US012383016B2

(12) **United States Patent**
Baryudin

(10) **Patent No.: US 12,383,016 B2**
(45) **Date of Patent: Aug. 12, 2025**

(54) **CYCLING HELMET WITH DETACHABLE COMPONENTS**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 93 days.

(21) Appl. No.: **18/448,373**

(22) Filed: **Aug. 11, 2023**

(65) **Prior Publication Data**

US 2025/0049167 A1 Feb. 13, 2025

(51) **Int. Cl.**

A42B 3/22	(2006.01)
A42B 3/04	(2006.01)
A42B 3/16	(2006.01)
A42B 3/32	(2006.01)

(52) **U.S. Cl.**

CPC ***A42B 3/32*** (2013.01); ***A42B 3/0493*** (2013.01); ***A42B 3/16*** (2013.01); ***A42B 3/221*** (2013.01)

(58) **Field of Classification Search**

CPC A42B 3/32; A42B 3/0493; A42B 3/16; A42B 3/221

See application file for complete search history.

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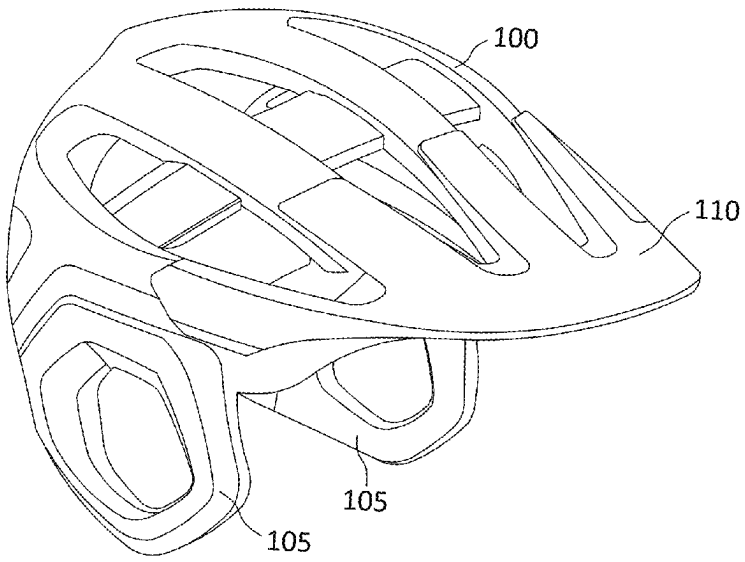
(57) **ABSTRACT**

A helmet includes a helmet anchor mounted to the helmet, and the helmet anchor includes a cavity. The helmet also includes a first magnetic element, where at least a portion of the first magnetic element is mounted within the cavity. The helmet also includes a visor. An interior surface of the visor includes a receptacle that extends therefrom. A second magnetic element is mounted within the receptacle, and the receptacle on the visor mates with the cavity of the helmet anchor to secure the visor to the helmet. The first magnetic element and the second magnetic element are attracted to one another such that the visor is detachable in response to an impact that exceeds an attractive force between the first magnetic element and the second magnetic element.

19 Claims, 15 Drawing Sheets



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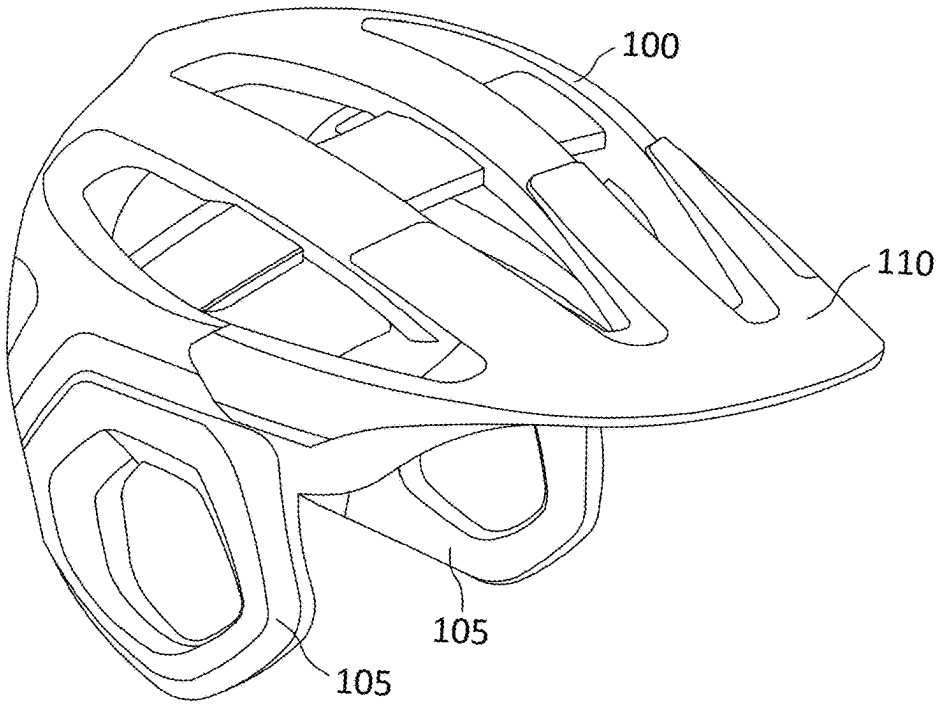

