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(54) **UNIT COMPOSED OF HELMET AND PROTECTIVE EYE MASK**

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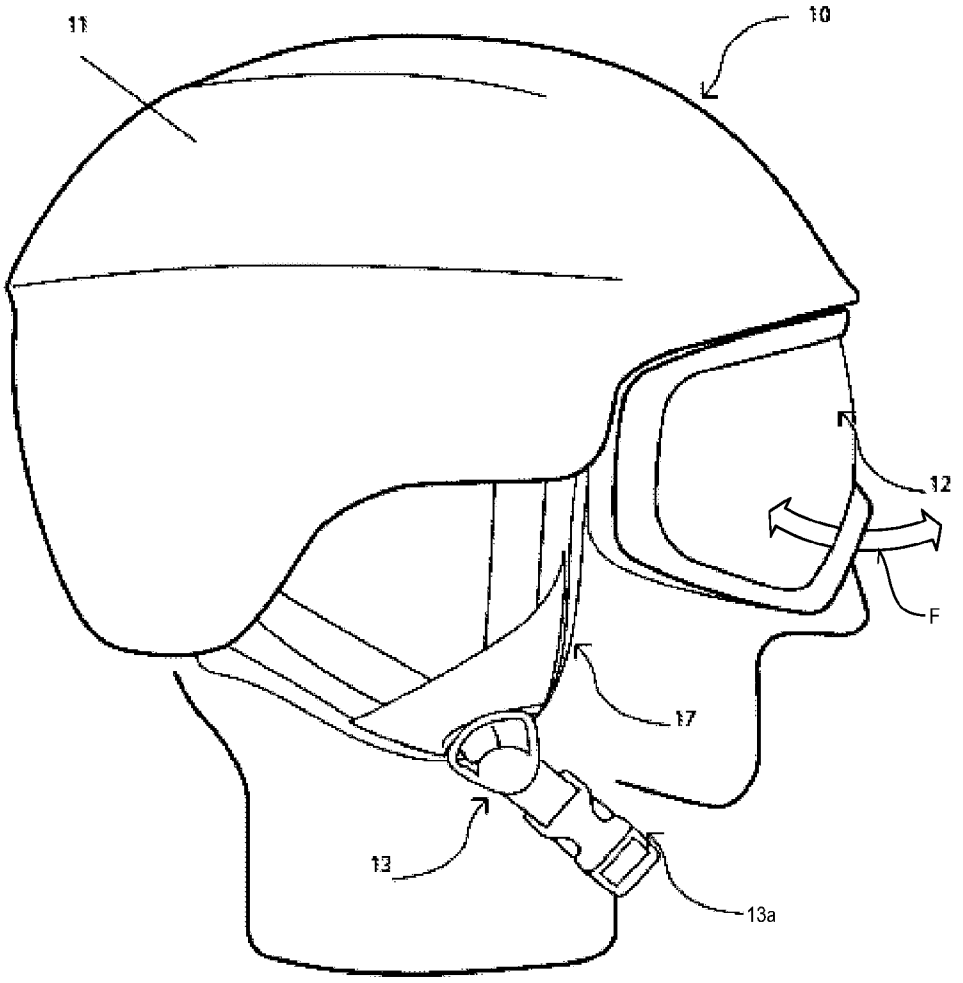
(57) **ABSTRACT**

Unit composed of helmet and goggles, comprising a helmet cap and an eye protection element that is configured so as to be placed in front of the wearer's face. The upper edge of the eye protection element is adapted to the profile of the lower front edge of the helmet cap. A magnetic device is arranged on the two edges and has a first series of permanent magnets which are rigidly connected to one of the two edges and interact, by magnetic attraction, with complementary elements that are provided on the opposite edge. This front magnetic connection area between the two edges furthermore comprises tilt orientation means of the goggles for adjusting the contact with the face.



