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(54) **STRAP-ADJUSTED KNEE-POCKETS**

(57) A wearable article for a knee is provided that includes a pocket and a strap for attachment of the knee accessory to the knee. The knee accessory may be a

pull-up accessory, having a single elastic band with no fastener, or an accessory with two straps for fastening around the knee.

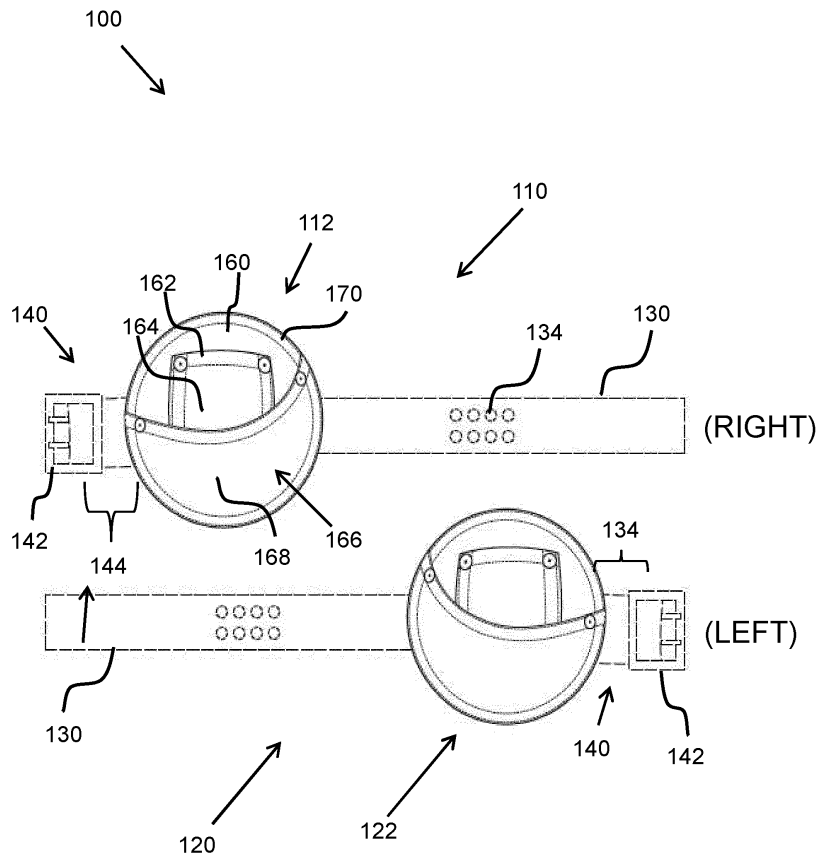


Fig. 1

Description

FIELD OF THE INVENTION

[0001] The present invention relates to articles worn, in general, and, in particular, to knee accessories.

BACKGROUND

[0002] Knee accessories, such as knee braces and knee pads, have multiple applications. As knee braces, applied to reduce stress after injury, accessories for the knee come in many forms, with straps that protect and typically include mechanism to reduce movement. As knee pads, accessories for the knee protect the knee when there is a risk of injury. Such accessories are typically pulled up over the leg or are strapped around the leg.

[0003] Knee pads in particular are used in multiple settings, such as in sports and construction. For sporting activities, people who wear knee protection may include, for example, volleyball players whose knees may frequently hit the ground. Without knee pads, a player might sustain a serious injury from the constant impact of falls.

[0004] Construction workers such as tilers, carpet installers, roofers and others may spend a considerable amount of time on their knees, on hard surfaces. Knee protectors are therefore worn to protect against injuries caused by wear. Knee protectors may be constructed from many types of material, including hard plastics and ceramics. In some cases, knee protectors may be built into pants, or may be external, such that they are not affixed to a person's knee.

[0005] Further development of common knee accessories may improve their utility for users, i.e., for the people wearing the accessory.

SUMMARY OF THE INVENTION

[0006] The present invention provides a knee accessory with functionality of a pocket, designed for convenient use by the user (i.e., the "wearer"), and including means for attachment and adjustment. A knee accessory is therefore provided, including a pocket and a strap for attachment of the knee accessory to the knee. The knee accessory may be a pull-up accessory, wherein the strap is a single elastic band with no fastener. The pocket may be positioned at the front or side of the knee.

[0007] In further embodiments, a knee accessory for a knee is provided, including: a buckle strap having a buckle, a long strap, and a pad configured with a concave form to fit over the knee. The pad is affixed, towards the outer side of the knee, to the buckle strap, and affixed, towards the inner side of the knee, to the long strap. The long strap may be secured to the buckle of the buckle strap at two or more adjustable positions. The pad further includes a knee pocket affixed to the outer side of the pad, away from the knee. The length of the buckle strap

extends between the pad at the outer side of the knee and the buckle of the buckle strap so as to position the buckle at the outer side of the knee, such that the long strap is secured to the buckle at the outer side of the knee.

[0008] In some examples of the invention, the pad includes two joined layers of material, having a filler between the two layers, and at least one additional layer of material affixed to the outer layer of the pad to form the knee pocket.

[0009] In further examples, the knee pocket opening is angled so as to open towards the outer side of the knee.

[0010] The knee accessories may include knee orientation indications, indicating an orientation of the accessory for the right or left knee.

[0011] In further examples, in combination with any of the above features, the long strap may have multiple buckle holes, and the buckle may be a prong buckle. Alternatively, the long strap may have Velcro-type, hook and loop surfaces to secure the knee accessory when looped through the buckle.