FIG. 1A

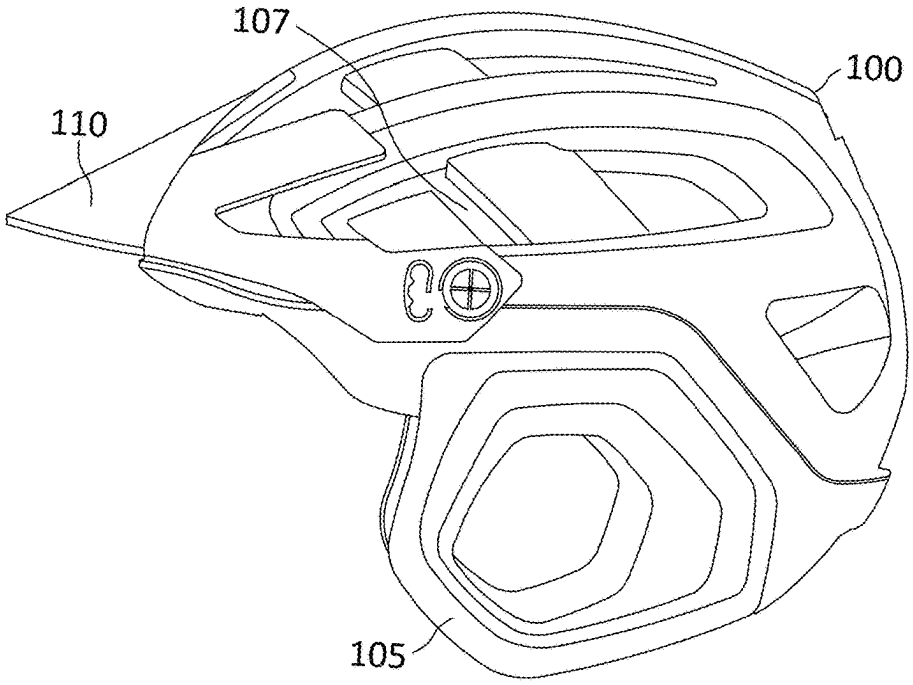

FIG. 1B

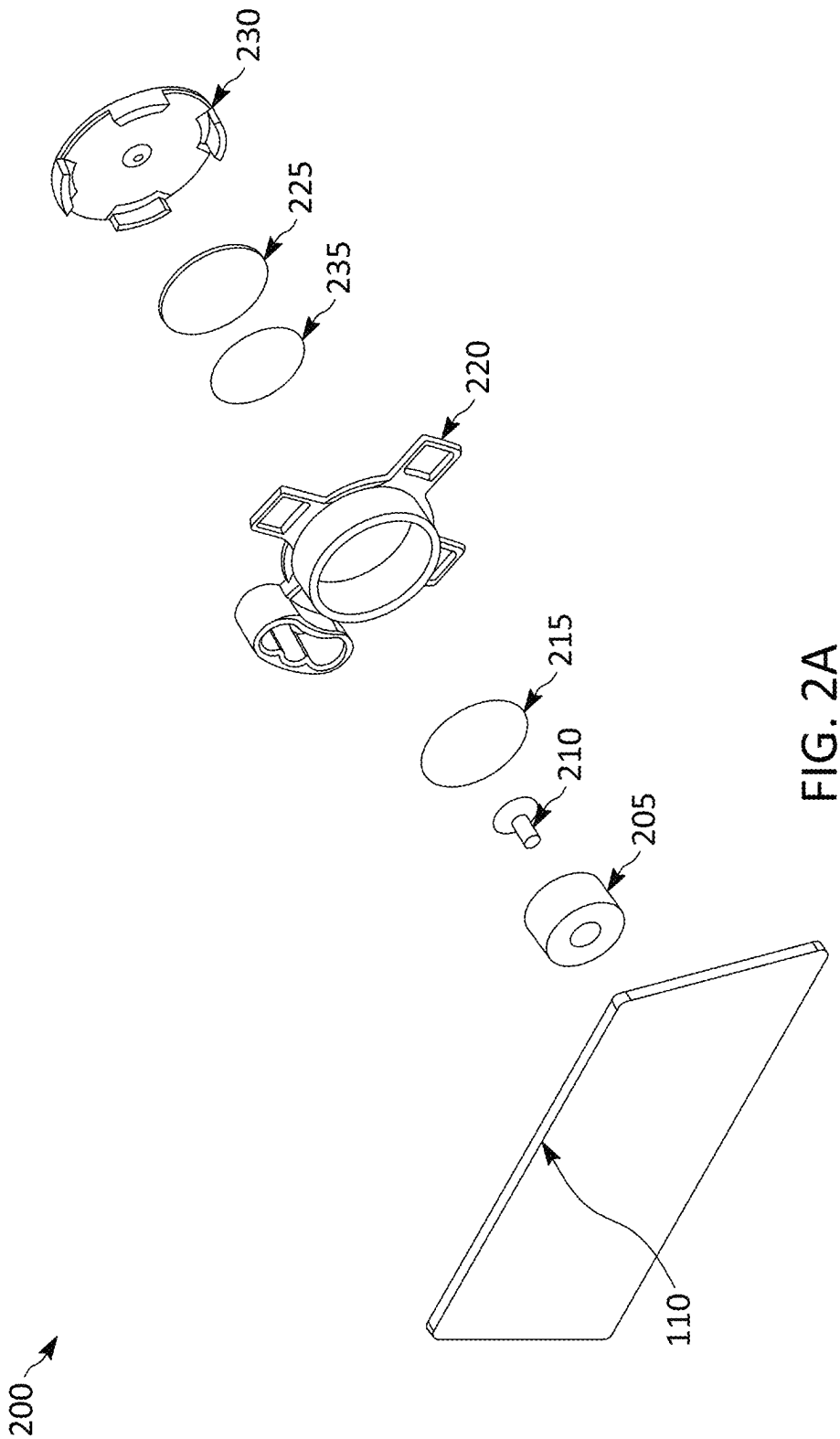

FIG. 2A

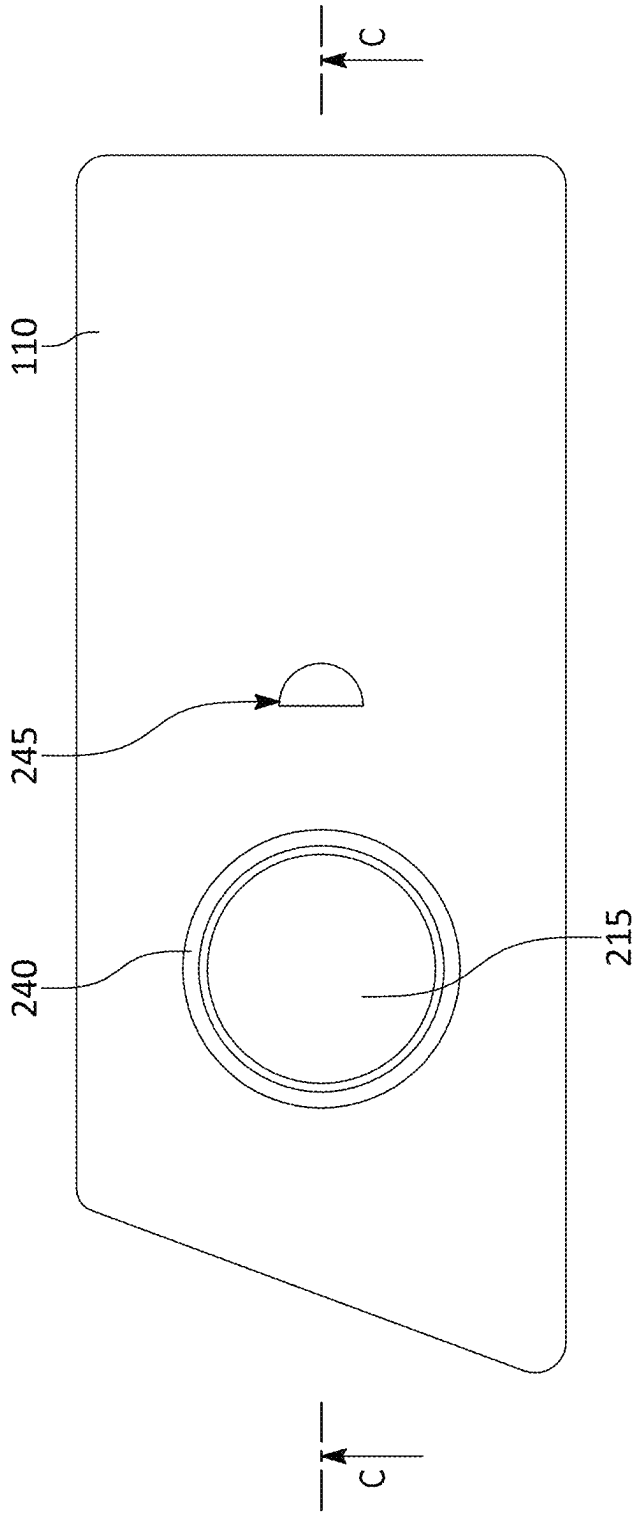

FIG. 2B

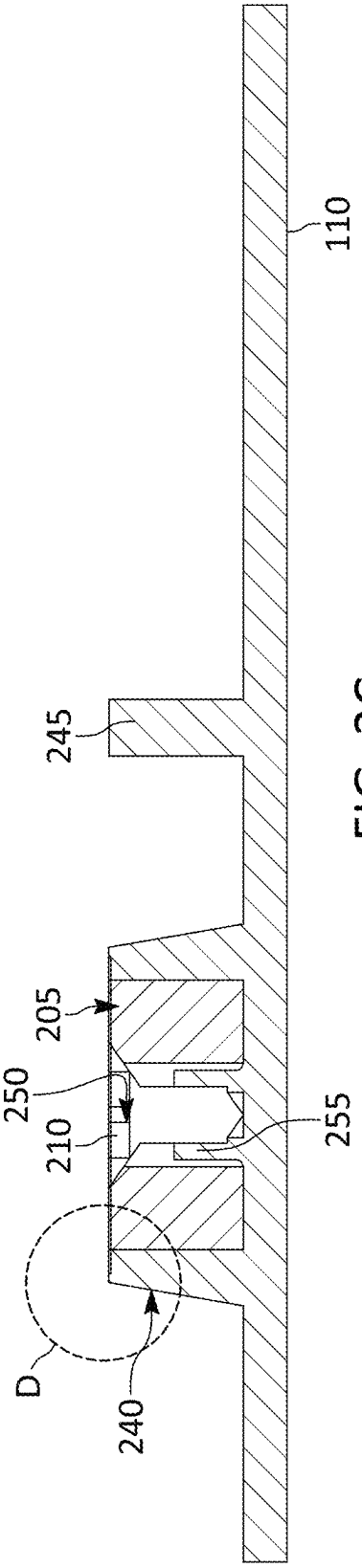

FIG. 2C

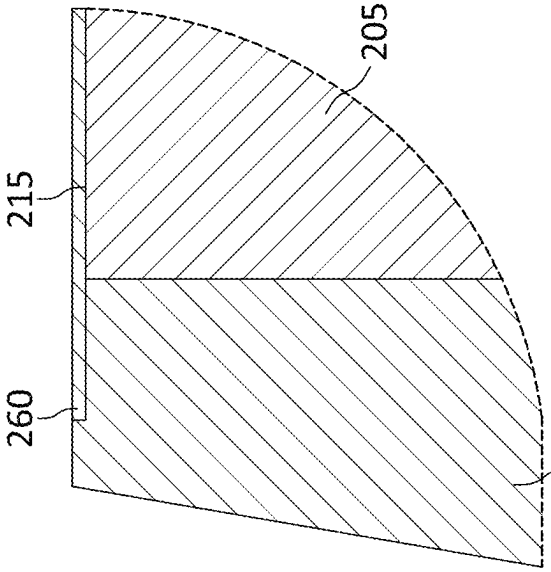

FIG. 2D

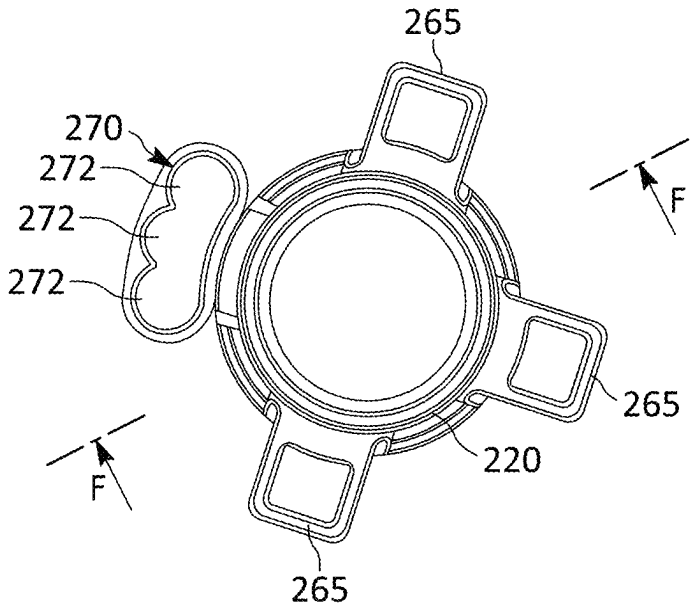
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FIG. 2E

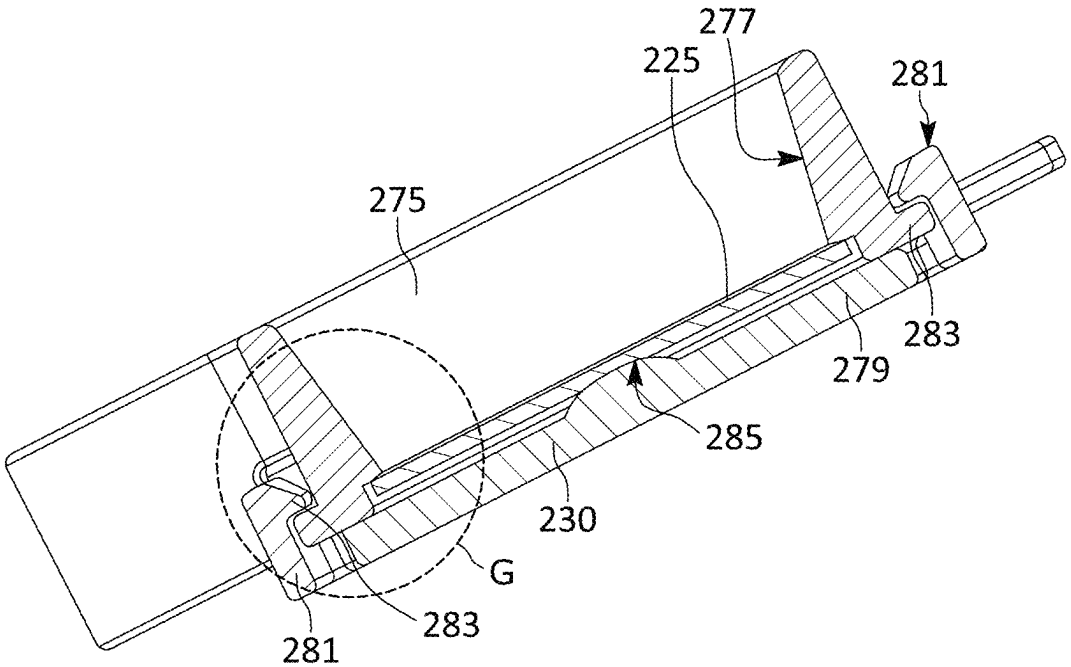
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FIG. 2F

