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(72) Inventors:
• **Campo Rodríguez, Alberto**
36210 VIGO (ES)
• **López Figueroa, Esteban**
36210 VIGO (ES)

(74) Representative: **ZBM Patents - Zea, Barlocchi & Markvardsen**
Plaza Catalunya, 1
08002 Barcelona (ES)

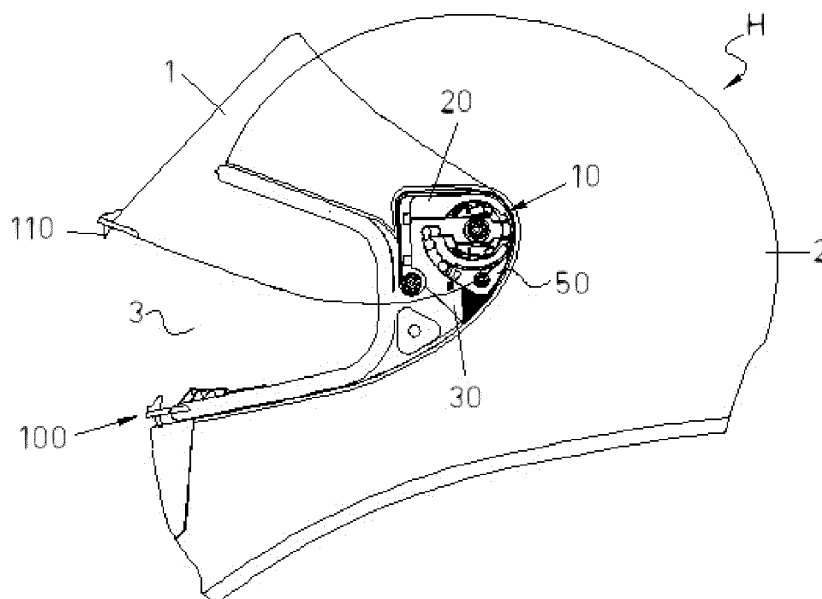
(71) Applicant: **Tech Design Team, S.L.**
08211 Castellar del Valles (ES)

(54) **Helmet for motorcyclists**

(57) It comprises a helmet shell (2), a visor (1) and a lateral mechanism (10) for coupling the visor (1) to and removing it from the helmet shell (2). The visor coupling mechanism (10) comprises a base (20) coupled to the helmet shell (2) for receiving a portion (1 a) of the visor (1) such that it can be rotated to the helmet shell (2) for opening and closing a helmet shell front opening; an actuator (30) mounted to the base (20) such that it can be moved thereto and be arranged in a visor operating po-

sition in which the visor (1) is coupled to the helmet shell (2) and in a visor removable position in which the visor (1) can be removed from the helmet shell (2); a locking flange (35) formed in the actuator (30) for holding the visor (1) coupled to the helmet shell (2) in the visor operating position; and a guide member (40) coupled to the actuator (30) such that it can be moved to the actuator (30) and to the base (20).

FIG.1



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Description

[0001] The present disclosure refers to safety helmets with removable visor. Such helmets are intended for motorcyclists although other applications where a helmet is required are also included.

Background

[0002] In recent helmets for motorcycle racing and other applications mechanisms are often provided such that the visor can be coupled to the helmet shell for riding a motorcycle and other applications. Said mechanisms are designed to allow the visor to be easily removed from the helmet shell for replacement, repair or maintenance operations, e.g. for cleaning. In specific applications such as racing environments specifically as well as for professional users in general rapid and simple removal of the visor is required.

[0003] Examples of mechanisms for removably coupling the visor are disclosed, for example, in documents EP2460425 and EP2517586. Visor lateral coupling mechanisms are disclosed consisting in circular protrusions formed in both sides of the visor adapted to be fitted into respective holes formed in corresponding lateral coupling assemblies that are attached to the helmet shell. The visor circular protrusions include respective ribs adapted to be arranged in corresponding guiding spaces of the visor coupling assemblies. This arrangement prevents the visor from being detached from the respective coupling assembly. A protrusion formed in both sides of the helmet shell may be engaged with a wave-shaped bent portion of the visor. Said protrusion is also provided with a coupling rib that may be positioned in a guiding space of the coupling assembly. The visor is further provided with an elastic protrusion to be in pressurized contact with an elasticity applying body in the coupling assembly.

[0004] Removal of the visor from the helmet shell is carried out by pushing the elasticity applying body causing the coupling rib to be separated from the visor coupling assembly so that the visor can be separated from the helmet shell.

[0005] Said documents also disclose visor front locking mechanisms comprising a lock supporting member provided in the visor for locking the visor to a locker in the helmet shell when the visor is in a closed position. The locker includes a mounting portion fixed to the visor, a coupling shaft coupled to be rotated with the visor mounting portion at an end of the locker, and a locker hooking part coupled to or decoupled from the lock supporting member at the other end of the locker.

[0006] Both the visor lateral coupling mechanism and the visor front locking mechanism disclosed in said documents have shown to be practical in use. However, there is still a need for simple visor coupling and locking mechanisms capable of reducing complexity by reducing the number of parts involved while providing easy removal

of the visor from the helmet shell. In addition, there is also a need for preventing the visor from being incidentally removed from the shell and ensuring the attachment of the visor to the helmet shell for example in case of impact.

Summary

[0007] A helmet for motorcyclists is provided herein which at least reduces the above mentioned drawbacks of the prior art. The present helmet comprises a helmet shell that is adapted to protect the head of the user, such as for example a motorcyclist. Other applications are not ruled out.

[0008] A front opening is formed in the helmet shell for exposing the face of the wearer of the helmet. A visor is mounted to the helmet shell such that it can be moved, i.e. rotated, thereto between closed and open positions at least substantially covering or uncovering the helmet shell front opening.

[0009] The present helmet further comprises a lateral mechanism that allows the visor to be easily and quickly coupled to and removed from the helmet shell. The visor lateral coupling mechanism comprises a base, an actuator and a guide member which are described hereinbelow.

