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Customizable snap cover for open face helmets

Abstract

A snap cover assembly for use with open face helmets that allows for easy mounting onto the helmet via the helmets visor or face shield snaps, e.g., a series of three male snaps protruding from the helmet's outer surface immediately above the facial or front opening. The assembly includes an inner element (or “mounting element”) configured with a mounting assembly or system for attaching the snap cover assembly to the exposed helmet snaps. The assembly further includes an outer element, which is coupled with an outer surface of the inner element in a manner, in some embodiments, that allows it to be removable to allow a user to swap it out to modify the look of their helmet. The outer element includes an outer surface (or customization surface) upon which one or more customizations (or customizing elements) may be provided by the user or others.

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Background/Summary

CROSS REFERENCE TO RELATED APPLICATIONS (1) This application claims priority to U.S. Provisional Pat. Appl. No. 63/302,255, filed Jan. 24, 2022, which is incorporated herein by reference in its entirety.

FIELD OF THE INVENTION

(1) The present description is directed toward safety or crash helmets and accessories for such helmets, and, more particularly, to a snap cover assembly for use in customizing a helmet, such as open face motorcycle helmets and the like, that include a series of external snaps to allow for installation, removal, and replacement of a snap-on visor or face shield.

BACKGROUND

(2) There are many settings in which a crash helmet is worn to enhance safety of an activity such as a driver or rider of a motorized vehicle. For example, many countries require that riders of motorized vehicles that are unenclosed wear helmets for safety. A motorcycle helmet is an example of these crash or safety helmet, which are designed to improve motorcycle safety by protecting the rider's head in the event of an impact. Motorcycle helmets are often formed to have a polystyrene foam inner shell that absorbs the shock of an impact, and a protective plastic outer layer.

(3) One common form of such helmets is an open face or three-quarters helmet that is designed to cover the ears, cheeks, and back of the wearer's head. Many open face helmets offer snap-on visors or face shields that may be used by the rider to reduce sunlight glare. To allow the visors to be snapped on and off, the outer surface of the helmet typically includes three spaced-apart male snaps adjacent an upper edge of the facial or front opening of the helmet. Many vehicle operators including motorcycle riders remove the visor or face shield to enhance comfort or improve visibility and rely upon sunglasses or goggles to provide eye protection with open face helmets, leaving the snaps exposed.

(4) While helmets come in a wide variety of colors and graphic designs, many riders enjoy customizing their helmets rather than using an off-the-shelf design. Helmet customizations are wide ranging and include decals or stickers, snap-on visors and face shields, and sculptural additions. These customizations may be applied to the helmet outer surface in the form of decals or stickers or in a three-dimensional (3D) form such as a faux mohawk, spikes, or animal ears. In other cases, the rider may swap out the snap-on visor for a custom-molded sun visor or the like or the rider may apply vinyl stickers to the visor.

(5) There is a demand for new ways to customize the look of an open face helmet. This demand remains, in part, because existing customizations can reduce safety such as when a rider applies a vinyl sticker to a visor, thereby at least partially blocking the wearer's view. The demand for new customizations is also from riders who often remove their visor, such as in warmer weather, and who do not like the look of the exposed set of snaps above the facial or front opening.

SUMMARY

(6) To address the need or demand for new helmet customizations, the inventor designed a snap

cover assembly for use with open face helmets that allows for easy mounting onto the helmet via the helmets visor or face shield snaps, e.g., a series of three male snaps protruding from the helmet's outer surface immediately above the facial or front opening. The assembly includes an inner element (or "mounting element") configured with a mounting assembly or system for attaching the snap cover assembly to the exposed helmet snaps. The assembly further includes an outer element, which is coupled with an outer surface of the inner element in a manner, in some embodiments, that allows it to be removable to allow a user to swap it out to modify the look of their helmet. The outer element includes an outer surface (or customization surface) upon which one or more customizations (or customizing elements) may be provided by the user or others (e.g., a manufacturer, a distributor, or the like).