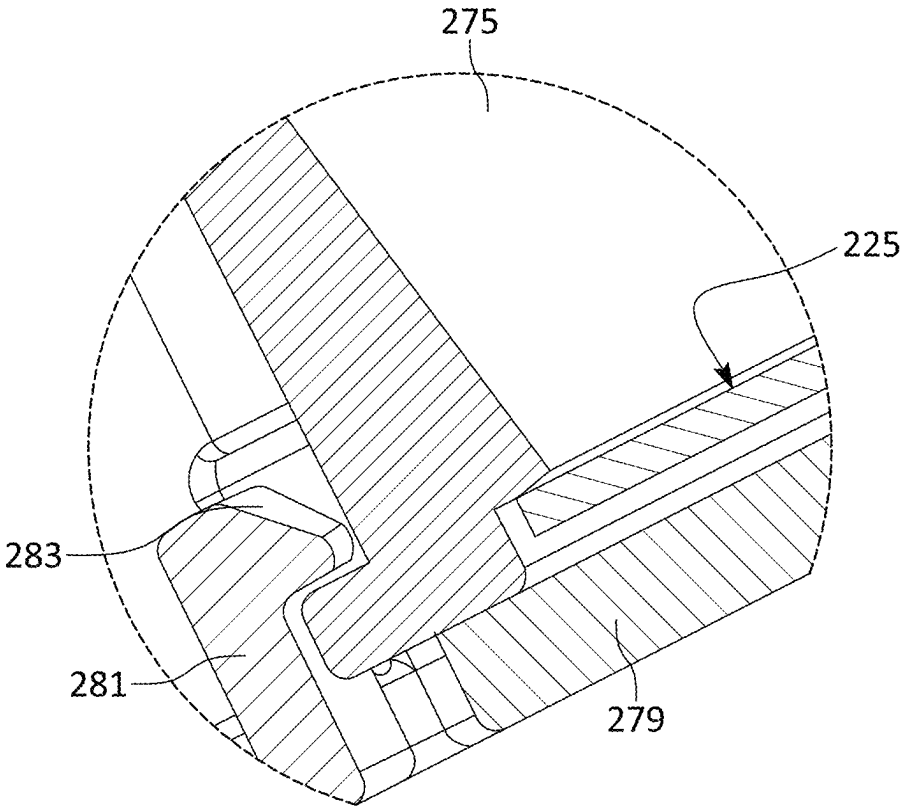

FIG. 2G

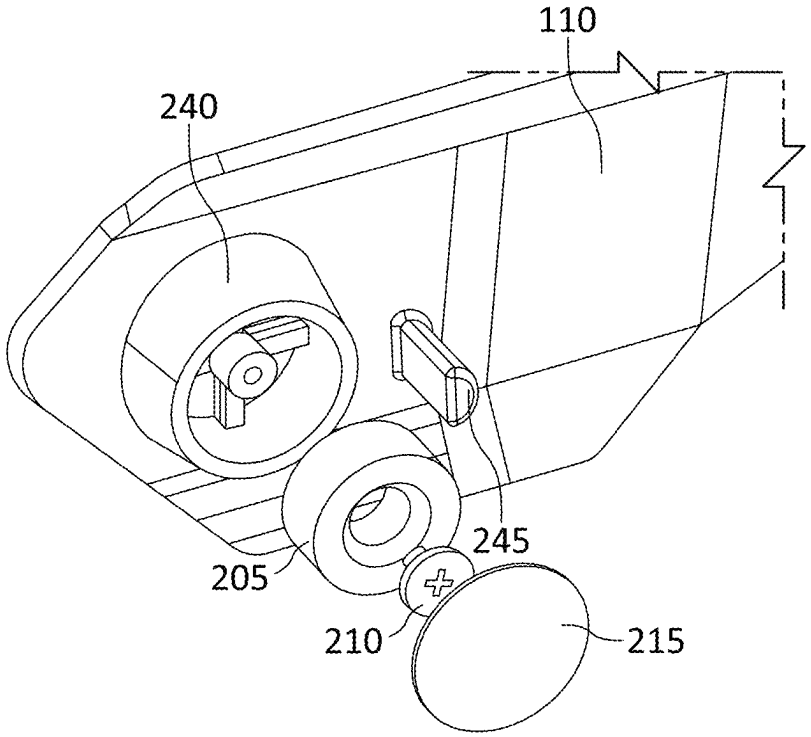

FIG. 2H

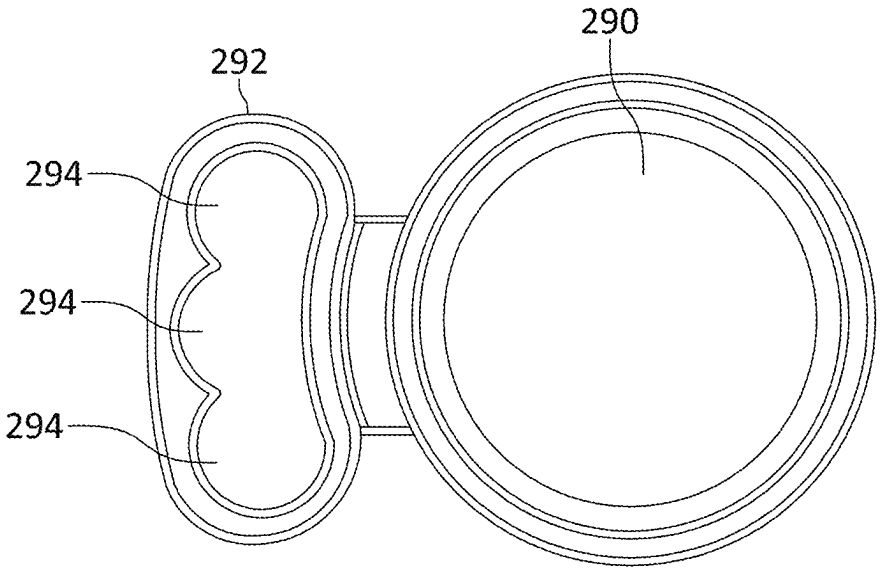

FIG. 2I

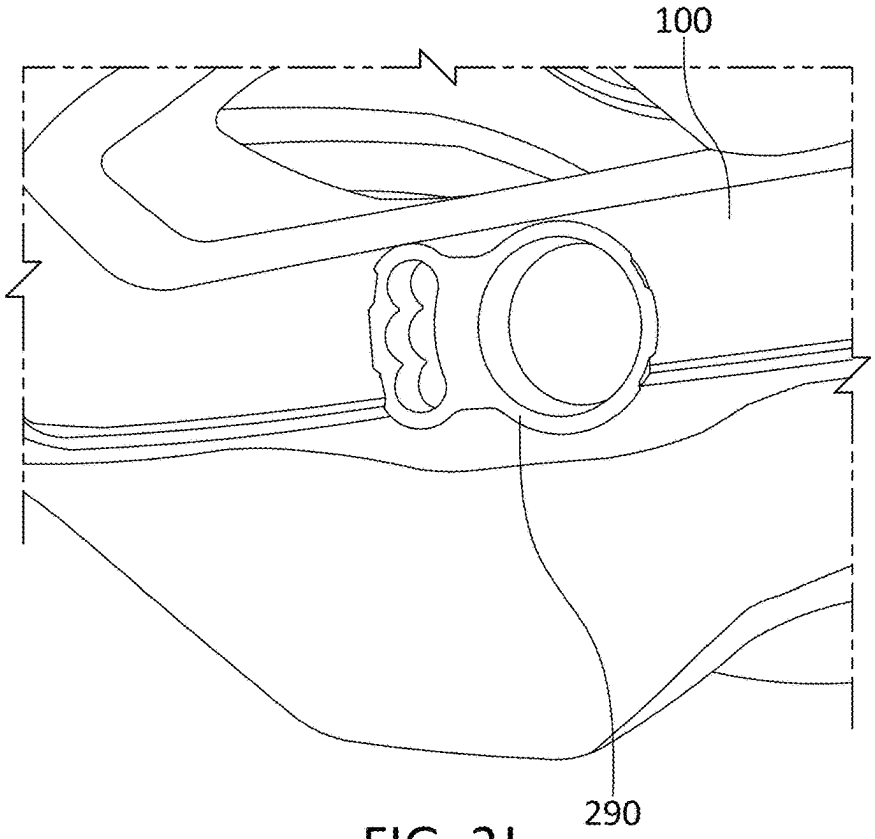

FIG. 2J

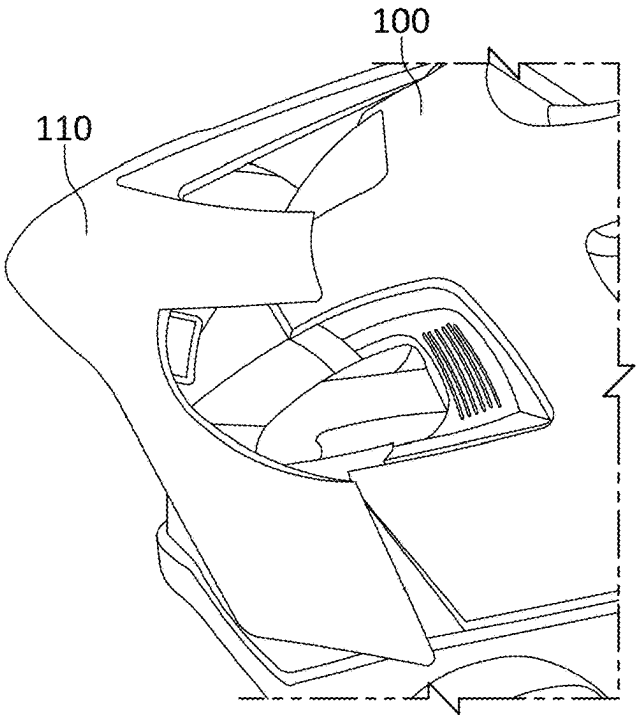

FIG. 2K

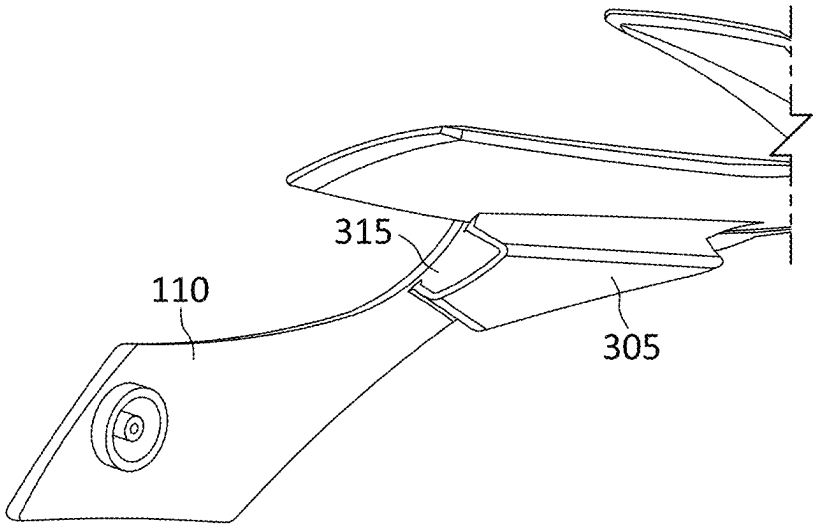

FIG. 3A

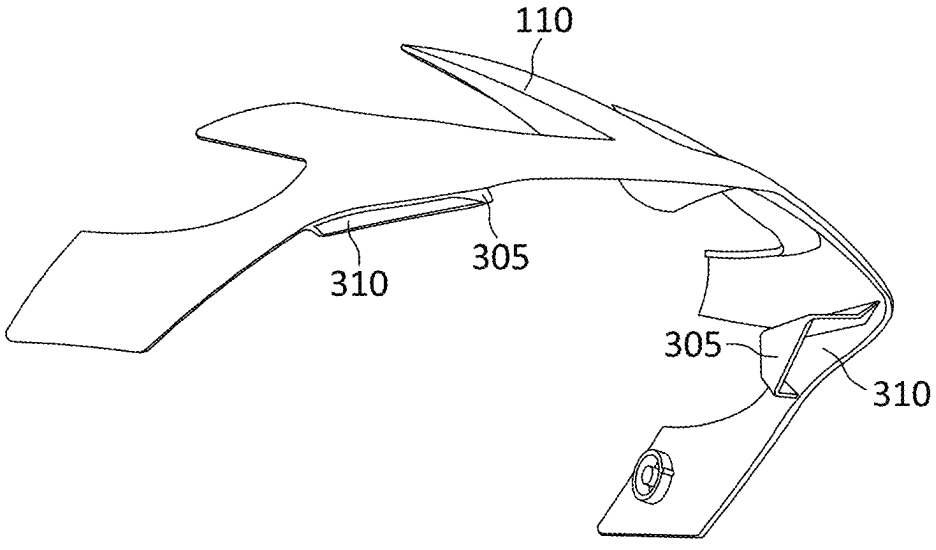