[0012] The knee pocket and the straps may be made of one or more materials, such as cotton or polyester fabrics, or leather.

[0013] The knee pocket may have a fastener, such as a button, snap, Velcro, or zipper-fastener.

[0014] Also provided by an embodiment of the present invention, in combination with any of the above features, is a pair of wearable knee accessories of any of claims 1 to 8, one wearable knee accessory being configured for a right knee, having the buckle strap on the wearer's right side, and the second wearable knee accessory being configured for a left knee, having the buckle strap on the wearer's left side. In some examples of the present invention, the right wearable knee accessory is the mirror image of the left wearable knee accessory.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] In the following detailed description of various embodiments, reference is made to the accompanying drawings that form a part thereof, and in which are shown by way of illustration specific embodiments in which the invention may be practiced. It is understood that other embodiments may be utilized, and structural changes may be made without departing from the scope of the present invention. In the accompanying drawings:

Fig. 1 is a schematic diagram of a pair of knee accessories, one for the right knee, the second for the left knee, according to some embodiments of the present invention;

Fig. 2 is a schematic diagram of the same pair of knee accessories, showing the back side of the knee accessories (the side in contact with the knees), according to some embodiments of the present invention;

Fig. 3 is a schematic diagram of the pair of knee accessories, employing zippers, according to some embodiments of the present invention;

Fig. 4 is a schematic diagram of the pair of knee accessories as worn on a wearer's knees, according to some embodiments of the present invention;

Fig. 5 is a schematic diagram of the pair of knee accessories, employing zippers, as worn on a wearer's knees, according to some embodiments of the present invention;

Figs. 6A-6C are images of three types of the knee accessory, showing their manufacture from different materials and in different forms, according to some embodiments of the present invention; and

Fig. 7 is an image of an additional form of the knee accessory, according to some embodiments of the present invention.

DETAILED DESCRIPTION

[0016] For a better understanding of various embodiments of the invention and to show how the same may be carried into effect, reference will now be made, by way of example, to the accompanying drawings. Structural details of the invention are shown to provide a fundamental understanding of the invention, the description, taken with the drawings, making apparent to those skilled in the art how the several forms of the invention may be embodied in practice. Embodiments and/or limitations featured in the figures are chosen for convenience or clarity of presentation and are not meant to limit the scope of the invention.

[0017] **Fig. 1** is a schematic diagram of a pair **100** of knee accessories. One knee accessory, a right knee accessory **110** (for a right knee) is shown in the upper portion of the figure, and a complementary knee accessory, a left knee accessory **120** (for a left knee), is shown in the lower portion of the figure. Both knee accessories include a knee pocket that is part of a knee pad, the right knee accessory **110** including a right knee pad **112**, and the left knee accessory **120** including a left knee pad **122**.

[0018] Shown in the figure are views of the respective right and left knee accessories viewed from the front, that is, in the direction away from the knee.

[0019] Connected to both the right knee pad and to the left knee pad, typically on the inner side of the respective knee (i.e., the side facing towards the second leg), is a long strap **130**, which may have a series of buckle holes **134**. Connected to the other side of each knee pad, that is, typically on the outer side of the knee, is a shorter buckle strap **140**. The buckle strap **140** includes a buckle **142**, as well as a short strap extension **144** between the knee pad and the buckle. The length of the strap extension is typically configured such that the buckle is at the

outer of the knee (i.e., the left side of the left leg and the right side of the right leg). The outer side positioning of the buckle facilitates easy buckling and unbuckling of the knee pad. Hereinbelow, the "long strap" is referred to as "long" so as to differentiate the term from the buckle strap and from the short strap extension. The long strap wraps behind the knee from the inner side of the knee to the outer side.

[0020] The buckle may be any type of buckle known in the art for securing the long strap at adjustable positions, such as a single prong buckle, or alternatively a double prong buckle, as shown. Alternatively, the buckle may be a loop buckle for connecting a long strap **130** that is a Velcro-type, hook-and-loop strap. The buckle may also be a clip buckle, the long strap **130** having a complementary clip, as well as an adjustable loop.

[0021] The knee pads (i.e., right knee pad **112** and left knee pad **122**) are designed with several layers in order to form, on the inner side, a pad surface that is in contact with the knee, and, on the outer side, a knee pocket, or, in some examples, multiple knee pockets. The knee pads shown in **Fig. 1** have multiple pockets, a first pocket **162** formed by a pad top layer **160** under a first pocket layer **164**, and a larger, second pocket **166** formed by the pad top layer **160** under a second pocket layer **168**.

[0022] As shown in the figure, the larger knee pocket, knee pocket **166**, which has an opening extending across the extent of the knee pad (that is, across both the respective right knee pad **112** and the left knee pad **122**), opens in an angled direction, so as to open towards the outer side of the knee. That is, the knee pocket **166** on the right knee pad **112** opens to the right side, while, the knee pocket **166** on the left knee pad **122** opens to the left side. The angled design of the knee pockets permits a wearer to more easily access the pocket with the hand on the same side, that is, the left hand can more easily access the knee pocket of the left knee pad, and the right hand can more easily access the knee pocket of the right knee pad.

[0023] Typically, the knee pads are each designed with a circular or elliptical shape, and with a concave form (i.e., a concave form conforming to the shape of a human knee), so as to better fit the knee. A seam **170**, typically stitching or other means of affixing layers known in the art, typically circumscribes the knee pad, not only to connect the multiple layers but to force the knee pad to have a concave form.

