



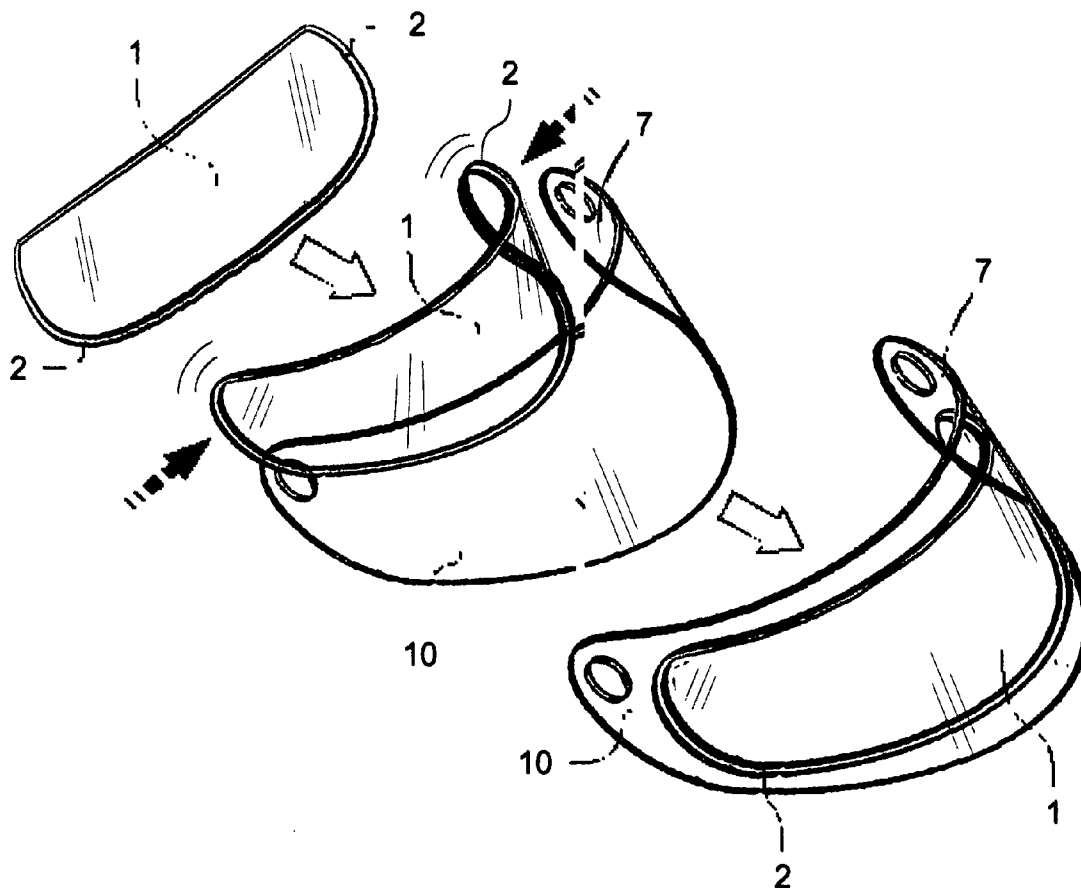
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(19) **United States**(12) **Patent Application Publication**
Righi et al.(10) **Pub. No.: US 2012/0102628 A1**(43) **Pub. Date: May 3, 2012**(54) **VISOR RETENTION SYSTEM****Publication Classification**(75) Inventors: **Aronne Righi**, Bologna (IT);
Rambaldi Francesco, Bologna (IT)(51) **Int. Cl.**
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BO (IT)(52) **U.S. Cl.** **2/243.1**(21) Appl. No.: **13/381,882**(57) **ABSTRACT**(22) PCT Filed: **Jul. 5, 2010**(86) PCT No.: **PCT/IB10/01650**§ 371 (c)(1),
(2), (4) Date: **Dec. 30, 2011**

The present invention generally relates to a retention system that could be used to install in the internal surface of face-shields (7), for example of motorcycle helmet's visors, several devices, like screens working as solar filters, anti-glare screens, antifog screens, anti-scratch screens or different types of screens or devices, without alter or modify the characteristics of the visor (10) on which they are applied. The screen and the visor itself are this way preserved from damages, alterations and/or early substitutions. Such a system is constituted by at least one screen (1) and at least one gasket (2) with adhesive characteristics that can make such screens removable and re-positionable. This system can be created exploiting the characteristics of some materials.

