respects to be illustrative rather than restrictive. Alternative examples will become apparent to those of ordinary skill in the art to which the present invention pertains without departing from its scope.

[0029] From the foregoing, it will be seen that this invention is one well adapted to attain all the ends and objects set forth above, together with other advantages which are obvious and inherent to the system and method. It will be understood that certain features and subcombinations are of utility and may be employed without reference to other features and subcombinations. This is contemplated by and is within the scope of the claims.

Claims

1. An article of clothing (100) comprising: a fabric layer (104) having an inside surface and an outside surface, the inside surface facing a user's body when the article of clothing is worn by the user, and the outside surface facing away from the user's body when the article of clothing is worn by the user; a sensor (106) attached to the inside surface of the fabric layer such that when the article of clothing is worn by the user, the sensor is in contact with the user's skin, the sensor capable of measuring physiological parameters of the user; an electrically conductive trace (110) extending along the fabric layer and electrically connected at a first end to the sensor; and a retaining ring (116) adhered to the fabric layer near a second end of the electrically conductive trace, the retaining ring capable of receiving a rounded telemetry device (300) and forming a compression connection between the perimeter of the telemetry device and the retaining ring such that when the telemetry device is received in the retaining ring, the second end of the electrically conductive trace is in electrical contact with the telemetry device, **characterised in that** the retaining ring is adhered to the inside surface of the fabric layer, and the second end of the electrically conductive trace is on the outside surface of the fabric layer, and wherein when the telemetry device is received in the retaining ring, the telemetry device is in contact with the outside surface of the fabric layer and a portion of the fabric layer is between the retaining ring and the received telemetry device.

2. An article of clothing (100) comprising: a fabric layer (104) having an inside surface and an outside surface, the inside surface facing a user's body when the article of clothing is worn by the user, and the outside surface facing away from the user's body when the article of clothing is worn by the user; a sensor (106) attached to the inside surface of the fabric layer such that when the article of clothing is worn by the user, the sensor is in contact with the user's skin, the sensor capable of measuring physiological parameters of the user; an electrically conductive trace (110) extending along the fabric layer and electrically connected at a first end to the sensor; and a retaining ring (116) adhered to the fabric layer near a second end of the electrically conductive trace, the retaining ring capable of receiving a rounded telemetry device (300) and forming a compression connection between the perimeter of the telemetry device and the retaining ring such that when the telemetry device is received in the retaining ring, the second end of the electrically conductive trace is in electrical contact with the telemetry device, **characterised in that** the retaining ring is adhered to the outside surface of the fabric layer, and the second end of the electrically conductive trace is on the inside surface of the fabric layer, and wherein when the telemetry device is received in the retaining ring, the telemetry device is in contact with the inside surface of the fabric layer and a portion of the fabric layer is between the retaining ring and the received telemetry device.

3. The article of clothing (100) of claim 1 or claim 2, wherein the second end of the electrically conductive trace (110) is at least partially inside the area bounded by the retaining ring (116).

4. The article of clothing (100) of claim 1 or claim 2, wherein the telemetry device (300) has a perimeter with a lip (402), and wherein the telemetry device is received such that the lip is pushed through the retaining ring from a first side and presses back against the retaining ring from the opposite side, securing the telemetry device in the retaining ring.

5. The article of clothing (100) of claim 1 of claim 2, wherein the retaining ring (116) is substantially made of silicone.

6. The article of clothing (100) of claim 1 or claim 2,

further comprising: an additional sensor (108) attached to the inside surface of the fabric layer such that when the article of clothing is worn by the user, the sensor is in contact with the user's skin, the sensor capable of measuring physiological parameters of the user; and an additional electrically conductive trace (112) extending along the fabric layer and electrically connected at a first end to the additional sensor, wherein a second end of the additional electrically conductive trace is located near the retaining ring (116), and wherein when the telemetry (300) device is received in the retaining ring, the second end of the additional electrically conductive trace is in electrical contact with the telemetry device.

7. The article of clothing (100) of claim 6, wherein the second end of the electrically conductive trace (110) and the second end of the additional electrically conductive trace (112) are substantially larger than the traces themselves such that precise placement of the telemetry device (300) is not required to bring the second ends of the electrically conductive trace and the additional electrically conductive trace into electrical contact with the telemetry device.

8. The article of clothing (100) of claim 1, wherein: a second sensor (108) is attached to the inside surface of the fabric layer (104) such that when the article of clothing is worn by the user, the second sensor is in contact with the user's skin, the second sensor is capable of measuring physiological parameters of the user; a second electrically conductive trace (112) extends along the fabric layer, the second trace electrically connected at a first end to the second sensor; and the retaining ring (116) is substantially silicone and adhered to the fabric layer near a second end of each of the electrically conductive traces (110, 112) such that when the telemetry device (300) is received in the retaining ring, the second ends of the two electrically conductive traces are in electrical contact with the telemetry device.

9. The article of clothing (100) of claim 2, wherein: a second sensor (108) is attached to the inside surface of the fabric layer (104) such that when the article of clothing is worn by the user, the second sensor is in contact with the user's skin, the second sensor is capable of measuring physiological parameters of the user; a second electrically conductive trace (112) extends along the fabric layer, the second trace electrically connected at a first end to the second sensor; and the retaining ring (116) is substantially silicone and adhered to the fabric layer near a second end of each of the electrically conductive traces (110, 112) such that when the telemetry device (300) is received in the retaining ring, the second ends of the two electrically conductive traces are in electrical contact with the telemetry device.

10. The article of clothing (100) of claim 8 or claim 9, wherein the article of clothing is form fitting such that the sensors (106, 108) remain in contact with the user's skin when the article of clothing is worn.

11. The article of clothing (100) of claim 8, wherein the second end of the second electrically conductive trace (112) is on the outside surface of the fabric layer (104.

12. The article of clothing (100) of claim 9, wherein the second end of the second electrically conductive trace (112) is on the inside surface of the fabric layer (104).