[0010] The base of the visor lateral coupling mechanism is part of or it can be coupled to a lateral portion of the helmet shell. If the base of the visor lateral coupling mechanism is a separate piece of the helmet shell it can be coupled to a lateral portion thereof through any suitable means such as screws.

[0011] Said base of the visor lateral coupling mechanism is adapted for receiving a portion of the visor, i.e. a lateral side end portion of the visor, such that the visor can be rotated relative to the helmet shell for opening and closing the helmet shell front opening.

[0012] In some examples of the visor lateral coupling mechanism, the base may include an ejection flange. If an ejection flange is provided, it is positioned such that in operation it pushes sideways outward the helmet shell against the lateral side end portion of the visor. This results in that, as the visor lateral coupling mechanism is actuated to the visor removable position, the visor is quickly and effectively released from the helmet shell, by being ejected by the ejection flange out of the helmet shell.

[0013] The base may include in some examples an area with wavy surfaces. Said area may be formed by at least two wavy surfaces, that is, defining two recesses. Other number of wavy surfaces is also envisaged. The wavy surfaces may be distributed so as to define, in cooperation with a protrusion formed in the visor, predefined positions of the visor relative to the helmet shell. One of said predefined positions of the visor relative to the helmet shell may be a position of the shell referred to as racing position. In the visor racing position, the helmet front opening is partially closed by the visor, leaving

a small gap between a visor lower edge and an edge of the front opening in the helmet shell. In this position, the user can for example ride the motorcycle while air is allowed into the helmet shell through the front opening.

[0014] The actuator of the visor lateral coupling mechanism is mounted to the base. In one example, the actuator may be resiliently mounted to the base through for example one or more springs acting between the actuator and the base. In any case, the actuator is mounted to the base such that it can be moved, e.g. displaced, thereto. Specifically, the actuator is arranged such that it can be moved to a visor operating position where the visor is coupled to the helmet shell (for example for riding a motorcycle), and to a visor removable position where the visor can be removed from the helmet shell (for example, for replacement, repair or maintenance operations, such as cleaning, etc.). A curved end surface is formed in the actuator such that it can be suitably pulled by the user's fingers towards the visor operating position.

[0015] The actuator is provided with a locking flange. The locking flange is adapted for holding the visor coupled to the helmet shell ensuring attachment of the visor when in the visor operating position. The locking flange serves also the purpose of providing strength to the visor when in use. In some examples of the actuator, the locking flange may be also adapted for preventing the actuator from moving back to the visor operating position once it has been actuated to the visor removable position for facilitating removal of the visor from the helmet shell. This for example can be accomplished for example by arranging and/or shaping the locking flange of the actuator such that it is arranged facing the ejection flange of the base when the actuator has been moved into the visor removable position preventing the locking flange, and thus the actuator, to move backwards to the visor operating position.

[0016] The guide member of the visor lateral coupling mechanism comprises a sliding part that is coupled to the actuator such that it can be moved to the actuator and to the base.

[0017] The guide member is adapted to allow the visor to be rotated to the helmet shell according to a guided rotating movement. The visor is thus guided between the base and the actuator. The sliding part has a guide portion along with an inner flange of the visor slides as the visor is rotated. The guide member is also adapted to guide the ejection flange.

[0018] The guide member is also adapted to accommodate the wavy surfaces through the predefined positions of the visor as it is rotated to the helmet shell. For this purpose, the guide member is resiliently mounted to the base so as to adjust the pressure of the wavy surfaces to the visor. For example, compression springs may be provided acting between the guide member and the base.

[0019] The base itself may be provided with a resilient member. Such resilient member may be arranged protruding from the base abutting the protrusion formed in the visor in said racing visor position, that is, in a sub-

stantially closed visor position for allowing air into the helmet shell. Thus, in the racing visor position, the visor abuts on the resilient member free of vibrations and noise.

[0020] In some examples, the resilient member may be mounted in a support element attached to the base. It might however be preferred that the resilient member is a separate part from the other parts of the visor lateral coupling mechanism. For example, the resilient member may be detachable from parts of the visor lateral coupling mechanism. The resilient member may be for example a resilient block that can be mounted at one end of a compression spring.

[0021] In other possible examples, it is the visor that may be provided with a resilient member protruding therefrom. Such resilient member may be thus adapted for abutting a protrusion formed in the base in the above mentioned racing visor position. In this particular example, it is preferred that the resilient member is a separate part from the visor, that is, with the resilient member being detachable from the visor or parts thereof.

[0022] With the above described visor lateral coupling mechanism, removably attachment of the visor to the helmet shell is a very simple and quick operation. The user simply has to press the lateral free ends of the visor towards the lateral walls of the helmet shell for the visor to be quickly and safely coupled thereto.

[0023] According to a preferred example of the present helmet, a visor front locking mechanism may be further provided for locking the visor quickly for example when riding a motorcycle so that the visor is prevented from being opened unintentionally. The visor front locking mechanism comprises a first element protruding from the helmet shell or from the visor and a second element formed on the helmet shell or the visor adapted for receiving the first element when the visor is in a closed position at least substantially closing the front helmet opening.

[0024] The visor front locking mechanism further comprises retaining means for retaining the above mentioned first and second elements to each other automatically as the first element is at least partially inserted into the second element in the visor closed position preventing the visor from being rotated to the visor opened position. The retaining means may comprise a retaining body having a leading edge adapted to be inserted into a corresponding cavity formed in the first element for holding the visor in a closed or substantially closed position

[0025] In the preferred example of the visor front locking mechanism, the first element is formed on the visor and the second element is formed on the helmet shell.

[0026] The visor front locking mechanism also comprises releasing means for quickly releasing the first element from the second element allowing the visor to be opened. The releasing means may comprise for example a push button configured in a way that as it is pushed by the user the first element is released from the second element allowing the visor to be opened easily. Such

push button is advantageously mounted flush with the visor shell such that unintentional opening of the visor is avoided, for example while riding a motorcycle. The releasing means can be therefore actuated by the wearer of the helmet while riding the motorcycle without placing her/his hand in front of the visor.