FIG. 3B

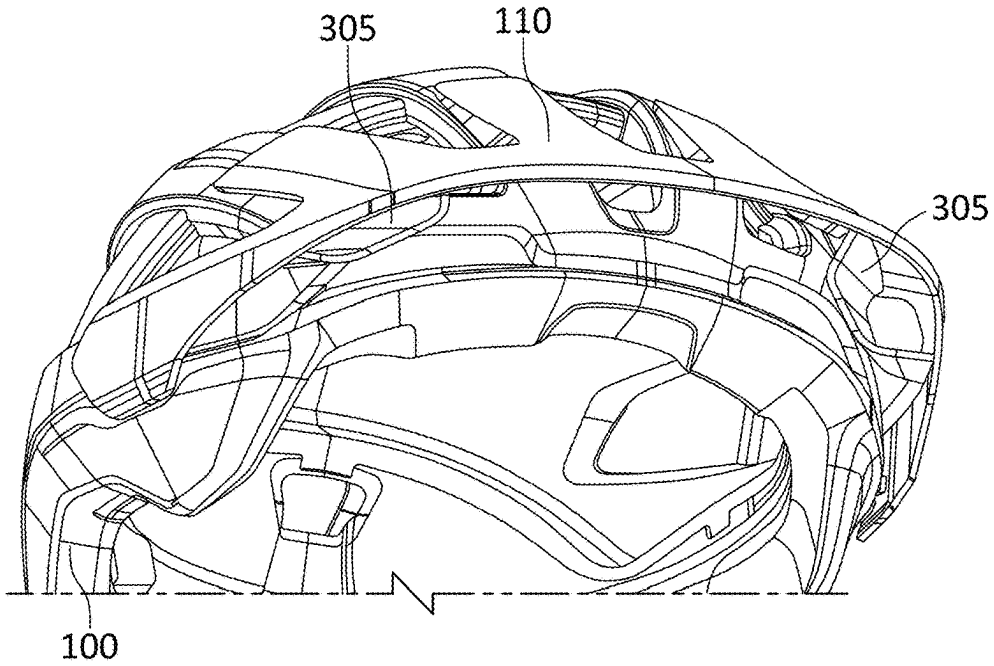

FIG. 3C

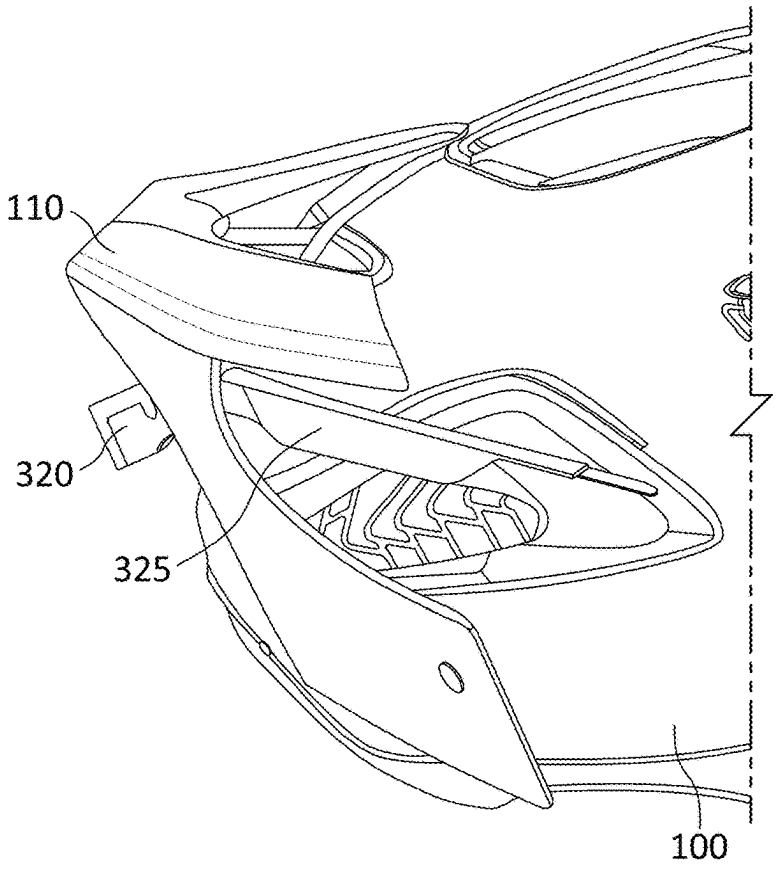

FIG. 3D

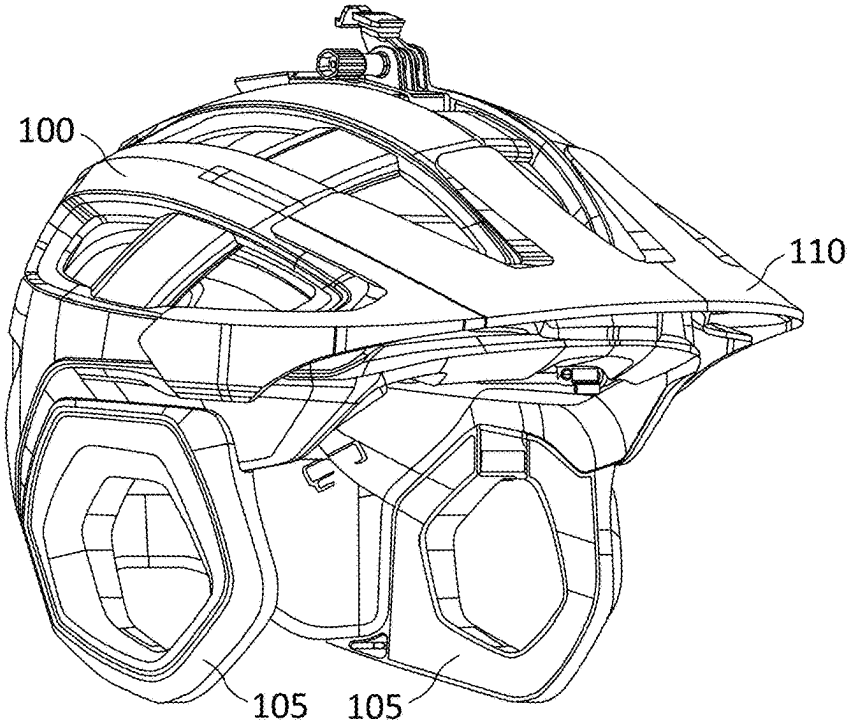

FIG. 4A

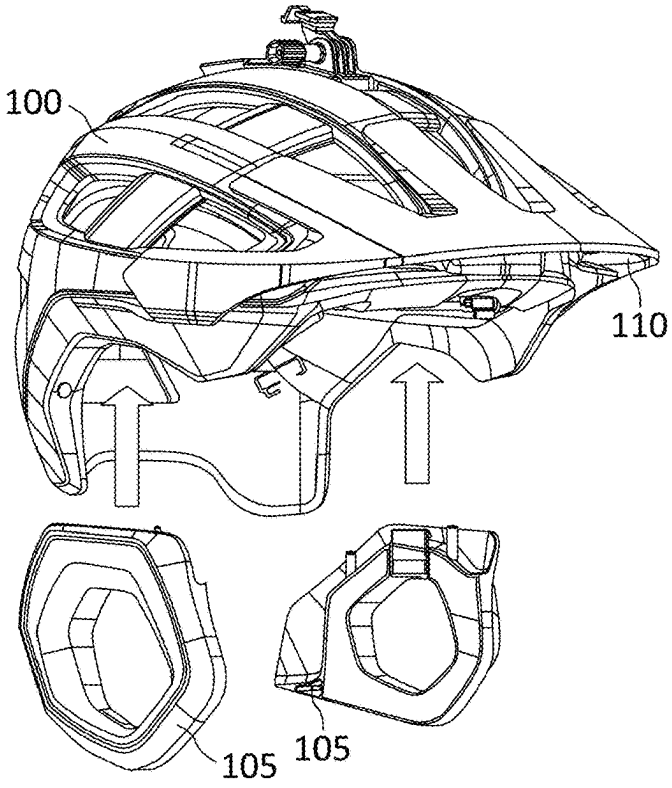

FIG. 4B

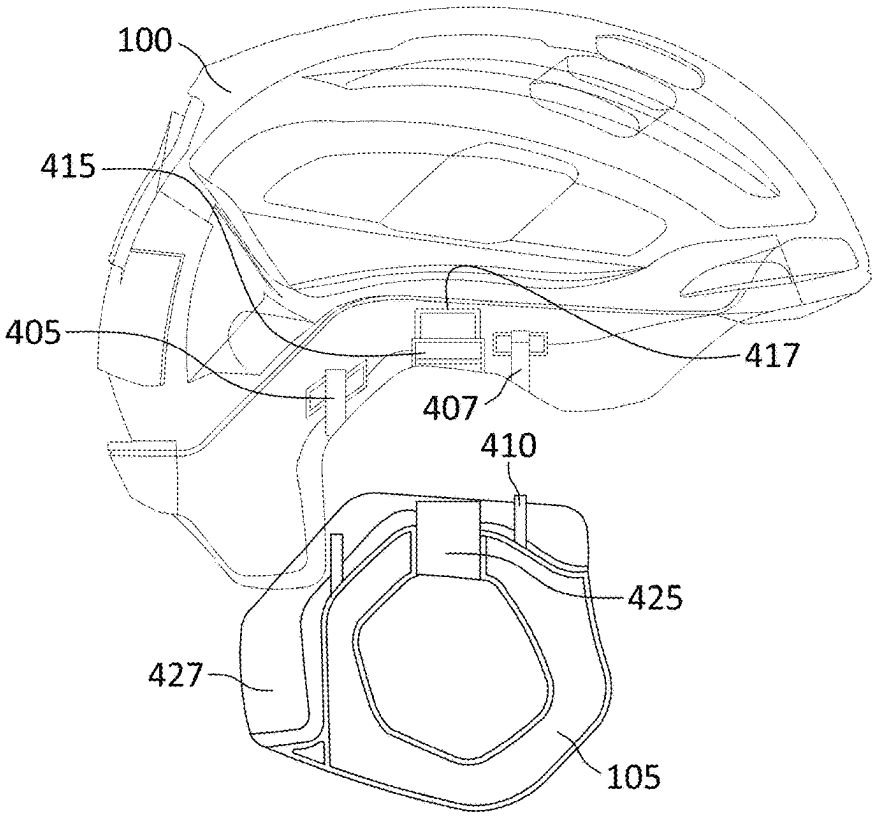
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FIG. 4C