(30) **Foreign Application Priority Data**

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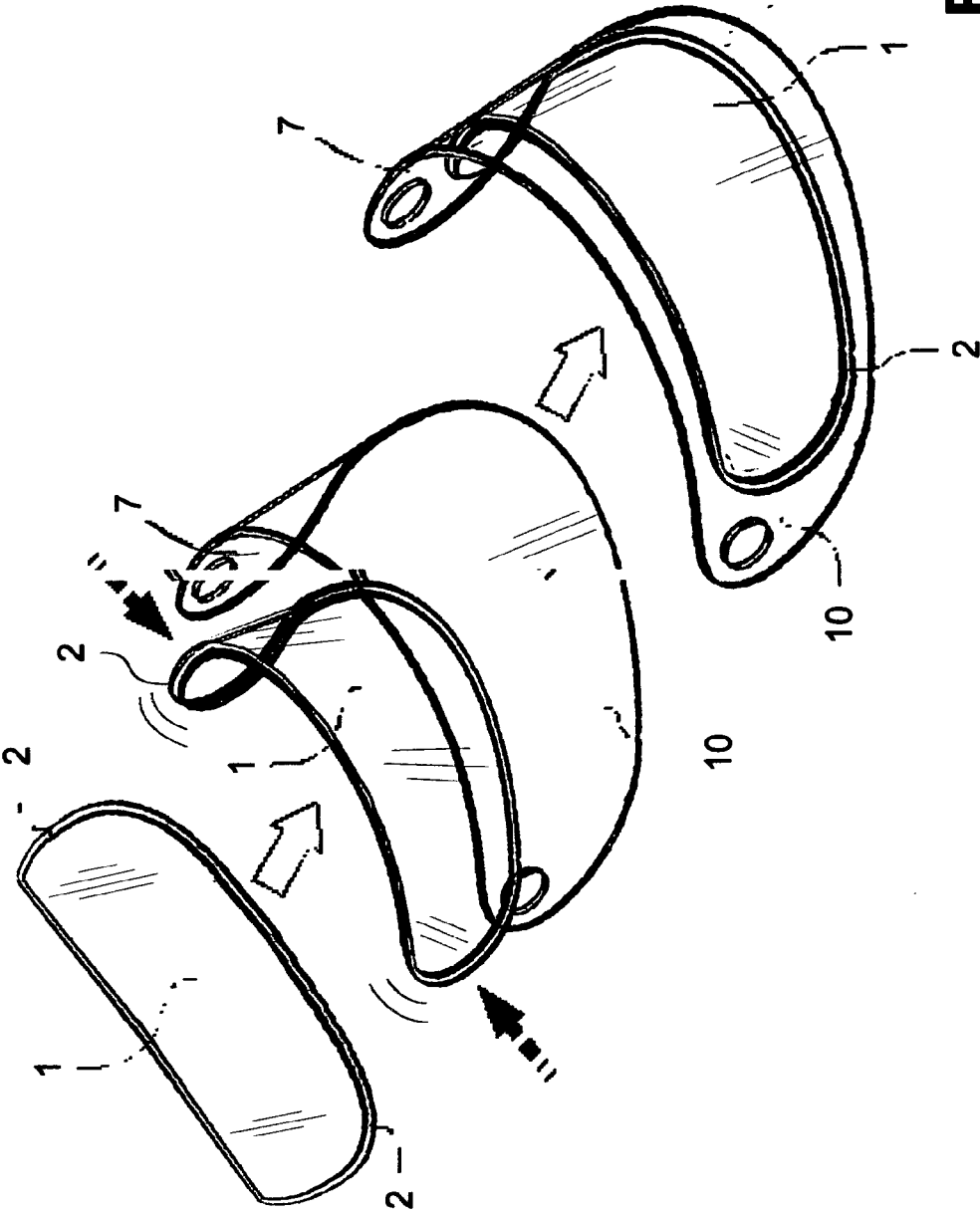