[0024] Pocket layers may be made of any flexible materials that are sufficiently rigid to maintain the concave form, such as natural or synthetic fabrics or leathers. Layers are typically affixed to each other by stitching and/or grommets.

[0025] **Fig. 2** is a schematic diagram of the same pair **100** of knee accessories as shown in **Fig. 1**, showing the back sides of the knee accessories, that is, the side in contact with the knees. As indicated, the knee accessory shown in the upper portion of the figure is the right knee accessory **110**, and the complementary knee accessory,

the left knee accessory **120**, is shown in the lower portion of the figure. That is, the figure shows the knee pads from the direction of the knee, showing that each knee pad has a pad layer **202** that is in contact with the knee. As described above, each knee pad is concave, that is, each knee pad center protrudes away from the knee, to conform to the human knee's contour.

[0026] As described above, connected typically on the inner side of the respective knee (i.e., the side facing towards the second leg), is the long strap **130**, which may have a series of buckle holes **134**. Connected to the other side of each knee pad, that is, typically on the outer side of the knee, is the shorter buckle strap **140**. The buckle strap **140** includes the buckle **142**, as well as the short strap extension **144** between the knee pad and the buckle. The outer side positioning of the buckle facilitates easy buckling and unbuckling of the knee pad, while also avoiding a problem of the buckle scraping against the opposing leg.

[0027] As described above, the knee pads (i.e., right knee pad **112** and left knee pad **122**) are designed with several layers. Shown on the inner side of each knee pad is the inner pad layer **202**. This inner layer may be the same as the pad top layer **160** described above, as viewed from the front sides of the knee pad accessories in **Fig. 1**. Alternatively, the inner pad layer **202** and the top pad layer **160** may be separate layers, thereby providing additional cushioning and/or rigidity to the knee pad. Additionally, when the knee pad includes both the inner pad layer **202** and the top pad layer **160** as separate layers, an additional layer of pad filler may also be included between the two layers to provide further cushioning and/or rigidity to the knee pad.

[0028] As shown in the figure, the right and left knee pads may also have markings to indicate the preferred knee for attaching the knee accessories, i.e., the preferred orientation for attaching the knee accessories to the knees, in order to further improve convenience for the wearer. For example, a right knee pad indicator **214** may be indicated as a letter "R" and a left knee pad indicator **224** may be indicated as a letter "L," as shown on the back sides of the respective pads. Such indicators enable the user, when holding each knee accessory in the proper direction for attachment, to clearly see that the orientation is correct.

[0029] **Fig. 3** is a schematic diagram of the pair **100** of knee accessories **110** and **120**, respectively, each having knee pads with zipper pockets **302** employing zippers **304**. That is, the right knee pad **112** and the left knee pad **122** each have a pocket with a fastener to close the pocket opening. zipper pocket **302**, which each open with a zipper **304**, rather than regular pockets as shown in **Fig. 1**. Other than the knee pocket variation, the right knee accessory **110** and the left knee accessory **120** are identical to the right and left knee accessories described above. As described above, each knee accessory has a respective knee pad, to which is connected, typically on the inner side of the respective knee (i.e., the side facing

towards the second leg), the long strap **130**. Connected to the other side of each knee pad, that is, typically on the outer side of the knee, is the shorter buckle strap **140**.

[0030] The buckle strap **140** includes the buckle **142**, as well as the short strap extension **144** between the knee pad and the buckle. As described above, the knee pads (i.e., right knee pad **112** and left knee pad **122**) are designed with several layers to create pockets. Layers may also be provided for cushioning and rigidity. Note that the back sides of the knee accessories shown in **Fig. 3** are identical to the back sides shown in **Fig. 2**. It is to be understood that the zipper is one type of fastener for closing the knee pocket and that other types of pocket fasteners known in the art may be applied, including buttons, Velcro tapes, snap press studs, and clasps.

[0031] **Fig. 4** is a schematic diagram of the pair **100** of knee accessories, respectively right knee accessory **110** and left knee accessory **120**, as worn on a wearer's knees **402** (i.e., "user's" knees), according to some embodiments of the present invention. Shown in **Fig. 4** is the design of the knee pads that is also shown in **Fig. 1**, in which the pockets are open, without zippers. Note the typical configuration of the knee accessories, with the buckle **142** of the buckle strap **140** positioned to the outside of the knee when the knee accessory is attached to the knee.

[0032] **Fig. 5** is a schematic diagram of the pair **100** of knee accessories, respectively right knee accessory **110** and left knee accessory **120**, as worn on a wearer's knees **402** (i.e., the user's knees), according to the design of **Fig. 3**, in which the pockets have zippers.

[0033] **Figs. 6A-6C** are images of three types of knee accessories, having different materials and pocket types, according to some embodiments of the present invention. Each image shows the concave form of the knee pads, as well as the straps and pockets.

[0034] **Fig. 6A** shows a knee accessory having the multiple pockets described above with respect to **Fig. 1**, with denim used to manufacture the pads, pockets, and straps. Similarly, **Fig. 6B** shows the same double pocket pattern in an elongated (elliptical) form, made from leather. **Fig. 6C** shows a zipper-pocketed knee accessory having an outer layer made of silk. Any material or combination of materials having the flexibility to open as a pocket, so as to store personal items (such as cards, keys, coins, etc.) can be used to manufacture the pocketed knee accessory of the present invention.

