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Pääpannan pehmuste

HEADBAND CUSHION

Headband cushion

The invention relates to a headband cushion for a headband of a headphone comprising a cushion element and a retaining means for fixing the cushion element to the headband, wherein the cushion element has a cushion side which
5 can be placed against a head and an opposing headband side, wherein the retaining means is designed to be lockable and reversibly releasable such that the headband cushion can be attached to the headband and removed from the headband. The retaining means can be force-fit and/or form-fit lockable.

A headband cushion is already known from DE 1 209 163 A. This is formed from
10 a foam cushion which is bonded to the headband via a leather strap.

US 2019/0356976 A1, DE 7204993 U, EP 2986027 A1, US 2018/0262825 A1, US 2018/0302708 A1, WO 2019/177510 A1, DE 9112502U1, WO 2015/077315 A1, CN 211209904 U, WO 2018/103141 A1 and DE 29905370 U1 also describe detachably arranged headband pads. DE 102013000562 A1 also describes a
15 headband cushion. In particular, EP 2986027 A1 shows a headband cushion according to the introductory part of claim 1.

The invention is based on the task of designing and arranging a headband cushion in such a way that improved handling is guaranteed.

According to the invention, the problem is solved by a headband cushion
20 according to claim 1. Further embodiments are defined in the dependent claims.

The recess is advantageously on the band side and extends over the aforementioned part of the length L. This ensures that the headband is accommodated within the recess and thus prevents the headband cushion from slipping sideways. Flexible positioning of the headband cushion in the direction
25 of length L relative to the headband is nevertheless possible. Thanks to the recess, the headband is integrated into the cushion element and is not bulky, so that the headband cushion can also be worn comfortably together with a protective headgear. The second recess is advantageously provided on the

headband side. It also extends over the entire length L. This also ensures defined positioning of the connection cable within the headband cushion. Flexible positioning in the direction of length L is also possible, meaning that the connection cable can be moved in the direction of length L within the second recess. The connection cable is thus integrated into the headband cushion and is not bulky, so that the headband cushion can also be worn comfortably together with a protective headgear. The fact that the connection cable is only inserted into the second recess means that it can be easily inserted and removed if necessary. The third recess is also provided on the bracket side. It also extends over the entire length L. The second recess can be provided with reference to a width B between the first and the third recess. The third recess in turn serves to accommodate a further part of the headband or a second headband segment, which can be positioned in a correspondingly defined manner and can be accommodated within the recess so as to be displaceable in the direction of the length L. The first and third recesses have a maximum distance in relation to the width B, which ensures optimum support or fixation on the user's head. All three recesses ensure that the headband and connection cable are optimally positioned and held in place, while also ensuring a low overall height for wearing together with or under a protective headgear. Only the space required for the headband cushion or cushion element needs to be taken into account for the internal structure of the head protection bonnet. The respective recess can be a longitudinal groove within the cushion element that is open at the top. The longitudinal groove is preferably also open laterally at the respective end area. The headband cushion can also be removed at any time for cleaning and/or decontamination or for replacement due to wear.

It may advantageously be provided that the retaining means has at least one locking tab by means of which the cushion element can be fixed to the headband. The locking tab can be used to cover the at least one recess and a headband or connection cable contained therein can be fixed accordingly. In the fixed state, the locking tab extends over one or more recesses. The cushion element can be fixed to the headband by means of the locking tabs, whereby the headband can

be attached in the at least first recess. In this way, the fastening means does not obstruct the padded contact between the cushion element and the user's head.

It can be of particular importance for the present invention if the retaining means has a first locking means, wherein the at least one closure tab can be brought
5 into lockage with the cushion element at least indirectly via the first locking means. The first closure means is fastened on the hanger side.

In connection with the design and arrangement according to the invention, it can be advantageous if the cushioning element has a base body with an outer layer, the closure tabs being an integral part of the outer layer or in that the closure tabs
10 are formed by the outer layer. This makes it easy to manufacture the outer layer including the closure tabs.

It can also be advantageous if the holding means has a second locking means which can be brought into the releasable closure with the first locking means. The locking means is attached to the closure tab. The first and second locking means
15 can be co-operating elements of a hook and loop fastener. The use of a second locking means, advantageously in the form of a hook-and-loop fastener element, ensures a secure hold and easy opening and closing of the locking means. Other combinations of locking means are also conceivable, in which at least one side has Velcro-like properties such as hooks, while the other side has corresponding
20 recesses, loops or the like for engaging or hooking the hooks.