13. An exercise telemetry kit comprising: the article of clothing according to any one of claims 1 to 12, and a rounded telemetry device having at least one electrical contact for receiving data and one of a wireless transmitter or memory (300).

14. The exercise telemetry kit of claim 13, wherein the retaining ring (116) is adhered to a surface of the shirt on an area corresponding to the back of the user when the shirt is worn.

15. The exercise telemetry kit of claim 13, wherein the telemetry device (300) includes a protrusion (1102) on one side, the protrusion located such that orienting the protrusion in a first direction causes the electrical contacts of the telemetry device to align and come into electrical contact with the second ends of the electrically conductive traces (110, 112).

Patentansprüche

1. Bekleidungsartikel (100), welcher aufweist: eine Gewebeschicht (104) mit einer Innenoberfläche und einer Außenoberfläche, wobei die Innenoberfläche dem Körper eines Benutzers zugewandt ist, wenn der Bekleidungsartikel von dem Benutzer getragen ist, und die Außenoberfläche von dem Körper des Benutzers abgewandt ist, wenn der Bekleidungsartikel von dem Benutzer getragen ist; einen Sensor (106), der so an der Innenoberfläche der Gewebeschicht angebracht ist, dass, wenn der Bekleidungsartikel von dem Benutzer getragen ist, der Sensor mit der Haut des Benutzers in Kontakt steht, wobei der Sensor zum Messen physiologischer Parameter des Benutzers fähig ist; eine elektrisch leitende Bahn (110), die sich entlang der Gewebeschicht erstreckt und an einem ersten Ende elektrisch mit dem Sensor verbunden ist; und einen Rückhaltering (116), der in der Nähe eines zweiten Endes der elektrisch leitenden Bahn an der Gewebeschicht haftend befestigt ist, wobei der Rückhaltering fähig ist, eine abgerundete Telemetrievorrichtung (300) aufzunehmen und

in der Weise eine Kompressionsverbindung zwischen dem Umfang der Telemetrievorrichtung und dem Rückhaltering zu bilden, dass, wenn die Telemetrievorrichtung in dem Rückhaltering aufgenommen ist, das zweite Ende der elektrisch leitenden Bahn mit der Telemetrievorrichtung in elektrischem Kontakt steht, **dadurch gekennzeichnet, dass** der Rückhaltering haftend an der Innenoberfläche der Gewebeschicht befestigt ist und das zweite Ende der elektrisch leitenden Bahn sich auf der Außenoberfläche der Gewebeschicht befindet, und wobei, wenn die Telemetrievorrichtung in dem Rückhaltering aufgenommen ist, die Telemetrievorrichtung mit der Außenoberfläche der Gewebeschicht in Kontakt steht und ein Abschnitt der Gewebeschicht sich zwischen dem Rückhaltering und der aufgenommenen Telemetrievorrichtung befindet.

2. Bekleidungsartikel (100), welcher aufweist: eine Gewebeschicht (104) mit einer Innenoberfläche und einer Außenoberfläche, wobei die Innenoberfläche dem Körper eines Benutzers zugewandt ist, wenn der Bekleidungsartikel von dem Benutzer getragen ist, und die Außenoberfläche von dem Körper des Benutzers abgewandt ist, wenn der Bekleidungsartikel von dem Benutzer getragen ist; einen Sensor (106), der so an der Innenoberfläche der Gewebeschicht angebracht ist, dass, wenn der Bekleidungsartikel von dem Benutzer getragen ist, der Sensor mit der Haut des Benutzers in Kontakt steht, wobei der Sensor zum Messen physiologischer Parameter des Benutzers fähig ist; eine elektrisch leitende Bahn (110), die sich entlang der Gewebeschicht erstreckt und an einem ersten Ende elektrisch mit dem Sensor verbunden ist; und einen Rückhaltering (116), der in der Nähe eines zweiten Endes der elektrisch leitenden Bahn haftend an der Gewebeschicht befestigt ist, wobei der Rückhaltering fähig ist, eine abgerundete Telemetrievorrichtung (300) aufzunehmen und in der Weise eine Kompressionsverbindung zwischen dem Umfang der Telemetrievorrichtung und dem Rückhaltering zu bilden, dass, wenn die Telemetrievorrichtung in dem Rückhaltering aufgenommen ist, das zweite Ende der elektrisch leitenden Bahn mit der Telemetrievorrichtung in elektrischem Kontakt steht, **dadurch gekennzeichnet, dass** der Rückhaltering haftend an der Außenoberfläche der Gewebeschicht befestigt ist und das zweite Ende der elektrisch leitenden Bahn sich auf der Innenoberfläche der Gewebeschicht befindet, und wobei, wenn die Telemetrievorrichtung in dem Rückhaltering aufgenommen ist, die Telemetrievorrichtung mit der Innenoberfläche der Gewebeschicht in Kontakt steht und ein Abschnitt der Gewebeschicht sich zwischen dem Rückhaltering und der aufgenommenen Telemetrievorrichtung befindet.

3. Bekleidungsartikel (100) nach Anspruch 1 oder Anspruch 2, wobei das zweite Ende der elektrisch leitenden Bahn (110) sich mindestens teilweise innerhalb des durch den Rückhaltering (116) begrenzten Bereiches befindet.

4. Bekleidungsartikel (100) nach Anspruch 1 oder Anspruch 2, wobei die Telemetrievorrichtung (300) einen Umfang mit einem Rand (402) hat und wobei die Telemetrievorrichtung so aufgenommen ist, dass der Rand von einer ersten Seite durch den Rückhaltering geschoben ist und von der entgegengesetzten Seite gegen den Rückhaltering entgegendrückt, wodurch die Telemetrievorrichtung in dem Rückhaltering gesichert ist.

5. Bekleidungsartikel (100) nach Anspruch 1 nach Anspruch 2, wobei der Rückhaltering (116) im Wesentlichen aus Silikon hergestellt ist.