[0027] The above mentioned leading edge of the retaining body may be formed in the push button, and the push button may be arranged against springs coupled to the helmet shell. It is also preferred that the push button is mounted flush with the helmet shell.

Brief description of the drawings

[0028] Non-limiting examples of the present helmet will be described in the following, with reference to the appended drawings.

[0029] In the drawings:

Figure 1 is an elevational view of one example of the present helmet for motorcyclists with the visor in an open position;

Figure 2 is a side perspective view of the present helmet for motorcyclists shown in figure 1 from behind without the visor, where one example of a visor lateral coupling mechanism is shown disassembled from the helmet shell side;

Figure 3 is a general perspective view of the helmet of figures 1 and 2 with the visor in a closed position;

Figure 4 is an exploded perspective part view of one example of the visor lateral coupling mechanism shown disassembled from the helmet shell side;

Figure 5 is an exploded detail view of the visor lateral coupling mechanism in figure 4 shown disassembled from the helmet shell side;

Figure 6 is a general perspective view of the helmet visor;

Figure 7 is an exploded perspective part view of one example of a front visor locking mechanism; and

Figures 8 and 9 are sectional part views of the front visor locking mechanism in unlocked and locked positions, respectively.

Detailed description of examples

[0030] The figures show non-limiting examples of the present helmet for motorcyclists, which has been indicated as a whole by reference H. The helmet H shown in the figures is of the full-face type used for motorcyclists. Other types of helmets according to the present disclosure which may have the visor lateral coupling mechanism and the visor front locking mechanism disclosed hereinbelow are not ruled out.

[0031] The helmet H in the example shown in the figures comprises a helmet shell 2 designed to protect the head of the motorcyclist. In use, the helmet shell 2 covers substantially the entire head of the motorcyclist as the example shown corresponds to a full-face type helmet

as stated above. The helmet shell 2 has a front opening 3, shown in figures 1, 2, for exposing the face of the motorcyclist. The helmet H is provided with a visor 1 made of an at least substantially transparent material. The visor 1 of the helmet H is mounted to the helmet shell 2 such that it can be rotated between a visor closed position, such as the one shown in figure 3 where the visor 1 at least partially covers the helmet shell front opening 3, and a visor open position, such as the one shown in figure 1, where the visor 1 leaves the helmet shell front opening 3 at least partially uncovered.

[0032] The helmet H further comprises a visor lateral coupling mechanism generally indicated by reference numeral 10 and shown in detail in figures 4 and 5 of the drawings. The visor lateral coupling mechanism 10 allows the visor 1 to be easily and quickly coupled to and removed from the helmet shell 2 as it will be explained below.

[0033] The visor lateral coupling mechanism 10 mainly comprises a base 20, an actuator 30 and a guide member 40.

[0034] In use, the base 20 of the visor lateral coupling mechanism 10 is attached to a lateral portion of the helmet shell 2 through a number of bolts or screws 21 as shown in figures 4 and 5. The visor lateral coupling mechanism 10 may be attached to the helmet shell 2 through any other suitable attaching means or it may even be formed integral with the helmet shell 2.

[0035] Figure 4 of the drawings shows the visor lateral coupling mechanism 10 removed from the helmet shell 2 for the sake of clarity. The base 20 is adapted for receiving a lateral coupling portion 1a formed in a lateral free end portion of the visor 1, as shown in figure 6. Specifically, such lateral coupling portion 1a of the visor 1 consists of a curved coupling wall 1a1 extending substantially perpendicular to the inner surface of the visor 1. The coupling wall 1a1 extends into a flange 1a2. The flange 1a2 is sized and shaped to be freely inserted into a gap formed between an ejection flange 25 formed in the base 20 and a locking flange 35 formed in the actuator 30, as it will be explained further below. Once the flange 1a2 has been inserted through said gap, the coupling wall 1a1 is able to slid through a guide channel 27 formed in the base 20 as the visor 1 is rotated relative to the helmet shell 2 for opening and closing the helmet shell front opening 3.

[0036] As described, the base 20 includes an ejection flange 25 which is shown in detail in the exploded view in figure 5. The ejection flange 25 of the base 20 is an elastic member against which the locking flange 35 of the actuator 30 is mounted when in a visor operating position, that is, when the visor 1 is coupled to the helmet shell 2. The ejection flange 25 formed in the base 20 serves the purpose of easily removing the visor 1 as the actuator 30 is actuated by the user to the visor removable position, that is, when the actuator 30 is pulled by the user in a direction according to arrow R in figures 4 and 5.

[0037] The actuator 30 has an actuating end 31 that is

shaped as to be suitably pulled by the user to bring the visor lateral coupling mechanism 10 in the visor removable position. The actuating end 31 of the actuator 30 may comprise, for example, a non-slip relief or a curved end surface to fit the user's index finger as shown in the example of figure 5.

[0038] The base 20 has an area provided with wavy surfaces 26 as shown in figures 4 and 5. Wavy surfaces 26 may include a number of recesses, with at least two being preferred. Recesses define a number of corresponding predefined positions of the visor 1 relative to the helmet shell 2. As the visor 1 is rotated, a protrusion 1 b formed in an inner surface of the visor 1, as shown in figure 6, slides through the recess of the wavy surfaces 26 so that the visor 1 can be arranged in a predetermined position as desired by the user. One of the predefined positions of the visor 1 relative to the helmet shell 2 is a so called visor racing position where the front opening 23 of the visor 1 is partially closed only leaving a small gap between a visor lower edge and the helmet front opening 3.

[0039] The actuator 30 of the visor lateral coupling mechanism 10 is mounted to the base 20 such that it can be resiliently moved thereto. For this purpose, a compression spring 32 is provided, as shown in figure 5 of the drawings. Other different spring means may be of course provide. One end of the compression spring 32 is attached to the base 20 while the other, opposite end of the compression spring 32 is attached to an end of the actuator 30, different the actuating end 31 of the actuator 30, as shown in figure 5.