FIG. 1

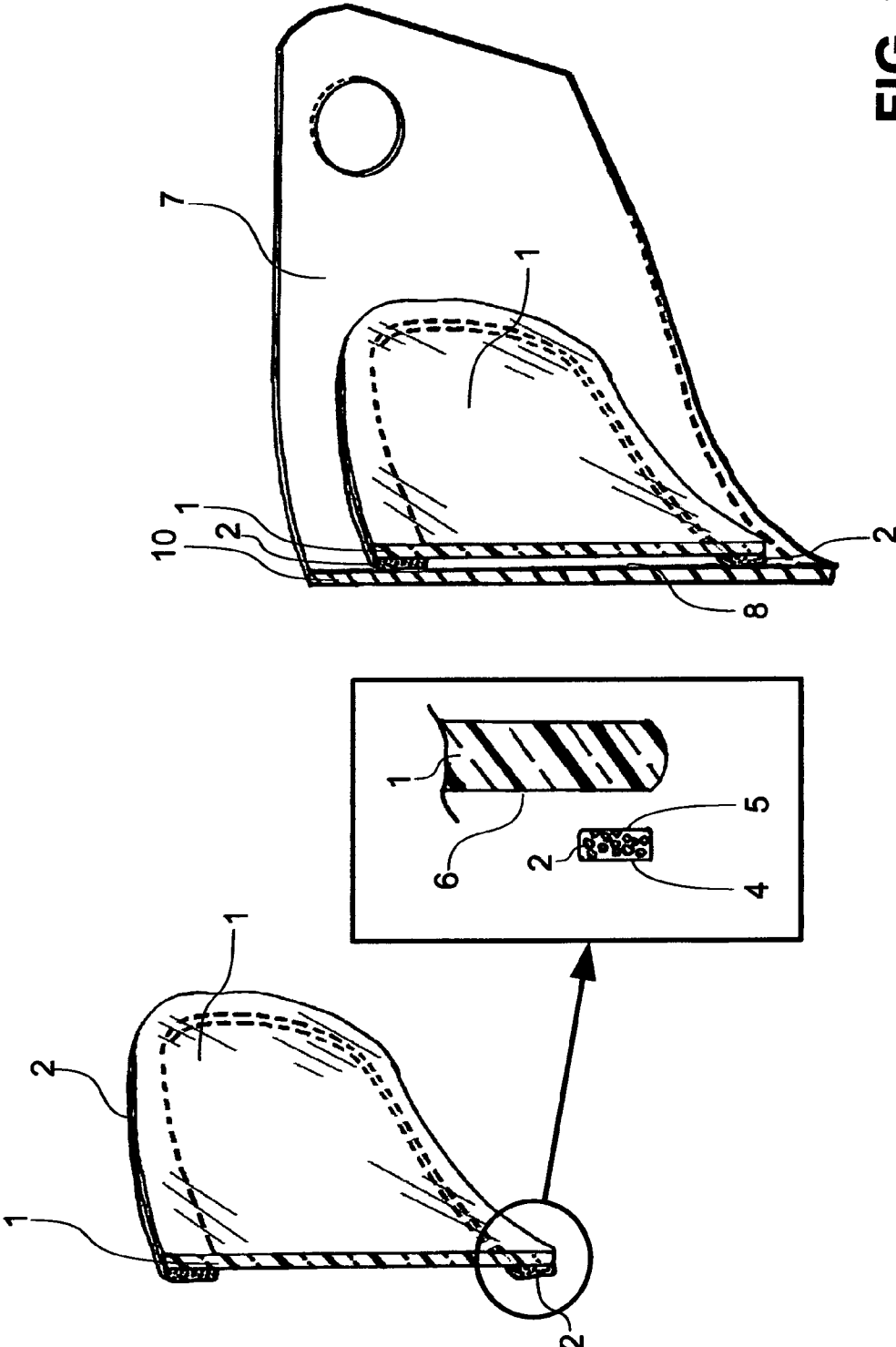


FIG. 2

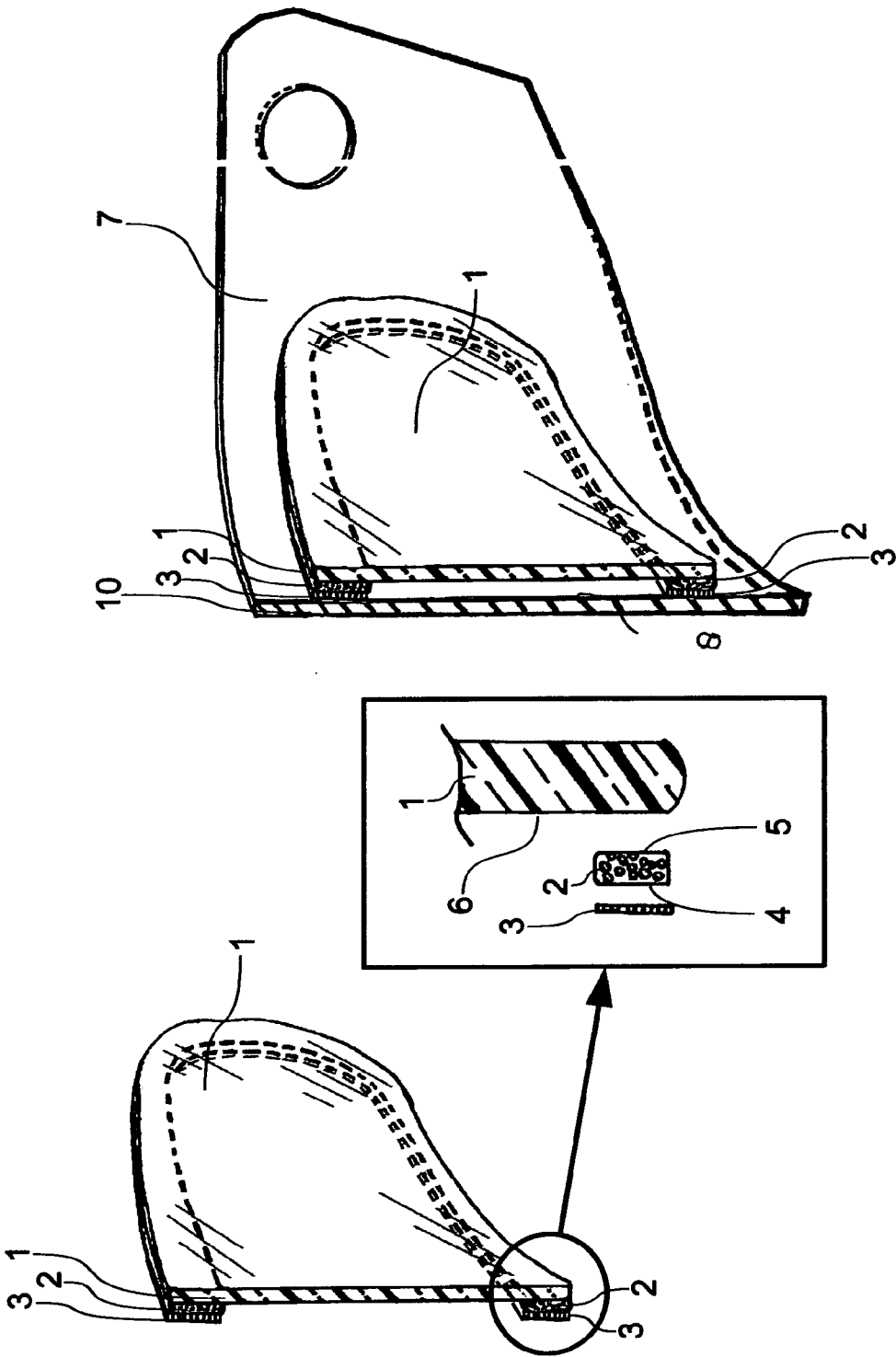


FIG. 3

VISOR RETENTION SYSTEM

TECHNICAL FIELD

[0001] The present invention generally relates to a re-positionable retention system that could be used to install in the internal surface of face-shields, for example in motorcycle helmet's visors, several type of devices.

BACKGROUND ART

[0002] During the last years there was a real proliferation in type and the number of devices capable to facilitate and enhance the visibility when driving with visor-equipped helmets. Such devices, usually having the shape and features suitable for a wide compatibility, (so-called "universal" models), are generally installed inside the visor using very tenacious adhesive materials that never allow the repositioning, or using mechanical systems (ex. Pinlock, Pat. CA2640581) that need irreversible operations like drilling the visor itself.