(7) The new snap cover assembly has several desirable features or aspects that are likely to cause it to be widely accepted and used by riders, i.e., helmet wearers or users. First, it allows the wearer to uniquely identify or individualize their helmets via a detachable means. Particularly, the customization or customizing element may be graphical, textual, symbolic, and/or optical or a combination of all these types of customizations. Second, the snap cover assembly is useful for hiding the exposed visor snaps, which many helmet users believe are unsightly or undesirable. Third, the use of the snap cover assembly is safer than other customizations that involve modifying or covering the visor or face shield, which can block the user's view or distract the user during vehicle operations.

(8) More particularly, a snap cover assembly is provided for use with open face helmets. The assembly includes an inner mounting element with a semi-cylindrical body having an inner surface and an outer surface. An outer customization element is included with a semi-cylindrical body attached to or integrally formed with the outer surface of the body of the inner mounting element. The body of the outer customization element may include a customization surface opposite the inner mounting element that is configured for receiving or containing one or more customizing elements. The assembly further includes a set of spaced-apart slots provided in the inner surface of the inner mounting element that are configured for receiving a set of snaps provided on an outer surface of an open face helmet for coupling with a visor or face shield.

(9) In some embodiments of the snap cover assembly, each of the slots is defined by a flexible sidewall configured for providing a snap fit with one of the snaps. In these implementations of an integral snap coupling mechanism, the flexible sidewall is angled inward from the outer surface to the inner surface of the body of the inner mounting element to provide the snap fit.

(10) To provide alignment with the snaps that may have different positions on helmets, each of the slots may have a length that is at least 1.5 times greater than a maximum outer diameter of the snaps. In a more specific example implementation, the set of slots may include three elongated slots with a center slot positioned proximate to a center of the body of the inner mounting element and being arranged with a longitudinal axis substantially orthogonal to a longitudinal axis of the body of the inner mounting element. The three elongated slots also may include a pair of outer slots positioned with one on either side of the center slot and each oriented with a longitudinal axis substantially parallel to the longitudinal axis of the body of the inner mounting element.

(11) The assembly may be configured to include a snap coupling device slidably disposed within each of the slots. The snap coupling device is selected from the following: a female or male snap configured for mating with the snap of the helmet, a press-on washer, a split washer, a metal flexure, and a metal flexible coupling device. further comprising a suction cup disposed within each of the slots that is oriented and configured for mating with the outer surface of the helmet. In some embodiments, the assembly further includes one or more patches of or a layer of flexible adhesive on the inner surface of the mounting element.

(12) The assembly may also include a customizing element attached to or provided as part of the customization surface. In such implementations of the snap cover assembly, the customizing element is a customization selected from the following: a retroreflector or layer of retroreflective

material, a sticker, a decal, a layer of ink, a layer of paint, a three dimensional (3D) component, an embossed element, a molded element, a feature configured for providing public safety information, a feature providing colors or symbols invoking escort or group leader functions or worker authority, a component providing advertisement functions, a component configured to individualize or identify the helmet or person wearing the helmet, and a customization with an outer layer or coating of weather resistant material.

(13) The foregoing is a summary and thus may contain simplifications, generalizations, and omissions of detail; consequently, those skilled in the art will appreciate that the summary is illustrative only and is not intended to be in any way limiting. For a better understanding of the embodiments, together with other and further features and advantages thereof, reference is made to the following description, taken in conjunction with the accompanying drawings. The scope of the embodiments will be pointed out in the appended claims.