[0035] **Fig. 7** shows a knee accessory **700** made with a single strap, such that the knee accessory is attached in a pull-up manner (i.e., pulling the knee accessory up over the foot). That is, the knee accessory **700** has no fastener to connect between a pair of straps as in the knee accessory **100** described above. The knee accessory **700** has a pocket **702**, which may be in the front of the knee accessory or anywhere else around the extent of the strap, though typically not directly behind the knee.

[0036] It should be understood that the above description is merely exemplary and that there are various em-

bodiments of the present invention that may be devised, mutatis mutandis, and that the features described in the above-described embodiments, and those not described herein, may be used separately or in any suitable combination; and the invention can be devised in accordance with embodiments not necessarily described above. Changes and modifications, which do not depart from the teachings of the present invention, will be evident to those skilled in the art, and such changes and modifications should be deemed to come within the purview of the present invention and the appended claims.

Claims

1. A knee accessory (110, 120) comprising:

a buckle strap (140) having a buckle (142);
a long strap (130); and

a pad (112, 122) configured with a concave form to fit over the knee, affixed towards the outer side of the knee to the buckle strap, and affixed towards the inner side of the knee to the long strap, wherein the long strap is secured to the buckle of the buckle strap at adjustable positions, and wherein the pad comprises a knee pocket (162, 166, 302, 702) affixed to the outer side of the pad, away from the knee, wherein the buckle strap extends between the pad at the outer side of the knee and the buckle, to position the buckle at the outer side of the knee, such that the long strap is secured to the buckle at the outer side of the knee.

2. The knee accessory of claim 1, wherein the pad further comprises two joined layers of material, having a filler between the two layers, and at least one additional layer of material affixed to the outer layer of the pad to form the knee pocket.

3. The knee accessory of either of claims 1 or 2, wherein the knee pocket comprises an opening angled so as to open towards the outer side of the knee.

4. The knee accessory of any of claims 1 to 3, further comprising a knee orientation indication, wherein the knee indicator indicates either a right or a left knee.

5. The knee accessory of any of claims 1 to 4, wherein the long strap has multiple buckle holes, and the buckle is a prong buckle.

6. The knee accessory of any of claims 1 to 4, wherein the long strap comprises Velcro-type, hook and loop surfaces and is configured to loop through the buckle.

7. The knee accessory of any of claims 1 to 6, wherein

the knee pocket and the straps are made of at least one of cotton, polyester, and leather.

8. The knee accessory of any of claims 1 to 7, wherein the knee pocket has one or more fasteners for closing a pocket opening.

9. The knee accessory of claim 8, wherein the one or more fasteners belong to a fastener type from a set of fastener types including a button, a Velcro tape, a snap press stud, a zipper, and a clasp.

10. A pair of knee accessories of any of claims 1 to 9, wherein one knee accessory is configured for a right knee, having the buckle strap on the wearer's right side, and a second knee accessory is configured for a left knee, having the buckle strap on the wearer's left side.

11. The pair of the knee accessories of claim 10, wherein one knee accessory is the mirror image of the second knee accessory.

12. A knee accessory comprising: a pocket and a strap for attachment of the knee accessory to the knee.

13. The knee accessory of claim 12, wherein the knee accessory is configured as a pull-up accessory, wherein the strap is a single elastic band with no fastener.