6. Bekleidungsartikel (100) nach Anspruch 1 oder Anspruch 2, der ferner aufweist: einen zusätzlichen Sensor (108), der so an der Innenoberfläche der Gewebeschicht angebracht ist, dass, wenn der Bekleidungsartikel von dem Benutzer getragen ist, der Sensor mit der Haut des Benutzers in Kontakt steht, wobei der Sensor zum Messen physiologischer Parameter des Benutzers fähig ist; und eine zusätzliche elektrisch leitende Bahn (112), die sich entlang der Gewebeschicht erstreckt und an einem ersten Ende elektrisch mit dem zusätzlichen Sensor verbunden ist, wobei ein zweites Ende der zusätzlichen elektrisch leitenden Bahn in der Nähe des Rückhalterings (116) angeordnet ist und wobei, wenn die Telemetrievorrichtung (300) in dem Rückhaltering aufgenommen ist, das zweite Ende der zusätzlichen elektrisch leitenden Bahn mit der Telemetrievorrichtung in elektrischem Kontakt steht.

7. Bekleidungsartikel (100) nach Anspruch 6, wobei das zweite Ende der elektrisch leitenden Bahn (110) und das zweite Ende der zusätzlichen elektrisch leitenden Bahn (112) wesentlich größer als die Bahnen selbst sind, so dass keine präzise Platzierung der Telemetrievorrichtung (300) erforderlich ist, um die zweiten Enden der elektrisch leitenden Bahn und der zusätzlichen elektrisch leitenden Bahn mit der Telemetrievorrichtung in elektrischen Kontakt zu bringen.

8. Bekleidungsartikel (100) nach Anspruch 1, wobei: ein zweiter Sensor (108) so an der Innenoberfläche der Gewebeschicht (104) angebracht ist, dass, wenn der Bekleidungsartikel von dem Benutzer getragen ist, der zweite Sensor mit der Haut des Benutzers in Kontakt steht, der zweite Sensor zum Messen physiologischer Parameter des Benutzers fähig ist; eine zweite elektrisch leitende Bahn (112) sich entlang der Gewebeschicht erstreckt, wobei die zweite Bahn

an einem ersten Ende elektrisch mit dem zweiten Sensor verbunden ist; und der Rückhaltering (116) im Wesentlichen aus Silikon besteht und in der Nähe eines zweiten Endes einer jeden der elektrisch leitenden Bahnen (110, 112) in der Weise haftend an der Gewebeschicht befestigt ist, dass, wenn die Telemetrievorrichtung (300) in dem Rückhaltering aufgenommen ist, die zweiten Enden der zwei elektrisch leitenden Bahnen mit der Telemetrievorrichtung in elektrischem Kontakt stehen.

9. Bekleidungsartikel (100) nach Anspruch 2, wobei: ein zweiter Sensor (108) so an der Innenoberfläche der Gewebeschicht (104) angebracht ist, dass, wenn der Bekleidungsartikel von dem Benutzer getragen ist, der zweite Sensor mit der Haut des Benutzers in Kontakt steht, der zweite Sensor zum Messen physiologischer Parameter des Benutzers fähig ist; eine zweite elektrisch leitende Bahn (112) sich entlang der Gewebeschicht erstreckt, wobei die zweite Bahn an einem ersten Ende elektrisch mit dem zweiten Sensor verbunden ist; und der Rückhaltering (116) im Wesentlichen aus Silikon besteht und in der Nähe eines zweiten Endes einer jeden der elektrisch leitenden Bahnen (110, 112) in der Weise haftend an der Gewebeschicht befestigt ist, dass, wenn die Telemetrievorrichtung (300) in dem Rückhaltering aufgenommen ist, die zweiten Enden der zwei elektrisch leitenden Bahnen mit der Telemetrievorrichtung in elektrischem Kontakt stehen.

10. Bekleidungsartikel (100) nach Anspruch 8 oder Anspruch 9, wobei der Bekleidungsartikel in der Weise eng anliegt, dass die Sensoren (106, 108) mit der Haut des Benutzers in Kontakt bleiben, wenn der Bekleidungsartikel getragen wird.

11. Bekleidungsartikel (100) nach Anspruch 8, wobei das zweite Ende der zweiten elektrisch leitenden Bahn (112) sich auf der Außenoberfläche der Gewebeschicht (104) befindet.

12. Bekleidungsartikel (100) nach Anspruch 9, wobei das zweite Ende der zweiten elektrisch leitenden Bahn (112) sich auf der Innenoberfläche der Gewebeschicht (104) befindet.

13. Trainings-Telemetriesatz, welcher aufweist: den Bekleidungsartikel gemäß einem der Ansprüche 1 bis 12 und eine abgerundete Telemetrievorrichtung mit mindestens einem elektrischen Kontakt zum Empfangen von Daten und einem Funksender oder Speicher (300).

14. Trainings-Telemetriesatz nach Anspruch 13, wobei der Rückhaltering (116) haftend an einer Oberfläche des Hemdes auf einem Bereich befestigt ist, der dem Rücken des Benutzers entspricht, wenn das Hemd getragen wird.

15. Trainings-Telemetriesatz nach Anspruch 13, wobei die Telemetrievorrichtung (300) einen Vorsprung (1102) auf einer Seite aufweist, wobei der Vorsprung so angeordnet ist, dass eine Ausrichtung des Vorsprungs in einer ersten Richtung bewirkt, dass die elektrischen Kontakte der Telemetrievorrichtung sich mit den zweiten Enden der elektrisch leitenden Bahnen (110, 112) ausrichten und in elektrischen Kontakt gelangen.

