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(54) **A HELMET WITH JACKET**

(57) Assembly of a helmet - for protecting the head of a wearer from external impacts and a jacket, said helmet comprising a compartment for storing said jacket therein in a stowed away status, wherein said helmet comprises two temporal zones and frontal zone - covering respectively, at least part of a wearer's head temporal regions and frontal region when the helmet is in place on the wearer's head - characterised in that said jacket comprises a collar configured to cover a wearer's neck and at least part of an auricular region of a wearer's head when the helmet is in place on a wearer's head and the jacket is worn by said wearer, and in that said collar comprises fastening means for attachment to the helmet, at least one of said fastening means located in the temporal or frontal zones of the helmet.

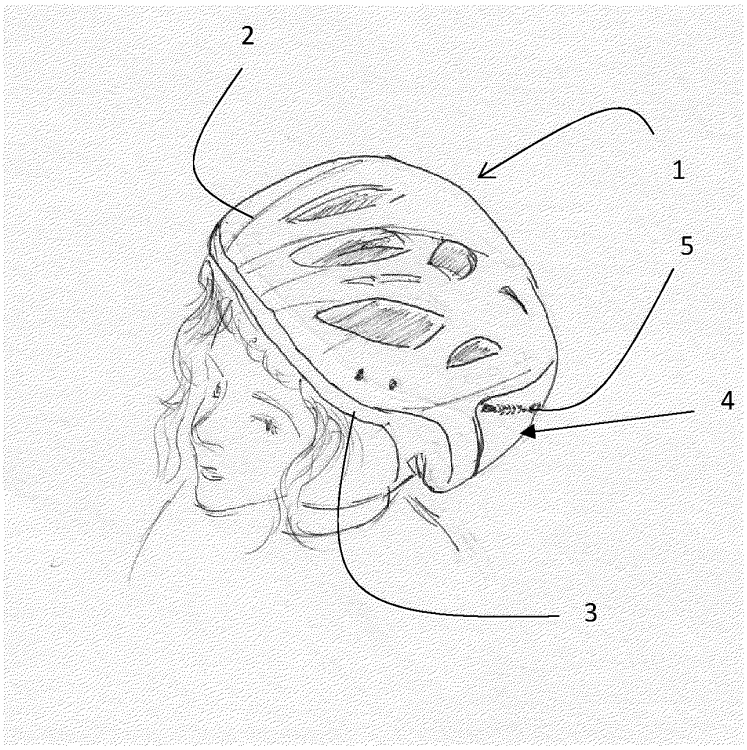

FIG 1

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Description

Field of the Invention

[0001] The present invention concerns an assembly of a helmet, in particular a cycling helmet, and a jacket, preferably a waterproof jacket.

Brief Description of the Prior Art

[0002] As a consequence of global warming, the frequency of rain showers alters, with for some regions longer periods without rain and heavier sudden rain showers, the need for carrying suitable clothing along when cycling increases, whilst the perception of needing a rain jacket decreases due to the longer periods without rain and due to the higher temperatures in spring and autumn.

[0003] Further, with increasing popularity of cycling both in rural and city areas, headwear is expected to meet, in addition to safety, specific higher demands and requirement with respect to adaptability and coexistence with current and future technology/functionality trends such as weather protection and high visibility. Especially for children travelling back and forth to school in traffic hours, it is important that when riding a bike, the focus remains with the traffic and hence all types of discomfort on the bike is to be avoided.

[0004] Rain or other types of precipitation, or even cold wind is very unpleasant when riding a bike and is typically a condition wherein children/people are less attentive to traffic as they experience cold hands, cold ears or water leaking into their neck which makes the children adapting their position on the bike to positions wherein their equilibrium is sub-optimal and wherein their reaction speed is reduced and this just in conditions wherein visibility is lessened and hence traffic is most dangerous.

[0005] A wide choice of cycling rain jackets exist, some with a cap and collar fitting over a cycling helmet allowing comfortable riding in rainy conditions, however when the rain stops, putting the still wet jackets away is cumbersome, especially for children as it wettens the content of their school bags, while keeping the jackets on, but open after a period of rain results in the jacket blowing in the wind, which potentially distracts the wearer of the jacket.