14. The knee accessory of either of claims 12 or 13, wherein the pocket is positioned at the front or side of the knee.

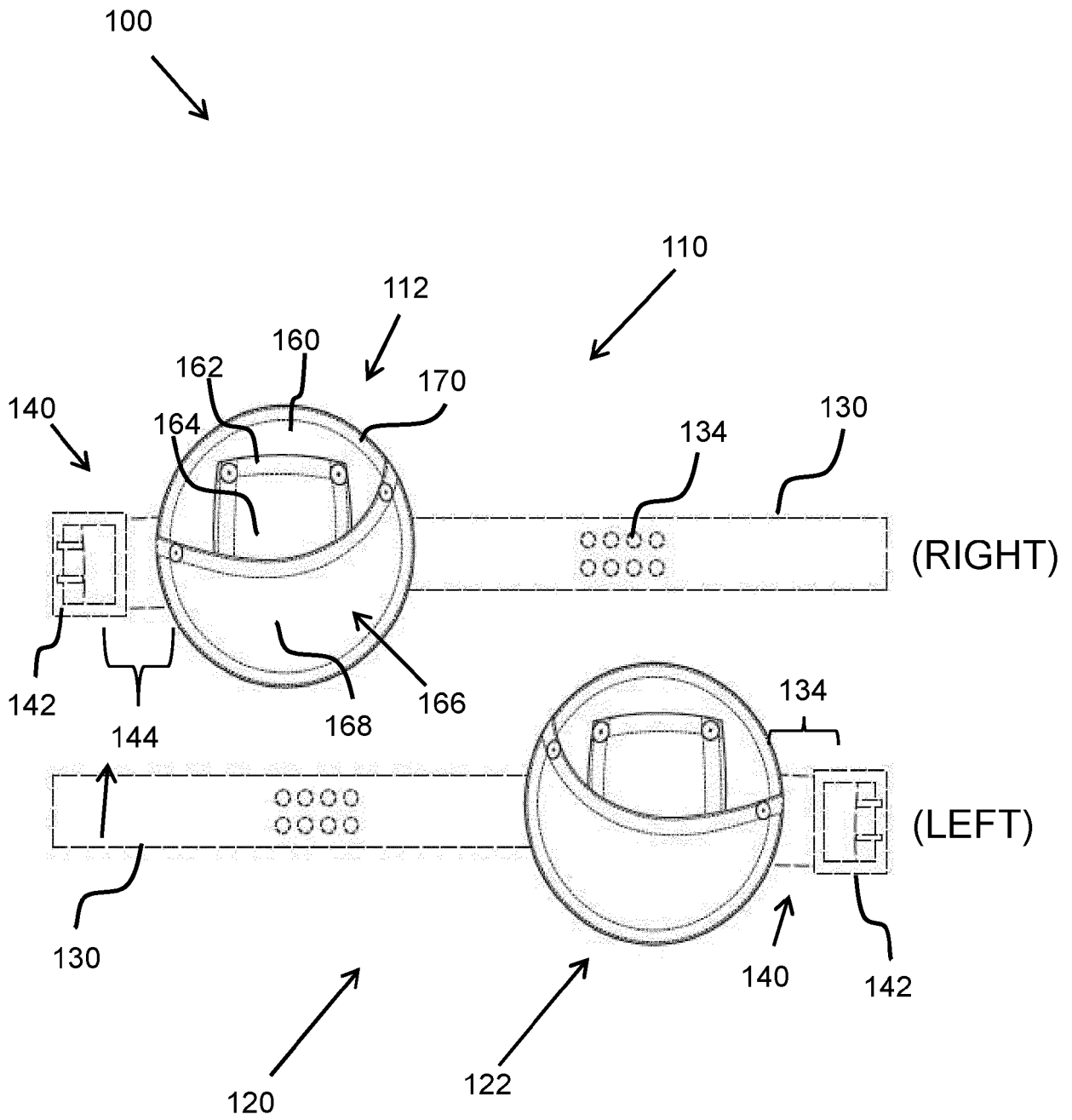


Fig. 1

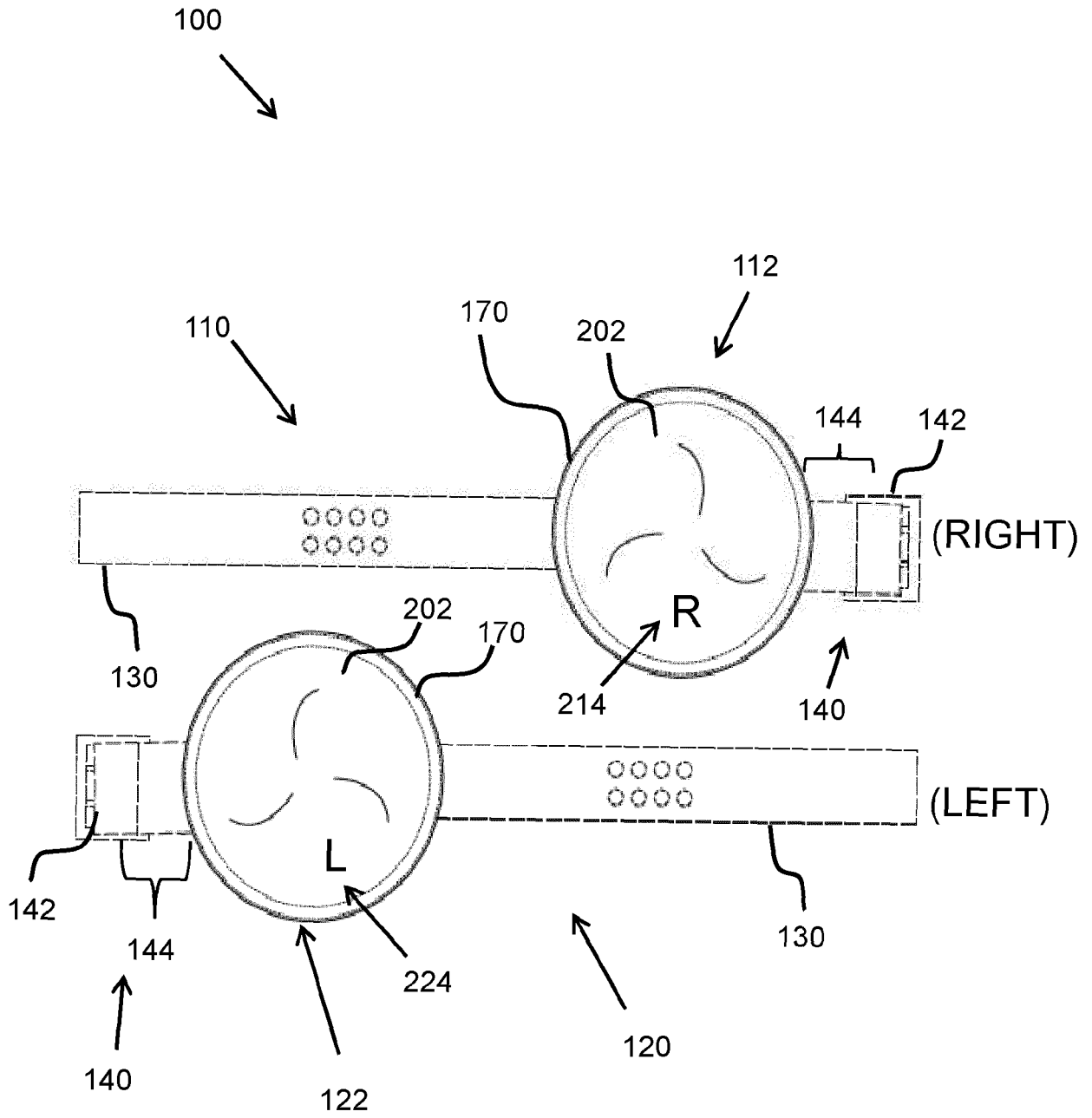


Fig. 2

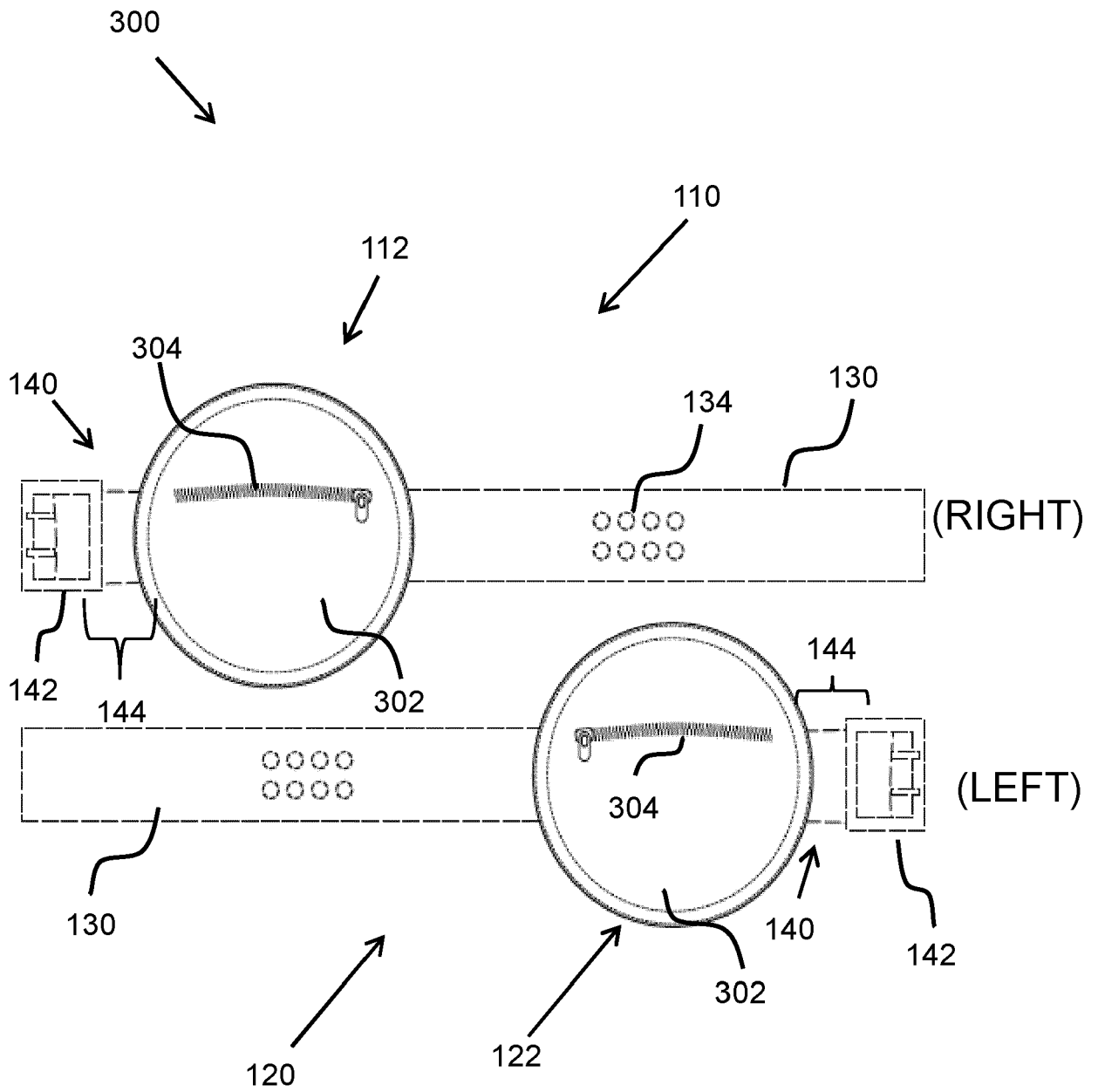


Fig. 3

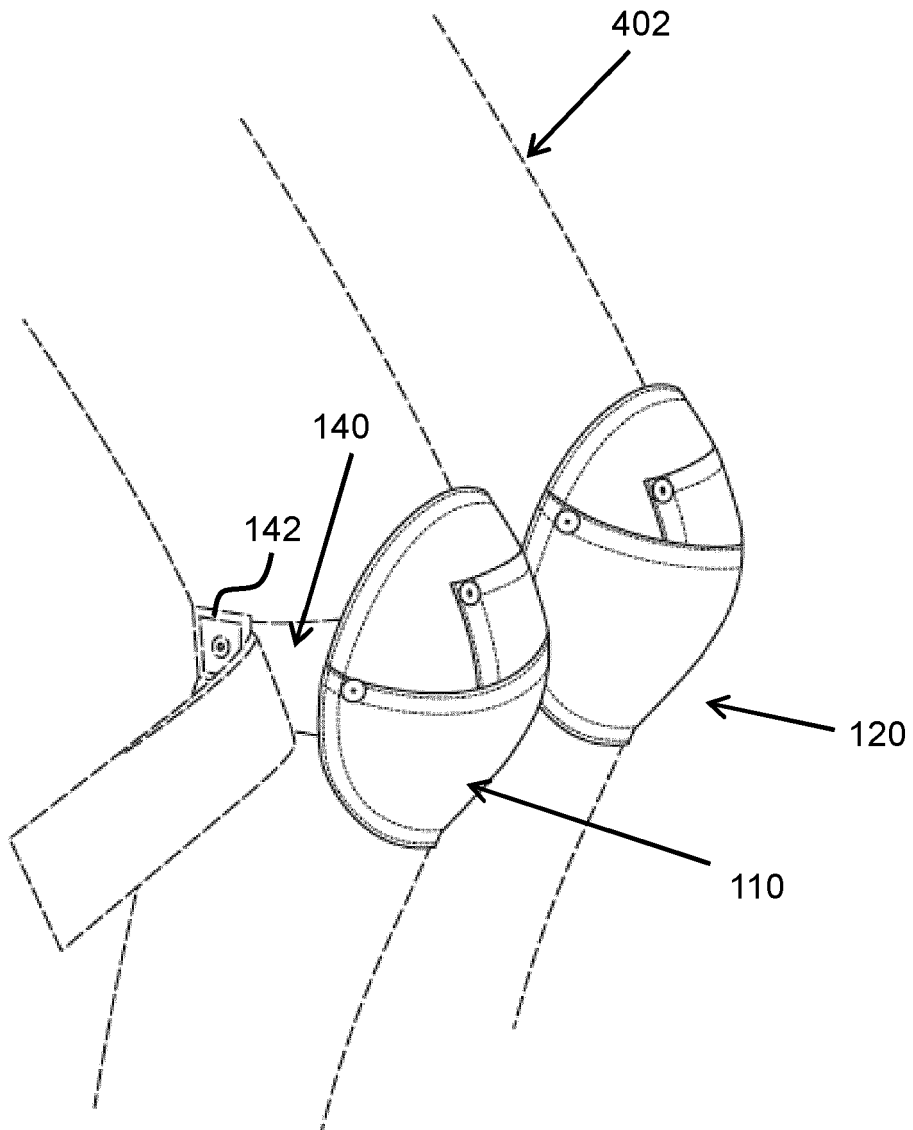


Fig. 4

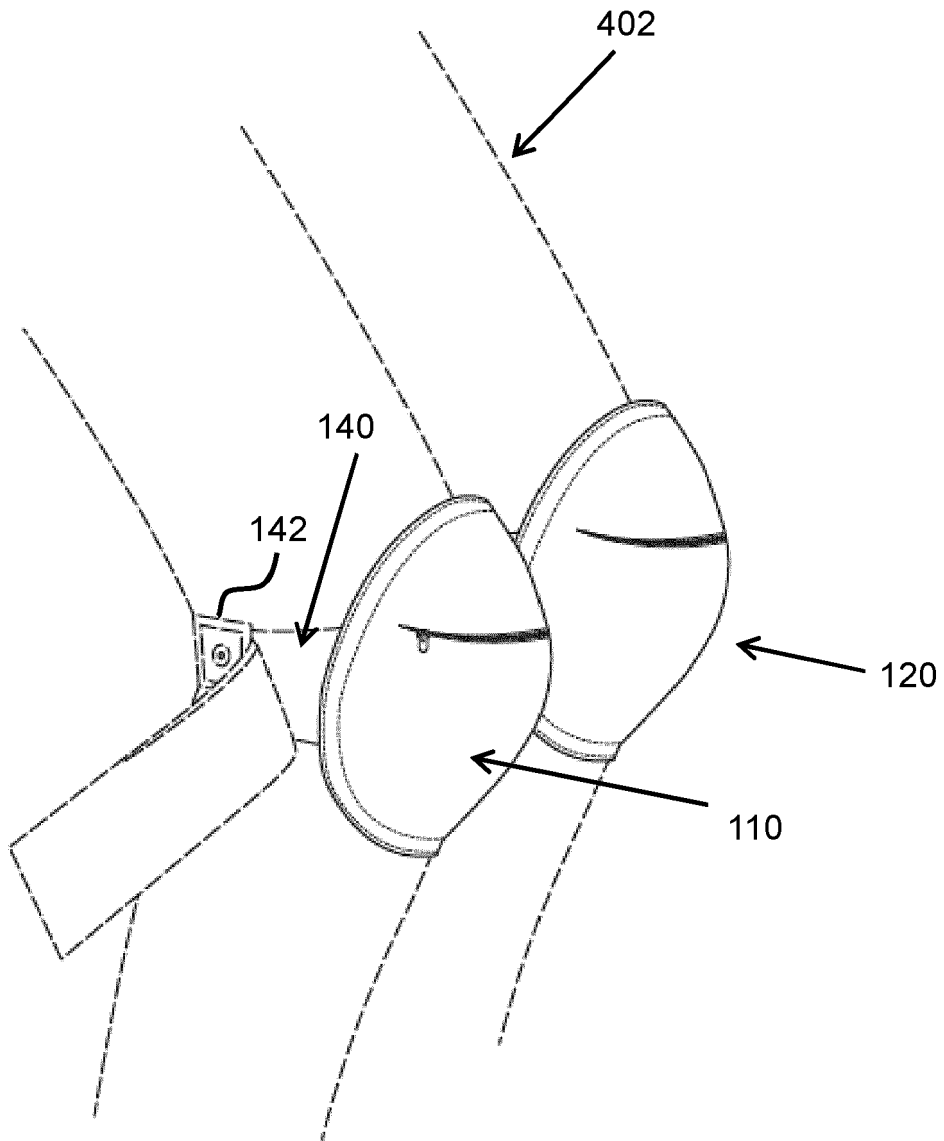


Fig. 5

Fig. 6A

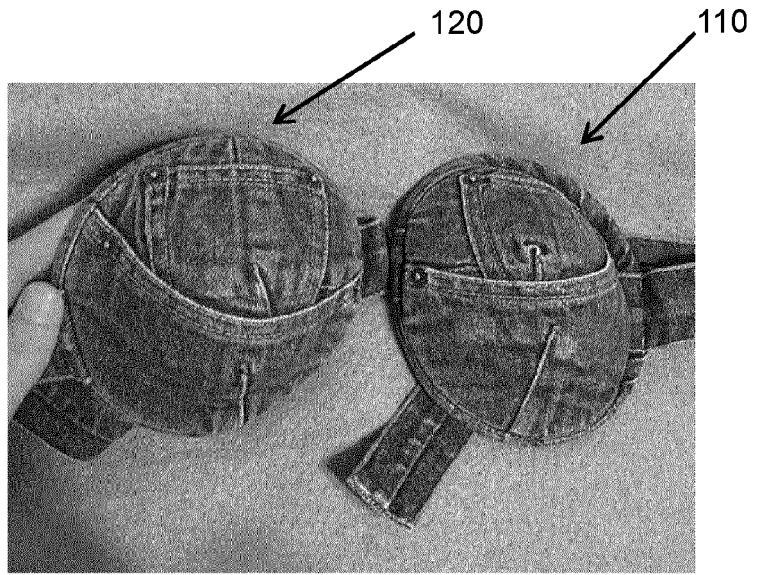


Fig. 6B



Fig. 6C

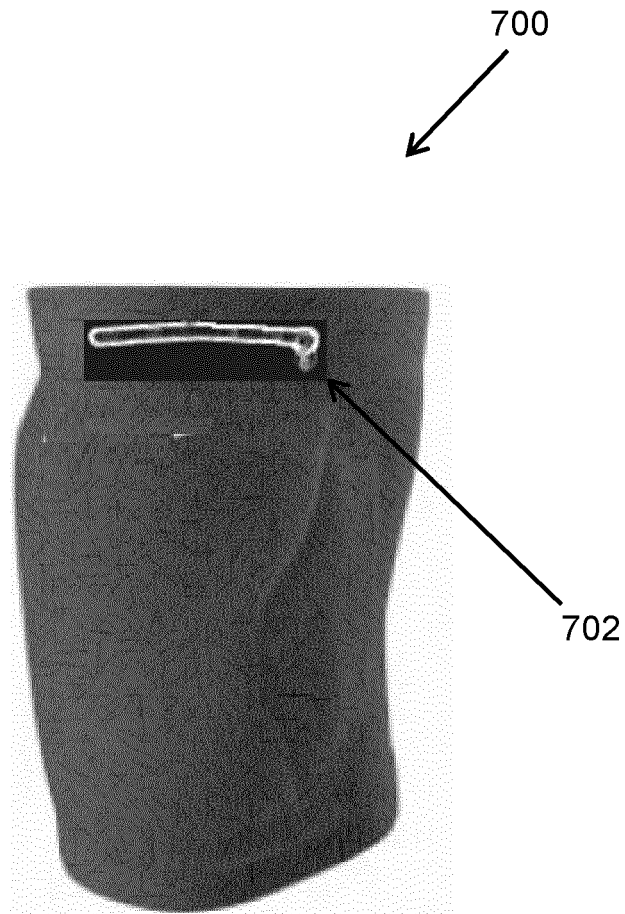