[0040] Thus, as the actuator 30 is pulled by the user through its actuating end 31 to the visor removable position in the direction of the arrow R in figures 4 and 5, the actuator 30 slides relative to the base 20 against the spring force of the compression spring 32. The compression spring 32 thus tends to bring the actuator 30 to the visor operating position, that is, coupled to the helmet shell 2.

[0041] Referring again to the figures 4 and 5 of the drawings, the actuator 30 has a locking flange 35 as mentioned above. The locking flange 35 is formed at one end of the actuator 30. In a visor operating position, the actuator 30 is positioned with the locking flange 35 overlapping the coupling wall 1a1 of the lateral coupling portion of the visor 1 a. Thus, in the visor operating position, the lateral coupling portion 1 a of the visor 1 is fitted between the locking flange 35 of the actuator 30 and the ejection flange 25 of the base 20. In said visor operating position, the visor 1 is held coupled to the helmet shell 2 such that the user can rotate the visor 1 relative to the helmet shell 2 as desired.

[0042] The guide member 40 of the visor lateral coupling mechanism 10 is shown in figure 4, and more in detail in figure 5. The guide member 40 comprises a sliding part 45 as shown in figures 4 and 5. The sliding part 45 is coupled to the actuator 30 such that the sliding part 45 can be displaced both relative to the actuator 30 and

relative to the base 20. Displacement of sliding part 45 is performed in a resilient manner. To this effect, two compression springs 22 are provided between the sliding part 45 of the guide member 40 and the base 20. Thus, the guide member 40 is mounted to the base 20 such that it can be moved against said springs 22 as the actuator 30 is pulled by the user.

[0043] The sliding part 45 is adapted to allow the visor 1 to be rotated to the helmet shell 2 according to a guided rotating movement. For this purpose, a guide channel 27 is formed between the sliding part 45 and the base 20. As the visor 1 has been coupled to the visor lateral coupling mechanism 10, the visor 1, through its coupling wall 1a1, is able to slid through the guide channel 27 as the visor 1 is rotated relative to the helmet shell 2.

[0044] Although not shown in the drawings, the sliding part 45 has a guide portion along with the flange 1 a2 of the coupling wall 1a1 in the lateral coupling portion 1 a of the visor 1 slides as the visor 1 is rotated.

[0045] Resilient displacement of the sliding part 45 of the guide member 40 accommodates the visor 1 when moving through the wavy surfaces 26 in the predefined positions as it is rotated to the helmet shell 2. The compression springs 22 allow the pressure of the wavy surfaces 26 to the visor 1 to be suitably adjusted.

[0046] In the example shown in figure 5, the base 20 of the visor lateral coupling mechanism 10 is provided with a resilient member 55. The resilient member 55 is a separate part from the visor lateral coupling mechanism 10. In the example shown in figure 5, the resilient member 55 comprises a resilient block. Such resilient block may be fitted for example at one free end of a spring or it may be attached directly to the base 20. As shown in the figure 5 of the drawings, the resilient member 55 is mounted in a support element 50 that is attached to the base 20, adjacent the above mentioned area with wavy surfaces 26, through a screw 21. In use, the resilient member 55 abuts the protrusion 1 b formed in an inner surface of visor 1 when the visor 1 is in a substantially closed position, for example in a visor racing position. In this position, the visor 1 has its protrusion 1 b abutting on the resilient member 55 free of vibrations and noise. From said visor racing position, the front opening 3 of helmet shell 2 can be fully closed by further closing the visor 1 compressing the resilient member 55 against the support element 50.

[0047] For removing the visor 1 from the helmet shell 2, the user rotates the visor 1 upwards such that the helmet shell front opening 3 is at least partially uncovered. Then, the user pulls the actuator 30 through its shaped actuating end 31 to bring the visor lateral coupling mechanism 10 in the visor removable position. As the actuator 30 is pulled by the user in the direction of arrow R against the spring force of the compression spring 32, the locking flange 35 also moves in the direction of arrow R. This causes the ejection flange 25 to eject the lateral coupling portion 1 a of the visor 1 out of the helmet shell 2. As the actuator 30 is released, the spring force of the compression spring 32 causes the actuator 30 to go backwards

until the locking flange 35 is arranged facing the ejection flange 25. This results in that the actuator 30 is not allowed to be moved any further. In this position, the visor 1 can be then removed from the helmet shell 2 easily.

[0048] For mounting the visor 1 to the helmet shell 2, the user positions the lateral coupling portion 1a of the visor 1 such that the flange 1a2 in the coupling wall 1a1 can be inserted into the gap formed between the ejection flange 25 and the locking flange 35. This is possible since, as stated above, the locking flange 35 remains facing the ejection flange 25 when the actuator 30 is released such that the actuator 30 can not be moved any further. When the flange 1a2 has been inserted through said gap, the coupling wall 1a1 is able to slid through the above mentioned guide channel 27 formed between the base 20 and the guide member 40 as the visor 1 is rotated downwards relative to the helmet shell 2 for closing the helmet shell front opening 3.

[0049] Referring now to figures 7, 8 and 9 of the drawings, the helmet H is also provided with a visor front locking mechanism 100. The front locking mechanism 100 serves the purpose of releasably locking the visor 1, for example when riding the motorcycle, such that the visor 1 is held in the visor closed position preventing it from being incidentally opened.

[0050] The example of the visor front locking mechanism 100 shown in figures 7-9 comprises a first element 110 that protrudes from the visor 1, and a second element 120 formed on the helmet shell 2, as illustrated in figures 8 and 9. The second element 120 is adapted for receiving the first element 110 when the visor 1 is in a position closing or at least substantially closing the front helmet opening 3. Other examples of the visor front locking mechanism 100 are possible where the first element 110 is formed protruding from the helmet shell 2 and the second element 120 is formed on the visor 1.