It can also be advantageous if the respective locking tab is provided laterally on one edge of the cushion element between the cushion side and the headband side. This makes it possible to close or fold the closure tab over to the band side and fix the headband accordingly. It is also conceivable to place the closure tabs
25 in other zones of the band side, as long as this ensures that the respective recesses are closed by folding them over. The cushion side is advantageously free of fastening tabs.

It can also be advantageous if the cushion element has at least one recess that extends across the width B. The recess extends over the entire width B and is
30 provided on the band side. The recess makes it easier to adjust the headband

cushion in relation to the basic curvature of the headband. This avoids creases or similar disruptive influences, particularly on the cushion side.

It can also be advantageous if the recess is designed as a groove that is open laterally in one end area and upwards. The longitudinal groove is used to
5 accommodate a headband installed at the end of an earcup and to accommodate a connection cable installed at the end of an earcup. The headband or connection cable is inserted into the longitudinal groove by inserting it into the longitudinal opening of the upwardly open longitudinal groove, i.e. inserting it in a direction
Re transverse to a direction Ri in which the length L extends.

10 It can be advantageous if an outer surface of the cushion element, which forms at least the cushion side, has no structure, is smooth, non-porous and/or waterproof. The outer surface is thus easy to clean or decontaminate.

Finally, it can be advantageous if the cushion side is designed without recesses and/or recess-free. This ensures convenient handling and comfortable
15 positioning on the user's head.

It can also be advantageous if the cushioning element has a base body, whereby the base body is designed as a gel cushion. In this case, the outer layer is designed as a separate or distinct outer layer from the base body. The outer layer surrounds the base body at least partially or completely. Gel cushions offer known
20 advantages in terms of their flexibility or adaptability and the associated cushioning properties.

Furthermore, a system consisting of a headband cushion as described above and with a cover into which the headband cushion is incorporated, the cover being detachably attached to the headband cushion, is advantageous. The cover can
25 be made of washable fabric or textile. This means that the cover can be cleaned separately. Thanks to the detachable cover, the connecting cable in the second recess or the headband in the first and third recesses can be easily installed, removed or replaced if necessary.

It can be advantageous here if a headband of a headphone is also provided, which is inserted into the headband cushion. The headband, which is accommodated in the first and third recesses, can also be easily removed or replaced thanks to the detachable cover. The same applies to replacing the
 5 headband cushion in relation to the headband.

Further advantages and details of the invention are explained in the patent claims and in the description and shown in the figures. It shows:

Figure 1a a perspective view of a headband cushion from the band side;

Figure 1b a principle sketch as a sectional view of the headband cushion;

10 Figure 2 a view of the headband cushion from the cushion side;

Figure 3 the headband cushion mounted on a headband as seen from above;

Figure 4 the headband cushion shown in Figure 3 with a fabric cover.

A headband cushion 1 shown in Figures 1a and 1b is formed from a base body
 15 1.3, such as silicone, which is surrounded by an outer layer 1.4. Three recesses 1.5, 1.6, 1.7 and a recess 1.2 running at right angles to these are provided inside the cushion element 1.1 formed in this way. The latter extends over the width B of the cushioning element 1.1, while the three recesses 1.5, 1.6, 1.7 extend over the length L of the cushioning element 1.1.

20 The respective longitudinal groove 1.5, 1.6, 1.7 is preferably also open laterally at the respective end region 8a. The longitudinal groove is used to accommodate a headband 2.1 installed at the end of an earpiece 2 and to accommodate a connection cable 2.2 installed at the end of an earpiece 2. The headband 2.1 or the connection cable 2.2 is inserted into the longitudinal groove by inserting it into
 25 the longitudinal opening 8b of the upwardly open longitudinal groove 1.5, 1.6, 1.7, i. e. inserting it in a direction R_e transverse to the direction R_i of the length L.

In addition, the cushion element 1.1 has several closure tabs 4.1 on one longitudinal side of the cushion element 1.1 and also several closure tabs 4.2 on the opposite side of the cushion element 1.1. The various closure tabs 4.1, 4.2 are attached or hinged to an edge 1.8 of the cushion element 1.1 according to
5 Figure 1b and can be placed on the band side 6 of the cushion element 1.1 over the recesses 1.5, 1.6, 1.7 located therein. The latter for closing the recesses 1.5, 1.6, 1.7 or the headband 2.1 or connecting cable 2.2 located therein.