Revendications

1. Article d'habillement (100) comprenant : une couche de tissu (104) ayant une surface interne et une surface externe, la surface interne étant située en regard du corps d'un utilisateur lorsque l'article d'habillement est porté par celui-ci et la surface externe étant située à l'opposé du corps de l'utilisateur lorsque l'article d'habillement est porté par celui-ci, un capteur (106) fixé à la surface interne de la couche de tissu de sorte que, lorsque l'article d'habillement est porté par l'utilisateur, ce capteur soit en contact avec la peau de celui-ci, le capteur étant susceptible de mesurer des paramètres physiologiques de l'utilisateur, un tracé électriquement conducteur (110) s'étendant le long de la couche de tissu et relié électriquement à une première extrémité du capteur, et un anneau de retenue (116) adhérant à la couche de tissu à proximité de la seconde extrémité du tracé électriquement conducteur, l'anneau de retenue étant susceptible de recevoir un dispositif de télémétrie arrondie (300) et formant une liaison par compression entre le périmètre du dispositif de télémétrie et celui-ci de sorte que, lorsque le dispositif de télémétrie est logé dans l'anneau de retenue, la seconde extrémité du tracé électriquement conducteur soit en contact électrique avec ce dispositif de télémétrie, **caractérisé en ce que**
l'anneau de retenue adhère à la surface interne de l'élément de tissu et la seconde extrémité du tracé électriquement conducteur est située sur la surface externe de la couche de tissu, et, lorsque le dispositif de télémétrie est logé dans l'anneau de retenue, ce dispositif de télémétrie est en contact avec la surface externe de la couche de tissu et une partie de la couche de tissu est située entre l'anneau de retenue et le dispositif de télémétrie logé dans cet anneau.

2. Article d'habillement (100) comprenant une couche de tissu (104) ayant une surface interne et une surface externe, la surface interne étant située en regard du corps d'un utilisateur lorsque l'article d'habillement est porté par celui-ci et la surface externe étant située à l'opposé du corps de l'utilisateur lorsque l'article d'habillement est porté par celui-ci, un

capteur (106) fixé à la surface interne de la couche de tissu de sorte que, lorsque l'article d'habillement est porté par un utilisateur le capteur soit en contact avec la peau de celui-ci, le capteur étant susceptible de mesurer des paramètres physiologiques de l'utilisateur, un tracé électriquement conducteur (110) s'étendant le long de la couche de tissu et relié électriquement à une première extrémité du capteur, et un anneau de retenue (116) adhérant à la couche de tissu à proximité de la seconde extrémité du tracé électriquement conducteur, l'anneau de retenue étant susceptible de recevoir un dispositif de télémétrie arrondi (300) et formant une liaison par compression entre le périmètre du dispositif de télémétrie et celui-ci de sorte que, lorsque le dispositif de télémétrie est logé dans l'anneau de retenue, la seconde extrémité du tracé électriquement conducteur soit en contact électrique avec ce dispositif de télémétrie, **caractérisé en ce que**
l'anneau de retenue adhère à la surface externe de la couche de tissu et la seconde extrémité du tracé électriquement conducteur est situé sur la surface interne de la couche de tissu, et, lorsque le dispositif de télémétrie est logé dans l'anneau de retenue, ce dispositif de télémétrie est en contact avec la surface interne de la couche de tissu et une partie de la couche de tissu est située entre l'anneau de retenue et le dispositif de télémétrie logé dans cet anneau.

3. Article d'habillement (100) conforme à la revendication 1 ou 2,
dans lequel la seconde extrémité du tracé électriquement conducteur (110) est située au moins partiellement à la partie interne d'une zone limitée par l'anneau de retenue (116).

4. Article d'habillement (100) conforme à la revendication 1 ou 2,
dans lequel le périmètre du dispositif de télémétrie (300) est équipé d'une lèvre (402), et le dispositif de télémétrie est mis en place de sorte que la lèvre soit poussée au travers de l'anneau de retenue à partir d'un premier côté et se recomprime contre l'anneau de retenue à partir du côté opposé de façon à fixer le dispositif de télémétrie dans l'anneau de retenue.

5. Article d'habillement (100) conforme à la revendication 1 ou 2,
dans lequel l'anneau de retenue (116) est essentiellement réalisé en silicone.

6. Article d'habillement (100) conforme à la revendication 1 ou 2, comprenant en outre un capteur supplémentaire (108) fixé à la surface interne de la couche de tissu de sorte que, lorsque l'article d'habillement est porté par l'utilisateur, le capteur soit en contact avec la peau de celui-ci, le capteur étant susceptible de mesurer des paramètres physiologiques de l'utilisateur, et un tracé électriquement conducteur supplémentaire (112) s'étendant le long de la couche de tissus et relié électriquement à une première extrémité du capteur supplémentaire, la seconde extrémité du tracé électriquement conducteur étant située à proximité de l'anneau de retenue (116) et, lorsque le dispositif de télémétrie (300) est logé dans l'anneau de retenue, la seconde extrémité du tracé électriquement conducteur supplémentaire est en contact électrique avec le dispositif de télémétrie.

7. Article d'habillement (100) conforme à la revendication 6,
dans lequel la seconde extrémité du tracé électriquement conducteur (110) et la seconde extrémité du tracé électriquement conducteur supplémentaire (112) sont essentiellement plus grandes que les tracés eux-mêmes de sorte qu'un positionnement précis du dispositif de télémétrie (300) ne soit pas nécessaire pour mettre les secondes extrémités du tracé électriquement conducteur et du tracé électriquement conducteur supplémentaire en contact électrique avec le dispositif de télémétrie.

8. Article d'habillement (100) conforme à la revendication 1,
dans lequel un second capteur (108) est fixé à la surface interne de la couche de tissu (104) de sorte que, lorsque l'article d'habillement est porté par l'utilisateur, le second capteur soit en contact avec la peau de celui-ci, le second capteur étant susceptible de mesurer des paramètres physiologiques de l'utilisateur, un second tracé électriquement conducteur (112) s'étendant le long de la couche de tissu, le second tracé étant électriquement relié à une première extrémité au second capteur, et l'anneau de retenue (116) étant essentiellement réalisé en silicone et adhérant à la couche de tissu à proximité de la seconde extrémité de chacun des tracés électriquement conducteurs (110, 112) de sorte que, lorsque le dispositif de télémétrie (300) est logé dans l'anneau de retenue, les secondes extrémités des deux tracés électriquement conducteurs soient en contact électrique avec le dispositif de télémétrie.