Description

BRIEF DESCRIPTION OF THE DRAWINGS

- (1) FIG. 1 illustrates a side sectional view of a portion of a snap cover assembly of the present description showing mating with a single visor or face shield snap of a helmet.
- (2) FIGS. 2A and 2B illustrate the inner or mounting element (or cover or cover body) of the snap cover assembly of FIG. 1 in use with two different sets of helmet snaps having a different pattern or placement.
- (3) FIG. 3 illustrates the snap cover assembly of FIG. 1 after application onto a helmet showing only the relevant upper front portion of the helmet.
- (4) FIGS. 4A-4F illustrate various attachment means that may be used with the snap cover assembly of FIG. 1 in addition or in place of the slots with flexible and sloped sidewalls in the inner or mounting element.
- (5) FIG. 5 illustrates an exploded or stack up view of the snap cover assembly of FIG. 1 as it may be attached or applied to an open face helmet such as a motorcycle helmet.
- (6) FIG. 6 illustrates another embodiment of the snap cover assembly in which the inner or mounting element and outer element with a customization surface are integrally formed or fabricated as a single-piece unit.
- (7) FIGS. 7A-7C illustrate an exploded view of another snap cover assembly along with a perspective rear view and a side view of a slide-in lock clamp of the assembly.

DETAILED DESCRIPTION

(8) In brief, the present description teaches a snap cover assembly for use in customizing open face helmets, including motorcycle helmets, that are designed to receive a snap-on visor or face shield. In brief, the assembly is configured for detachable mounting upon an outer surface of a helmet above the facial or front opening of a helmet. To this end, the assembly includes an inner or mounting element (or cover or cover body) with a mounting assembly or system adapted to detachably engage with the set of visor/shield snaps (exposed due to removal of the helmet's visor or face shield). The snap cover assembly also includes an outer element (or covering layer) that is permanently or detachably attached to an outer surface of the inner or mounting element, and the outer element includes a customization surface adapted for receiving one or more customizations or customizing elements.

(9) FIG. 1 illustrates a side sectional view of a portion of a snap cover assembly **110** of the present description showing it mating with a single visor or face shield snap **102** of a helmet (not shown in FIG. 1). As shown, the snap cover assembly **110** includes an inner or mounting element **112** with a body **113** having an outer or top surface (or side) **114** and an inner or bottom surface (or side) **115**. The body **113** may be formed of flexible and durable material such as of plastic with a thickness in

the range of 0.1 to 0.25 inches or the like. The snap cover assembly **110** further includes an outer element (or covering layer) **120**, with an inner surface (or side) **122** and an outer or customization surface **124** upon which one or more customization or customizing elements (not shown in FIG. 1) may be provided. The outer element **120** is arranged with its inner surface/side **122** facing and mated with the outer or top surface **114** of the body **113** of the inner or mounting element **112**.

(10) The inner or mounting element **112** includes a slot or passageway for receiving each of a set of visor or face shield snap on a helmet's outer surface. As shown, the inner element **112** includes a slot or passageway **116** that has received a male snap **102**, with a typical motorcycle helmet including three such snaps spaced apart generally in a line above the facial or front opening to allow a visor or face shield with three female snaps to be snapped on and off (here shown with the visor or face shield removed or snapped off the helmet).

(11) The slot **116** is defined by a sidewall **118** that extends about its periphery, and the slot **116** may be generally rectangular in shape with a width, $W_{sub.Slot}$, chosen based on a maximum outer diameter (OD) of the snap **102**. As shown, the sidewall **118** may be angled inward from the outer or top surface **114** to the inner or bottom surface **115** rather than being vertical such as at an angle, θ , in the range of 135 to 175 degrees such that the sidewall **118** captures, e.g., by flexing open upon insertion of the snap **102** and then flexing or snapping closed (as shown) to capture or snap onto the narrower portion of the male snap **102**. The height, $H_{sub.Slot}$, may be chosen to match that of the snap **102** or be a small amount larger such that the top of the snap **102** does not abut the inner surface **124** of the cover layer **120**. In some cases, the slot or snap receiving feature **116** is provided its ability to capture a snap **102** by the flexibility and resilient (or spring-like) characteristics, which may be provided by forming (e.g., molding) the inner or mounting element **112** of a plastic or similar material with a thickness in the range discussed above.