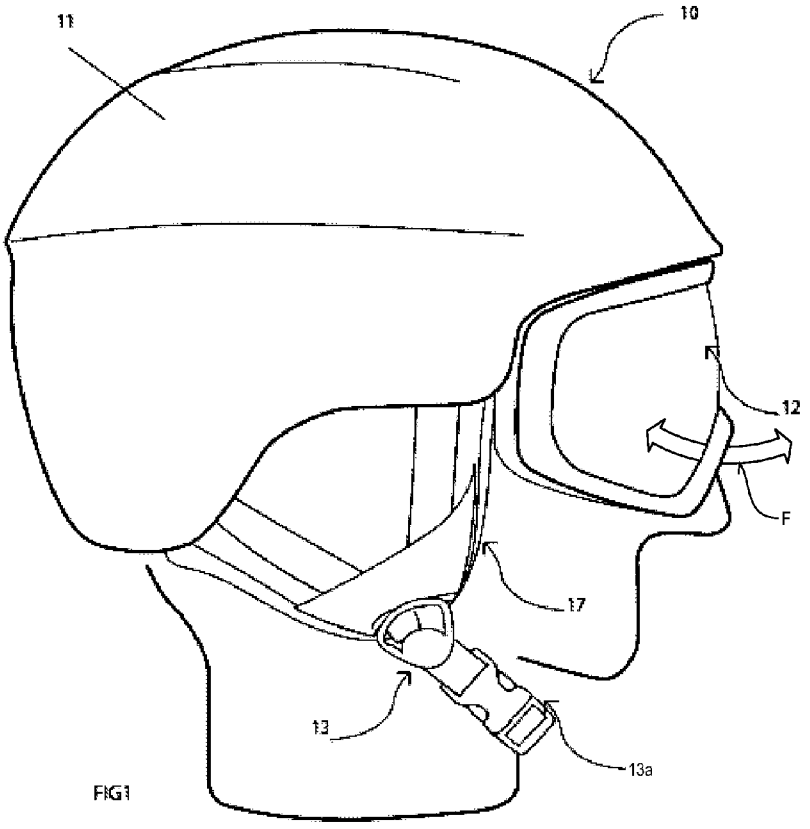


FIG1

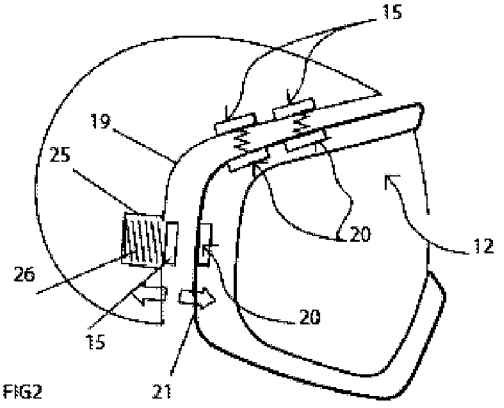


FIG2

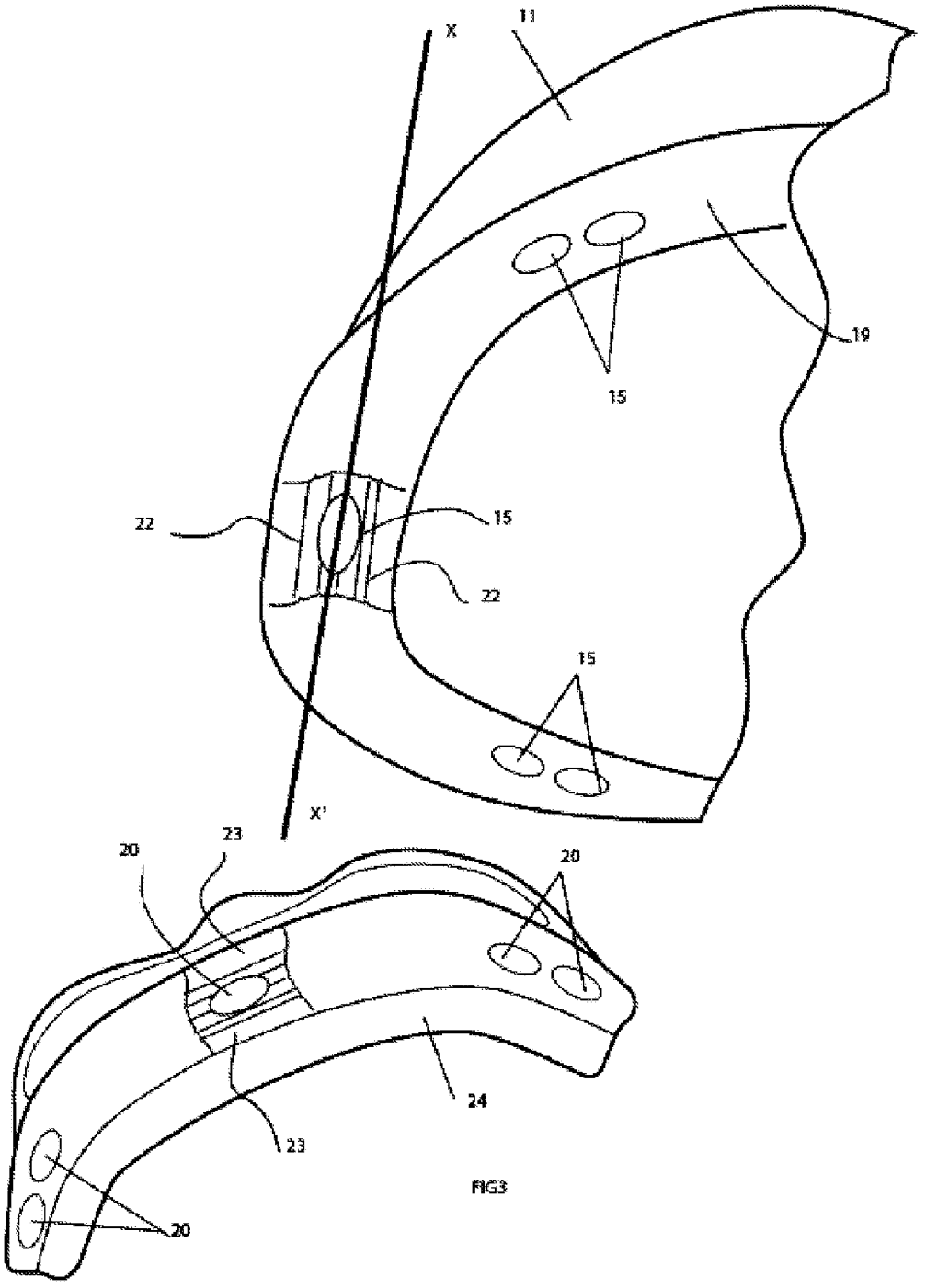


FIG3

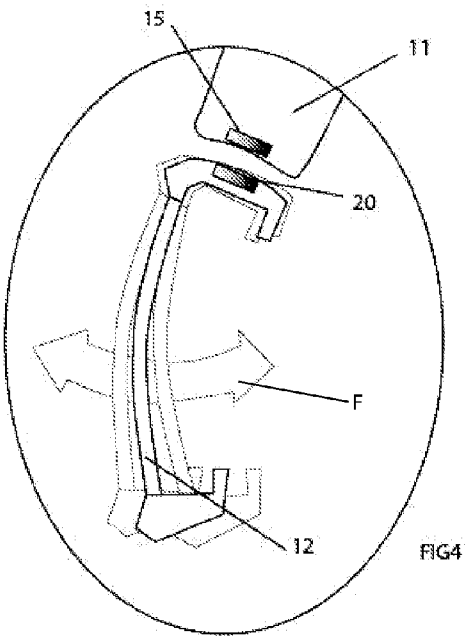


FIG4

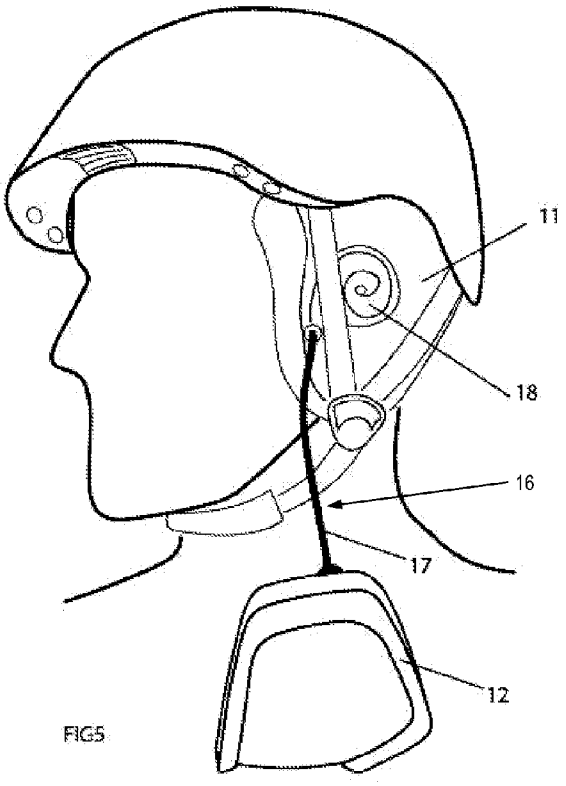


FIG5

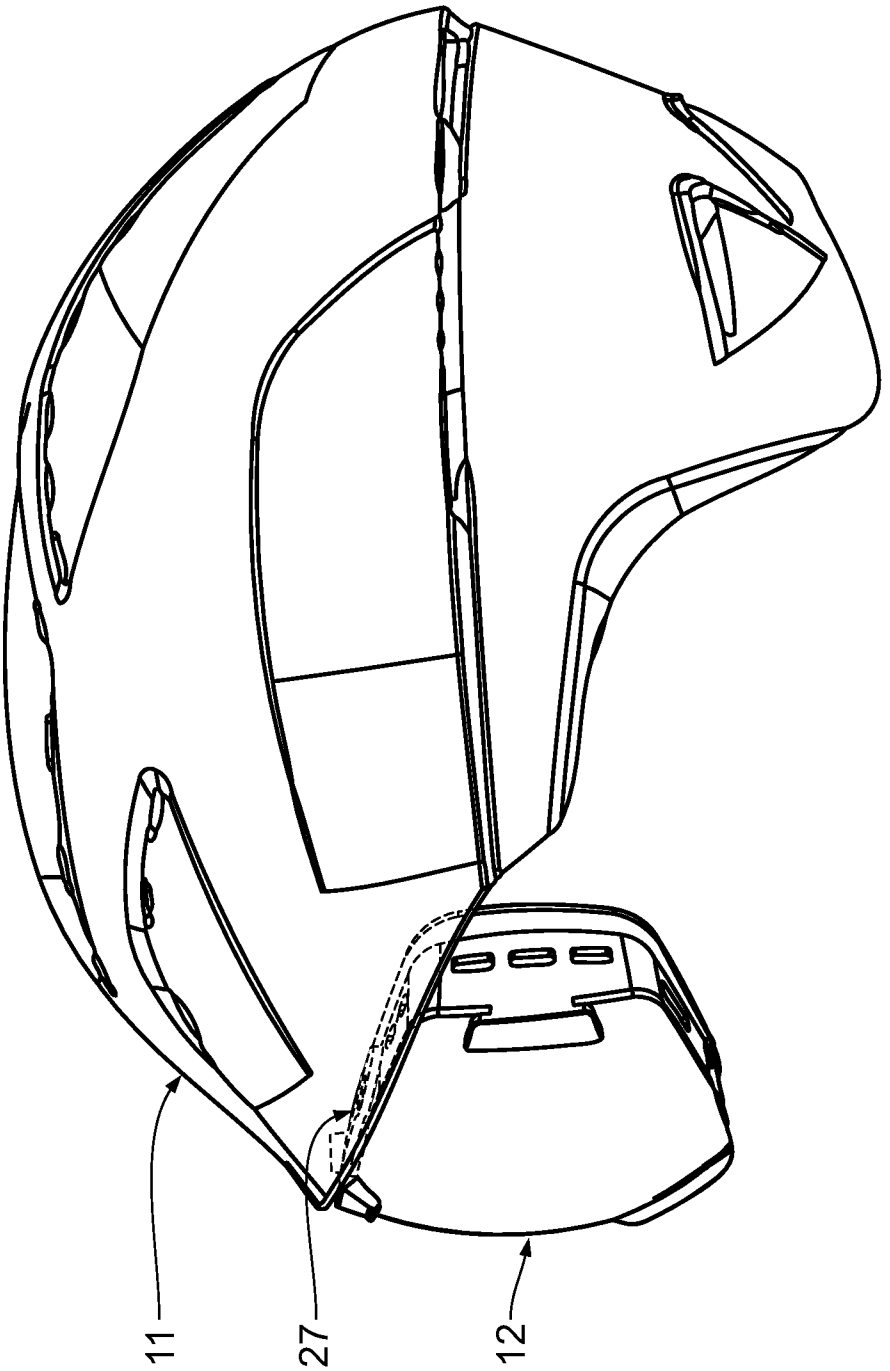