[0006] In view of the above potentially hazardous situations for children in traffic, it is clear that there remains a market need for helmets which incorporate additional functionalities, without jeopardising the primary function of safety both to a wearer and for other participants to traffic or sports.

Summary of the Invention

[0007] The present invention concerns an assembly of a helmet - for protecting the head of a wearer from external impacts and a jacket, said helmet comprising a compartment for storing said jacket therein in a stowed away status, wherein said helmet comprises two temporal zones and frontal zone - covering respectively, at least part of a wearer's head temporal regions and frontal region when the helmet is in place on the wearer's head - characterised in that said jacket comprises a collar configured to cover a wearer's neck and at least part of an auricular region of a wearer's head when the helmet is in place on a wearer's head and the jacket is worn by said wearer, and in that said collar comprises fastening means for attachment to the helmet, at least one of said fastening means located in the temporal or frontal zones of the helmet.

Brief Description of the Figures

[0008]

Fig. 1 illustrates a perspective view of an assembly in accordance with the present invention;
Fig. 2 illustrates another perspective view of the assembly according to the present invention;
Fig. 3 illustrates another perspective view of the assembly according to the present invention
Fig. 4 illustrates regions of a helmet wearer's head;
Fig. 5 illustrates an alternative embodiment of an assembly according to the present invention.

Detailed Description

[0009] The present invention concerns an assembly of a helmet - for protecting the head of a wearer from external impacts - and a jacket. The helmet comprises a dome defining a headspace suited for receiving a wearers head. The dome comprising a shock absorbing layer directed to the inside of the dome and a cover layer attached to said shock absorbing layer and defining an outer surface of the helmet's dome. For the sake of this invention, the dome is divided in zones separated from one another by imaginary lines. These zones corresponding to different regions of the head of a wearer as depicted in Fig. 2, comprising two temporal regions, at least partially covered by temporal zones of the dome when the helmet is worn, a frontal region, at least partially covered by a frontal zone of the dome when the helmet is worn, a occipital region, at least partially covered by an occipital zone of the helmet when worn and a parietal region, at least partially covered by a parietal zone of the dome when the helmet is worn.

[0010] Depending on the design of the helmet, the entire cover layer or part thereof defines an impact receiving surface, that is the surface of the helmet where an external impact is most probable, eg when the wearer falls on his head or bumps his head against a fixed object. For the sake of this invention, this impact receiving surface is defined as by the portion of the helmet at which a virtual plane, tangential to the outer surface of the helmet, does not comprise a cross section throughout both the shock absorbing layer and the cover layer of the helmet. With this definition of the impact receiving surface (or impact

surface), parts of the cover layer are not comprised in the impact receiving surface, such as at the outer edge of the dome, where an edge of the cover layer is slightly bend over the shock absorbing layer or at inwardly bend inner edges of the cover layer circumscribing ventilation holes in the helmet.

[0011] The helmet may further comprise a retention system including a head cage and straps for securely fitting the helmet on the head of a wearer.

[0012] In accordance with the present invention, the helmet further comprises a compartment defining a free volume large enough to stow away the jacket. This free volume is separated from the headspace by at least a layer or web of material. The compartment is in this case provided in the shock absorbing layer but may also be provided between the shock absorbing layer and the cover layer and has an opening that opens at least one side to the edge of the dome or to the outer surface of the dome such that the opening is accessible even when the helmet is worn. A closable lid may be provided allowing sealing off the opening of the compartment, such closable lid may be embodied as a zip fastener, preferably an elastic zip fastener. Clearly, the compartment does not limit the headspace of the helmet such that with the jacket stowed away in said compartment, the helmet can still be worn for protecting the head of a wearer from external impacts, with even extra protection from the propped jacket. In a preferred embodiment the compartment is situated entirely or at least partially in the occipital zone of the helmet as this is the region with least probability of direct external impact when a cycling person falls or is engaged in an accident.

[0013] The compartment may also comprise a drain in the form of a channel extending from the compartment to an outer edge of the helmet or to the outer surface of the cover layer, preferably at the occipital or temporal zones of the helmet. Venting holes may also be provided, preferably in combination with a drain such as to allow drying and aerating of the jacket when stored in the compartment.