(12) FIGS. 2A and 2B illustrate the inner or mounting element (or cover or cover body) **112** of the snap cover assembly **110** of FIG. 1 in use with two different sets of helmet snaps having different patterns or placement. Particularly, the snap pattern for a visor or face shield may vary with the size of the helmet, with the manufacturer of the helmet, and due to manufacturing tolerances. With this in mind, the snap cover assembly **110** is designed to be used with a wide range of snap patterns or spacings through the use of slots that allow for different snap patterns or spacings rather than use of a set of circular holes.

(13) This slot arrangement and its usefulness is shown in FIGS. 2A and 2B with the snap cover assembly **110** being used with two sets of visor or face shield snaps as may be found on two different helmets (not shown). In these figures, the outer or customization element **120** has been removed from the assembly **110** to expose the outer or top surface **114** of the body **113** of the top or mounting element **112** after it has been mated with two different series or set of three helmet snaps, with the first set including snaps **102A**, **202A**, and **204A** and the second set including snaps **102B**, **202B**, and **204B** that are shown to have differing positions or to be arranged with a slightly differing spacing or pattern. As shown, the snaps may vary in either or both vertical and horizontal spacing.

(14) To address these different snap positions, the inner or mounting element **112** includes a center slot **116** and two outer or side slots **216** and **217**. Each has a width as discussed above to facilitate receiving a snap and with snapping onto or flexibly engaging that snap. Further, though, each of the slots **116**, **216**, and **217** has a length, $L_{sub.Slot}$, that is greater than the maximum OD of the snaps to allow for the differing snap spacings and/or positioning patterns, and the length, $L_{sub.Slot}$, may be in the range of 1.5 to 4 times (or 150 to 400 percent of) the OD of the snaps. The length, $L_{sub.Slot}$, may be the same for all three of the slots **116**, **216**, **217** or they may vary (such as with the side slots **216** and **217** having a greater length than the inner or center slot **116** in some embodiments). Further, alignment is achieved by orienting the center slot **116** vertically (i.e., with its longitudinal axis orthogonal to the longitudinal axis of the body **113** of the inner element **112**) and the side or outer slots **216** and **217** horizontally (i.e., with their longitudinal axes parallel to the

longitudinal axis of the body **113** of the inner element **112**). In this way, the centering slot's sidewall **118** acts to retain the horizontal position of the body **113** while the outer slot sidewalls **218** and **219** act to retain the vertical position of the body **113** on the helmet (or relative to the received snaps). As shown, this configuration allows the first set of snaps **102A**, **202A**, **204A** and the second set of snaps **102B**, **202B**, and **204B** both being received within the slots **116**, **216**, **217**, thereby allowing the inner element **112** to be snapped onto helmets with the two differing patterns or positioning of snaps.

(15) FIG. 3 illustrates the snap cover assembly **110** of FIG. 1 after application onto a helmet **300**. The helmet **300** is an open face design with an outer surface **304** or shell and with a facial or front opening **306**, and a set of three snaps are provided on the surface **304** above and proximate to the opening **306** (such as in an arc along the opening **306** and offset from the opening by a small distance such as by 0.5 to 1 inch or the like). The snaps are hidden from view in FIG. 3 by the snap cover assembly **110**, which, as discussed with reference to FIGS. 1-2B is attached to the surface **304** via a detachable coupling between the three snaps and the three slots **116**, **216**, and **217** of the inner or mounting element **112**.

(16) The cover layer or outer element **120** is useful in the snap cover assembly **110** for providing a semi-cylindrical customization surface **122** upon which one or more customizations or customization elements, e.g., stickers, decals, integrally formed or later attached 3D features, or the like, may be provided. In this manner, the surface **122** hides the presence of the snaps but is spaced apart from the helmet surface **304** such that it does not interfere with the snaps. The snap cover assembly **110** may be removed with a prying motion, and a visor or face shield or the assembly **110** (or another embodiment of a snap cover assembly) may be attached to the helmet surface **304**.

