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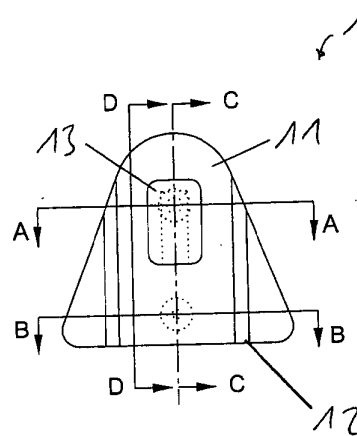
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The following information has been taken from the documents submitted by the notifier

(54) Title: **Device for attaching a lamp to a helmet**

(57) Main claim: A device for attaching a lamp (3) to a helmet, comprising a fixture (2) that can be attached to the miner's lamp (3) and a receptacle (1) that corresponds to the fixture (2) and can be attached to a helmet, characterized in that the fixture (2) has a recess (213) into which a latching means (13) of the receptacle (1) can be latched.



Description

[0001] The invention relates to a device for attaching a lamp to a helmet according to the preamble of claim 1. The invention also relates to a lamp for mounting on a helmet. The invention also relates to a fastening band for fixing a lamp to a helmet, as well as to a firefighter's helmet with a fastening band for fixing a lamp.

[0002] In environments with poor lighting conditions, such as in underground tunnels, light sources are often attached to the helmet of the worker. A tab is provided on the helmet for a lug attached to the light source to engage from above.

[0003] The disadvantage of the previously known attachment of the lamp to a helmet is that the lamp is detached from the helmet when vertical shocks are applied from below, as can occur, for example, when the helmet collides with a beam or ceiling projection, or when rappelling, or when the person wearing the helmet looks up.

[0004] This is where the invention comes in. The invention is based on the task of creating a device for attaching a lamp to a helmet that ensures the lamp is securely fixed to the helmet even when subjected to vertical impacts from below. According to the invention, this task is solved by the fixture having a recess into which a latching means of the receptacle can be latched.

[0005] The invention relates to a device for attaching a lamp to a helmet, which ensures that the lamp is securely fixed to the helmet even when subjected to vertical impacts from below. The latching means prevents the fixture from slipping out of the receptacle.

[0006] In the further development of the invention, the fixture comprises a base plate that is provided with a spacer, which is formed by wings bent essentially at right angles on both sides of the base plate. This ensures a defined distance for the engagement of the fixture in the receptacle.

[0007] In the embodiment of the invention, the latching means is formed by a groove head which has undercuts on two opposing sides, which delimit a web, wherein the recess is formed by at least two recesses of different widths merging into one another, and wherein the first, wider recess is designed such that the groove head can be pushed through and the second, narrower recess is designed such that the web can be clamped. This achieves an effective clamping connection between the latching means and the fixture. In the event of a vertical impact on the lamp from below, the web is driven further into the second, smaller recess, thereby increasing the clamping effect. The outer contour of the web and/or the inner contour of the smaller recess are advantageously conical.

[0008] In a further embodiment of the invention, the fixture has a transverse web at its free end. This makes it possible to achieve an additional fixation of the fixture at the lower edge of the receptacle. Furthermore, the fixture formed in this way can also be used with conventional receptacles without a recess, wherein the transverse web provides a safeguard, albeit limited, against the fixture slipping out of the receptacle due to impact.

[0009] In a further embodiment of the invention, the receptacle is arranged on an annular fastening band. This makes it easy to retrofit a helmet with the receptacle. In addition, such a fastening band also makes it possible to fix the lamp to the forehead of a worker (without a helmet). Preferably, the fastening band is elastic.

[0010] In the further development of the invention, at least two hooks are provided on one side of the fastening band. This prevents the fastening band from slipping upwards on the helmet.

[0011] The invention is further based on the task of creating a lamp for mounting on a helmet that ensures a secure fixation of the lamp to the helmet even when subjected to vertical impacts from below. According to the invention, this task is solved by the features of the characterizing part of claim 9.

[0012] The invention provides a lamp for mounting on a helmet that ensures the lamp is securely fixed even when subjected to vertical shocks from below.

[0013] In a further development of the invention, the fixture is attached to the lamp such that it can pivot. This allows the lamp to be aligned relative to the helmet.

[0014] Preferably, the pivotable attachment of the fixture is designed such that it allows the fixture to be swiveled in stages. This prevents the position of the lamp relative to the helmet from being changed unintentionally. Furthermore, it allows the lamp to be adjusted in stages relative to the helmet.

[0015] In a further embodiment of the invention, an eyelet for accommodating a snap hook is provided. This allows the lamp to be easily stowed, for example, on a snap hook.