[0014] Inside the compartment, one or more attachment means or anchoring points can be provided, such that the compartment allows fastening and storage of the jacket or, in case absent of a functional object such as to immobilise the jacket or functional object. Apart from the attachment means or anchoring points inside the compartment, attachment means or anchoring points may also be provided in the temporal zone and frontal zone of the helmet, preferably however outside of the impact receiving surface along the edge of the dome.

[0015] The attachment means or anchoring points can be attached to or embedded in either the shock absorbing layer or the cover layer, outside of the impact receiving surface. As illustrated in more detail in Fig. 3, the attachment means or anchoring points are preferably configured as clips, snap fasteners, magnets or velcro allowing a fast but secure connection with a mating connector provided on a functional object. The attachment means can be embedded in the shock absorbing layer during manufacturing thereof, eg by providing the attachment means in a mould during or prior to injection of a liquid foam in the mould, or can otherwise be glued or welded to the shock absorbing layer or the cover layer. Alternatively, the attachment means can be formed as a single piece together with the cover layer during manufacturing thereof.

[0016] The helmet is preferably a cycling helmet.

[0017] The jacket, preferably a waterproof jacket and/or windproof jacket, comprises a collar that on its one end is attached (eg sewn of glued) to the jacket and on its other hand comprises collar attachment means or anchoring points for attaching the collar to the helmet. The dimensions of the collar are such that is sufficiently wide for covering a wearer's neck and at least part of an auricular region, preferably both auricular regions of a wearer's head. In a preferred embodiment, the collar comprises side edges that when the assembly is worn, extend predominantly along the temporal and zygomatic regions of a wearer's head.

[0018] The collar attachment means can be configured as actual attachment means such as clips, snap fasteners, magnets or velcro co-operating with the attachment means or anchoring points provided on the helmet such as to maintain the collar in position when the jacket and helmet are in place on a wearer's head.

[0019] Alternatively, the collar attachment means are configured as a helmet cover, i.e. a tissue that is designed to be placed over the dome of the helmet, thereby covering the impact surface thereof and covering the optional ventilation holes in the helmet. In order to keep the helmet cover in place, it preferably comprises a elastic bead that when placed over the helmet dome, grips around the helmet's outer edge. The helmet cover may further comprise a (pre-curved) bill or visor provided at a frontal end of the helmet cover and designed to minimise rain from falling into a wearer's eyes when cycling.

[0020] The jacket, including the collar and eventual helmet cover, are preferably made from a waterproof material, such as GoreTex® or Hydroshell®, that is waterproof to a watercolumn of at least 3000 mm, preferably at least 6000 mm. Alternatively the jacket and eventual helmet cover are made of a windproof material (blocking at least 75% of wind) or a wind- and waterproof material. As in case of cycling, backwind is seldom inconvenient, the collar of the jacket does not need to be made of a windproof material in case the remainder of the jacket is windproof, in fact, the entire back of the jacket can be made of a different material than the windproof front of the jacket.

[0021] The jacket, including the collar and eventual helmet cover, preferably comprises high-visibility features, such as fluorescent material strips or yarns for improved visibility in daylight conditions and reflective material strips or yarns designed to enhance visibility during the darker hours of the day. Preferably with high contrast between the non-reflective parts and reflective strips.

These high-visibility features are preferably strategically placed all over the jacket, from sleeves to sides, collar and eventual helmet cover to ensure a wearer is highly visible from all sides (360° around his or hers length axis).

[0022] The collar and in particular its side edges, are preferably made from an elastic material and dimensions such that the side edges contact a wearer's face when the assembly is worn.

[0023] The present invention also concerns a helmet comprises attachment means or anchoring points attached to or embedded in either the shock absorbing layer or the cover layer, outside of the impact zone, said attachment means or anchoring points configured to cooperate with functional objects. As illustrated in more detail in Fig. 3, the attachment means are preferably configured as clips or snap fasteners allowing a fast but secure connection with a mating connector provided on a functional object.

[0024] The attachment means can be embedded in the shock absorbing layer during manufacturing thereof, eg by providing the attachment means in a mould during or prior to injection of a liquid foam in the mould, or can otherwise be glued or welded to the shock absorbing layer or the cover layer. Alternatively, the attachment means can be formed as a single piece together with the cover layer during manufacturing thereof.