(17) FIGS. 4A-4F illustrate various attachment means that may be used with the snap cover assembly **110** of FIG. 1 in addition or in place of the slots with flexible and sloped sidewalls of the inner or mounting element **112**. FIG. 4A illustrates an embodiment of the assembly **110** in which a layer of flexible adhesive **450**, such as foam tape adhesive or other flexible adhesive, is provided on all or portions of the inner or lower surface **115** of the body **113** of the inner or mounting element **112**. As shown, the adhesive **450** may be provided in two sections or patches in the spaces between the inner slot **116** and the outer or side slots **216** and **217**. The layer of adhesive acts as an additional attachment mechanism to the slot-snap coupling to hold the inner or lower surface **115** firmly against the outer spherical surface of the helmet. FIG. 4B illustrates an embodiment of the assembly **110** in which a layer of flexible adhesive **460** is applied in the spaces between the inner slot **116** and the outer slots **216** and **217** and also to surround the outer slots **216** and **217** so as to cover or substantially cover all of the inner or lower surface **115**. In this embodiment, the adhesive layer **460** may be a flexible and removable silicone (or other type) adhesive, and it may take the form of double-sided tape (e.g., swatches of double-sided tape provided outside and between the slots, which may mate with the snaps or simply receive or house them (e.g., with an inner layer thickness or slot depth at least as great as the snap height) and facilitate alignment).

(18) In some embodiments, the assembly **110** may be configured for attachment to helmets that do not include protruding male snaps. In such embodiments, the assembly **110** may take the form shown in FIG. 4C to include one or more plastic or rubber suction devices or cups **470**, and these may be provided in a fixed or slidable manner in each of the slots **116**, **216**, and **217** with the surface-mating portion extending outward from the inner or lower surface **115**.

(19) FIG. 4D illustrates another embodiment of snap cover assembly **110** in which a female snap **480** is positioned in each of the slots **116**, **216**, and **217**. The three snaps **480** are sized to receive and mate with the visor or face shield snaps on a helmet, and the inner or mounting element **112** is detachable coupled to a helmet via snap-to-snap engagement rather than snap-to-slot sidewall engagement. The snaps **480** are preferably slidably received within the slots **116**, **216**, and **217** such that they can be slid at least some distance to account for differing helmet snap positions or mounting patterns (as discussed above with reference to FIGS. 2A and 2B).

(20) FIG. 4E illustrates a set of alternative snap coupling devices **490** that may be used in place of the flexible sidewalls of the slots **116**, **216**, and **217**, with these components often but not in all cases being slidably positioned in the slots **116**, **216**, and **217** for attachment to a helmet snap. As shown, the snap coupling device **490** include a snap (e.g., female or male to be able to couple with the helmet snap), a press-on washer, a split washer, a custom metal flexure, and a metal flexible coupling device (which may provide the slot function and be placed into the body **113** of the inner or mounting element **112**). In the same or other embodiments, the assembly **110** may be attached using glue or other adhesives in addition or in place of the snap-mating sidewalls of the slots **116**, **216**, and **217**.

(21) FIG. 4F illustrates such as assembly **110** that includes four patches of glue or adhesive **464** positioned exterior to the outer or side slots **216** and **217** and in the spaces between the center slot **116** and the outer or side slots **216** and **217**. The glue may be provided in glue dots **464**, and it may take a wide variety of forms including the type of adhesive used on the back of credit cards for removable or temporary applications to allow the assembly **110** to be detachable (e.g., to allow mounting of the visor or face shield on the helmet via reuse of the snaps).

(22) FIG. 5 illustrates an exploded or stack up view of the snap cover assembly **110** of FIG. 1 as it may be attached or applied to an open face helmet **502**, e.g., a motorcycle helmet, a snowmobile helmet, an all-terrain vehicle (ATV), a jet ski helmet, or the like. As shown, the helmet **502** has an outer surface or shell **504** upon which are mounted three spaced apart snaps **508**, which would be used to mount a visor or face shield (not shown) upon the helmet **502**. With the snaps **508** exposed, the snap cover assembly **110** may be detachably mounted onto the helmet surface **504**.