[0003] In the case of screens or devices that employ tenacious or "permanent" adhesive materials, a particular care is required during the installation phase. These screens, when removed, suffer such alterations of their own features that they cannot be utilized afterwards.

[0004] In the case of screens or devices that employ mechanical retention systems, as it's needed to permanently modify the visor, for example by drilling it, then the functionality of the visor itself results often to be compromised when utilized in its original configuration.

[0005] It's not therefore known, in the background art related to face-shields, a retention system that could allow the detachment and replacement of screens and devices without altering or modifying their own features or the ones of the face-shield onto which they are applied.

DISCLOSURE OF THE INVENTION

[0006] It is therefore a technical duty of the present invention to counter above mentioned lacks and to satisfy hinted needs providing a system that could allow the detachment and replacement of screens and devices accessory to visors without altering or modifying their own features or the ones of the face-shield onto which they are applied.

[0007] In this technical duty's field, it is another object of the present invention to preserve the visor itself and the accessory screens from damages and/or premature replacements.

[0008] It is yet another object of the present invention to improve the usability of such type of screens that can be this way employed only when effectively needed and that can be therefore moved between different helmets' visors. The above mentioned duties and scopes are reached by the present retention system of the type that can be used to install, in the internal surface of face-shields (7), a variety of devices, like for example screens working as solar filters, anti-glare screens, antifog screens, anti-scratch screens or different types of screens or devices. This system can be created exploiting the characteristics of some materials. The system comprises a gasket glued to the screen near his own edges. Such a gasket can be built using several materials like, for example, closed cells acrylic foam layers (like Very High Bond, VHB of 3M), or with a closed cells cross-linked polyethylene (like PEX or XLPE of Sekisui Alveo), or closed cells

polyurethane foam, or other similar materials, with the possibility of adding adhesive layers of different composition.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] Further details will ensue more clear and evident from the detailed description of some embodiments that are preferred, but not exclusive, of a removable retention system according to the invention, instanced as a sample in the attached drawings, in which:

[0010] FIG. 1 visually represents, in a schematic prospective view, a retention system, according to the invention, applicable on a protective helmet's visor.

[0011] FIG. 2 visually represents, in a schematic prospective view, a retention system according to the invention, applicable on a protective helmet's visor, comprising a single gasket.

[0012] FIG. 3 visually represents, in a schematic prospective view, a retention system according to the invention, applicable on a protective helmet's visor, comprising a multi-layered gasket.

BEST MODE FOR CARRYING OUT THE INVENTION

[0013] The description of some examples of embodiment follows here:

[0014] In case there is the purpose of building a gasket (2) (FIG. 2) of closed cells acrylic foam, for example using VHB (Very High Bond) of 3M, it's to consider that is being employed a material having high surface energy and intrinsic adhesive features, that is self-conformable and that can enhance the contact between surfaces; it's so possible to proceed as follows. Step 1) Treat one of the two contact surfaces (4) (FIG. 2) of the gasket with solvent or chemical compounds that can attenuate the adhesive power, like for example the product "Leva Etichette" of Talken Color or other products with the same utilizing features. After the treatment the surface will offer a weak tenacity adhesion that will allow the screen removal, but that will be enough to keep the screen itself or other devices into the intended position (FIG. 2) and to allow its use during the common conditions of employ. Step-2) Apply the gasket letting the untreated surface (5) sticks to the screen (6) (FIG. 2). Step-3) Apply the screen to the visor (10) letting the treated surface (4) stick to the internal surface of visor (7) (FIG. 2). The increment of efficiency of such system is promoted by treating the involved surfaces (4)(7) with isopropyl alcohol based solution and/or other analogous compounds. To reach this scope, the suggested compounds are those suitable for cleaning surfaces having optical features and those suitable for enhancing adhesive features of acrylic foams that have been previously treated with the solvents and chemical compounds described into "Step-1)". The treatment with isopropyl alcohol based solution is the system's main maintenance method, as it allows to recover the adhesive features that tend to decrease after installing/uninstalling repeated operations; however, any type of solving compound or preparation that never releases excessive residuals after his happened evaporation can be used as an alternative to isopropyl alcohol based solution.