[0025] The attachment means are preferably arranged in a specific configuration for cooperating with one single functional object. Such specific arrangement can be an array of attachment means or several attachment means arranged along different portions of the helmet dome's edge for example along a portion of the helmet defining the backside of the helmet in proximity of the neck of a wearer for attachment of example given a jacket that protects the neck of the wearer against rain of wind.

[0026] As illustrated in Fig. 3, the helmet according to the present invention preferably comprises a compartment or free volume separated from the headspace by at least a layer or web of material. The compartment is in this case provided in the shock absorbing layer but may also be provided between the shock absorbing layer and the cover layer and has an opening that opens at at least one side to the edge of the dome or to the outer surface of the dome such that the opening is accessible even when the helmet is worn. A closable lid may be provided allowing sealing of the opening of the compartment. Inside the compartment, one or more attachment means can be provided, such that the compartment allows fastening and storage of a functional object such as to immobilise the functional object in view of the helmet and to prevent an external impact directly on the functional object.

[0027] In case the functional object is made of a flexible material, such as a tissue or cloth, the functional object is on the one hand attached to the helmet by the attachment means and on the other hand friction fitted or compression fitted in the compartment when stored therein, especially when the compartment is defined in the shock absorbing layer that has a relatively large surface roughness.

[0028] The compartment may also comprise a drain in the form of a channel extending from the compartment to an outer edge of the helmet or to the outer surface of the cover layer, preferably at sides of the dome between a frontal end and a distal end of the helmet. Venting holes may also be provided, preferably in combination with a drain such as to allow drying and aerating of a functional object when stored in the compartment, in particular when a non-breathing (textile) closable lid,.

[0029] The functional object can be either of a garment, preferably a windjacket, a thermal jacket and/or a rain jacket; sunglasses; sport equipment tooling; a location determination unit; a lock and/or lighting equipment. Clearly, in order to attach the functional object to the attachment means or anchoring points in the helmet, depending on the design of such attachment means or anchoring points, the functional object too should comprises an attachment means or anchoring point mating with the attachment means or anchoring points in the helmet. In case of a clip, the functional object can be clamped in the clip without any further special provisions. In case of a snap fastener, the functional object preferably comprises a mating snap fastener or is locked in a clamp that in its turn comprises a snap fastener configured to cooperate with the snap fastener in the helmet. Such clamp can be commercialised as a separate part forming a kit in parts with the helmet.

1 - Helmet
2 - cover layer
3 - shock absorbing layer
4 - compartment / closable lid
5 - zip fastener
6 - snap fasteners in compartment
7 - collar
8 - snap fasteners on collar
9 - helmet cover
10 - jacket
11 - snap fasteners on dome edge of helmet

Claims

1. Assembly of a helmet - for protecting the head of a wearer from external impacts and a jacket, said helmet comprising a compartment for storing said jacket therein in a stowed away status, wherein said helmet comprises two temporal zones and frontal zone - covering respectively, at least part of a wearer's head temporal regions and frontal region when the helmet is in place on the wearer's head - **characterised in that** said jacket comprises a collar configured to cover a wearer's neck and at least part of an auricular region of a wearer's head when the helmet is in place on a wearer's head and the jacket is worn by said wearer, and **in that** said collar comprises fastening

means for attachment to the helmet, at least one of said fastening means located in the temporal or frontal zones of the helmet.

2. The assembly according to claim 1, said fastening means comprising a helmet cover being part of the jacket, said helmet cover comprising a snap fit or elastic edge configured to grip around an outer edge of the helmet.

3. The assembly according to claim 1 or 2, said fastening means comprising one or more clips, snap fasteners or velcro arranged on said collar and on the helmet.

4. The assembly according to claim 3, said fastening means provided on the helmet are situated in the frontal or temporal regions of the helmet.

5. The assembly according to any of the preceding claims, said collar made of an elastic material.

6. The assembly according to any of the preceding claims, said collar made of a waterproof material.

7. The assembly according to any of the preceding claims, said collar having side edges extending predominately vertical along the temporal and zygomatic regions of a wearer's head, said side edges made of an elastic material and dimensions such that the side edges contact a wearer's face when the assembly is worn.