(23) In this example, the assembly **110** include an inner or mounting element **112** with slots adapted for receiving and aligning the assembly **110** with the snaps **508** and also for mechanically coupling with the snaps **508** via their flexible and sloped or angled in sidewalls (as discussed in more detail with reference to FIGS. 1-2B). A layer of adhesive **530** is included in the assembly **110** to attach an outer element or cover layer **120** to the outer surface of the inner element **112**, and the inner and outer elements **112** and **120** may be formed of a plastic or other flexible material, with the adhesive **530** being chosen to be compatible with this material(s). The outer element **120** includes an outer or customization surface **122** that is configured to include one or more customizations **540** such as via printing (e.g., a layer of ink), embossing, painting (e.g., a layer of paint, decals or stickers, molding, and/or the like). In some useful embodiments, the surface **122** is formed of retroreflective material or the customizations applied to the surface **122** are formed of retroreflective material for increased visibility and safety for the helmet wearer.

(24) FIG. 6 illustrates another embodiment of a snap cover assembly **610** in which the inner or mounting element and outer element with a customization surface are integrally formed or fabricated as a single-piece unit such as via a plastic molding process, 3D printing, or other useful manufacturing process. This design is preferred in some applications to eliminate the need for attaching the inner and outer elements or layer together via an adhesive layer or the like, but this design does not facilitate use of the inner or mounting element with two or more outer or cover layers.

(25) As shown, the assembly **610** is a single piece unit with a unitary body **612**, which may be thought of as including both the inner or mounting element and the outer element/cover layer of the assembly **110** of FIG. 1. The body **612** includes an outer or customization surface **614**, which in use would face away from the helmet to which the assembly **610** is attached, and, upon the outer or customization surface **614**, a customization or customizing element **615** is provided in the form of a molded 3D element but other embodiments may use a printed/painted layer, a sticker/decals, an embossed feature, or the like to provide the customization or customizing element **615**. The body **612** further includes an inner or mounting surface **616** upon which are formed three slots **616** each with integral snap features provided by the design of their flexible sidewalls (as discussed with reference to FIG. 1).

(26) FIGS. 7A-7C illustrate an exploded view of another snap cover assembly **710** along with a perspective rear view and a side view of a slide-in lock clamp **730** of the assembly **710**. This embodiment of the assembly **710** utilizes an independent or separable (non-integral) mechanism for coupling with the helmet snaps (or “buttons”) **702**. As shown, the assembly **710** includes a body **712** with an outer or customization surface **714** and an inner surface **716**. As noted above, the body **712** may be a two-part design with an outer element or cover layer and an inner or mounting element with these two parts often being attached with an adhesive or adhesive layer, and the cover layer may have a recessed surface for receiving the inner or mounting element so that it may at least partially enclose the inner or mounting element (e.g., on all except the inner surface/side). In other cases, the body **712** may be of a unitary or one-piece design, as discussed with reference to FIG. 6.

(27) The assembly **710** differs from assembly **110** in part because the slots are not used to couple with the helmet snaps but instead to receive, position/align, and retain a set of slide-in lock clamps **730**. Three clamps **730** are included, with one per slot **720**, **722**, and **723** provided in the body **712** on the inner surface **716**. Each clamp **730** is designed to receive and retain a button/snap **702** on an outer surface of a helmet (not shown).

(28) To this end, the clamp **730** is shown to include a body or front leg **732** coupled with a back leg/arm **734** such as with an orthogonal relationship such that each clamp **730** is L-shaped, with the leg/arm **734** being much shorter in length (e.g., about matching the depth of the slots **720**, **722**, **723**) than the body or front leg **732** (which may have a length of about 1.5 to 2.5 times that of the OD of the helmet snap/button). The body/front leg **732** includes a snap-receiving slot or groove **733** that is configured with an outer section designed to allow the smaller OD portion of a helmet button **702** to pass and an inner section designed to receive the larger head of the male snap **702**, thereby capturing and retaining the snap **702** in a detachable or separable manner.