9. Article d'habillement (100) conforme à la revendication 2,
dans lequel un second capteur (108) est fixé sur la surface interne de la couche de tissu (104) de sorte que, lorsque l'article d'habillement est porté par l'utilisateur, le second capteur soit en contact avec la peau de celui-ci, le second capteur étant susceptible de mesurer des paramètres physiologiques de l'utilisateur, un second tracé électriquement conducteur (112) s'étendant le long de la couche de tissu, le second tracé étant relié électriquement à une première extrémité au second capteur, et l'anneau de retenue (116) étant réalisé essentiellement en sili-

cone et adhérant à la couche de tissu à proximité de la seconde extrémité de chacun des tracés électriquement conducteurs (110, 112) de sorte que, lorsque le dispositif de télémétrie (300) est logé dans l'anneau de retenue, les secondes extrémités des deux tracés électriquement conducteurs soient en contact électrique avec le dispositif de télémétrie.

10. Article d'habillement (100) conforme à la revendication 8 ou 9, ajusté de sorte que les capteurs (106, 108) restent en contact avec la peau de l'utilisateur lorsqu'il est porté.

11. Article d'habillement (100) conforme à la revendication 8,
dans lequel la seconde extrémité du second tracé électriquement conducteur (112) est située sur la surface externe de la couche de tissu (104).

12. Article d'habillement (100) conforme à la revendication 9,
dans lequel la seconde extrémité du second tracé électriquement conducteur (112) est située sur la surface interne de la couche de tissu (104).

13. Kit de télémétrie d'entraînement comprenant un article d'habillement conforme à l'une quelconque des revendications 1 à 12, et un dispositif de télémétrie arrondi ayant au moins un contact électrique pour recevoir des données et un transmetteur sans fil ou une mémoire (300).

14. Kit de télémétrie d'entraînement conforme à la revendication 13, dans lequel l'anneau de retenue (116) adhère à la surface du vêtement sur une zone correspondant au dos de l'utilisateur lorsque le vêtement est porté.

15. Kit de télémétrie d'entraînement conforme à la revendication 13, dans lequel le dispositif de télémétrie (300) comporte une saillie (1102) sur un côté, cette saillie étant positionnée de sorte qu'une orientation de celle-ci dans une première direction entraîne l'alignement des contacts électriques du dispositif de télémétrie et leur mise en contact électrique avec les secondes extrémités des tracés électriquement conducteurs (110, 112).