[0015] In case there is the purpose of building a gasket (2) (FIG. 3) of polyethylene or polyurethane closed cells, it's to mind that said material has no intrinsic adhesive features, so it's necessary to proceed as follows. Step-1) Treat the contact surface (5) (FIG. 3) of the gasket (2) adding a strong tenacity adhesive layer, like for example an FT126 Avery Dennison acrylic adhesive or other adhesives having similar physical features. Treat the surface (4) (FIG. 3) of the gasket adding a re-positionable weak tenacity adhesive foam, like for example an FT130 Avery Dennison acrylic removable adhesive or other adhesives having similar physical features. Step-2) Apply onto the re-positionable adhesive layer a second double-side adhesive re-positionable gasket (3). Step-3) Apply the gasket letting the side treated with strong tenacity adhesive (5) (FIG. 3) stick to the surface (6) of the screen (1). Step-4) Apply the screen to the visor letting the double-side adhesive re-positionable gasket (3) to the visor (1) (FIG. 3). When this system will start suffering the loss of efficiency of the re-positionable adhesive, due to the repeated installation and removals of the so built screen, it will be possible to restore it just substituting the double-side adhesive re-positionable gasket (3).

[0016] It constitutes a further possible embodiment of the presented system the one in which the second gasket (3) (FIG. 3) has a layer of strong tenacity adhesive in the side that face the visor (10). In this case the gasket (3) remains anchored to the visor (10) and the screen becomes removable between the gasket (2) and the second gasket (3). In this embodiment the gasket (2) (FIG. 3) can be built using polyethylene, polyurethane or acrylic closed cells foam.

[0017] The gasket's adhesive effect is promoted by further factors listed here:

[0018] The motorcycle and driving helmet's visors generally have a bended shape and semi-rigid type (10) (FIG. 1), as they are mainly produced by injection moulding or laminated material thermoforming. The screens that are utilized with the visors generally have flat shape and flexible type (1) (FIG. 1), as they are mainly produced cutting laminated material. These features create a bending differential that give off a tension that can promote the efficiency of the gasket's adhesive features between the two considered elements (the screen and the visors).

[0019] The closed cells structure of the material of which it was decided to build the gasket (2) can completely seal the cavity (8) that is being created between the visor (10) and the screen (1) (FIG. 2, FIG.

3). This feature, added to above mentioned tensions, those created from the bending differential between the visor (10) and the screen (1), generates a depression inside the cavity promoting the gasket's (2) adhesion features.

1. A retention system usable to install in the internal surface of face-shields (7), for example in motorcycle helmet's visors, several type of devices. The system includes at least one screen (1), held as a support, at least in part, from the internal surface of the visor (7) through at least one gasket (2) with adhesive characteristics. Such system is characterized by the fact to be removable, re-positionable and replaceable.

2. A Retention re-positionable system according to claim 1 that utilizes at least a gasket (2) capable of hermetically insulate the cavity (8) between the visor (10) and the screen (1).

3. A Retention re-positionable system according to claim 2 that comprises at least one screen (1) composed, at least in part, of transparent plastic material. Such screen has flat shape/profile and is of a flexible type: so it can be bended to follow the radius of curvature of the visor (10) and its resistance to bending feature can promote a depressive phenomenon inside the cavity (8).

4. A Retention re-positionable system according to claim 2 that comprises at least one screen (1) composed, at least in part, of transparent plastic material. Such screen has a bended shape/profile and is of a flexible type: so it can be bended to follow the radius of curvature of the visor (10) and its resistance to bending feature can promote a depressive phenomenon inside the cavity (8).

5. A Retention re-positionable system according to claim 1 that utilizes at least one gasket (2) having adhesive feature that could be enhanced treating the surfaces with isopropyl alcohol or different compounds/preparations.

6. A Retention re-positionable system according to claim 1 that utilizes at least one gasket (2) capable of hermetically insulate the cavity (8) between the visor (10) and the screen (1) and that utilizes at least a double-sided re-positionable adhesive gasket (3) applied onto it.

7. A Retention re-positionable system according to claim 6 whose double-sided re-positionable adhesive gasket (3) can be substituted when the screen (1) has to be re-positioned onto the internal surface of the visor (10).

8. A Retention re-positionable system according to claim 1 that utilizes at least one gasket (2) capable of hermetically insulate the cavity (8) between the visor (10) and the screen (1) and that utilizes at least a double-sided adhesive gasket (3) applied onto the visor (10) in correspondence of that gasket (2).

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