[0016] The invention is further based on the task of creating a fastening band for fixing a lamp to a helmet, which ensures that the lamp is securely fixed to the helmet even when subjected to vertical shocks from below. According to the invention, this task is solved by the characterizing part of claim 13.

[0017] The invention provides a fastening band for fixing a lamp to a helmet, which ensures that the lamp is securely fixed to the helmet even when subjected to vertical shocks from below.

[0018] The invention is also based on the task of creating a fastening band for fixing a lamp to a firefighter's helmet that allows the lamp to be securely fixed to the helmet. According to the invention, this task is solved by the characterizing part of claim 14 and claim 15.

[0019] The invention is a fastening band for fixing a lamp to a firefighter's helmet, which enables the lamp to be securely fixed to the helmet.

[0020] The invention is also based on the task of creating a firefighter's helmet that enables a lamp to be securely fixed to the helmet. According to the invention, this task is solved by the characterizing part of claim 19.

[0021] The invention has created a firefighter's helmet that allows a lamp to be securely attached to the helmet.

[0022] Other developments and embodiments of the invention are given in the remaining dependent claims. An exemplary embodiment of the invention is shown in the drawings and is described in detail below. It shows:

[0023] **Fig. 1** the front view of a receptacle for attaching a lamp to a helmet;

[0024] **Fig. 2** the receptacle according to **Fig. 1** in section A-A;

[0025] **Fig. 3** the receptacle according to **Fig. 1** in section B-B;

[0026] **Fig. 4** the receptacle according to **Fig. 1** in section C-C;

[0027] **Fig. 5** the receptacle according to **Fig. 1** in section D-D;

[0028] **Fig. 6** the side view of a miner's lamp with an attachment device;

[0029] **Fig. 7** the miner's lamp from **Fig. 6** viewed from behind;

[0030] **Fig. 8** the miner's lamp according to **Fig. 6** as seen from the front;

[0031] **Fig. 9** the schematic illustration of a fastening band with a receptacle and;

[0032] **Fig. 10** the schematic illustration of a fastening band with a receptacle and a fixing hook;

[0033] **Fig. 11** the three-dimensional representation of a strip-shaped fastening band with a receptacle and

[0034] **Fig. 12** the side view of a firefighter's helmet (model F110) with a lamp attached by means of a fastening band as shown in **Fig. 11**. The device for attaching a lamp to a helmet, which has been chosen as an exemplary embodiment, essentially consists of a receiver **1** and a fixture **2** that corresponds to it and can be attached to a lamp **3**. In the exemplary embodiment, lamp **3** is an LED miner's lamp.

[0035] The receiver **1** essentially consists of a base plate **11**, which is provided with two stop edges **12** arranged parallel to each other. In the exemplary embodiment according to **Fig. 1**, the base plate **11** is largely in the form of a triangle with rounded corners; other shapes of the base plate **11**, for example a rectangular shape, are possible.

[0036] A groove head **13** is arranged centrally between the stop edges **12** on the base plate **11**. The groove head **13** is largely cuboid in shape, wherein undercuts **31** are provided along the longitudinal sides of the groove head **13**, which undercuts delimit a web **132**, so that the groove head **13** is T-shaped in cross-section. On its back side, facing away from the groove head **13**, a fixing pin **14** is provided on the base plate **11**.

The fixing pin **14** is cylindrical, wherein its axis of rotation lies on the longitudinal plane of symmetry of the groove head **13**. A threaded hole **141** is made in the fixing pin **14** along its axis of rotation, which passes through the base plate **11** and opens into the groove head **13**. Opposite the fixing pin **14**, a second fixing pin **15** is arranged below the groove head **13** on the rear side of the base plate **11**. The fixing pin **15** is also cylindrical and has a threaded hole **151** along its axis of rotation that opens into the base plate **11**.

[0037] The receiver **1** formed in this way can be attached to a helmet such that two parallel holes are made in the helmet (not shown), the inside diameter of which corresponds to the outside diameter of the associated fixing pin **14**, **15** and which are spaced apart from one another in line with the fixing pins **14**, **15**. The base plate **11** is placed on the helmet such that the fixing pins **14**, **15** engage in the corresponding holes in the helmet. The receiver **1** can then be screwed to the helmet using the threaded holes **141**, **151**.

[0038] The fixture **2** comprises a clamping lever **21**, which is essentially rectangular in design, wherein the clamping lever **21** tapers in width towards its lower end, so that it tapers conically. At its upper end, opposite the tapered end, two wings **211** are formed laterally parallel to one another, which are bent approximately at right angles from clamping lever **21**. The wings **211** are rounded at their end, wherein the outer contour of the wings **211** spans a semicircle in this region. For attachment, the wings **211** are provided with a hole **212**.