Fig. 6

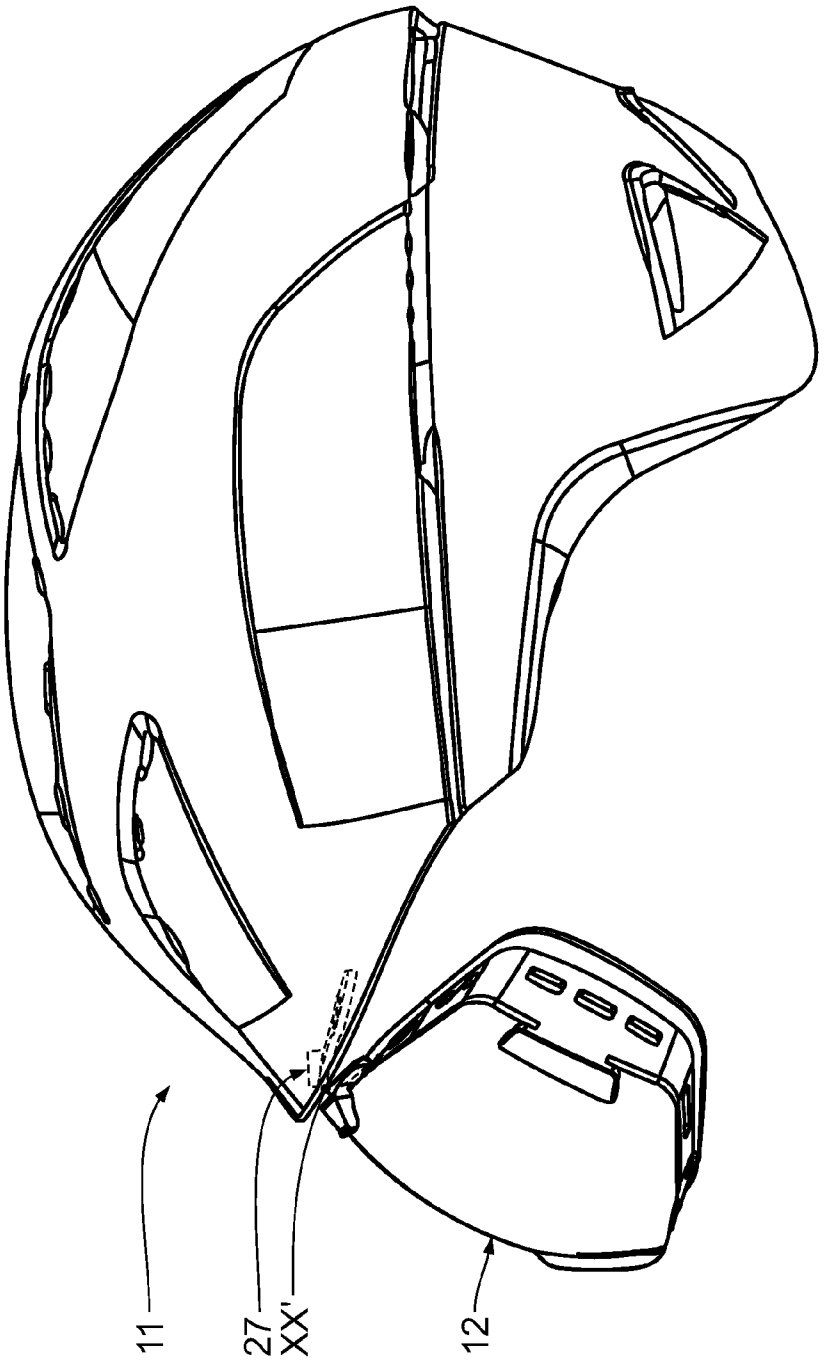


Fig. 7

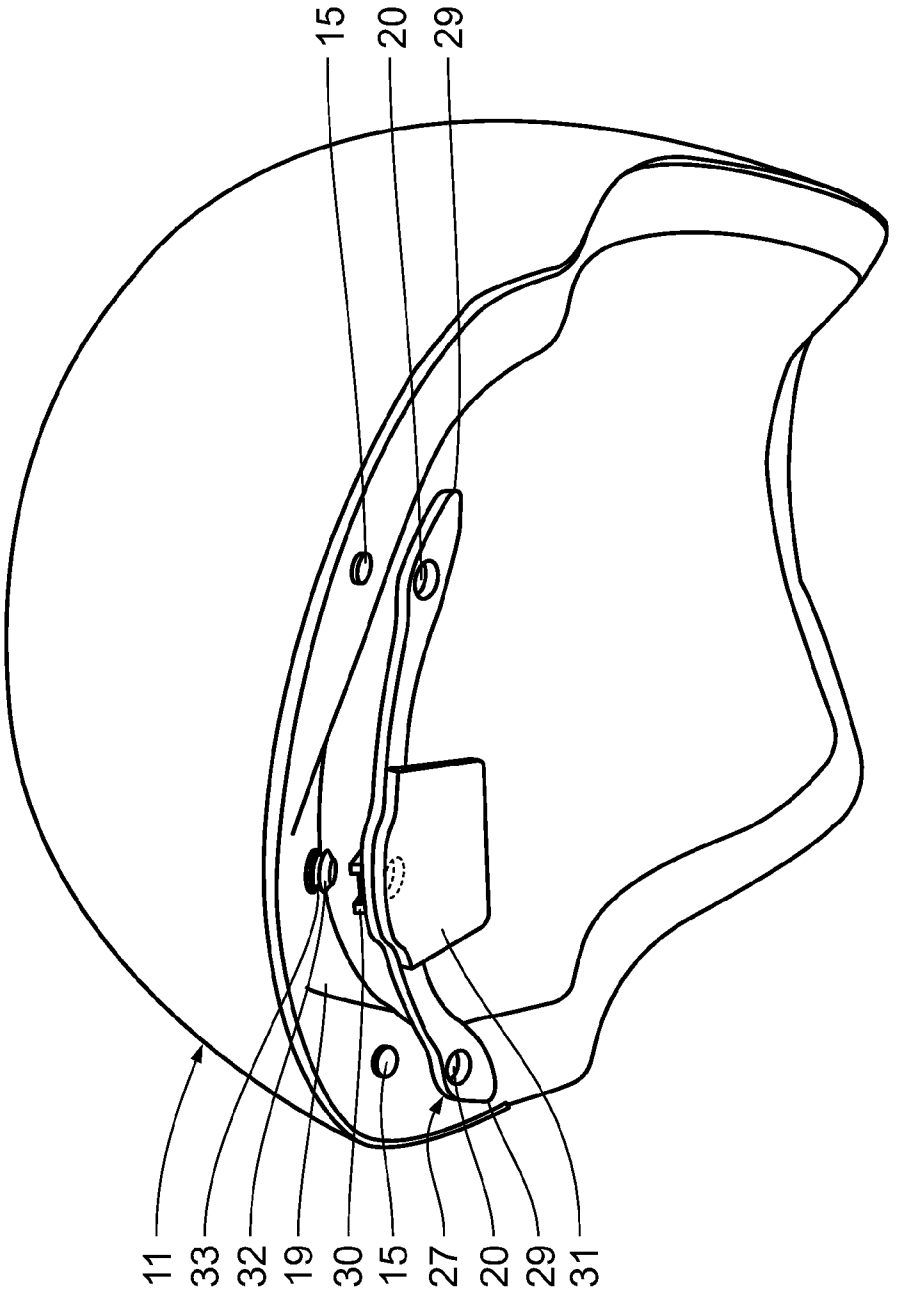


Fig. 8

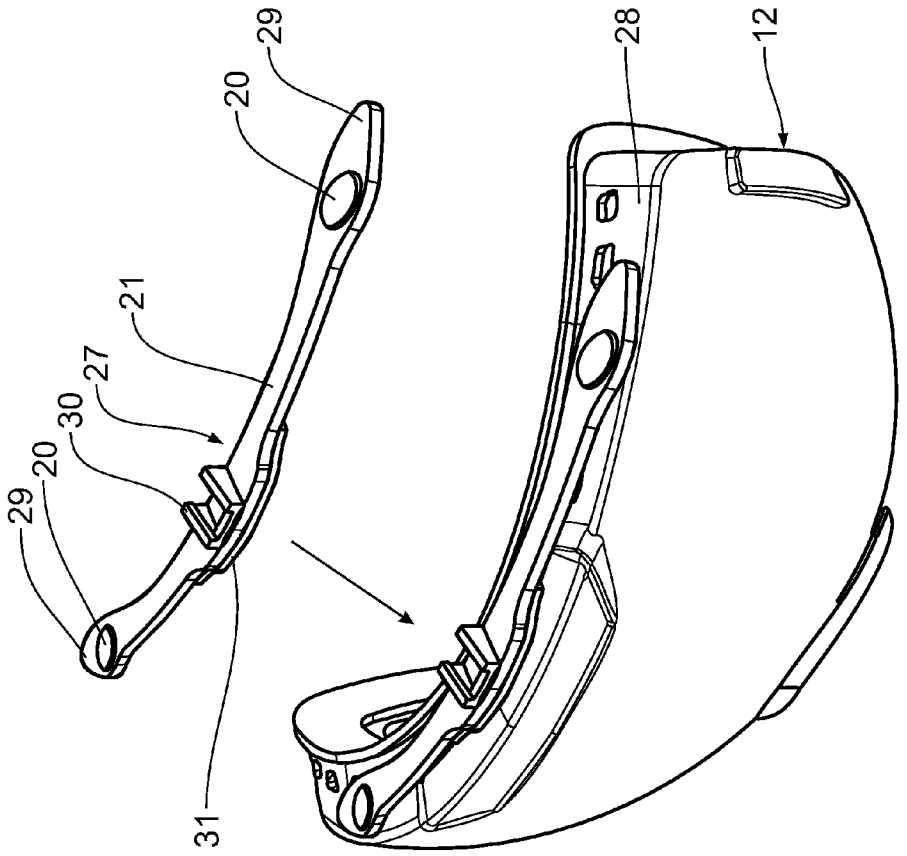


Fig. 9

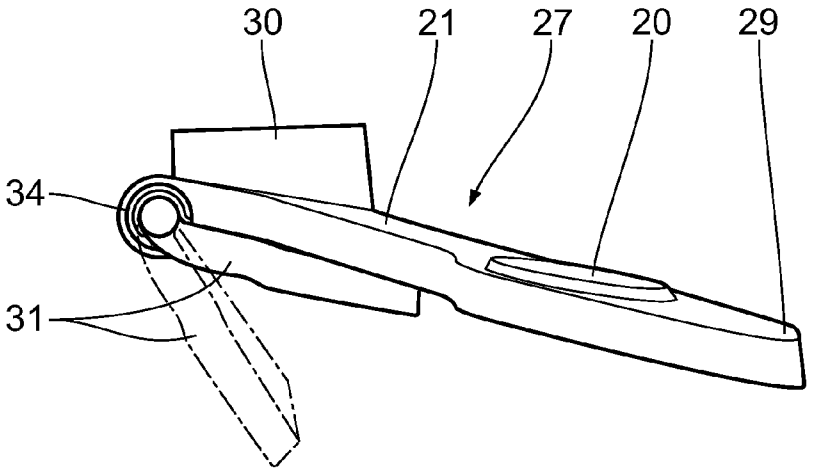


Fig. 10

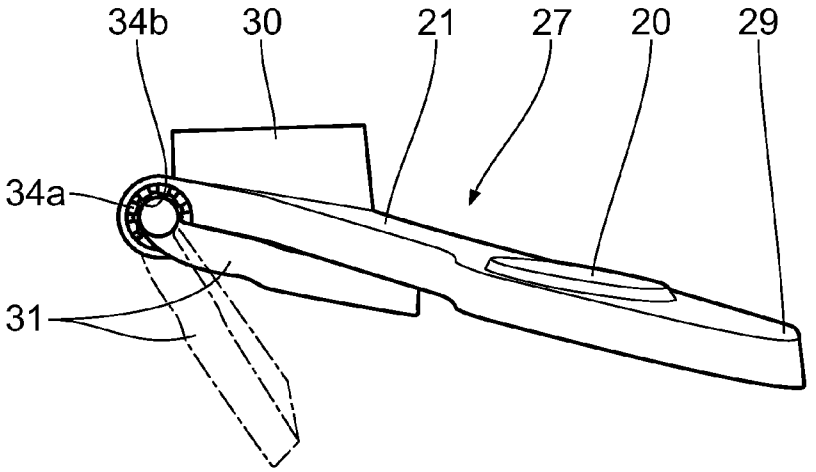


Fig. 11

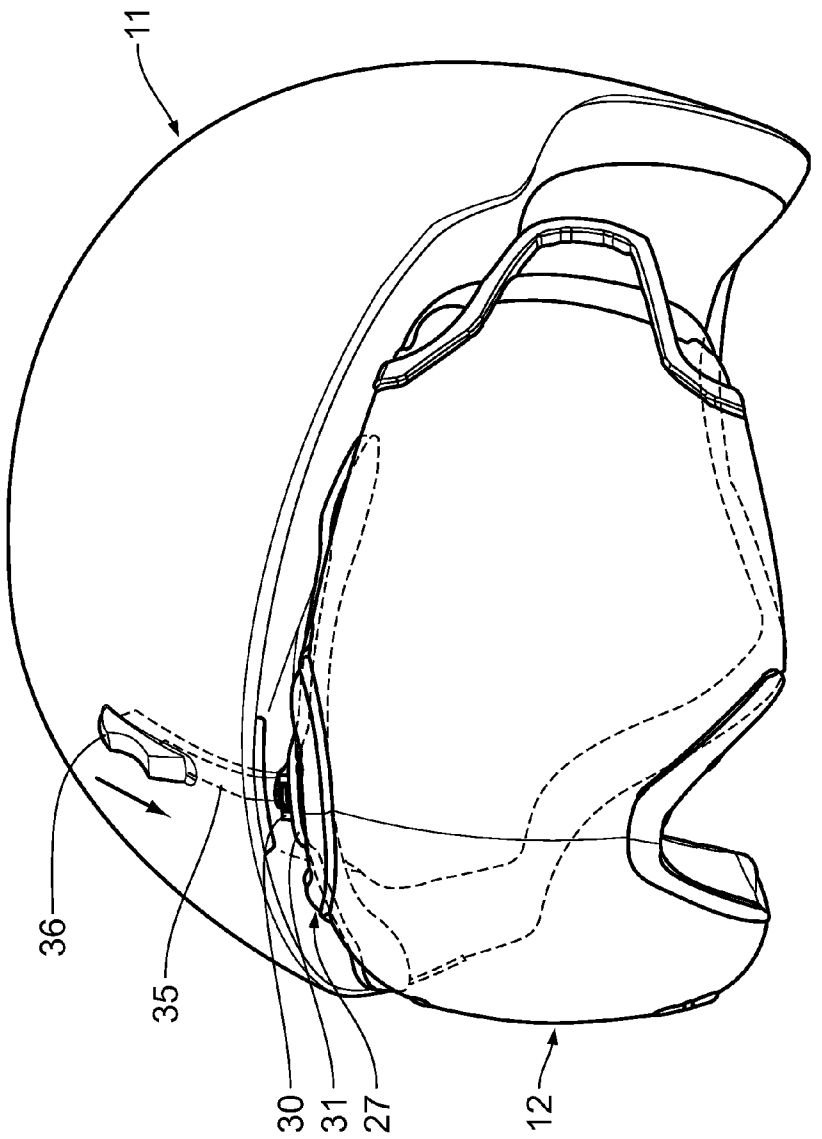