[0051] As shown in figures 8 and 9, the visor front locking mechanism 100 further comprises retaining means 130. The retaining means 130 comprise a retaining body having a leading edge 135 to be inserted into a corresponding cavity 115 formed in the first element 110. When the leading edge 135 of the retaining means 130 is inserted into the cavity 115 of the first element 110, the first element 110 is retained to the second element 120 holding the visor 1 in a closed or a substantially closed position. This advantageously locks the visor 1 preventing it from being rotated to the visor opened position.

[0052] In order to bring the visor 1 into the visor open position, the front locking mechanism 100 includes releasing means 140. The releasing means 140 shown in figures 7-9 include a push button 150 having the above mentioned leading edge 135. The push button 150 is arranged against a pair of compression springs 145 coupled to the helmet shell 2. Starting to the visor closed position shown in figure 8, as the push button 150 is pushed by the user against compression springs 145, the leading edge 135 is moved out of the cavity 115 in

the first element 110 quickly releasing the first element 110 from the second element 120 thus allowing the visor 1 to be rotated.

[0053] As shown in figure 8, the push button 150 is advantageously mounted flush with the helmet shell 2 such that unintentional opening of the visor 1 is avoided. The releasing means 140 can be actuated by the wearer of the helmet while for example riding a motorcycle without placing her/his hand in front of the visor 1 to move it.

[0054] The helmet H for motorcyclists than has been described herein is provided with a strong visor lateral coupling mechanism 10 which allows the visor 1 to be coupled safely to the helmet shell 2 and to be removed quickly and easily therefrom for maintenance, repair and replacement operations. The present helmet H for motorcyclists is also provided with an efficient, easy to use visor front locking mechanism 100 which allows the user to lock the visor 1 while riding the motorcycle preventing it from being incidentally opened.

[0055] A number of examples of the present helmet H have been disclosed herein. However, other alternatives, modifications, uses and/or equivalents thereof are also possible. All possible combinations of the described examples are thus also covered. The scope of the present disclosure should not be limited by the particular examples given, but should be determined only by a fair reading of the claims that follow.

[0056] For example, the present disclosure may be applicable to helmets for motorcyclists of the flip-up, full-face and jet types. Helmets for applications other than motorcycle riding are of course not ruled out.

[0057] Reference signs related to drawings and placed in parentheses in a claim, are solely for attempting to increase the intelligibility of the claim, and shall not be construed as limiting the scope of the claim.

Claims

1. A helmet (H) for motorcyclists comprising a helmet shell (2), a visor (1) and a lateral mechanism (10) for coupling the visor (1) to and removing it from the helmet shell (2), wherein said visor lateral coupling mechanism (10) comprises:

- a base (20) that is part of or it can be coupled to a lateral portion of the helmet shell (2) and adapted for receiving a lateral coupling portion (1a) of the visor (1) such that the visor (1) can be rotated relative to the helmet shell (2) for opening and closing a helmet shell front opening;
- an actuator (30) mounted to the base (20) such that it can be moved thereto and such that it can be arranged in a visor operating position in which the visor (1) is coupled to the helmet shell (2) and in a visor removable position in which the visor (1) can be removed from the helmet shell

- (2);
 - a locking flange (35) formed in the actuator (30) adapted for holding the visor (1) coupled to the helmet shell (2) in the visor operating position; and
 - a guide member (40) for guiding the visor (1) between the base (20) and the actuator (30), the guide member (40) being arranged such that it can be moved to the actuator (30) and to said base (20).
2. The helmet (H) according to claim, wherein the guide member (40) is arranged such that it can be moved relative to the actuator (30) as the actuator (30) is actuated to the visor removable position.
 3. The helmet (H) according to claim 1 or claim 2, wherein the base (20) includes an ejection flange (25) for allowing the visor (1) to be removed as the actuator (30) is actuated to the visor removable position.
 4. The helmet (H) according to claim 3, wherein the locking flange (35) of the actuator (30) is arranged such that it faces the ejection flange (25) of the base (20) after the actuator (30) has been moved into the visor removable position preventing the actuator (30) from moving back to the visor operating position.
 5. The helmet (H) according to any of the preceding claims, wherein the base (20) includes an area with wavy surfaces (26) distributed so as to define, in co-operation with a protrusion (1 b) formed in the visor (1), predefined positions of the visor (1) relative to the helmet shell (2).
 6. The helmet (H) according to any of the preceding claims, wherein the actuator (30) is resiliently mounted to the base (20).
 7. The helmet (H) according to any of the preceding claims, wherein the guide member (40) is resiliently mounted to the base (20).
 8. The helmet (H) according to any of the claims 5 - 7, wherein the base (20) has a protruding resilient member (55) adapted for abutting the protrusion (1 b) formed in the visor (1) in a substantially closed visor position where a gap is defined between the visor (1) and the helmet shell (2) for allowing air to enter inside the helmet (H).
 9. The helmet (H) according to claim 8, wherein the resilient member (55) is mounted in a support element (50) attached to the base (20).
 10. The helmet (H) according to any of the preceding claims, wherein the actuator (30) has a curved end surface (31) adapted to be suitably pulled by the user to bring the actuator (30) in the visor removable position.
 11. The helmet (H) according to any of the preceding claims, wherein it further comprises a visor front locking mechanism (100) for locking the visor (1), the visor front locking mechanism (100) comprising:
 - a first element (110) protruding from the helmet shell (2) or from the visor (1);
 - a second element (120) formed on the helmet shell (2) or the visor (1) adapted for receiving the first element (110) when the visor (1) is in a closed position at least substantially closing a front helmet opening (3);
 - retaining means (130) for retaining the first and second elements (110, 120) to each other as the first element (110) is at least partially inserted into the second element (120) in said visor closed position preventing the visor (1) from being rotated to the visor opened position, and
 - releasing means (140) for releasing the first element (110) from the second element (120) allowing the visor (1) to be opened.
 12. The helmet (H) according to claim 11, wherein the releasing means (140) comprise a push button (150) that is released from the second element (120) as it is pushed the first element (110) allowing the visor (1) to be opened.
 13. The helmet (H) according to claim 11 or claim 12, wherein the first element (110) is formed in the visor (1) and the second element (120) is formed in the helmet shell (2).
 14. The helmet (H) according to any of the claims 11 to 13, wherein the retaining means (130) comprise a retaining body having a leading edge (135) adapted to be inserted into a corresponding cavity (115) formed in the first element (110) for holding the visor (1) in a closed or substantially closed position.
 15. The helmet (H) of any of the claims 11 to 14, wherein the push button (150) is mounted flush with the helmet shell (2).