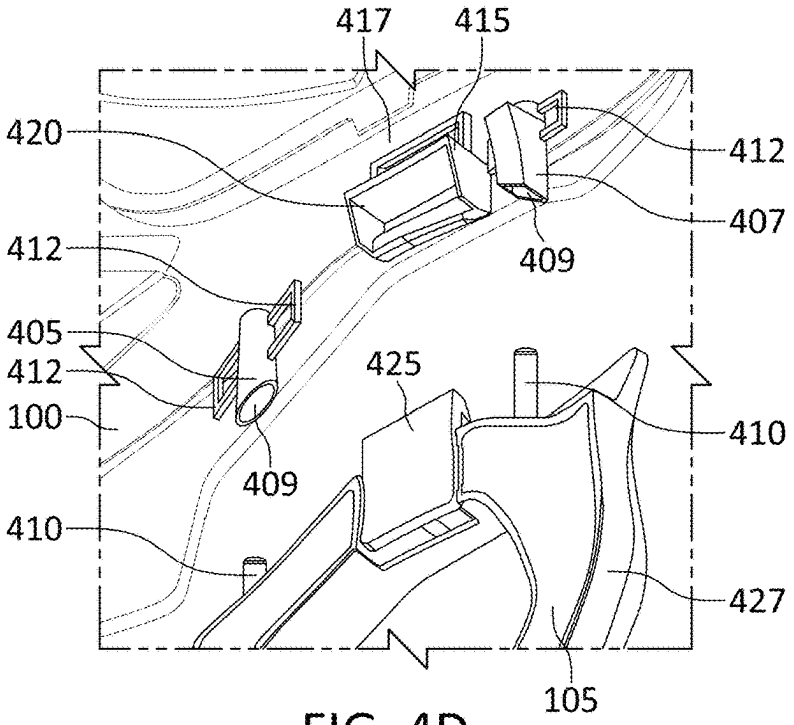
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FIG. 4D

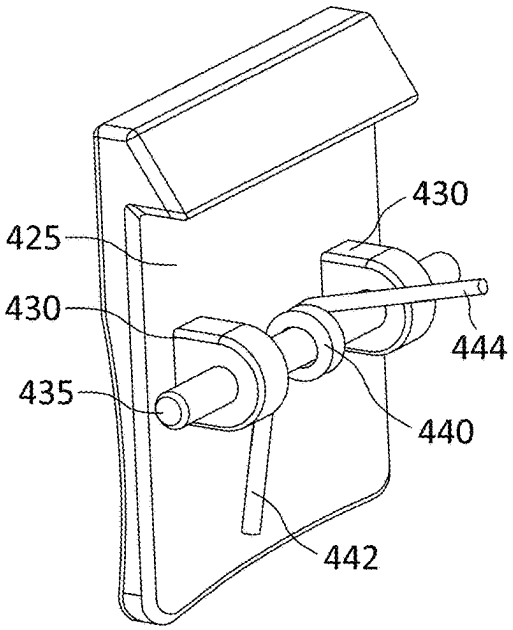
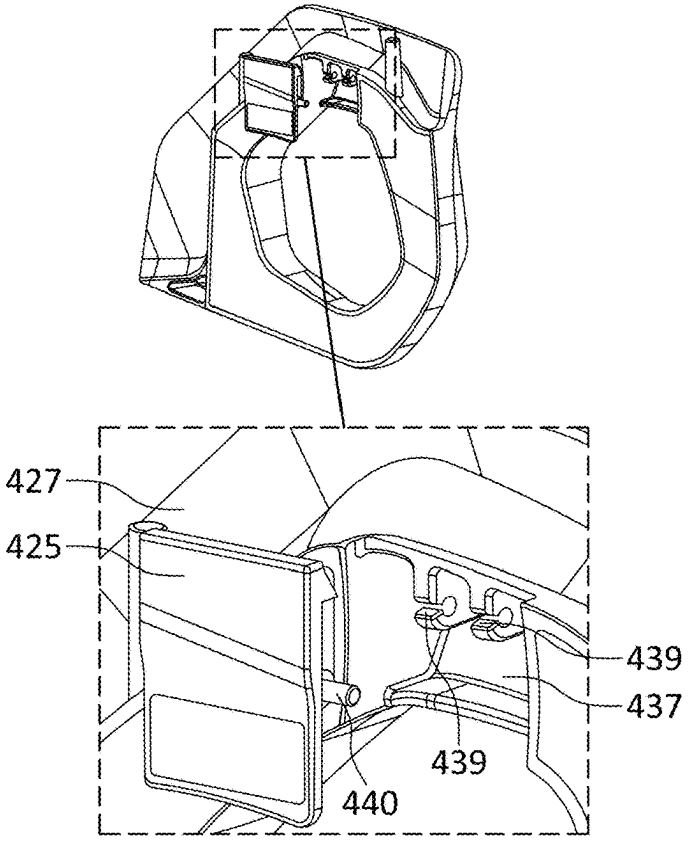


FIG. 4E



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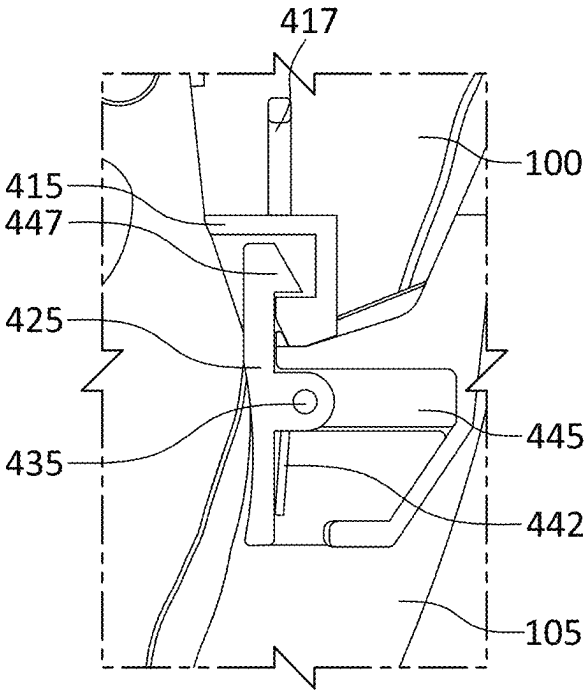
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FIG. 4G

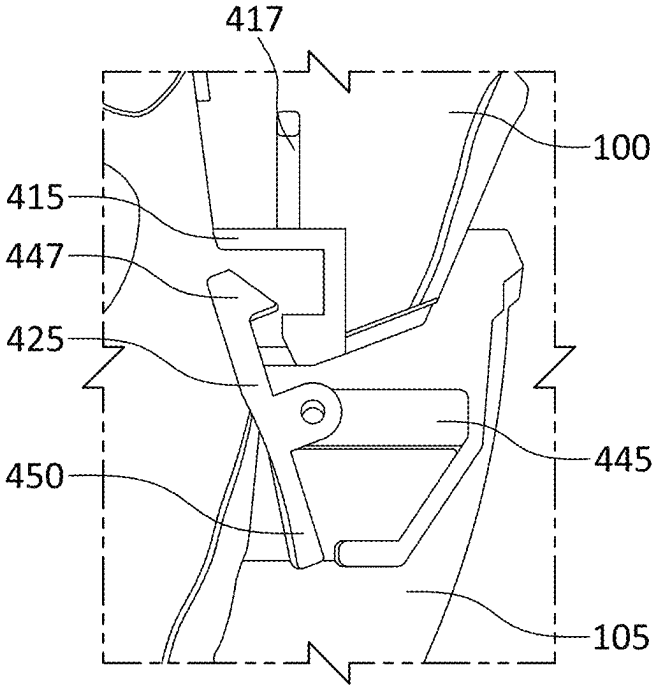
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FIG. 4H

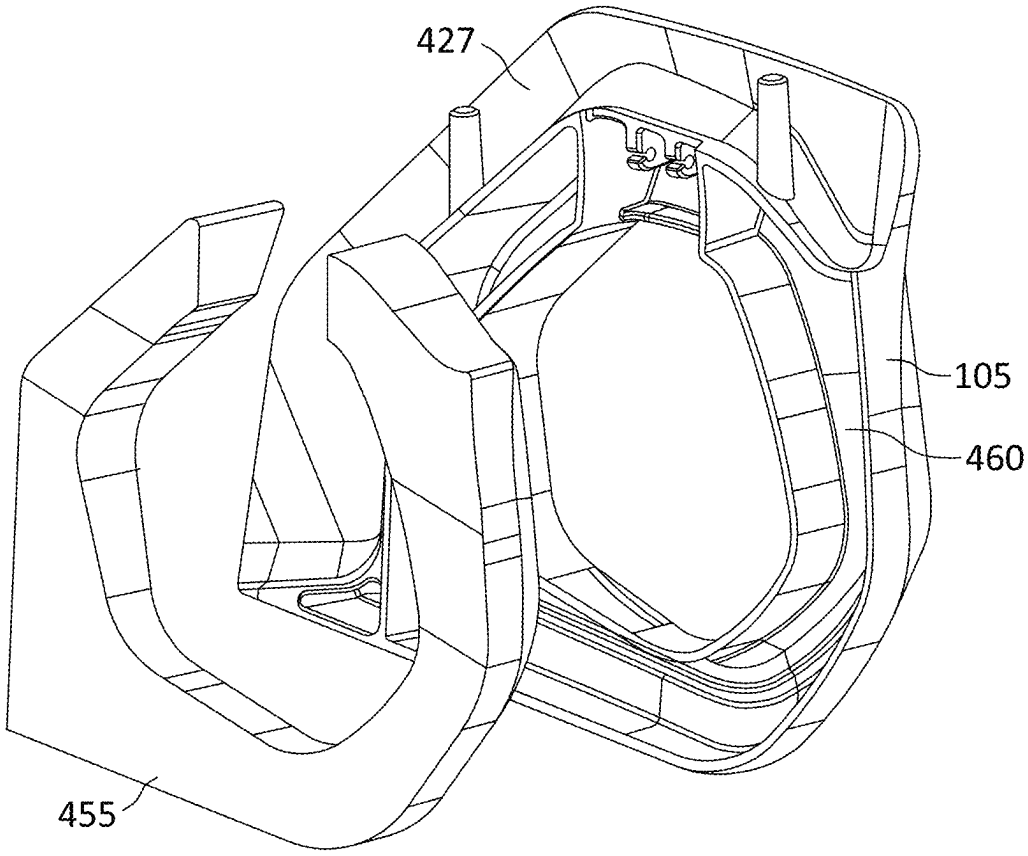

FIG. 4I

CYCLING HELMET WITH DETACHABLE COMPONENTS

BACKGROUND

A cycling helmet is often worn by bicyclists as a safety precaution to help prevent injury in the event of a cycling accident. Traditional cycling helmets come in a large variety of different shapes and can be composed of numerous different materials. Many traditional helmets include a layer of stiff foam material (e.g., expanded polystyrene) that is surrounded by a rigid outer shell. Traditional helmets can also include visors to help prevent sunlight, etc. from obstructing the wearer's vision.