Fig. 12

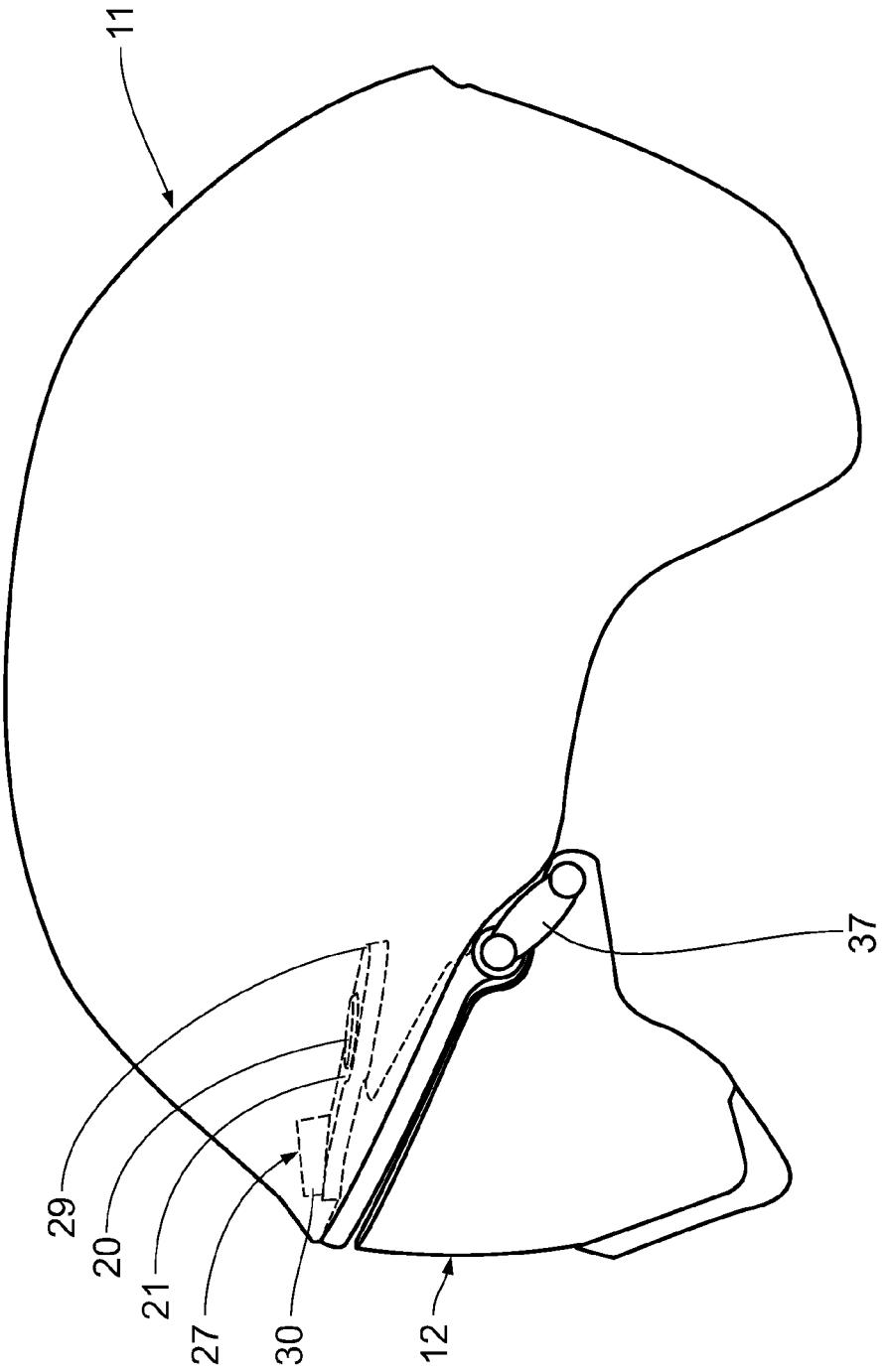


Fig. 13

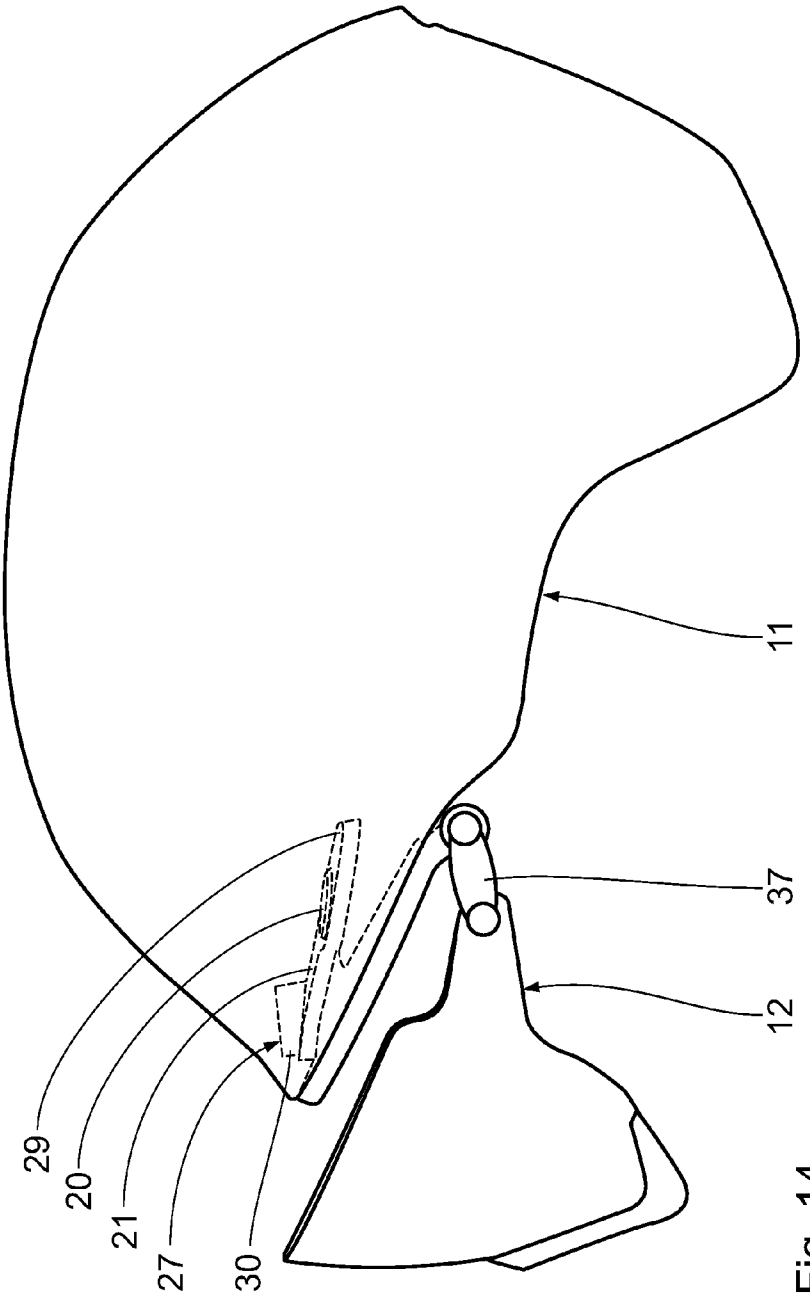


Fig. 14

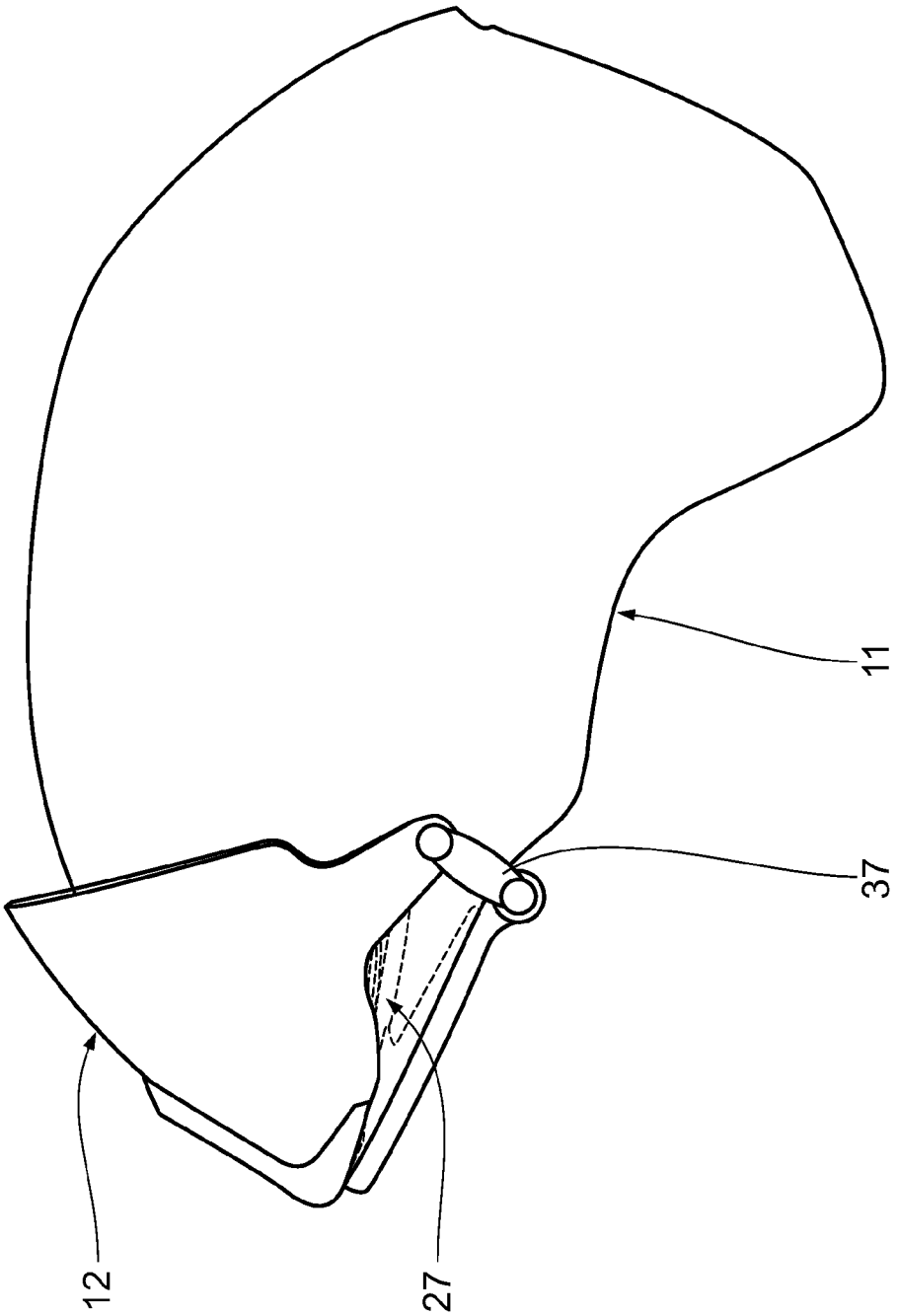


Fig. 15

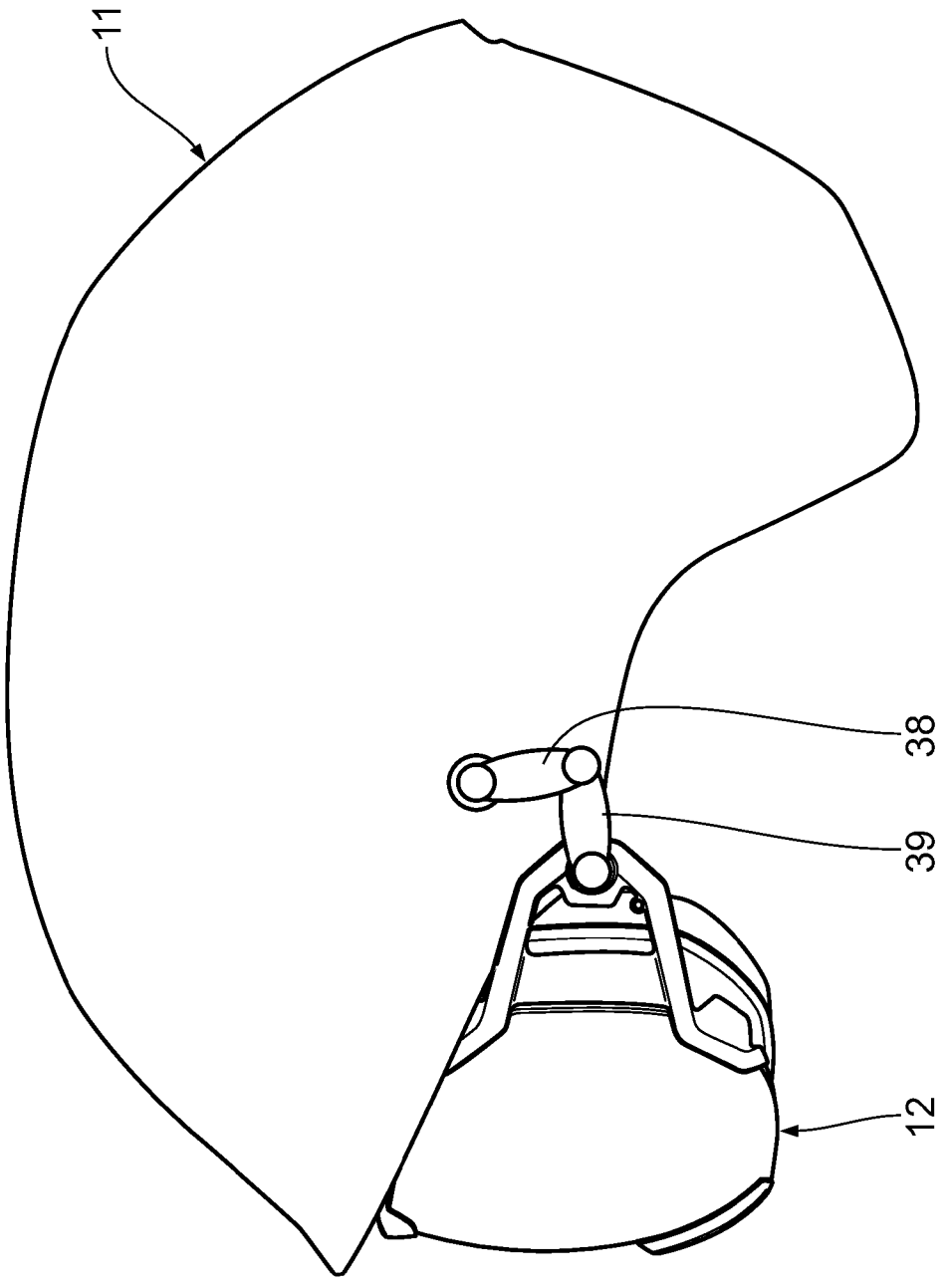


Fig. 16

UNIT COMPOSED OF HELMET AND PROTECTIVE EYE MASK

CROSS-REFERENCES TO RELATED APPLICATIONS

[0001] This application claims the priority of Patent Application Serial No. FR 11/02481, filed on 8 Aug. 2011, pursuant to 35 U.S.C 119(a)-(d), the content of which is incorporated herein by reference in its entirety as if fully set forth herein.