(29) The rear leg/arm **734** has a width and height chosen to allow the clamps **730** to be received in the center slot **720** and the two outer or side slots **722** and **723**. The center slot **720** may be sized with a width (as measured on the horizontal) that is only a small amount larger than the width of the leg/arm **734** (e.g., 5 to 10 percent larger) such that the clamp **730** inserted into the slot **720** has little or no side-to-side play or ability to move. In contrast, the side or outer slots **722** and **723** may have widths that are greater than the clamp's back leg/arm **734** width (such as 30 to 100 percent larger) to allow these clamps **730** inserted into these slots to be moved side-to-side to allow for differing helmet snap positions (as discussed above). In use, the clamps **730** may be first coupled or locked onto the three helmet snaps, and then the clamps **730** may be inserted into the slots **720**, **722**, and **723** with center slot **720** providing a horizontal or left-to-right positioning and outer slots **722** and **723** allowing for some movement of clamps **730**. Once the alignment and/or sizing process is completed, the side-to-side movement of the clamps **730** in the slots **722** and **723** may be fixed such as with glue or other adhesive.

(30) This disclosure has been presented for purposes of illustration and description but is not intended to be exhaustive or limiting. Many modifications and variations will be apparent to those of ordinary skill in the art. The example embodiments were chosen and described in order to explain principles and practical application, and to enable others of ordinary skill in the art to understand the disclosure for various embodiments with various modifications as are suited to the particular use contemplated. Thus, although illustrative example embodiments have been described herein with reference to the accompanying figures, it is to be understood that this description is not limiting and that various other changes and modifications may be affected therein by one skilled in the art without departing from the scope or spirit of the disclosure.

(31) The snap cover assemblies described herein allow users to readily customize their open face helmets in a detachable or modifiable manner. The new assemblies act to “cover” helmet snaps or buttons that are exposed upon removal of a visor or face shield. The snap cover assembly is used by snapping it onto a helmet (e.g., a motorcycle helmet) using integral plastic snap mechanisms

provided by each slot on an inner surface or via snap attachment components positioned in slots that do not have an integral snap mechanism. A covering layer may be integrally formed with the inner or mounting element or applied later via an adhesive layer or the like, and, similarly, one or more customizations or customizing elements may be provided on an outer or customization surface on the covering layer before or after the covering layer is attached to the inner or mounting element.

(32) The customizations may provide optical customization of the helmet such as with a retroreflector or glowing surface(s). The customizations may be configured to provide public safety information such as “Ambulance,” “Police,” colors or symbols invoking escort or group leader functions or worker authority, or the like. The customizations may be configured to provide advertisement functions (e.g., “Soda Brand”) and/or be configured to individualize or identify the helmet (e.g., with a badge number, a wearer's name, an ID number, a company affiliation, group representation (e.g., a tour group), favorite sports team or musical group, and so on). In some embodiments, the customization element may be configured or designed to be weather resistant or may include an additional outer layer/coating of weather resistant material.