SUMMARY

An illustrative helmet includes a helmet anchor mounted to the helmet, and the helmet anchor includes a cavity. The helmet also includes a first magnetic element, where at least a portion of the first magnetic element is mounted within the cavity. The helmet also includes a visor. An interior surface of the visor includes a receptacle that extends therefrom. A second magnetic element is mounted within the receptacle, and the receptacle on the visor mates with the cavity of the helmet anchor to secure the visor to the helmet. The first magnetic element and the second magnetic element are attracted to one another such that the visor is detachable in response to an impact that exceeds an attractive force between the first magnetic element and the second magnetic element.

The helmet can include a second magnetic element cover that mounts to the helmet anchor, where a base of the second magnetic element cover includes a pre-load protrusion that extends therefrom, and where the pre-load protrusion contacts the second magnetic element to help prevent movement of the second magnetic element within the helmet anchor. In one embodiment, the second magnetic element cover includes one or more clips that mount to one or more slots formed in an outer surface of the helmet anchor. In another embodiment, an interior side of a wall of the cavity is tapered to match a taper of an exterior wall of the receptacle such that the receptacle is received by and mounts within the cavity.

In one embodiment, the helmet anchor includes an extension with a plurality of slots formed in the extension. In such an embodiment, a rod is mounted to the interior surface of the visor, where the rod is sized to fit within one of the plurality of slots formed in the extension of the helmet anchor to control an angle of the visor relative to the helmet. In another embodiment, the helmet includes a second magnetic element pad that fits within the cavity of the helmet anchor, where the second magnetic element pad covers the second magnetic element to help prevent noise and to protect the second magnetic element from abrasion. One embodiment includes a fastener to secure the first magnetic element to the receptacle, where the first magnetic element includes an opening that is sized to receive the fastener. The opening in the first magnetic element can be chamfered such that the opening mates with a head of the fastener such that the fastener is flush with an end of the first magnetic element.

The helmet can also include a first magnetic element pad that is sized to cover an end of the first magnetic element and the head of the fastener. Another embodiment includes an extension with a threaded opening that extends from a bottom of the receptacle, where the threaded opening is sized to receive the fastener. In another embodiment, the visor includes a first eyewear receptacle and a second eyewear receptacle mounted to the interior surface of the visor, where each of the first eyewear receptacle and the second eyewear receptacle is configured to receive an arm of an eyewear for storage of the eyewear in the visor. In such an embodiment, the first eyewear receptacle includes a front-facing opening and a rear-facing opening, where the front-facing opening is larger than the rear-facing opening.

Another embodiment is directed to a detachable earpad assembly that mounts to the helmet, where the helmet includes a central anchor to which the detachable earpad assembly attaches. In one embodiment, the detachable earpad assembly includes a lever that has a ledge that rests upon a surface of the central anchor, where the lever is spring loaded. As such, a spring can be mounted to the lever, where a first portion of the spring rests upon an interior surface of the lever and a second portion of the spring is received by a spring receptacle formed in a cavity of a cover of the detachable earpad assembly. In one embodiment, a first anchor is mounted to the helmet, where the first anchor includes an opening that is sized to receive a post mounted to a cover of the detachable earpad assembly.

In another embodiment, an interior surface of the lever includes protrusions with through openings that are sized to receive a pivot bar. In such an embodiment, the pivot bar mounts to brackets formed within a cavity formed in a cover of the detachable earpad assembly such that the lever clips onto the detachable earpad assembly. In an illustrative embodiment, pressure applied to a bottom portion of the lever pivots the lever along the pivot bar such that the lever detaches from the central anchor for removal of the detachable earpad assembly.

Other principal features and advantages of the invention will become apparent to those skilled in the art upon review of the following drawings, the detailed description, and the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

Illustrative embodiments will hereafter be described with reference to the accompanying drawings, wherein like numerals denote like elements. The foregoing and other features of the present disclosure will become more fully apparent from the following description and appended claims, taken in conjunction with the accompanying drawings. Understanding that these drawings depict only several embodiments in accordance with the disclosure and are, therefore, not to be considered limiting of its scope, the disclosure will be described with additional specificity and detail through use of the accompanying drawings.

FIG. **1**A is a front side perspective view of a helmet with detachable earpad assemblies and a magnetically detachable visor in accordance with an illustrative embodiment.

FIG. **1**B is a side view of the helmet with detachable earpad assemblies and a magnetically detachable visor in accordance with an illustrative embodiment.

FIG. **2**A is an exploded view of a magnetic assembly that is used to mount the magnetically detachable visor to the helmet in accordance with an illustrative embodiment.

FIG. **2**B is a view of an interior surface of a portion of the magnetically detachable visor that includes the magnet in accordance with an illustrative embodiment.

FIG. **2**C is a cross-sectional view of the interior surface of a portion of the magnetically detachable visor along the sectional line of FIG. **2**B in accordance with an illustrative embodiment.

FIG. **2**D is a close-up view of the magnet pad mounted to the receptacle on the interior surface of the magnetically detachable visor in accordance with an illustrative embodiment.

FIG. **2**E is a view of the helmet anchor in accordance with an illustrative embodiment.

FIG. **2**F is a cross-sectional view of the helmet anchor taken along the section line D-D of FIG. **2**E in accordance with an illustrative embodiment.

FIG. **2**G is a blow-up view of the circled area in FIG. **2**F in accordance with an illustrative embodiment.

FIG. **2**H is an exploded view that depicts components mounted to the magnetically detachable visor in accordance with an illustrative embodiment.

FIG. **2**I depicts a helmet anchor in accordance with an illustrative embodiment.

FIG. **2**J is a partial view of the helmet with an embedded helmet anchor in accordance with an illustrative embodiment.

FIG. **2**K depicts the magnetically detachable visor mounted to the helmet anchors of the helmet in accordance with an illustrative embodiment.

FIG. **3**A is a front view of the magnetically detachable visor with built-in eyewear receptacles for securing eyewear in accordance with an illustrative embodiment.

FIG. **3**B is a rear view of a portion of the magnetically detachable visor that includes an eyewear receptacle in accordance with an illustrative embodiment.

FIG. **3**C is a front view of the magnetically detachable visor mounted to the helmet in accordance with an illustrative embodiment.

FIG. **3**D is a side view of a helmet with eyewear stored in the magnetically detachable visor in accordance with an illustrative embodiment.

FIG. **4**A depicts the helmet with the detachable earpad assemblies mounted to the helmet in accordance with an illustrative embodiment.

FIG. **4**B depicts the helmet with the detachable earpad assemblies detached from the helmet in accordance with an illustrative embodiment.

FIG. **4**C is a partially transparent view of the helmet and a detached earpad assembly that depicts embedded anchors in accordance with an illustrative embodiment.

FIG. **4**D is a close-up view depicting how a detachable earpad assembly mounts to the embedded anchors in accordance with an illustrative embodiment.

FIG. **4**E is a perspective view of the lever in accordance with an illustrative embodiment.

FIG. **4**F includes a close-up view that depicts how the lever mounts to the cover of the detachable earpad assembly in accordance with an illustrative embodiment.

FIG. **4**G depicts the lever in a locked position that secures the detachable earpad assembly to the helmet in accordance with an illustrative embodiment.

FIG. **4**H depicts the lever in an unlocked position such that the detachable earpad assembly can be removed from the helmet in accordance with an illustrative embodiment.

FIG. **4**I shows a pad removed from the detachable earpad assembly in accordance with an illustrative embodiment.

DETAILED DESCRIPTION

Described herein are helmets that include detachable features to allow riders to customize their helmets depending on the ride conditions. One embodiment relates to a bicycle helmet visor (or alternatively a transparent face shield) that is magnetically attached to the helmet. In one implementation, the visor attaches via a magnet fixated in the visor and a ferrous steel plate housed within the helmet. Alternatively, the magnet can be mounted in the helmet housing and the steel plate can be mounted to the visor. In another alternative embodiment, a pair of magnets can be used, with a first magnet mounted in the visor and a second magnet mounted in the helmet. Regardless of the configuration, the visor is able to break free from the helmet in the event of a crash given sufficient impact energy. In some embodiments, the visor can also be removed by the user supplying sufficient force to release the magnetic attraction that holds the visor to the helmet.

The visor can also rotate up and down and be placed in a plurality of different positions relative to the helmet and the face of the user. In one embodiment, the visor has a pin that mates with a slotted arc. In rotation, the pin will clock or snap into one of a plurality of designated positions formed by slots in the slotted arc. Three slots can be used to provide three designated positions in one embodiment. Alternatively, fewer (e.g., 2) or additional slots can be used, such as 4, 5, 6, etc. to provide any desired number of designated visor positions. In another illustrative embodiment, the visor additionally has channels built into the sides that accept the arms of sunglasses and act as sunglasses storage.

In another embodiment, the helmet can include detachable ear (or cheek) pads. The use of detachable earpads allows the user to customize the helmet for different riding conditions. Removal of the earpads provides a lighter helmet with increased ventilation. The proposed embodiments can be incorporated into mountain bike helmets, urban style helmets, or any other type of athletic helmet or riding helmet.

FIG. **1**A is a front side perspective view of a helmet **100** with detachable earpad assemblies **105** and a magnetically detachable visor **110** in accordance with an illustrative embodiment. FIG. **1**B is a side view of the helmet **100** with detachable earpad assemblies **105** and a magnetically detachable visor **110** in accordance with an illustrative embodiment. In the view of FIG. **1**B, the magnetically detachable visor **110** is depicted as partially transparent such that the attachment of the visor to the helmet **100** can be seen. In an illustrative embodiment, the magnetically detachable visor **110** includes sunglasses storage, as discussed in more detail below.