TECHNICAL FIELD OF THE INVENTION

[0002] The invention relates to a unit composed of helmet and protective eye mask, the unit comprising

[0003] a shell-shaped helmet cap comprising a fastening system, and

[0004] an eye protection element which, in a position of use, is placed in front of the wearer's face so as to form the (eye protection) mask.

PRIOR ART

[0005] A unit of the generic type composed of helmet and protective eye mask is known from WO 2005/070359 A1. The protective eye mask is securable to the helmet in front of the wearer's face. To this end, the shape of the protective eye mask is adapted to a corresponding opening of the helmet. The protective eye mask is often quite difficult to operate.

[0006] A unit composed of helmet and an eye protection element is known from US 2006/268220 A1.

[0007] U.S. Pat. No. 6,174,058 B1 discloses an arrangement composed of a cap and a pair of protective goggles connectable thereto.

[0008] An arrangement comprising a helmet and an eye protection element is known from subsequently published patent no. EP 2 435 729 A1. Helmet and eye protection element are magnetically connectable to each other.

[0009] For certain outdoor sports activities, in the industry or on construction sites, it is known to combine a helmet with a pair of goggles for protecting the head and the eyes. In order to achieve an optimum degree of protection, it must be ensured that a perfect contact is provided between the helmet and the eye protection element.

[0010] A first prior-art type of helmet is provided with a transparent visor that is pivotably attached to the front side of the helmet. A visor of this type is part of the helmet so a person wearing the helmet is able to move the visor from an active position of use to an inactive position out of his/her field of vision by a simple movement of his/her hand. In the position of use, the distance between visor and face is not adjustable, and the visor needs to be shaped in such a way as to be adapted to the rounded profile of the front side of the helmet cap. If the visor is visible on the front side of the helmet even in the inactive position, the visor is exposed to influences and scratches that result in premature wear and, consequently, reduced vision. Furthermore, if provided with a visible visor, the helmet cannot be equipped with an additional shield. Such a helmet of the generic type is for instance known from DE 29 18 587 A1.

[0011] There are also helmets comprising integrated flip-down visors which are retractable into a gap inside the helmet cap wall when not in use. The structure of a helmet of this type is however complicated and the production thereof is very expensive. A helmet of this type is for instance known from DE 20 2011 101 138 U1.

[0012] A second prior-art type of helmet comprises an eye protection element which is not integrated into the helmet cap but forms an individual part. A prior art helmet-goggles combination of this type is for instance disclosed in DE 10 2004 005 757 A1. The eye protection element is secured to the helmet by means of an elastic band that runs around the rear part of the helmet cap or the wearer's head. An elastic band of this type has the following disadvantages:

[0013] a high contact pressure is exerted on the face as a result of the elastic force, resulting in excess sweating and reduced comfort;

[0014] when the wearer tries to move the eye protection element to the inactive position on the upper rounded part of the helmet cap, the eye protection element may slide back and fall to the ground, causing the eye protection element to be damaged;

[0015] when the eye protection element is reattached in the position of use, it is not always possible to find one's preferred position that was used before, thus requiring additional adjustment;

[0016] the field of vision is limited and insufficient;

[0017] a fastening device must be provided on the back of the helmet.

Object of the Invention

[0018] An object of the invention is to provide a unit composed of protective helmet and protective mask (=protective goggles) which allows the eye protection element to be attached quickly in such a way as to ensure a good surface-to-surface contact with the face without excess pressure so that the eye protection element is easily removable for storing or cleaning.

[0019] The unit composed of protective helmet and protective mask is characterized in that the upper edge of the eye protection element is in close contact with the profile of the lower edge on the front part of the helmet cap, and that a magnetic device is arranged on both edges for securing the eye protection element to the helmet cap, wherein the magnetic device comprises a first series of permanent magnets which are rigidly connected to one of the two edges and interact, by magnetic attraction, with complementary elements provided on the opposite edge.

[0020] This ensures that the goggles are securely attached to the lower edge of the helmet cap so as to prevent draft and—if the goggles comprise tinted lenses—sunlight from passing through the goggles. The magnetic connection device, which replaces the conventional elastic band used for fastening, allows larger goggles to be used having a very large field of vision.

[0021] The contact pressure exerted on the face by the goggles is less strong than the contact pressure exerted by conventional goggles comprising an elastic band, which provides for better wearing comfort and prevents excess sweating.

[0022] The front magnetic connection area between the two respective edges comprises means for orienting the tilt of the goggles in order to adjust the contact with the face. The tilting means are preferably disposed centrally in the front connection area, comprising snap-in members and complementary notches for positioning the goggles so as to allow an adjustment movement about a tilt axis.

[0023] The eye protection element is preferably configured as goggles, screen, mask, visor or the like.

[0024] The expression "first series" preferably refers to a first arrangement.

[0025] "Complementary" elements are elements which are able to interact, by magnetic attraction, with the permanent magnets serving as counter elements.

[0026] The complementary magnetic elements may either be formed of ferromagnetic parts or of a second series of permanent magnets having a polarity that is opposite to that of the magnets of the first series.

[0027] The expression "second series" preferably refers to a second arrangement.

[0028] "Complementary" notches are preferably notches which are able to interact with the snap-in members.

[0029] According to another embodiment of the invention, the permanent magnets of the lower edge are disposed in grooves via an elastic spring system.

[0030] Flexible connection means are advantageously arranged between the helmet and the goggles to prevent the goggles from getting lost when not in use.

[0031] The embodiment in which the eye protection element is fixable, by means of the magnetic device, relative to the helmet cap in a number of vertical positions on the helmet cap provides a particularly simple and effective way of adapting the eye protection element to the wearer's head.

[0032] In a favourable embodiment, the helmet cap comprises an insert that is provided with the helmet-side part of the magnetic device, the vertical position of the insert being variable relative to the other components of the helmet cap. This insert is preferably guided for displacement along the shell of the helmet cap between a lower position and an upper position. Preferably, it is guided for displacement inside the shell.

[0033] The at least one pivot joint arranged between the goggles and the helmet cap for pivoting the goggles between a position of use and a storage position is preferably provided with exactly one pivot joint lever. This pivot joint lever is articulated to the goggles, preferably to an adjustment member of the goggles, and the helmet cap. According to an alternative embodiment, the at least one pivot joint has two pivot joint levers which are in turn articulated to each other. One of the pivot joint levers is in turn articulated to the goggles while the other pivot joint lever is articulated to the helmet cap.

[0034] The at least one face pressure spring element for pressing the goggles to the wearer's face is preferably arranged between the goggles and the helmet cap. In a favourable embodiment, the at least one face pressure spring element is configured as a helical spring, a coil spring, a torsion bar spring or the like.

[0035] The embodiment which is configured in such a way that in order to adjust the tilt of the goggles, the upper edge extends along a pivotably mounted adjustment member of the goggles, the adjustment member being provided with the goggles-side part of the magnetic device, provides a particularly secure and simple way of pivoting the goggles for particularly easy and simple adjustment of the goggles to the wearer's face. It is advantageous if the adjustment member is pivotably mounted to the goggles frame of the goggles or to the upper part of the actual goggles. Alternatively, the at least one face pressure spring element is arranged between the adjustment member of the goggles and the remaining part of the goggles.

[0036] It is advantageous if the adjustment member is securable to the helmet cap by means of first and second positive locking members providing an additional positive fit when in the position of use.

[0037] In a favourable embodiment, the first and second positive locking members, which in each case interact in pairs, are configured in such a way that when they are in engagement, the adjustment member cannot be moved downwardly in the direction of the upper member of the goggles frame or of the goggles. It is advantageous if the adjustment member is removable from the helmet cap only by a forward pivoting movement.

[0038] It is advantageous if the adjustment member is removable both from the goggles frame or the upper part of the actual goggles and from the helmet cap.

SUMMARY DESCRIPTION OF THE FIGURES

[0039] Further advantages and properties will become more apparent from the ensuing description of an embodiment of the invention which is a non-limiting example of the invention and is shown in the Figures.