Fig. 7



EUROPEAN SEARCH REPORT

Application Number
EP 24 15 4034

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	AU 2008 258 150 B1 (JORGE PEREIRA) 19 March 2009 (2009-03-19)	1,2,4,5, 8-14	INV. A41D13/06
A	* page 3, lines 20-22; figures 1,2 * * page 4, lines 1-11 * * page 6, lines 14-26 * * page 7, lines 13-16 * * page 8, lines 2-4 *	3	A41D27/20
X	US 2015/047090 A1 (COOK ROBERT A [US]) 19 February 2015 (2015-02-19)	1,4-7, 10-12,14	
A	* paragraphs [0011], [0028] - [0032]; figure 10 *	3	
X	TW M 608 650 U (LI ZHUANG YONG [TW]) 1 March 2021 (2021-03-01)	12,14	
	* description; figures *		
X	US 2012/295773 A1 (AMSEL ALLAN [US] ET AL) 22 November 2012 (2012-11-22)	12,14	
	* paragraph [0010]; figure 1 *		
			TECHNICAL FIELDS SEARCHED (IPC)
			A41D A45C
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 23 May 2024	Examiner Gallego, Adoración
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 24 15 4034

5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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10	Patent document cited in search report	Publication date	Patent family member(s)	Publication date
	AU 2008258150 B1	19-03-2009	AU 2008258150 B1 WO 2010068982 A1	19-03-2009 24-06-2010
15	US 2015047090 A1	19-02-2015	NONE	
	TW M608650 U	01-03-2021	NONE	
20	US 2012295773 A1	22-11-2012	NONE	
25				
30				
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40				
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