For the purpose of releasably fastening the respective closure tab 4.1, 4.2 on the band side 6 of the cushion element 1.1, a plurality of first locking means 4.3, 4.4
10 and, in addition, a plurality of second locking means 4.5, 4.6 are provided, which, according to embodiments Figures 1a to 4, are designed as hook-and-loop fasteners. In this way, the locking tabs 4.1, 4.2 can be repeatedly released from the band side 6 or fixed to the band side 6.

Within the aforementioned recesses 1.5, 1.6, 1.7, as shown in Figure 3, two
15 headbands 2.1 and also a connection cable 2.2 of the headphones 2 or ear cups located on the headband are inserted and held within the respective recess 1.5, 1.6, 1.7 by means of the aforementioned locking tabs 4.1, 4.2, as shown in Figure 1b and Figure 3.

As already mentioned, the cushioning element 1.1 has a base body 1.3 preferably
20 made of silicone, which is encapsulated with an outer layer 1.4. In addition to silicone, the base body 1.3 can also be made of foam or similar soft plastic.

The two headbands 2.1 are mounted in the two outer recesses, i. e. inside the first recess 1.5 and inside the third recess 1.7, while the connecting cable 2.2 is mounted inside the second recess 1.6, which is located between the two
25 recesses 1.5, 1.7. As can be seen in Figure 3, the cushion element 1.1 is kinked in the area of the recess 1.2, which runs along the width B, so that it can be adapted to the shape of the headband 2.1 without wrinkling.

As shown in Figure 4, the cushion element 1.1 attached to the headband 2.1 or the headband cushion 1 thus formed is provided with a fabric cover 7, as also
30 shown in Figure 1b. The cover 7 is also fastened using similar fastening means

such as Velcro fasteners and can be reversibly removed or fitted and washed accordingly.

The headband cushion 1 formed in this way has a smooth, easy-to-decontaminate or easy-to-clean surface at least on the cushion side 5, whereby
5 cleaning can be carried out with the cushion element 1.1 removed or with the headband cushion 1 removed. In addition, the headband cushion 1 can be replaced using the aforementioned locking tabs 4.1, 4.2.

According to Figure 1a, the closure tabs 4.1 only extend from the edge 1.8 to above the first recess 1.5 during closure and can be fastened there to the
10 cushioning element 1.1 via said first and second locking means 4.3, 4.5. The other closure tabs 4.2 are larger and extend from the edge 1.8 over the second recess 1.6 and the third recess 1.7 and can be fastened to the band side 6 of the cushion element 1.1 via said first and second locking means 4.4, 4.6. The latter
15 also applies to the remaining web of the cushion element 1.1 between the second recess 1.6 and the third recess 1.7.

In the embodiment example shown here, the closure tabs 4.1, 4.2 are an integral part of the outer layer 1.4. The first and second locking means 4.3, 4.4, 4.5, 4.6 are attached to said closure tabs 4.1, 4.2 preferably by adhesive.

List of reference symbols

	1	Headband cushion
	1.1	Cushion element
	1.2	Recess
5	1.3	Base body
	1.4	Outer layer
	1.5	First recess, groove
	1.6	Second recess, groove
	1.7	Third recess, groove
10	1.8	Edge
	1.9	Exterior surface
	2	Headphones, earpiece
	2.1	Headband
	2.2	Connection cable, connection line
15	3	Head
	4	Retaining means, holding means
	4.1	Locking tab, closure tab
	4.2	Locking tab, closure tab
	4.3	First locking means
20	4.4	First locking means
	4.5	Second locking means
	4.6	Second locking means
	5	Cushion side
	6	Band side
25	7	Cover
	8a	End area
	8b	Opening
	B	Width
	L	Length
30	Direction_Re	
	Direction_Ri	