[0040] FIG. **1** shows a schematic profile view of a unit composed of helmet and goggles according to the invention;

[0041] FIG. **2** shows a partial view of the magnetic device for connecting the goggles to the lower edge of the helmet cap;

[0042] FIG. **3** shows an exploded view from below the front part of the magnetic connection and the tilt adjustment of the goggles;

[0043] FIG. **4** shows a vertical section through the goggles which is adjustable in a number of angular positions; and

[0044] FIG. **5** shows a detail of an additional connection for the goggles which remains in connection with the helmet via a system composed of a drawstring and a roll-up device when in the removed position;

[0045] FIG. **6** shows a side view of a second embodiment of a unit composed of helmet and goggles according to the invention, wherein the goggles thereof are in a position of use;

[0046] FIG. **7** shows the unit composed of helmet and goggles shown in FIG. **6**, wherein the goggles thereof are pivoted forward;

[0047] FIG. **8** substantially shows a perspective view of the helmet of the unit composed of helmet and goggles shown in FIGS. **6** and **7**;

[0048] FIG. **9** shows a perspective view of the goggles of the unit composed of helmet and goggles shown in FIGS. **6** and **7**;

[0049] FIG. **10** substantially shows the part of the magnetic device arranged on the goggles of the unit composed of helmet and goggles shown in FIGS. **6** and **7**;

[0050] FIG. **11** shows an alternative embodiment of the part of the magnetic device arranged on the goggles shown in FIG. **10**;

[0051] FIG. **12** shows a perspective view of a third embodiment of a unit composed of helmet and goggles according to the invention;

[0052] FIG. **13** shows a side view of a fourth embodiment of a unit composed of helmet and goggles according to the invention, wherein the goggles thereof are in a position of use;

[0053] FIG. **14** shows the unit composed of helmet and goggles shown in FIG. **13**, wherein the goggles thereof are in an intermediate position;

[0054] FIG. **15** shows the unit composed of helmet and goggles shown in FIG. **13**, wherein the goggles thereof are in a storage position; and

[0055] FIG. **16** shows a side view of a fifth embodiment of a unit composed of helmet and goggles according to the invention.

DETAILED DESCRIPTION OF THE INVENTION

[0056] In the Figures, a unit designated by reference numeral **10** and composed of helmet and protective mask (=protective goggles) is formed by a shell-shaped helmet cap **11** which is formed so as to surround the wearer's head and by an eye protection element **12** which is configured so as to be placed in front of the face to protect the eyes against wind, humidity, cold and sunshine.

[0057] The helmet cap **11** is formed by a rigid shell of a shock-proof plastic material, in particular of a thermoplastic material such as ABS, PC, PVC or PET, and a lower shell of a shock-absorbing material such as EPS, EPP . . . . The helmet cap **11** is provided with a conventional fastening system **13** composed of a chin strap **13***a* and a buckle (not shown).

[0058] According to the Figures, the eye protection element **12** of the goggles is a transparent screen of a low thickness, tinted or non-tinted, which covers the entire face in the vicinity of the eyes. It may also have the profile of a pair of goggles (not shown) comprising a pair of screens or lenses arranged in front of the eyes. The transparent material of the eye protection element **12** is extremely shock-proof and preferably unbreakable.

[0059] In the position of use, the eye protection element **12** of the goggles is secured to the helmet by means of a magnetic device **14** comprising a permanent magnet **15** (FIG. **2**).

[0060] Flexible connection means allow the goggles to be secured to the helmet cap **11**, thus preventing the goggles from getting lost when they are no longer in the position of use on the helmet. These connection means **16** may consist of a drawstring **17**, wherein one end of which is fastened to the goggles basis while the opposite end thereof interacts with a roll-up device **18** inside the helmet cap **11**, in particular in an area near the wearer's ear. Naturally, any other retaining band may be used, made for instance of an elastic or non-elastic material with or without roll-up device.

[0061] The magnetic device **14** according to FIG. **2** consists of a first row/series of permanent magnets **15** which are arranged at a distance from one another along the lower edge **19** on the front side of the helmet cap **11** and interact with complementary elements **20** on the upper edge **21** of the eye protection element **21** by magnetic attraction.

[0062] These complementary elements **20** may be configured as follows:

[0063] as ferromagnetic elements which are attracted by the magnetic field of the permanent magnets **15** when the goggles are moved closer in the direction of the lower edge **19** of the helmet cap **11**. It is conceivable as well for the permanent magnets **15** along edge **19** to be interchanged with the complementary elements **20** along edge **21**.

[0064] as a second row/series of permanent magnets the polarity of which is opposite to that of the first row, the opposite poles resulting in an increased magnetic attraction and centring effect.

[0065] The pole surfaces of the permanent magnets **15** and the contact surfaces of the complementary elements **20** they come into contact with are preferably plane for optimized attraction.

[0066] The upper edge **21** of the eye protection element **12** is exactly adapted to the shape of the lower edge **19** of the front part of the helmet to prevent gaps in the magnetic connection area. As a result, the goggles are securely fastened to the lower edge **19** of the helmet cap **11** while ensuring a good protection against draft and, if it is a pair of goggles comprising tinted lenses, against sunlight.

[0067] In the embodiment as shown in FIGS. **3** and **4**, the front magnetic connection area is formed between the two respective edges **19** and **21** of the helmet and of the goggles to allow the eye protection element **12** of the goggles to be tilted in the direction of arrow F. In this manner, the contact with the face can be optimally adjusted, regardless of the shape of the wearer's face.

[0068] The central area of the lower edge **19** has a concave or convex shape and comprises positioning snap-in members **22** for adjusting the tilt of the goggles about the tilt axis XX'. The upper edge **21** of the goggles is preferably provided with notches **23** which interact with one of the snap-in members **22** in a selected position of tilt. In this central area, a permanent magnet **15** may be inserted opposite a complementary magnetic element **20**. Two other lateral areas are disposed next to the central area, comprising permanent magnets **15** and complementary magnetic elements **20** for retaining the goggles by applying a slight amount of pressure on the face.

[0069] Furthermore, the peripheral inner wall of the goggles is coated with a foam layer **24** that ensures a pleasant and close contact with the face.

[0070] In the embodiment according to FIG. **2**, particular permanent magnets **15** are accommodated in the lateral areas in grooves **25** of the lower edge of the helmet via a spring **26** or another elastic system. This increases the range of tilt adjustment while the pressure applied on the face remains the same.

[0071] Since no elastic belt is provided for fastening, a larger pair of goggles can be used that has a very large field of vision.

[0072] The goggles are put on and off as follows:

[0073] In order to put the goggles on, it is sufficient to move the eye protection element **12** into the vicinity of the lower edge **19** of the helmet cap **11**. The magnetic attraction exerted by the permanent magnets on the complementary magnetic elements **20** causes the goggles to abut against the lower edge **19**. This results in a stable surface-to-surface contact with the face so that a good protection of the eyes against wind, humidity, cold and—if the lenses are tinted—against sunlight is achieved. Furthermore, the possibility of adjusting the tilt of the goggles provides for better wearing comfort. Contact pressure is less strong than that exerted by conventional goggles comprising an elastic band, which provides for better wearing comfort and prevents excess sweating.

[0074] In order to take off the goggles, the goggles are slightly pivoted upwardly in a bottom-to-top movement, causing the complementary elements **20** to be separated from the permanent magnets **15** at oblique angles. As a result, a gap in the shape of a dihedron is obtained which causes the magnetic attractive forces to be greatly reduced, resulting in a quick separation of the complementary elements **20**.

[0075] If the goggles are in the separated position (FIG. **5**), the provided drawstring **17** of the connection means **16** ensures that:

[0076] the goggles may dangle from the helmet along the front side of the upper part of the body and cannot get lost;

[0077] the goggles are easily accessible for cleaning;

[0078] they may be stored underneath the jacket for protection.

[0079] The drawstring **17** may have two different lengths, one shorter length in a position of use of the goggles and another full length when the goggles are not in use (inactive position).

[0080] The following is a description, with reference to FIGS. **6** to **9**, of another embodiment of the invention. In contrast to the previous embodiment, the unit composed of helmet and goggles according to this embodiment comprises an adapter-like adjustment member **27** that is configured in the manner of a web or a bracket. The adjustment member **27** is a component of the eye protection element **12**. It has an elongated shape, extending—when mounted—above an upper rim **28** of the actual goggles or of a goggles frame of the goggles. The upper edge **21** of the goggles extends along the adjustment member **27**.

[0081] The adjustment member **27** has two opposite ends **29**. Each end **29** of the adjustment member **27** is provided with at least one complementary element **20**. Alternatively, the complementary elements **20** are provided at a distance from the ends **29** of the adjustment member **27**. It is advantageous if the shape of the adjustment member **27** is substantially adapted to the respective shape of the upper rim **28** of the goggles.

[0082] A first positive locking means **30** is arranged between the two complementary elements **20** on top of the adjustment member **27** of the goggles which positive locking means **30** is configured as a retainer that is upwardly open in the direction of the edge **19**. When mounted, the first positive locking means **30** is rearwardly open in the direction of the inner space of the helmet cap **11**. It is advantageous if the first positive locking means **30** is arranged centrally between the complementary elements **20**.