Claims

1. A snap cover assembly for use with open face helmets, comprising: an inner mounting element with a semi-cylindrical body having an inner surface and an outer surface, wherein the inner surface and the outer surface are separated by a radial height; an outer customization element with a semi-cylindrical body attached to or integrally formed with the outer surface of the body of the inner mounting element, wherein the body of the outer customization element comprises a customization surface disposed opposite the inner mounting element that is configured for receiving or containing one or more customizing elements; and a set of spaced-apart slots provided in the inner surface of the inner mounting element that are configured for receiving a set of snaps provided on an outer surface of an open face helmet for coupling with a visor or face shield, wherein each snap of the set of snaps has a snap height not exceeding the radial height separating the inner surface and the outer surface of the semi-cylindrical body of the inner mounting element.
2. The assembly of claim 1, wherein each of the slots is defined by a flexible sidewall configured for providing a snap fit with one of the snaps.
3. The assembly of claim 2, wherein the flexible sidewall is angled inward from the outer surface to the inner surface of the body of the inner mounting element to provide the snap fit.
4. The assembly of claim 1, wherein each of the slots has a length that is at least 1.5 times greater than a maximum outer diameter of the snaps.
5. The assembly of claim 4, wherein the set of slots comprises three elongated slots with a center slot positioned proximate to a center of the body of the inner mounting element and being arranged with a longitudinal axis substantially orthogonal to a longitudinal axis of the body of the inner mounting element, and wherein the three elongated slots include a pair of outer slots positioned with one on either side of the center slot and each oriented with a longitudinal axis substantially parallel to the longitudinal axis of the body of the inner mounting element.
6. The assembly of claim 1, further comprising a snap coupling device slidably disposed within each of the slots, wherein the snap coupling device comprises at least one of a female or male snap configured for mating with the snap of the helmet, a press-on washer, a split washer, a metal flexure, or a metal flexible coupling device.
7. The assembly of claim 1, further comprising a suction cup disposed within each of the slots that is oriented and configured for mating with the outer surface of the helmet.
8. The assembly of claim 1, further comprising one or more patches or a layer of flexible adhesive on the inner surface of the mounting element.
9. The assembly of claim 1, further comprising a customizing element attached to or provided as

part of the customization surface, wherein the customizing element comprises at least one of a retroreflector or layer of retroreflective material, a sticker, a decal, a layer of ink, a layer of paint, a three dimensional (3D) component, an embossed element, a molded element, a feature configured for providing public safety information, a feature providing colors or symbols invoking escort or group leader functions or worker authority, a component providing advertisement functions, a component configured to individualize or identify the helmet or person wearing the helmet, or a customization with an outer layer or coating of weather resistant material.

10. A snap cover assembly for use with open face helmets, comprising: an inner mounting element with a semi-cylindrical body having an inner surface and an outer surface, wherein the inner surface and the outer surface are separated by a radial height; an outer customization element with a semi-cylindrical body attached to or integrally formed with the outer surface of the body of the inner mounting element, wherein the body of the outer customization element comprises a customization surface disposed opposite the inner mounting element that is configured for receiving or containing one or more customizing elements; and a set of slots provided on the inner surface of the inner mounting element that are configured for receiving a set of snaps provided on an outer surface of an open face helmet for coupling with a visor or face shield, wherein each snap of the set of snaps has a snap height not exceeding the radial height separating the inner surface and the outer surface of the semi-cylindrical body of the inner mounting element, wherein the set of slots comprises three elongated slots with a center slot positioned proximate to a center of the body of the inner mounting element and being arranged with a longitudinal axis substantially orthogonal to a longitudinal axis of the body of the inner mounting element, and wherein the three elongated slots include a pair of outer slots positioned with one on either side of the center slot and each oriented with a longitudinal axis substantially parallel to the longitudinal axis of the body of the inner mounting element.

11. The assembly of claim 10, further comprising a snap coupling device slidably disposed within each of the slots that is configured for mating with a snap or button provided on an outer surface of an open face helmet to attach a visor or face shield to the helmet.

12. The assembly of claim 11, wherein the snap coupling device comprises at least one of a female or male snap configured for mating with the snap of the helmet, a press-on washer, a split washer, a metal flexure, or a metal flexible coupling device.

13. The assembly of claim 10, further comprising a suction cup disposed within each of the slots that is oriented and configured for mating with the outer surface of the helmet.

14. The assembly of claim 10, further comprising one or more patches or a layer of flexible adhesive on the inner surface of the mounting element.

15. The assembly of claim 10, further comprising a customizing element attached to or provided as part of the customization surface, wherein the customizing element comprises at least one of a retroreflector or layer of retroreflective material, a sticker, a decal, a layer of ink, a layer of paint, a three dimensional (3D) component, an embossed element, a molded element, a feature configured for providing public safety information, a feature providing colors or symbols invoking escort or group leader functions or worker authority, a component providing advertisement functions, a component configured to individualize or identify the helmet or person wearing the helmet, or a customization with an outer layer or coating of weather resistant material.