FIG. **2**A is an exploded view of a magnetic assembly **200** that is used to mount the magnetically detachable visor to the helmet in accordance with an illustrative embodiment. Although a single magnetic assembly is shown, it is to be understood that each side (i.e., both the right side and the left side) of the helmet and the visor includes a magnetic assembly. The magnetic assembly **200** includes components that mount to the magnetically detachable visor **110** and components that mount to the helmet **100**. As shown, a first magnetic element **205** mounts to a portion of the magnetically detachable visor **110**. As used herein, a magnetic element refers to a magnet or a ferrous material (e.g., plate, bar, etc.) that forms an attraction with a magnet. The depicted first magnetic element **205** is a circular magnet with a central opening that is sized to receive a fastener, such as a screw **210** to secure the first magnetic element **205** to the magnetically detachable visor **110**. Alternatively, instead of a screw, a different type of fastener can be used, such as a bolt, a pin, etc.

A first magnetic element pad **215** is used to cover the first magnetic element **205** and the screw **210**. In an illustrative embodiment, the first magnetic element pad **215** is an adhesive sticker that protects the surface of the first mag-

netic element **205** from abrasion, and also helps to prevent noise during movement of the magnetically detachable visor **110**. In an alternative embodiment, the first magnetic element **205** can be a ferrous plate that forms an attraction with a magnet mounted to the helmet. In another alternative embodiment, both the visor and the helmet may include magnets that are oriented to be attracted to one another.

The magnetic assembly **200** also includes components that mount to the helmet **100**. A helmet anchor **220** is embedded in the expanded polystyrene (EPS) or other material that forms an energy absorbing layer **107** of the helmet **100**. A second magnetic element **225** mounts within the helmet anchor **220**. In an illustrative embodiment, the second magnetic element **225** is a ferrous plate (e.g., a steel plate) that forms an attraction with the first magnetic element **205** (e.g., a magnet). Alternatively, the second magnetic element **225** can be a magnet and the first magnetic element can be a ferrous plate or another magnet, depending on the embodiment. Regardless of the configuration, there is an attraction between the first magnetic element **205** and the second magnetic element **225**, and the attraction detachably secures the magnetically detachable visor **110** to the helmet **100**.

Mounted to an interior-facing side of the helmet anchor **220** is a second magnetic element cover **230**. As discussed in more detail below, the second magnetic element cover **230** is used to preload the second magnetic element such that the second magnetic element **225** is unable to move within the helmet anchor **220**. The magnetic assembly **200** also includes a second magnetic element pad **235** that is used to cover the second magnetic element **225**. In an illustrative embodiment, the second magnetic element pad **235** is an adhesive sticker that protects the surface of the second magnetic element **225** from abrasion, and also helps to prevent noise during movement of the magnetically detachable visor **110**.

As discussed, in an alternative embodiment, the first magnetic element **205** (e.g., a magnet) can be positioned in the helmet anchor **220** and secured to the helmet anchor via the screw **210**. In such an embodiment, the second magnetic element **225** (e.g., a ferrous plate) can mount to the interior surface of the magnetically detachable visor **110**. In another alternative embodiment, the first magnetic element **205** can be a first magnet mounted to the interior surface of the magnetically detachable visor **110**, and the second magnetic element **225** can be a second magnet can be mounted within the helmet anchor **220**. In such an embodiment, the polarities of the magnets are oriented such that the first magnet is attracted to the second magnet and vice versa.

FIG. **2**B is a view of an interior surface of a portion of the magnetically detachable visor **110** that includes the magnet in accordance with an illustrative embodiment. As shown, the interior surface of the magnetically detachable visor **110** includes a receptacle **240** that extends therefrom and that is sized to receive the first magnetic element **205** and the screw **210**. An opening of the receptacle **240** is covered by the first magnetic element pad **215**. Also shown on the interior surface of the magnetically detachable visor is a rod **245** that is used to position the visor at one of a plurality of positions. Specifically, the rod **245** is sized to mate with one of a plurality of slots formed in the helmet anchor **220** such that the visor can be positioned at a desired angle on the helmet. In the embodiment shown, the rod **245** has a semicircle profile. In alternative embodiments, the rod **245** can have a different profile such as circular, square, triangular, ovular, etc.

As shown, FIG. **2**B includes a sectional line B-B. FIG. **2**C is a cross-sectional view of the interior surface of a portion of the magnetically detachable visor **110** along the sectional line of FIG. **2**B in accordance with an illustrative embodiment. As shown, exterior walls of the receptacle **240** taper inward as the walls extend outward from the interior surface of the magnetically detachable visor **110**. The tapered exterior walls of the receptacle **240** mate with an opening formed in the helmet anchor **220**. As also shown, the opening formed in the first magnetic element **205** includes a chamfered edge **250** that mates with a tapered edge formed by the bottom of the head of the screw **210**. As a result, the top of the head of the screw **210** rests flush with a top (or exterior facing edge) of the first magnetic element **205**. An extension **255** with a threaded opening extends from a bottom of the receptacle **240** and is sized to receive the threads of the screw **210** or other fastener. The extension **255** is positioned within the opening in the first magnetic element **205** when the first magnetic element is mounted within the receptacle **240**.

FIG. **2**D is a close-up view of the magnet pad mounted to the receptacle **240** on the interior surface of the magnetically detachable visor **110** in accordance with an illustrative embodiment. More specifically, FIG. **2**D is a close-up view of the portion of FIG. **2**C that is circled. As shown, an inset **260** (or step) is formed in the top surface of the receptacle **240**. A depth of the inset **260** is the same as the thickness of the first magnetic element pad **215**. As a result, the first magnetic element pad **215**, when mounted, rests flush with the rest of the top surface of the receptacle **240**.

FIG. **2**E is a view of the helmet anchor **220** in accordance with an illustrative embodiment. The helmet anchor **220** includes a plurality of tabs **265** that are used to secure the helmet anchor **220** to the energy absorbing layer of the helmet. FIG. **1**B depicts the helmet anchor **220** embedded in the helmet **100**. In one embodiment, the tabs **265** of helmet anchor **220** can be molded into the energy absorbing layer during formation of that layer. Alternatively, any other method of securing the helmet anchor **220** to the helmet **100** can be used, such as an adhesive.

The helmet anchor **220** also includes an extension **270** with slots **272** configured to receive the rod **245** that is attached to the interior surface of the magnetically detachable visor **110**. The different slots **272** allow the user to place the magnetically detachable visor **110** at different positions on the helmet. While 3 slots **272** are shown to provide three distinct positions for the visor, in alternative embodiments a different number of slots may be used, such as 2, 4, 5, 6, etc. In another alternative embodiment, the extension **270** may not be included and the magnetically detachable visor **110** can have just a single mounting position on the helmet **100**.

FIG. **2**F is a cross-sectional view of the helmet anchor **220** taken along the section line D-D of FIG. **2**E in accordance with an illustrative embodiment. As shown, the helmet anchor **220** forms a cavity **275** that is sized to receive the tapered exterior walls of the receptacle **240** that extends from an interior surface of the magnetically detachable visor **110**. Specifically, an interior side **277** of a wall of the cavity **275** is tapered to match the taper of the exterior walls of the receptacle **240** such that the receptacle **240** is received by and mounts within the cavity **275**. Specifically, interior walls of the cavity **275** taper outward as the walls extend outward from the a base **279** of the helmet anchor **220**.

The view of FIG. **2**F also depicts the second magnetic element **225** and the second magnetic element cover **230** mounted to the helmet anchor **220**. The second magnetic element cover **230** includes the base **279** and clips **281**

attached to the base **279**. As shown, the clips **281** mate with a slot **283** that is formed by and extends from an exterior side of the wall that forms the cavity **275**. Additionally, a pre-load protrusion **285** extends from the base **279** of the second magnetic element cover **230** and contacts the second magnetic element **225**. The pre-load protrusion **285** places force/pressure on the second magnetic element **225** to help ensure that the second magnetic element **225** does not move or rattle around during normal use of the helmet. FIG. **2**G is a blow-up view of the circled area in FIG. **2**F.

FIG. **2**H is an exploded view that depicts components mounted to the magnetically detachable visor **110** in accordance with an illustrative embodiment. As shown, the receptacle **240** is mounted to the interior surface of the magnetically detachable visor **110**. FIG. **2**H also depicts the first magnetic element **205**, the screw **210** used to secure the first magnetic element **205** to the receptacle **240**, and the first magnetic element pad **215**. The rod **245** that is used to position the visor at one of a plurality of positions is also shown.

FIG. **2**I depicts a helmet anchor **290** in accordance with an illustrative embodiment. The helmet anchor **290** also includes an extension **292** with slots **294** configured to receive the rod **245** that is attached to the interior surface of the magnetically detachable visor **110**. The different slots **272** allow the user to place the magnetically detachable visor **110** at different positions on the helmet. While 3 slots **272** are shown to provide three distinct positions for the visor, in alternative embodiments a different number of slots may be used, such as 2, 4, 5, 6, etc. The helmet anchor **290** does not include tabs, and is secured to the helmet with an adhesive or other method that does not utilize tabs. FIG. **2**J is a partial view of the helmet **100** with an embedded helmet anchor **290** in accordance with an illustrative embodiment. The view of FIG. **2**J does not depict the magnetically detachable visor **110**. FIG. **2**K depicts the magnetically detachable visor **110** mounted to the helmet anchors of the helmet in accordance with an illustrative embodiment.

In another illustrative embodiment, the magnetically detachable visor **110** includes sunglasses (or other eyewear) storage incorporated into the visor itself. Riders will often put their sunglasses in their helmet for storage in the event that the glasses are not needed during a portion of a ride. On a traditional helmet, the sunglasses are typically put through the vents of the helmet. However, in new helmets, a different location is needed as the vents are often blocked by the underlying protective technology. Thus, described herein are eyewear ports (or receptacles) that are attached to an interior side (i.e., bottom) of the visor. As discussed below, these ports taper down as they approach the helmet in a way that directs arms of the eyewear towards the exterior of the helmet. When stored using the ports, the eyewear arms are positioned to rest over the sides of the helmet.

FIG. **3**A is a front view of the magnetically detachable visor **110** with built-in eyewear receptacles **305** for securing eyewear in accordance with an illustrative embodiment. FIG. **3**B is a rear view of a portion of the magnetically detachable visor **110** that includes an eyewear receptacle **305** in accordance with an illustrative embodiment. Each of the eyewear receptacles (or ports) **305** include a front-facing opening **310** and a rear-facing opening **315**. The front-facing opening **310** is larger in area than the rear-facing opening **315**. As such, the eyewear receptacle **305** tapers from a larger opening (i.e., the front-facing opening **310**) to a smaller opening (i.e., the rear-facing opening **315**) to secure arms of the eyewear securely to the magnetically detachable visor **110**. The eyewear receptacles **305** are mounted to the interior surface of the magnetically detachable visor.