FIG.1

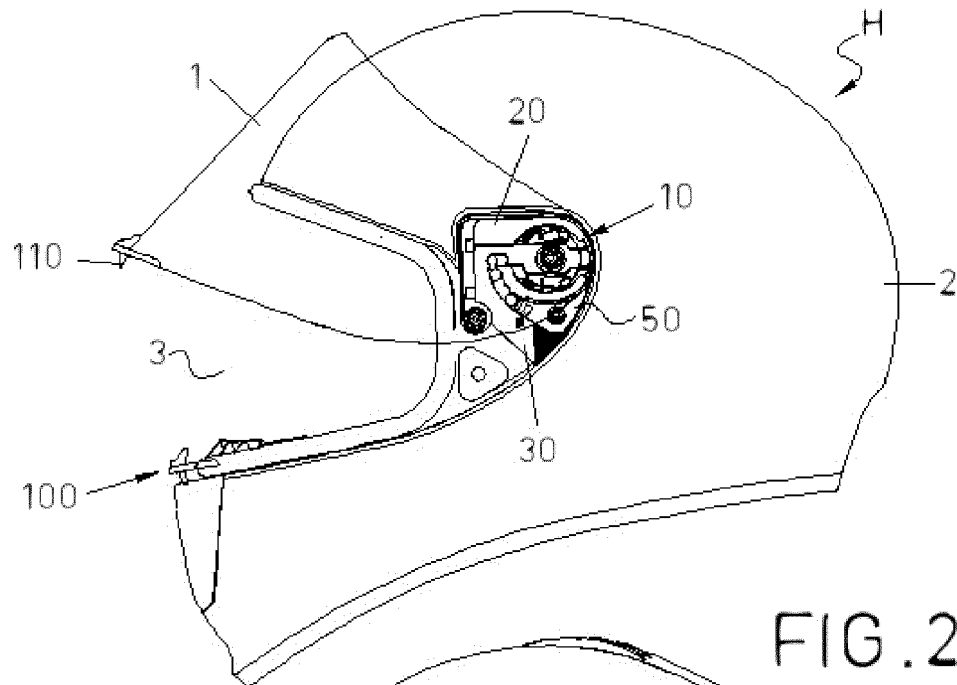


FIG.2

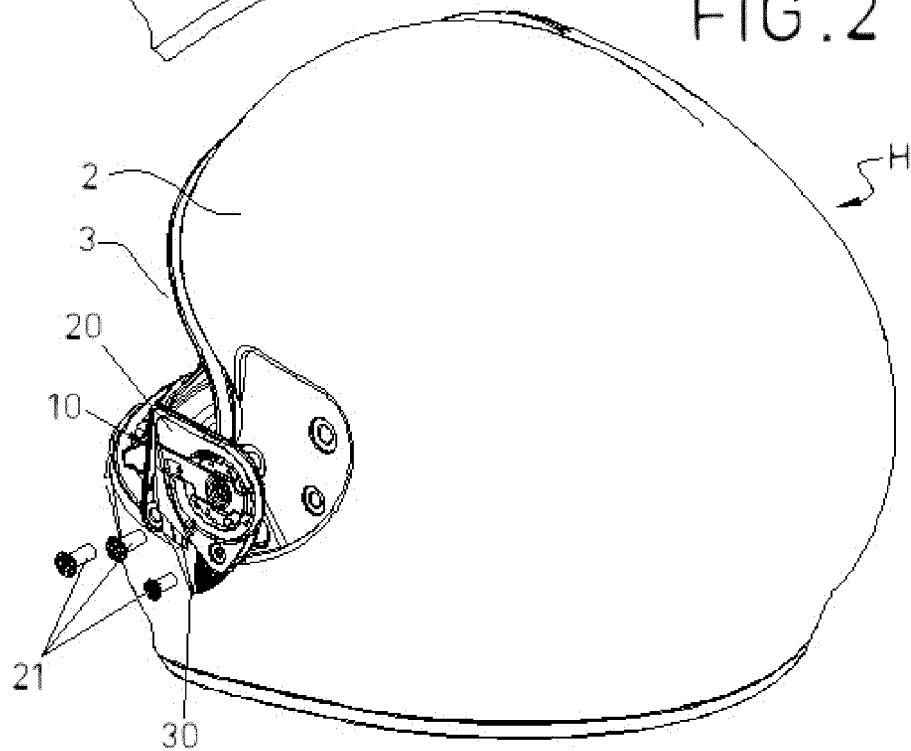


FIG.3

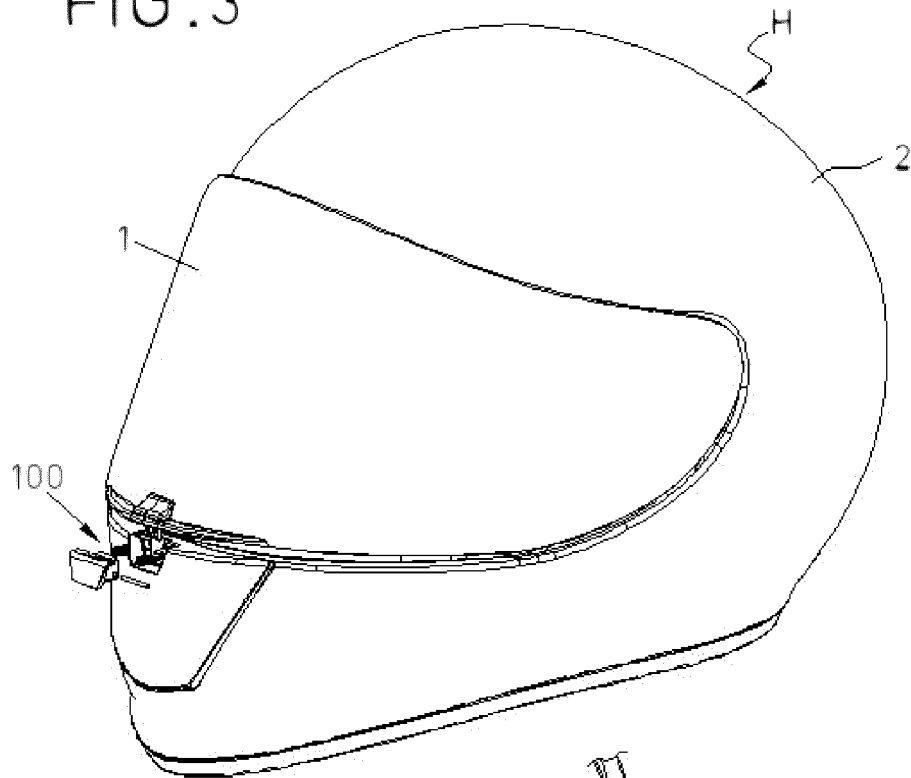


FIG.4

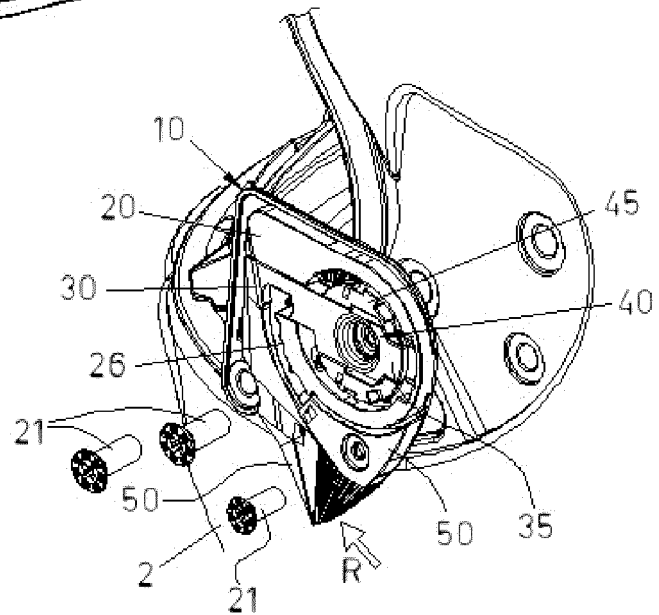


FIG. 5

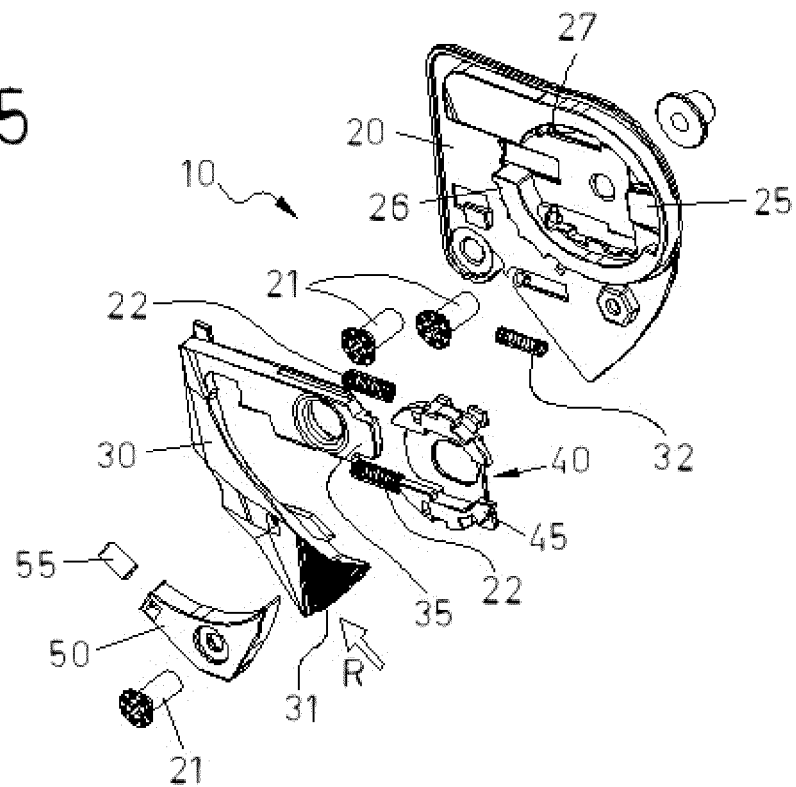


FIG. 6

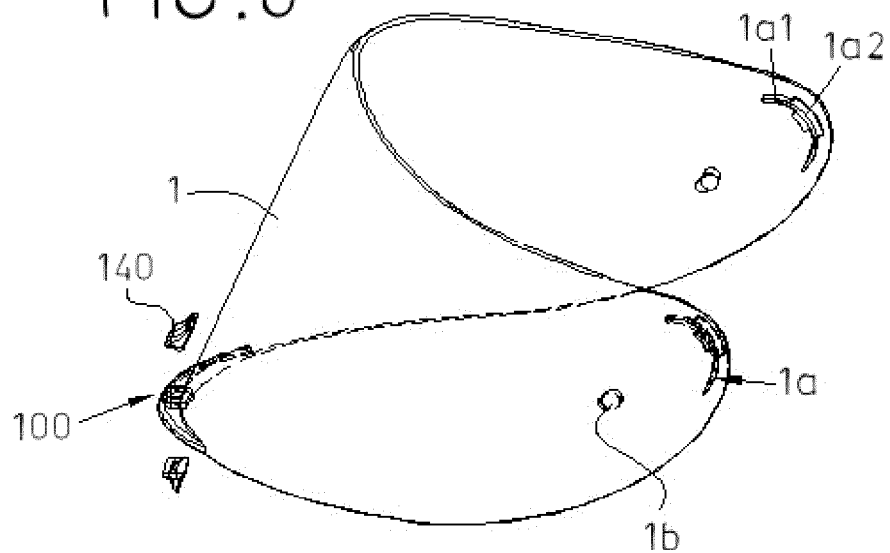


FIG. 7

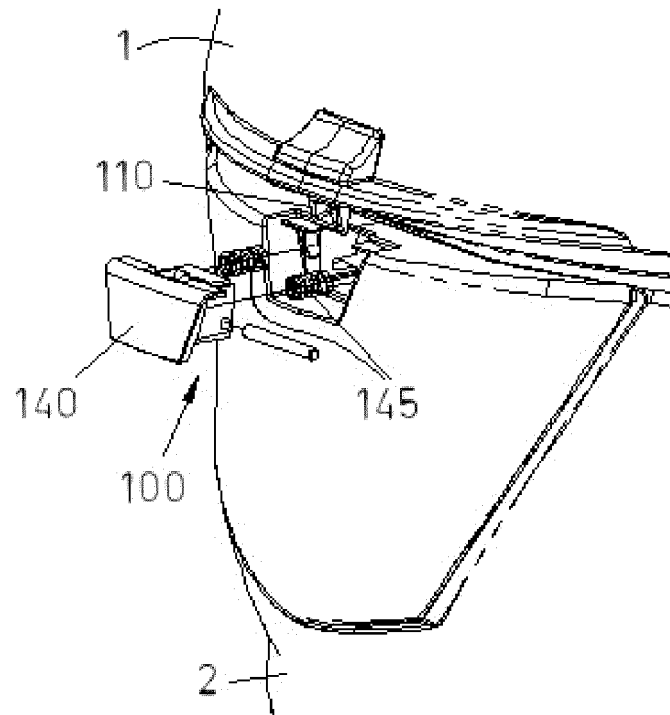


FIG. 8

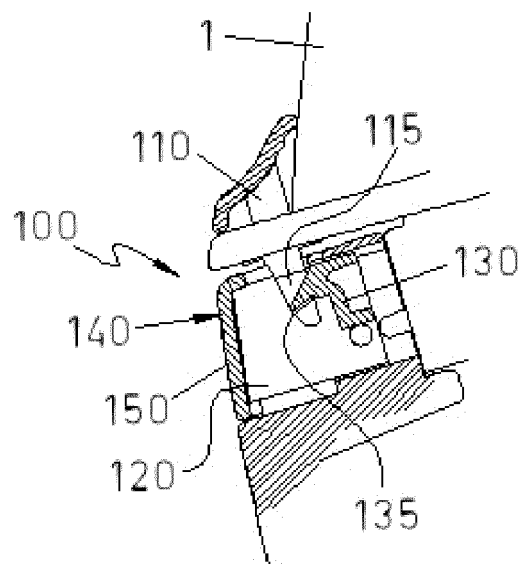
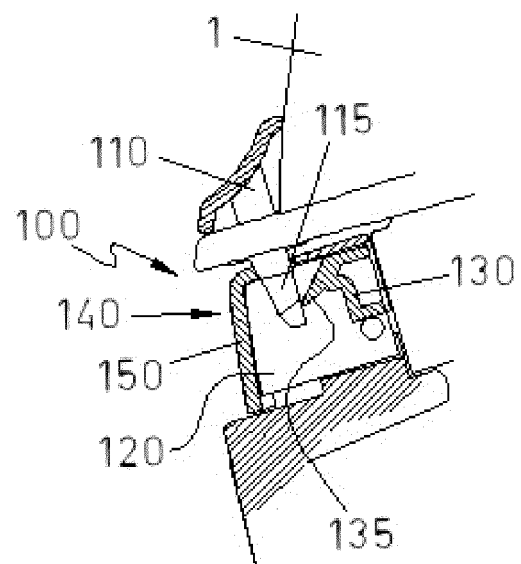


FIG. 9





EUROPEAN SEARCH REPORT

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 6 260 213 B1 (EOM JU SUNG [KR] ET AL) 17 July 2001 (2001-07-17) * column 4, line 28 - column 5, line 4 * * column 5, line 29 - line 37 * * column 5, line 59 - column 6, line 7 * * column 6, line 15 - line 30 * * column 7, line 8 - line 26 * * figures 1,3,5,6,10,11,12,13 * -----	1-10	INV. A42B3/22