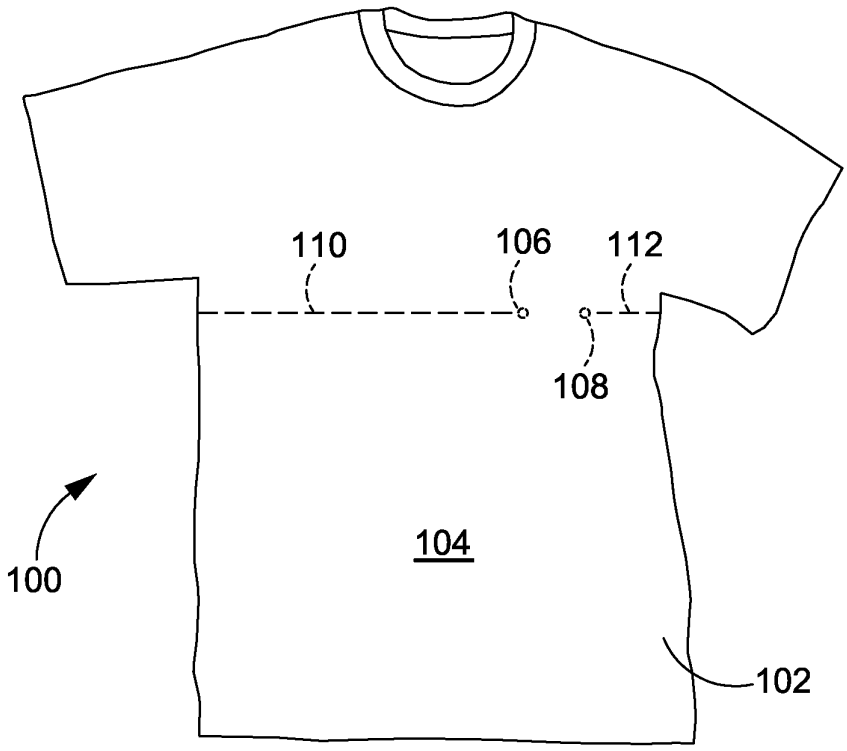

FIG. 1

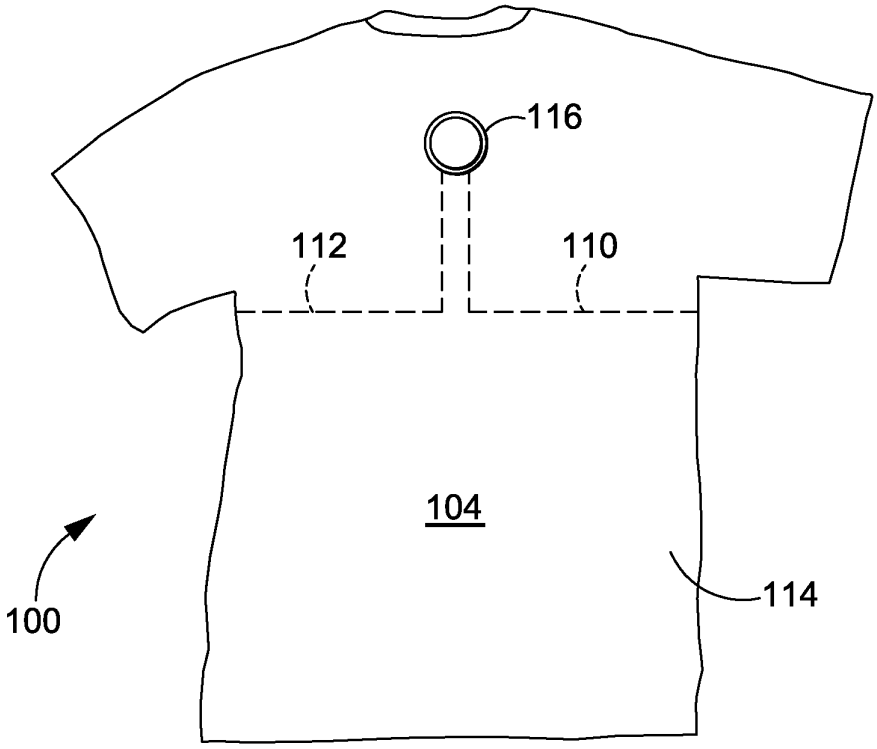

FIG. 2

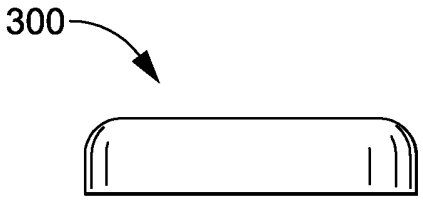

FIG. 3A

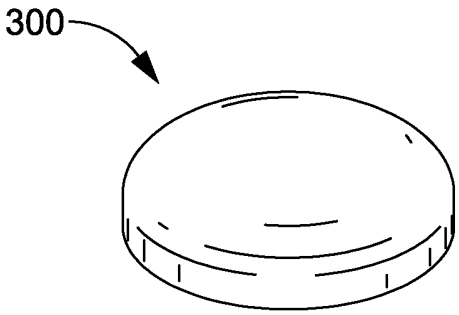

FIG. 3B

FIG. 4

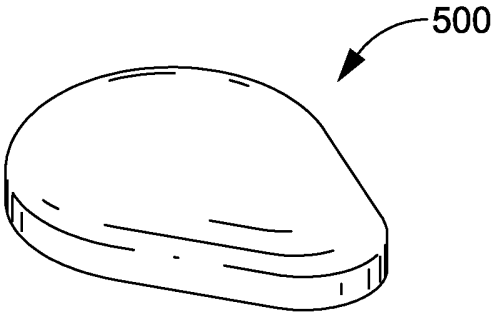

FIG. 5

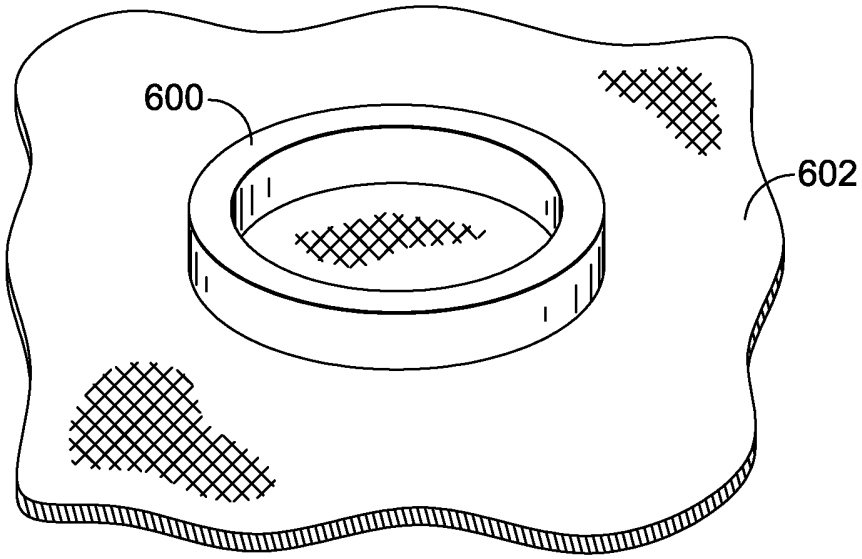

FIG. 6

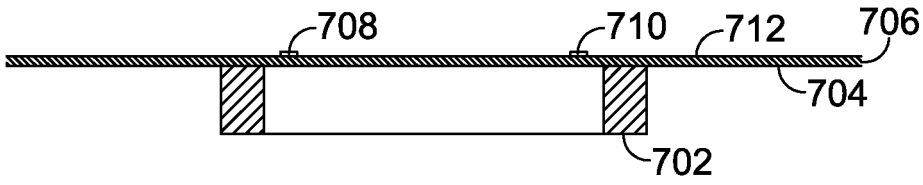

FIG. 7A

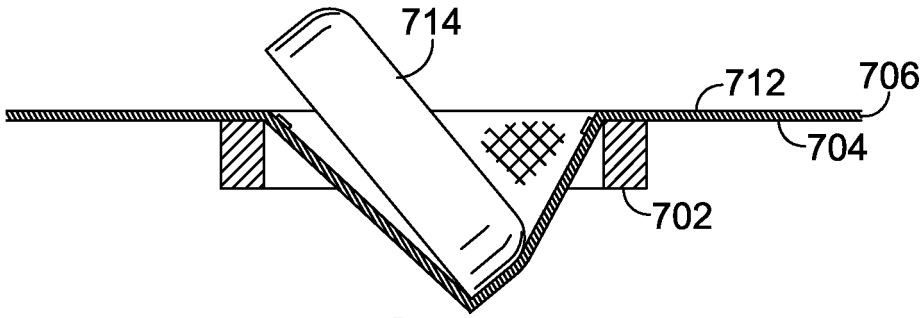

FIG. 7B

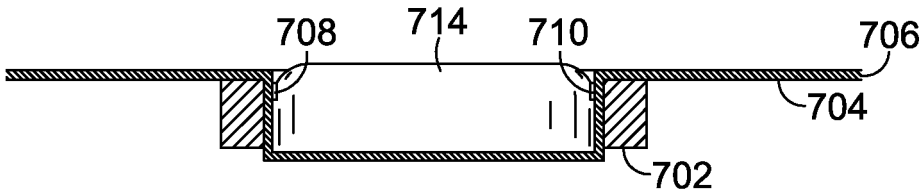

FIG. 7C

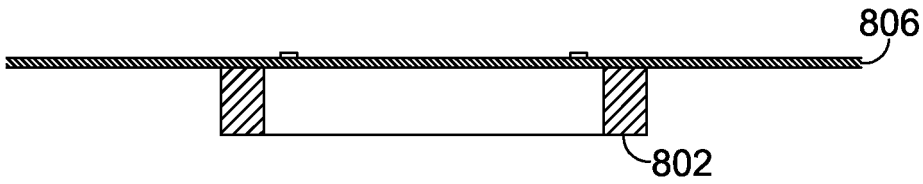

FIG. 8A

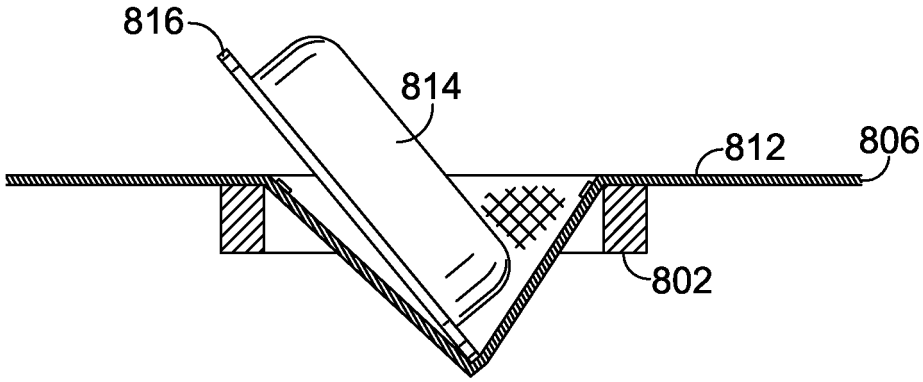

FIG. 8B

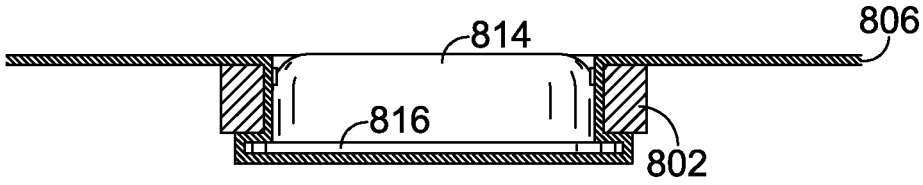

FIG. 8C

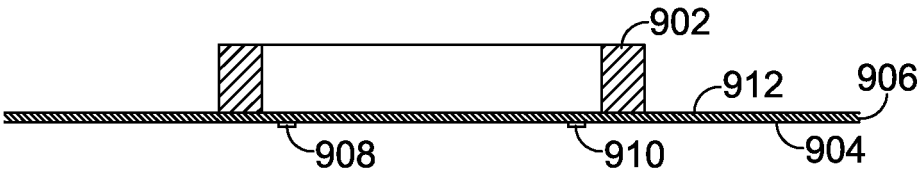

FIG. 9A