8. The assembly according to any of the preceding claims, said helmet being a cycling helmet.

9. The assembly according to any of the preceding claims, said helmet comprising ventilation holes.

10. The assembly according to any of the preceding claims, said jacket being a rain and/or wind jacket.

11. The assembly according to any of the preceding claims, wherein at least said jacket, collar and/or helmet cover comprises high visibility portions having a high visibility features.

12. The assembly according to any of the preceding claims, said helmet comprising a dome comprising a shock absorbing layer and a cover layer attached to said shock absorbing layer and defining an outer surface of said helmet, wherein said compartment is situated inside said dome.

13. The assembly according to claim 12, wherein the compartment comprises a closeable lid.

14. The assembly according to claim 13, wherein the closeable lid is provided with a zip fastener, preferably an elastic zip fastener.

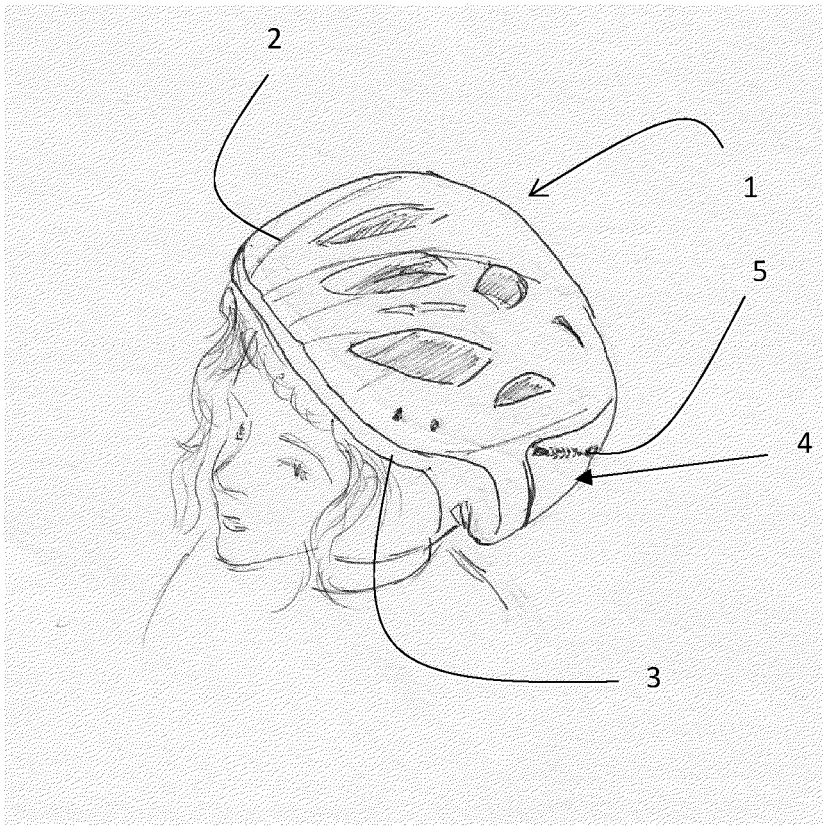

FIG 1

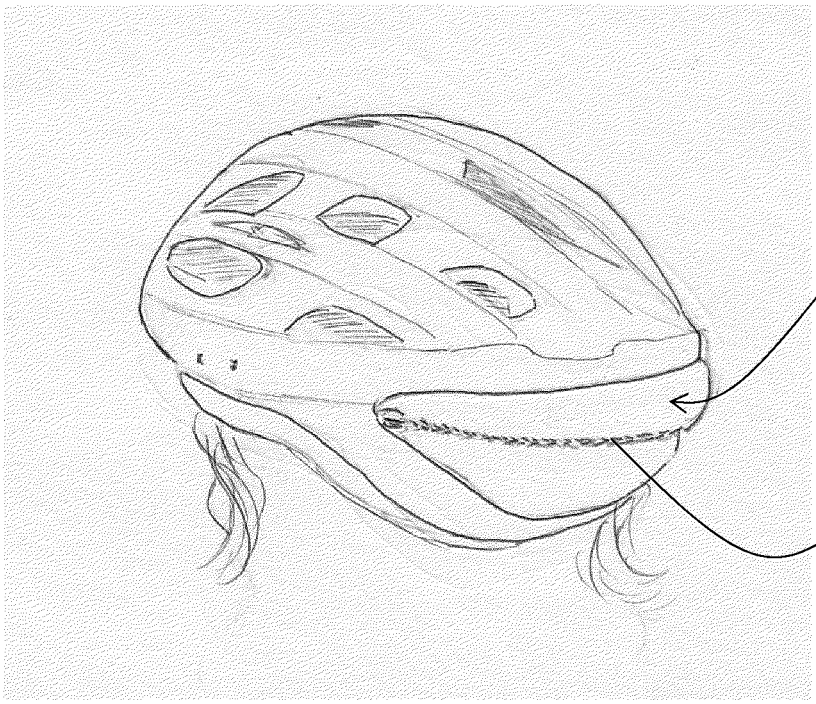

FIG 2

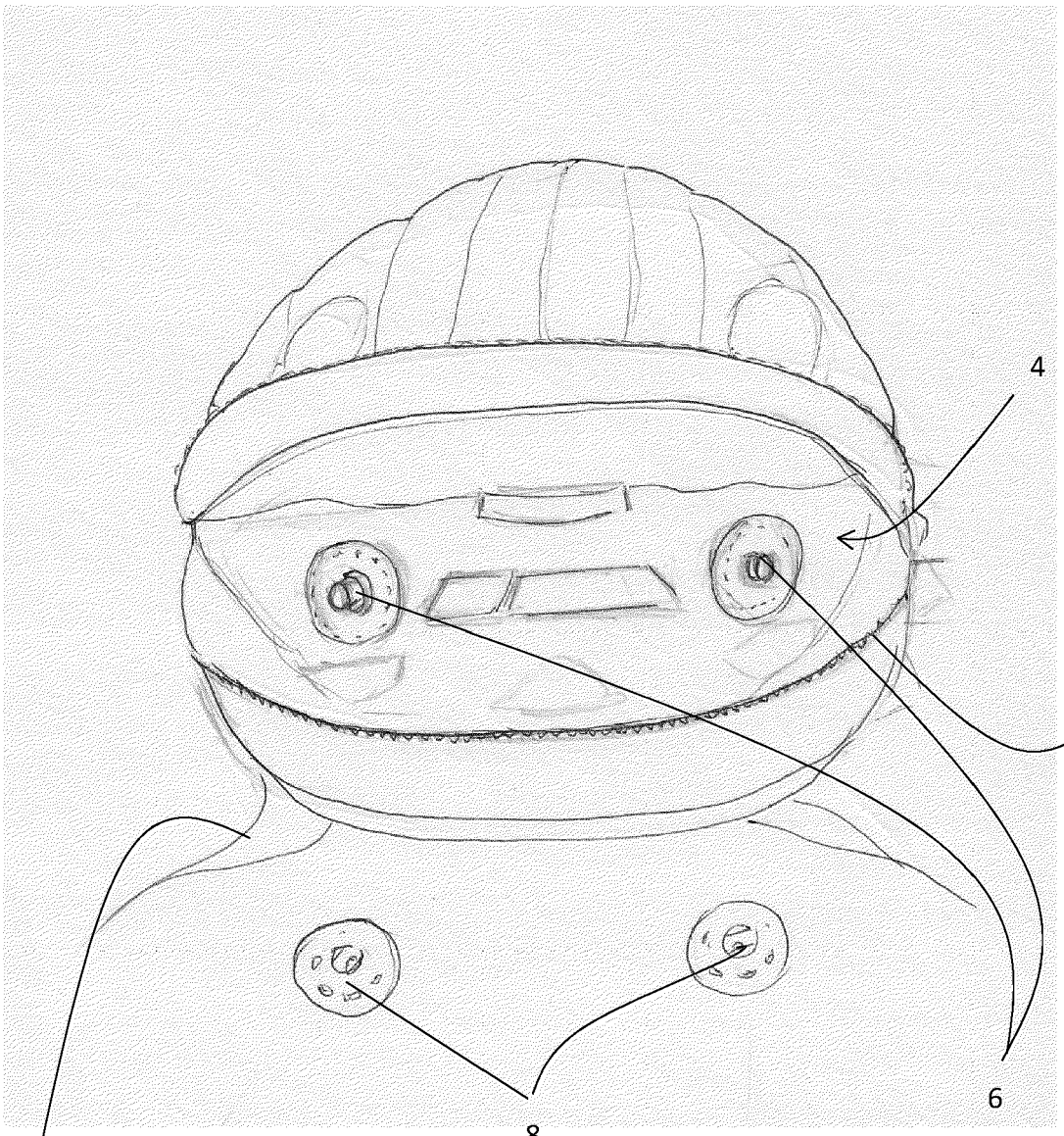

FIG 3

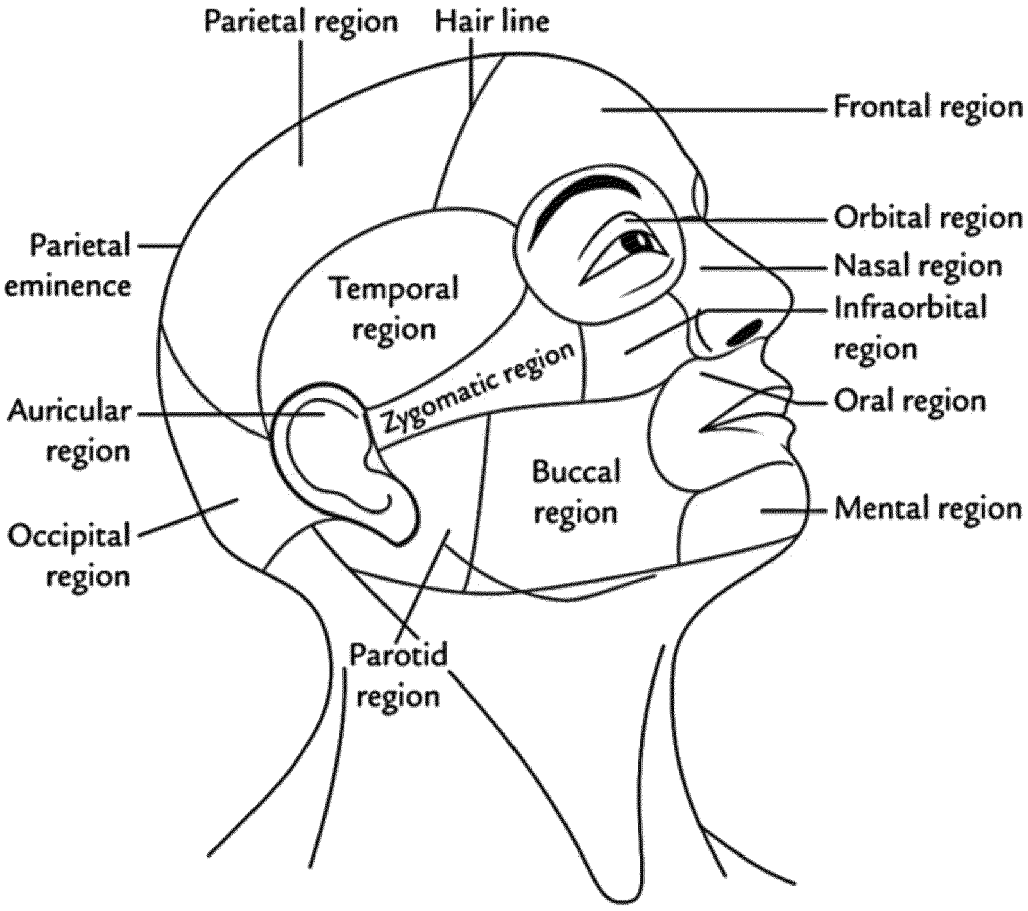
Parietal region
Hair line
Frontal region
Orbital region
Nasal region
Infraorbital region
Oral region
Mental region
Parietal eminence
Temporal region
Zygomatic region
Auricular region
Buccal region
Occipital region
Parotid region

FIG 4

FIG 5