X	EP 1 397 969 A1 (OPTICOS SRL [IT]) 17 March 2004 (2004-03-17) * paragraph [0029] - paragraph [0043] * * figures 1,2,3,6a,6b * -----	1,2,5-7, 10	TECHNICAL FIELDS SEARCHED (IPC) A42B
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 7 September 2015	Examiner Guisan, Thierry
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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EPO FORM 1503 03/82 (P04C01)



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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing claims for which payment was due.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):

☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

1-10

☐ The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).

**LACK OF UNITY OF INVENTION
SHEET B**

Application Number

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The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-10

Helmet for motorcyclists comprising a lateral mechanism for coupling the visor and removing it from the helmet shell.

2. claims: 11-15

Helmet for motorcyclists comprising a visor front locking mechanism.

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

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5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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07-09-2015

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 6260213	B1	17-07-2001	NONE
EP 1397969	A1	17-03-2004	AT 338481 T 15-09-2006
		AU 2003231704 A1 01-04-2004	
		CA 2436816 A1 12-03-2004	
		DE 60214545 T2 20-09-2007	
		EP 1397969 A1 17-03-2004	
		ES 2272658 T3 01-05-2007	
		JP 4590173 B2 01-12-2010	
		JP 2004100140 A 02-04-2004	
		US 2004049830 A1 18-03-2004	

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- EP 2460425 A [0003]
- EP 2517586 A [0003]