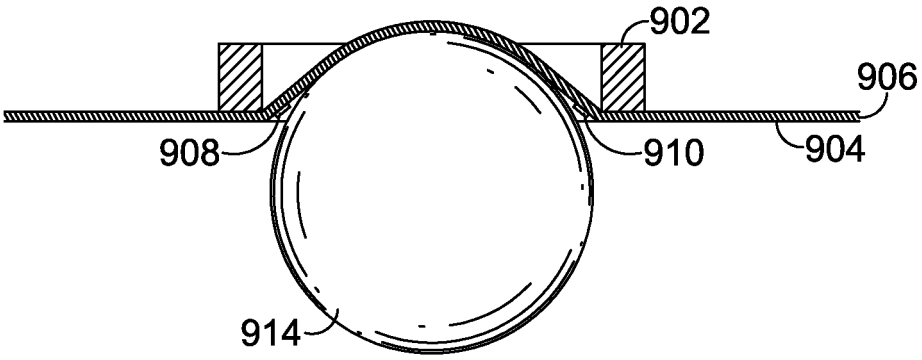

FIG. 9B

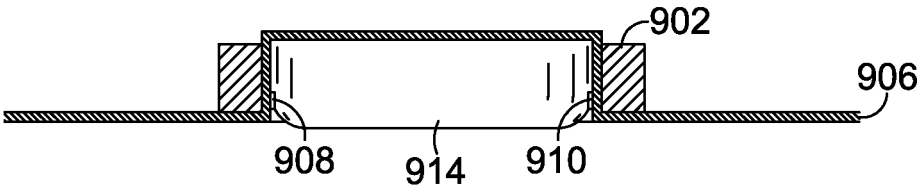

FIG. 9C

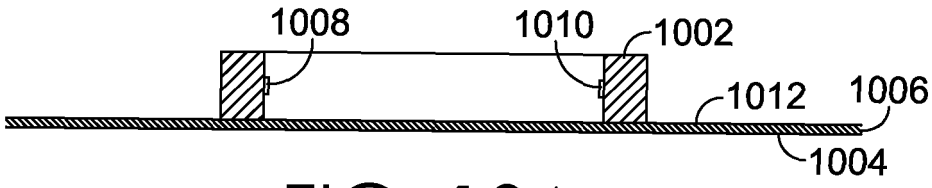

FIG. 10A

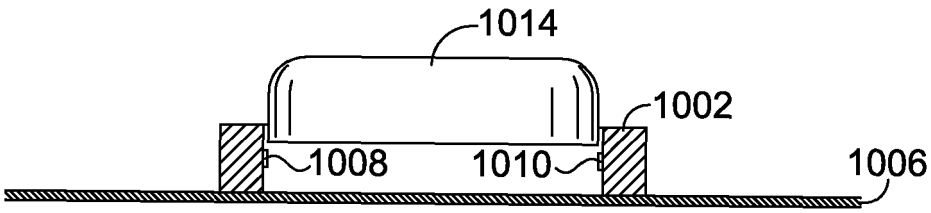

FIG. 10B

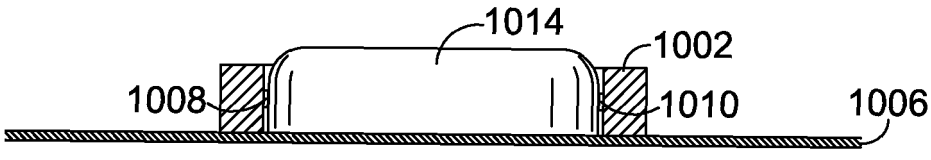

FIG. 10C

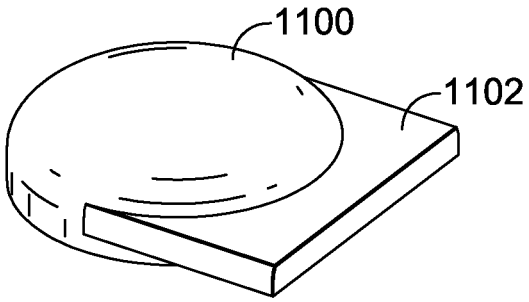

FIG. 11

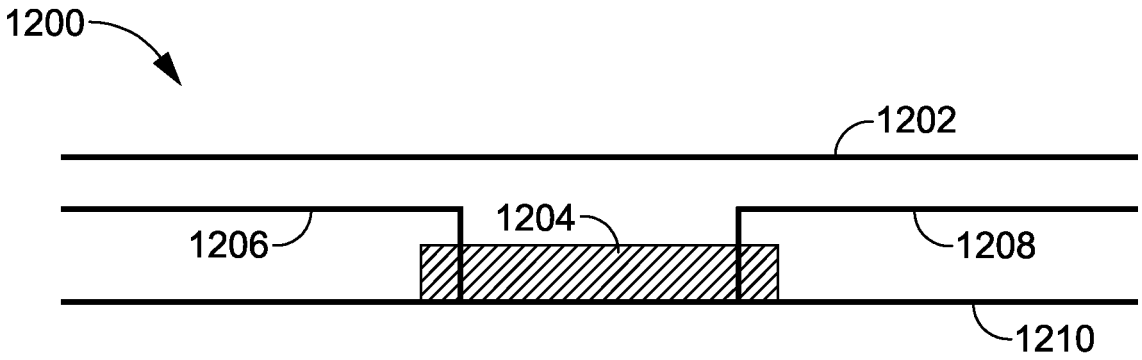

FIG. 12

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- US 20120165645 A **[0003]**
- US 20100185398 A **[0003]**

专利名称(译)	遥控运动服装		
公开(公告)号	EP2967390B1	公开(公告)日	2018-04-25
申请号	EP2014774013	申请日	2014-03-07
[标]申请(专利权)人(译)	耐克国际有限公司		
申请(专利权)人(译)	NIKE INNOVATE C.V.		
当前申请(专利权)人(译)	NIKE INNOVATE C.V.		
[标]发明人	NORDSTROM MATTHEW D		