Patenttivaatimukset

5 **1.** Pantapehmuste (1) kuulokkeiden (2) pääpantaa (2.1) varten, joka panta-
pehmuste käsittää pehmuste-elementin (1.1) sekä pidikkeen (4) pehmuste-
elementin (1.1) kiinnittämiseksi pääpantaan (2.1),
joka pehmuste-elementti (1.1) käsittää päätä (3) vasten asetettavan tyynty-
puolen (5) ja siihen nähden vastakkaisen pantapuolen (6),
ja joka pidike (4) on järjestetty lukittavaksi ja irrotettavaksi palautuvasti siten,
10 että pantapehmuste (1) on kiinnitettävissä pääpantaan (2.1) ja irrotettavissa
pääpannasta (2.1),
jossa pantapehmusteessa pehmuste-elementillä (1.1) on leveys B ja pituus
L,

tunnettu siitä, että
pehmuste-elementti käsittää ensimmäisen syvennyksen (1.5), johon ensim-
15 maiseen syvennykseen (1.5) on tarkoitettu sijoitettavaksi pääpanta (2.1),
pehmuste-elementti (1.1) käsittää toisen syvennyksen (1.6), johon on
tarkoitettu sijoitettavaksi kuulokkeiden (2) liitäntäjohto (2.2),
pehmuste-elementti (1.1) käsittää kolmannen syvennyksen (1.7), johon on
tarkoitettu sijoitettavaksi pääpannan (2.1) vielä yksi osa,
20 ja ensimmäinen syvennys (1.5), toinen syvennys (1.6) ja kolmas syvennys
(1.7) ulottuvat pituudelle L.

2. Jonkin edellisen patenttivaatimuksen mukainen pantapehmuste (1),
tunnettu siitä,
25 että pidike (4) käsittää ainakin yhden lukituskielekkeen (4.1, 4.2), jonka
avulla pehmuste-elementti (1.1) on kiinnitettävissä pääpantaan (2.1).

3. Patenttivaatimuksen 2 mukainen pantapehmuste (1),
tunnettu siitä,
30 että pidikkeessä (4) on ensimmäinen lukituselin (4.3, 4.4),
jolloin mainittu ainakin yksi lukituskieleke (4.1, 4.2) on lukittavissa ainakin
välillisesti ensimmäisen lukituselimen (4.3, 4.4) avulla pehmuste-elementtiin
(1.1).

35 **4.** Patenttivaatimuksen 2 tai 3 mukainen pantapehmuste (1),
tunnettu siitä,

että pehmuste-elementti (1.1) käsittää runkokappaleen (1.3), jossa on ulkokerros (1.4), jolloin lukituskiekkeet (4.1, 4.2) ovat kiinteä osa ulkokerrosta (1.4) tai lukituskiekkeet (4.1, 4.2) on muodostettu ulkokerroksesta (1.4).

5

5. Jonkin edellisen patenttivaatimuksen 2–4 mukainen pantapehmuste (1), **tunnettu** siitä, että pidike (4) käsittää toisen lukituselimen (4.5, 4.6), joka on lukittavissa irrotettavasti ensimmäiseen lukituselimeen (4.3, 4.4).

10

6. Jonkin edellisen patenttivaatimuksen 2–5 mukainen pantapehmuste (1), **tunnettu** siitä, että kukin lukituskieleke (4.1, 4.2) on järjestetty pehmuste-elementin (1.1) pehmustepuolen (5) ja pantapuolen (6) väliseen sivureunaan (1.8).

15

7. Jonkin edellisen patenttivaatimuksen mukainen pantapehmuste (1), **tunnettu** siitä, että pehmuste-elementissä (1.1) on ainakin yksi syvennys (1.2), joka ulottuu leveydelle B.

20

8. Jonkin edellisen patenttivaatimuksen mukainen pantapehmuste (1), **tunnettu** siitä, että syvennys (1.5, 1.6, 1.7) on muodostettu uraksi, joka on avoin päätyalueen (8a) sivulle ja ylöspäin.

25

9. Jonkin edellisen patenttivaatimuksen mukainen pantapehmuste (1), **tunnettu** siitä, että pehmuste-elementin (1.1) ulkopinta (1.9), joka muodostaa ainakin tyynypuolen (5), on muodostettu struktuurittomaksi ja/tai sileäksi ja/tai huokosettomaksi ja/tai vedenpitäväksi.

30

10. Jonkin edellisen patenttivaatimuksen mukainen pantapehmuste (1), **tunnettu** siitä, että tyynypuoli (5) on muodostettu aukottomaksi ja/tai syvennyksettömäksi.

35

11. Jonkin edellisen patenttivaatimuksen mukainen pantapehmuste (1), **tunnettu** siitä,

että pehmuste-elementti (1.1) käsittää runkokappaleen (1.3), joka runkokappale (1.3) on muodostettu geelityynyksi.