FIG. **3**C is a front view of the magnetically detachable visor **110** mounted to the helmet **100** in accordance with an illustrative embodiment. As shown, the magnetically detachable visor **110** includes a pair of eyewear receptacles **305** that are sized to receive the arms of eyewear (e.g., sunglasses, reading glasses, etc.). FIG. **3**D is a side view of a helmet with eyewear **320** stored in the magnetically detachable visor **110** in accordance with an illustrative embodiment. As shown, the arms **325** of the eyewear are received and secured by the eyewear receptacles **305**. As also shown, the eyewear arms are positioned to rest over the sides of the helmet during storage. In an alternative embodiment, the magnetically detachable visor **110** may not include the eyewear receptacles **305** for eyewear storage.

In another illustrative embodiment, the helmet **100** includes detachable earpads such that the user is able to customize the helmet depending on the ride conditions, weather, etc. Removal of the detachable earpads results in a lighter helmet with more ventilation and airflow. FIG. **4**A depicts the helmet **100** with the detachable earpad assemblies **105** mounted to the helmet in accordance with an illustrative embodiment. FIG. **4**B depicts the helmet **100** with the detachable earpad assemblies **105** detached from the helmet **100** in accordance with an illustrative embodiment.

In an illustrative embodiment, the detachable earpad assemblies **105** are held in place by a plurality of anchors mounted within the energy absorbing layer (e.g., EPS) of the helmet. FIG. **4**C is a partially transparent view of the helmet and a detached earpad assembly that depicts embedded anchors in accordance with an illustrative embodiment. FIG. **4**D is a close-up view depicting how a detachable earpad assembly mounts to the embedded anchors in accordance with an illustrative embodiment. As shown, embedded in the helmet are a first anchor **405** and a second anchor **407**. In an illustrative embodiment, the first anchor **405** and the second anchor **407** are identical to one another. Alternatively, the first anchor **405** and the second anchor **407** can be different from one another. The first anchor **405** and the second anchor **407** each include openings **409** that are sized and oriented to receive posts **410** that extend from an upper surface of a cover **127** of the detachable earpad assembly **105**. While two anchors (**405**, **407**) and two posts **410** are shown, in alternative embodiments a different number of mating anchors and posts may be used, such as 1, 3, 4, 5, etc. The first anchor **405** and the second anchor **407** also include tabs **412** that are used to mount the anchors within the energy absorbing layer of the helmet.

Also embedded in the energy absorbing layer of the helmet is a central anchor **415** that includes a tab **417** to secure the central anchor **415** to the helmet. The central anchor **415** also includes a receptacle **420** that is sized and shaped to receive a ledge portion of a lever **425** that is attached to the cover **427** of the detachable earpad assembly **105**. In an illustrative embodiment, the lever **425** is spring-loaded and is used to control attachment and detachment of the detachable earpad assembly **105**.

FIG. **4**E is a perspective view of the lever **425** in accordance with an illustrative embodiment. FIG. **4**F includes a close-up view that depicts how the lever **425** mounts to the cover **427** of the detachable earpad assembly **105** in accordance with an illustrative embodiment. As shown, an interior surface of the lever **425** includes protrusions **430** with through openings that are sized to receive a pivot bar **435**. In an illustrative embodiment, the pivot bar **435** is secured

by brackets **439** formed within a cavity **437** of the cover **427** such that the lever **425** clips onto the detachable earpad assembly **105**. In another embodiment, the pivot bar **435** can have a length that extends past the sides of the lever **425** such that the pivot bar **435** can mate with openings formed in sidewalls of the cavity **437** of the cover **427** of the detachable earpad assembly **105**. Alternatively, the lever **425** may be in-molded, glued, or otherwise connected to the cover **427** of the detachable earpad assembly **105**.

Mounted to the pivot bar **435** in between the protrusions **430** is a spring **440**. The spring includes a first portion **442** that is designed to rest against an interior surface of the lever **425** and a second portion **444** that extends into a spring receptacle **445** (best seen in FIGS. **4**G and **4**H) formed in the cavity **437** of the detachable earpad assembly **105**. The spring **445** is designed to pre-load the lever **425** into a locking position such that a ledge **447** formed on the lever **425** mates with a surface of the central anchor **415** that is mounted to the helmet **100**.

FIG. **4**G depicts the lever **425** in a locked position that secures the detachable earpad assembly **105** to the helmet **100** in accordance with an illustrative embodiment. FIG. **4**H depicts the lever **425** in an unlocked position such that the detachable earpad assembly **105** can be removed from the helmet **100** in accordance with an illustrative embodiment. By pressing on a bottom portion **450** of the lever **425**, the user is able to change from the secured configuration of FIG. **4**G to the detachable configuration of FIG. **4**H. Specifically, by pressing on the bottom portion **450** of the lever **425**, the ledge **447** detaches from the surface of the central anchor **415**, which allows the detachable earpad assembly **105** to be slid downward and off of the helmet **100**. As the detachable earpad assembly **105** is slid down, the posts **410** slide out of the openings **409** in the first anchor **405** and the second anchor **407** such that the detachable earpad assembly **105** fully detaches from the rest of the helmet **100**. When the bottom portion **450** of the lever **425** is not being pressed, the spring **440** maintains the lever **425** at an orientation in which the ledge **447** mates with the surface of the central anchor **415** to prevent removal of the detachable earpad assembly **105** (i.e., as shown in FIG. **4**G).

In another illustrative embodiment, the detachable earpad assembly **105** includes a pad **455** that is removable from the cover **427** of the detachable earpad assembly **105**. Alternatively, the pad **455** can be in-molded or glued into the detachable earpad assembly such that the pad **455** is not removable or replaceable. The pad **455** is used as an impact absorbing material that may attenuate impact to the area when struck. FIG. **4**I shows a pad **455** removed from the detachable earpad assembly **105** in accordance with an illustrative embodiment. The pad **455** fits within a groove **460** formed in the interior surface of the cover **427** of the detachable earpad assembly **105**. As noted, in some embodiments, the pad **455** can be replaced in the event of damage, or to enable the user to select different types of pads depending on his/her preference. The pad **455** can be made from expanded polypropylene (EPP), expanded polystyrene (EPS), ethylene vinyl acetate (EVA), etc.

In an illustrative embodiment, the helmets described herein can be cycling helmets. However, it is to be understood that the description is not intended to be limited to cycling helmets. For example, the helmets described herein can be used for cycling, motorcycling, rock climbing, ice climbing, skiing, snowboarding, etc.

The word "illustrative" is used herein to mean serving as an example, instance, or illustration. Any aspect or design described herein as "illustrative" is not necessarily to be construed as preferred or advantageous over other aspects or designs. Further, for the purposes of this disclosure and unless otherwise specified, "a" or "an" means "one or more".

The foregoing description of illustrative embodiments of the invention has been presented for purposes of illustration and of description. It is not intended to be exhaustive or to limit the invention to the precise form disclosed, and modifications and variations are possible in light of the above teachings or may be acquired from practice of the invention. The embodiments were chosen and described in order to explain the principles of the invention and as practical applications of the invention to enable one skilled in the art to utilize the invention in various embodiments and with various modifications as suited to the particular use contemplated. It is intended that the scope of the invention be defined by the claims appended hereto and their equivalents.

What is claimed is:

1. A helmet comprising:

a helmet anchor mounted to the helmet, wherein the helmet anchor includes a cavity;

a first magnetic element, wherein at least a portion of the first magnetic element is mounted within the cavity;

a visor, wherein an interior surface of the visor includes a receptacle that extends from the interior surface;

a second magnetic element mounted within the receptacle, wherein the receptacle on the visor mates with the cavity of the helmet anchor to secure the visor to the helmet, and wherein the first magnetic element and the second magnetic element are attracted to one another such that the visor is detachable in response to an impact that exceeds an attractive force between the first magnetic element and the second magnetic element; and

a cover for the second magnetic element that mounts to the helmet anchor, wherein a base of the cover for the second magnetic element cover includes a pre-load protrusion that extends therefrom, wherein the pre-load protrusion contacts the second magnetic element to help prevent movement of the second magnetic element within the helmet anchor.

2. The helmet of claim **1**, wherein the cover for the second magnetic element includes one or more clips that mount to one or more slots formed in an outer surface of the helmet anchor.

3. The helmet of claim **1**, wherein an interior side of a wall of the cavity is tapered to match a taper of an exterior wall of the receptacle such that the receptacle is received by and mounts within the cavity.

4. The helmet of claim **1**, wherein the helmet anchor includes an extension with a plurality of slots formed in the extension.

5. The helmet of claim **4**, further comprising a rod mounted to the interior surface of the visor, wherein the rod is sized to fit within one of the plurality of slots formed in the extension of the helmet anchor to control an angle of the visor relative to the helmet.

6. The helmet of claim **1**, further comprising a second magnetic element pad that fits within the cavity of the helmet anchor, wherein the second magnetic element pad covers the second magnetic element to help prevent noise and to protect the second magnetic element from abrasion.

7. The helmet of claim **1**, further comprising a fastener to secure the second magnetic element to the receptacle, wherein the second magnetic element includes an opening that is sized to receive the fastener.

8. The helmet of claim 7, wherein the opening in the second magnetic element is chamfered such that the opening mates with a head of the fastener such that the fastener is flush with an end of the second magnetic element.

9. The helmet of claim 7, further comprising a magnetic element pad that is sized to cover an end of the second magnetic element and the head of the fastener.

10. The helmet of claim 7, further comprising an extension with a threaded opening that extends from a bottom of the receptacle, wherein the threaded opening is sized to receive the fastener.

11. The helmet of claim 1, wherein the visor includes a first eyewear receptacle and a second eyewear receptacle mounted to the interior surface of the visor, wherein each of the first eyewear receptacle and the second eyewear receptacle is configured to receive an arm of an eyewear for storage of the eyewear in the visor.

12. The helmet of claim 11, wherein the first eyewear receptacle includes a front-facing opening and a rear-facing opening, and wherein the front-facing opening is larger than the rear-facing opening.

13. The helmet of claim 1, further comprising a detachable earpad assembly that mounts to the helmet, wherein the helmet includes a central anchor to which the detachable earpad assembly attaches.

14. The helmet of claim 13, wherein the detachable earpad assembly includes a lever that has a ledge that rests upon a surface of the central anchor, and wherein the lever is spring loaded.

15. The helmet of claim 14, further comprising a spring mounted to the lever, wherein a first portion of the spring rests upon an interior surface of the lever and wherein a second portion of the spring is received by a spring receptacle formed in a cavity of a cover of the detachable earpad assembly.

16. The helmet of claim 14, wherein an interior surface of the lever includes protrusions with through openings that are sized to receive a pivot bar.

17. The helmet of claim 16, wherein the pivot bar mounts to brackets formed within a cavity formed in a cover of the detachable earpad assembly such that the lever clips onto the detachable earpad assembly.

18. The helmet of claim 17, wherein pressure applied to a bottom portion of the lever pivots the lever along the pivot bar such that the lever detaches from the central anchor for removal of the detachable earpad assembly.

19. The helmet of claim 13, further comprising a first anchor mounted to the helmet, wherein the first anchor includes an opening that is sized to receive a post mounted to a cover of the detachable earpad assembly.

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