发明人	NORDSTROM, MATTHEW D.		
IPC分类号	A61B5/0408 A41D13/12 A61B5/00		
CPC分类号	A41D13/1281 A61B5/0006 A61B5/0024 A61B5/04085 A61B5/6804 A61B2503/10 A61B2562/225 A41B1/08 A41D1/002 A44B17/0076 A61B5/0408 A63B24/0062 A63B71/0686 A63B2220/20 A63B2220/62 A63B2230/06		
代理机构(译)	汤布林，ADRIAN GEORGE		
优先权	13/828893 2013-03-14 US		
其他公开文献	EP2967390A4 EP2967390A1		
外部链接	Espacenet		

摘要(译)

遥测增强的衣物包括具有内表面和外表面的织物层。传感器附接到织物层的内表面，使得当用户穿着衣物时，传感器与使用者的皮肤接触。导电迹线可以沿着织物层延伸，并且可以在第一端处电连接到传感器。保持环可以在导电迹线的第二端附近粘附到织物层。保持环能够接收遥测装置并在遥测装置的周边和保持环之间形成压缩连接，使得当遥测装置被接收在保持环中时，导电迹线的第二端处于电气中。与遥测设备联系。遥测设备可以存储，处理或传输由传感器收集的生理和/或其他数据。

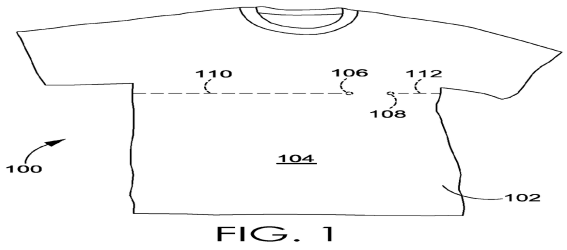

FIG. 1

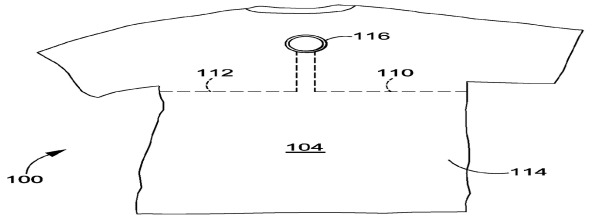

FIG. 2