[0083] The adjustment member **27** is further provided with two first pivot bearing members **31**. It is advantageous if the first pivot bearing members **31** are provided between the complementary elements **20** or opposite the first positive locking means **30**. According to FIGS. **8** and **9**, the first pivot bearing members **31** are configured as bearing retainers. In a favourable embodiment, the first pivot bearing members **31** are arranged on the lower side of the adjustment member **27**.

[0084] Two second pivot bearing members (not shown) are provided on the upper rim **28** of the goggles or on top of the goggles frame. The second pivot bearing members are complementary to the first pivot bearing members **31**. They are in each case formed by aligned pivots which define the tilt axis XX' and extend in the width direction of the goggles.

[0085] When the adjustment member **27** is mounted, the first and second pivot bearing members **31** combine in pairs to form respective pivot bearings each providing an articulated connection. The goggles are thus pivotable to the front and to the back about the tilt axis XX'.

[0086] The lower edge **19** of the front side of the helmet cap **11** is provided with a second, helmet-side positive locking means **32** which is complementary to the first positive locking means **30**. According to FIG. **8**, the second positive locking means **32** is configured as a pin that is arranged between the permanent magnets **15**. It protrudes downwardly from the lower edge **19**.

[0087] When the permanent magnets **15** are in magnetic interaction with the complementary elements **20**, the first and second positive locking means **30**, **32** are in a positive locking engagement as well, thus providing an additional way of securing the adjustment member **27** to the helmet cap **11**. The positive locking means **30**, **32** are arranged and configured in such a way as to be engageable with each other automatically when the permanent magnets **15** and the complementary elements **20** are moved towards each other.

[0088] The first and second positive locking means **30**, **32** interacting in pairs are configured in such a way that when they are in engagement, the adjustment member **27** cannot be removed from the helmet cap **11** in a downward direction towards the upper part of the goggles frame or the goggles rim **28**. The adjustment member **27** is only removable from the helmet cap when pivoted forward. The first positive locking means **30** is backwardly open. It is configured in the manner of a keyhole. The second positive locking means **32** is furthermore provided with an outwardly open retaining groove **33** which extends along at least a portion of its peripheral region and which is positively engaged by a corresponding web of the first positive locking means **30** when the first and second positive locking means **30**, **32** are in a positive locking engagement. It is advantageous if the first positive locking means **30** is provided with projections that can be overcome, the projections preventing the adjustment member **27** from being undesirably pivoted away from the second positive locking means **32**.

[0089] According to an alternative embodiment, the first and second positive locking means **30**, **32** are interchanged with each other. According to an alternative embodiment, the first and second pivot bearing members **31** are interchanged with each other.

[0090] According to FIG. **10**, at least one face pressure spring element **32** is arranged on at least one of the adjustment member pivot bearings. The at least one face pressure spring element **34** is arranged on the at least one first and/or second pivot bearing member **31** so as to press the goggles **12** against the face of the wearer when the unit composed of helmet and goggles is in use.

[0091] According to FIG. **11**, the adjustment member **27** is furthermore latched with the goggles. The at least one first and/or second pivot bearing member **31** is provided with corresponding latch elements **34***a* and/or counter latch elements **34***b*, respectively. Alternatively, the at least one first and/or second pivot bearing member **31** is allocated to corresponding latch elements **34***a* or counter latch elements **34***b*, respectively.

[0092] According to FIG. **12**, the helmet cap **11** comprises an insert **35** that is guided on the shell of the helmet cap **11** for displacement between an upper position and a lower position. The insert **35** is manually operable from outside via a handle **36**. The permanent magnets **15** are arranged on the insert **35**. The permanent magnets **15** are thus height-adjustable.

[0093] The complementary elements **20** are arranged on the goggles and interact with the height-adjustable permanent magnets **15**. The complementary elements **20** may be arranged on the adjustment member **27** or directly on the goggles frame or the goggles rim **28**, respectively. The height adjustability of the permanent magnets **15** ensures that the goggles are height-adjustable relative to the helmet cap **11** as

well. The higher the position of the permanent magnets **15**, the higher the position of the goggles. The lower the position of the permanent magnets **15**, the lower the position of the goggles.

[0094] According to FIGS. **13** to **15**, the ends of the adjustment member **27** are in each case provided with a pivotably mounted pivot joint lever **37**. The pivot joint levers **37** are furthermore pivotably mounted to the goggles frame. Alternatively, they are pivotably mounted to the goggles and to the helmet cap **11**. The pivot joint levers **37** combine with the allocated pivot points to form pivot joints. The pivot joint levers **37** ensure a guided displacement of the goggles from their position of use into their upper storage position. In the storage position, the actual goggles are physically separated from their adjustment member **27** which remains in magnetic connection with the lower edge **19** of the helmet cap **11**.

[0095] In FIG. **13**, the goggles are in their position of use. They adjoin the front lower end of the helmet cap **11** and are magnetically secured thereto via the magnetic device **14**. The pivot joint levers **37** are in a first position. When the goggles are displaced from their position of use into their upper storage position, the pivot joint levers **37** are pivoted as well. When they are pivoted into the storage position, the goggles are also moved forward by the pivot joint levers **37**. In the storage position, the goggles abut against the outer front side of the helmet cap **11**. The pivot joint levers **37** are then in a second position. As mentioned at the outset, the goggles may be replaced by a screen, visor a mask or the like.

[0096] According to FIG. **16**, each side of the goggles is provided with a pivot joint in the form of an elbow joint. Each pivot joint has a first and second pivot joint lever **38**, **39** which are in turn articulated to each other. The first pivot joint levers **38** are articulated to the helmet cap **11**. The second pivot joint levers **39** are articulated to the goggles.

[0097] In FIG. **16**, the goggles are shown in their position of use in which they are magnetically secured to the helmet cap **11** by means of the magnetic device **14** and abut against the lower front side of the helmet cap **11**. When the goggles are pivoted to their storage position, the goggles are also displaced forward relative to the helmet cap **11**. In the storage position, the goggles are arranged adjacent to the outer front side of the helmet cap **11**. When the goggles are pivoted, the position or orientation of the pivot joint levers **38**, **39** changes as well. As mentioned at the outset, the goggles may be replaced by a screen, visor, a mask or the like.

What is claimed is:

1. A unit composed of helmet and protective goggles, comprising:

a shell-shaped helmet cap comprising a fastening system and

an eye protection element which is configured so as to be placed in front of the wearer's face,

wherein the upper edge of the eye protection element is adapted to the profile of the lower edge on the front side of the helmet cap,

wherein a magnetic device is arranged on both edges for securing the eye protection element of the goggles to the helmet cap,

wherein the magnetic device has a first series of permanent magnets which are rigidly connected to one of the two edges and interact, by magnetic attraction, with complementary elements that are provided on the other, opposite edge, and

wherein the front magnetic connection area between the respective edges comprises tilt orientation means of the goggles for adjusting the contact with the face.

2. A unit composed of helmet and goggles according to claim **1**, wherein the pole surfaces, which come into contact in the magnetic connection area, are plane.

3. A unit composed of helmet and goggles according to claim **1**, wherein the complementary elements are formed of ferromagnetic parts.

4. A unit composed of helmet and goggles according to claim **1**, wherein the complementary elements are formed of a second series of permanent magnets the polarity of which is opposite to the polarity of the magnets of the first series.

5. A unit composed of helmet and goggles according to claim **1**, wherein the tilt orientation means are arranged in the central front connection area and comprise snap-in members and complementary notches for positioning the goggles so as to allow an adjustment movement about a tilt axis.

6. A unit composed of helmet and goggles according to claim **5**, wherein the magnetic connection area has lateral areas that are arranged on both sides of the central area and comprise permanent magnets and complementary magnetic elements.

7. A unit composed of helmet and goggles according to claim **1**, wherein the permanent magnets are accommodated in grooves of the lower edge via an elastic spring system (**26**).

8. A unit composed of helmet and goggles according to claim **1**, wherein the flexible connection means are arranged between the helmet and the goggles to prevent the latter from getting lost when in a position of non-use.

9. A unit composed of helmet and goggles according to claim **8**, wherein the connection means comprise a drawstring, wherein one end of which is secured to the goggles while the opposite end interacts with a roll-up device inside the helmet cap, wherein the drawstring has two different lengths: a shorter length when the goggles are in the position of use and the full length when they are in the position of non-use.

10. A unit composed of helmet and goggles according to claim **1**, wherein the eye protection element is fixable relative to the helmet cap by means of the magnetic device in a number of vertical positions on the helmet cap.

11. A unit composed of helmet and goggles according to claim **10**, wherein the helmet cap comprises an insert that is provided with the helmet-side part of the magnetic device, the vertical position of the insert being variable relative to the other components of the helmet cap.

12. A unit composed of helmet and goggles according to claim **1**, wherein at least one pivot joint is arranged between the goggles and the helmet cap for pivoting the goggles between a position of use and a storage position.

13. A unit composed of helmet and goggles according to claim **1**, comprising at least one face pressure spring element for pressing the goggles to the wearer's face.

14. A unit composed of helmet and goggles according to claim **1**, wherein in order to adjust the tilt of the goggles, the upper edge extends along a pivotably mounted adjustment member of the goggles, the adjustment member being provided with the goggles-side part of the magnetic device.

15. A unit composed of helmet and goggles according to claim **13**, wherein the at least one face pressure spring element is arranged on a pivot bearing of the adjustment member.

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