5 **12.** Järjestelmä, joka koostuu jonkin edellisen patenttivaatimuksen mukaisesta pantapehmusteesta (1) ja päällisestä (7), jonka sisään pantapehmuste (1) on sijoitettu siten, että päällinen (7) on kiinnitetty pantapehmusteeseen (1) irrotettavasti.

10 **13.** Patenttivaatimuksen 12 mukainen järjestelmä,
tunnettu siitä,
että lisäksi on järjestetty kuulokkeiden (2) pääpanta (2.1), joka on työnnetty pantapehmusteen (1) sisään.

1/2

Fig. 1a

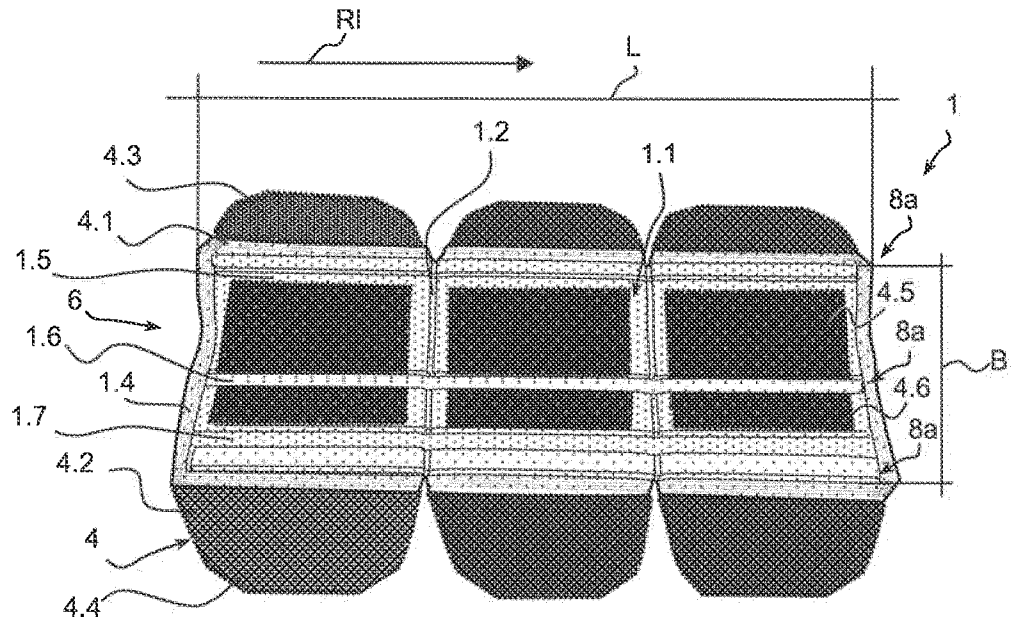


Fig. 1b

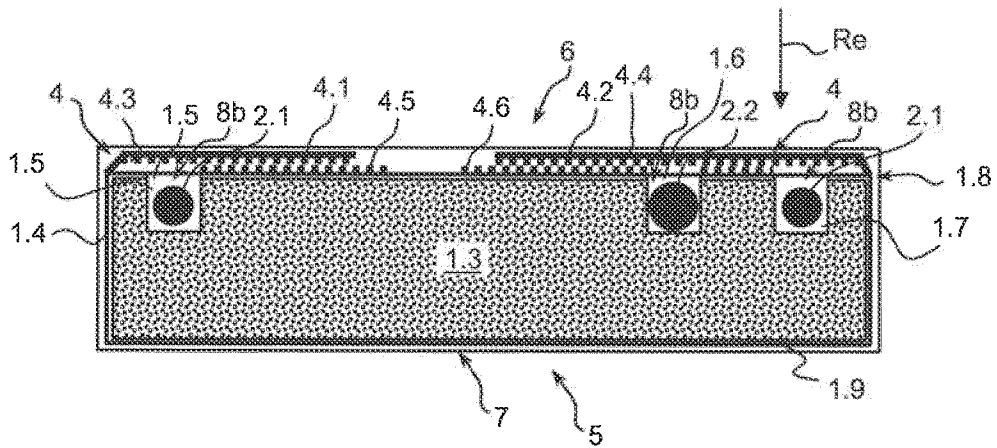


Fig. 2

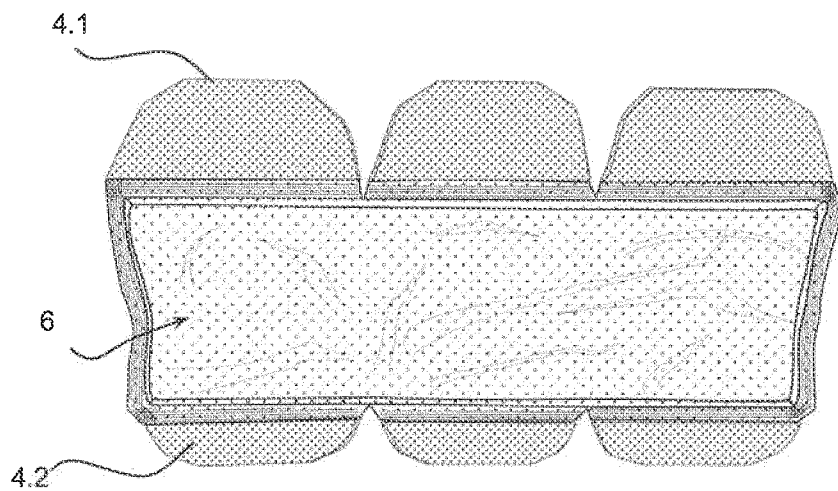


Fig. 3

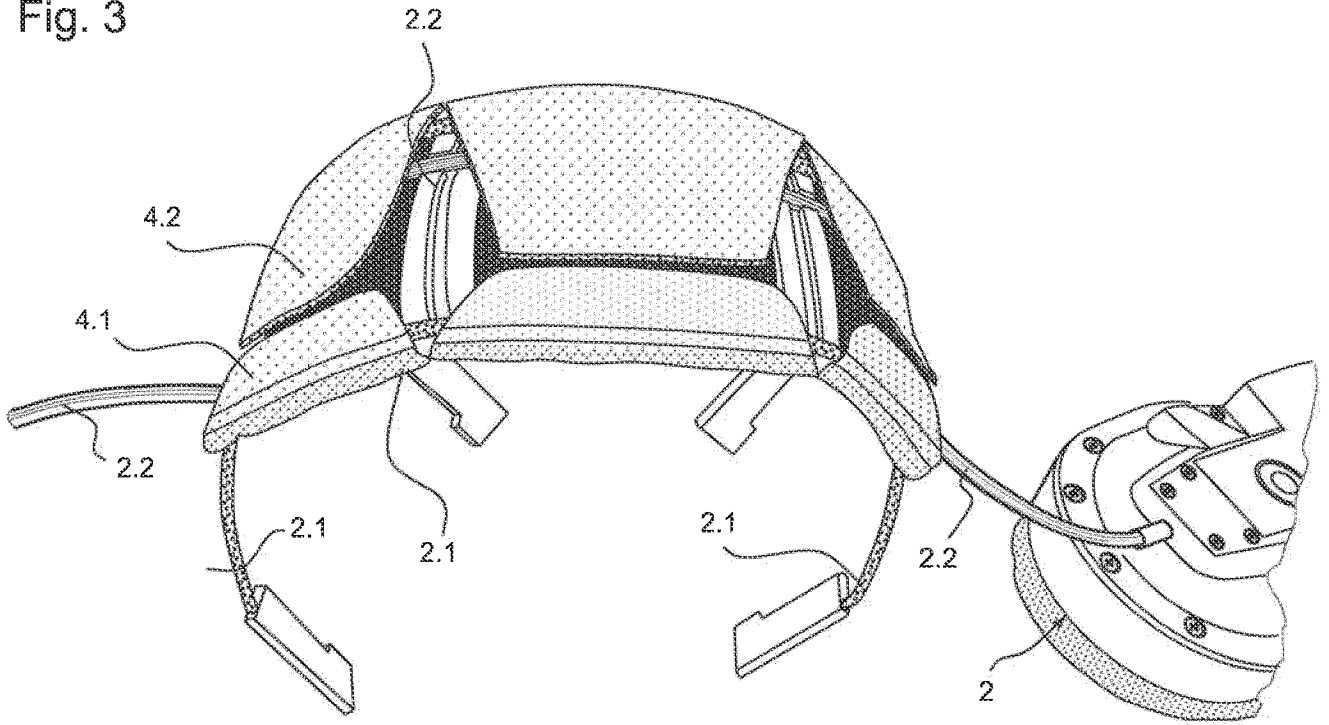


Fig. 4