[0039] A recess **213** is provided in the clamping lever **21**. The recess **213** is formed by a cutout **2131** whose inner contour essentially corresponds to the outer contour of the groove head **13** of the receiver **1** and which transitions in the direction of the wings **211** into a second, narrower recess **2132**. The width of the recess **2132** corresponds essentially to the width of the web **132** of the groove head **13**, wherein the side walls of the recess **2132** converge conically at an angle of inclination of about two degrees in the direction of the wings **211**. A web **214** is provided on the clamping lever **21** on its side facing the wings **211**, between the recess **2131** and the lower end of the clamping lever **21**.

[0040] The clamping lever **21** is pivotally connected to a miner's lamp **3** by a shaft **22**, which is secured by a nut **23**. For this purpose, the miner's lamp **3** has a receiver **31** with a horizontal passage **311**, the inside diameter of which corresponds essentially to the outside diameter of the shaft **22** and through which the shaft **22** is guided. A latching device (not shown) is arranged on the shaft between the receiver **31** of the miner's lamp **3** and the wings **211**, which allows a step by step adjustment of the clamping lever **21** relative to the miner's lamp **3**.

[0041] In the exemplary embodiment according to **Fig. 6**, an additional eyelet **32** is provided on the receiver **31** of the lamp **3**. The eyelet **32** is used to pass a hook, for example a snap hook, for storing the lamp **3**. In addition, the lamp **3** can also be worn around the neck using a snap hook attached to a neck strap.

[0042] The fastening band selected as an exemplary embodiment of execution according to **Fig. 9** is made of elastic material. A receiver **1** is provided on the fastening band **4**. The receiver **1** is largely rectangular and has a tab **16** on each of two opposing sides, via which the fastening band **4** is connected to the receiver **1**. A further lug **17** is provided on a third side, the upper edge of receiver **1**. A transverse band **41** is passed through lug **17** and is connected to fastening band **4** on the side opposing receiver **1**. A groove button **13** is arranged on receiver **1** below lug **17**. The groove head **13** corresponds to the groove head **13** of the previously described exemplary embodiment according to **Fig. 1**. To fix the fastening band **4** to a helmet—not shown—there are further holes **18** in the receiver **1** of the fastening band **4**, which allow additional attachment of the receiver to the helmet by means of screws. Furthermore, a length adjustment **42** is provided on the fastening band **4**.

[0043] The fastening band selected as a further exemplary embodiment according to **Fig. 10** is provided with a conventional receiver **1**. The receiver **1** is formed in the manner of a U-shaped sheet metal piece with outwardly angled wings, which are provided with holes. The receiver **1** is connected to the fastening band **4** by means of rivets through these holes. Alternatively, it is also possible to design the receiver according to the exemplary embodiment shown in **Fig. 9**. Lugs **43** are arranged at equal distances on the fastening band **4**, and hooks **44** are arranged on the free ends of the lugs that project over the edge of the fastening band **4**. In the exemplary embodiment, the lugs **43** are made of the same material as the fastening band **4** and sewn to it. The hooks **44** are made of plastic and connected to the lugs **43** by seams. The hooks **44** are designed such that they grasp the surrounding edge of a helmet (not shown).

[0044] The fastening band 4 is attached to a helmet (not shown) by stretching the fastening band 4 around the helmet, wherein the hooks 44 comprise the lower edge of the helmet. As a result, the fastening band is secured against slipping in the direction of the tip of the helmet.

[0045] The fastening band chosen as a further exemplary embodiment according to **Fig. 11** essentially consists of a strip-shaped fastening band 5, which is provided with a receiver 1. The strip-shaped fastening band 5 is essentially rectangular. In the exemplary embodiment shown, the fastening band 5 is designed as a 1 mm thick aluminum strip. It is also possible to use other materials, such as plastic. The material should be flexible and resistant to light, UV light and weathering. A hole 51 is provided at each of the outer ends of the fastening band 5. In the exemplary embodiment shown, the holes 51 have a diameter of 8.5 mm. It is advantageous if one or both holes can be designed as slots, allowing tolerances to be compensated. In the exemplary embodiment shown, the distance between the holes 51 is 23.3 mm from the respective end of the fastening band 5. The height of the fastening strip 5 is 30 mm.

[0046] In the exemplary embodiment, the receiver 1 is in the form of a receiving shoe 10 with molded-on lateral wings 101. In the exemplary embodiment, the receiver 1 is designed as a plastic injection molding. The rear side of the receiver 1 facing the fastening band 5 is curved such that it corresponds to a firefighter's helmet (model F110). In the exemplary embodiment, the receiver 1 is attached by screw connections 19, which are guided through holes provided in the wings 101. Alternatively, the fastening band 5 and receiver 1 can be manufactured in one piece, wherein the receiver 1 is molded onto the fastening band 5.

[0047] The holes 51 are positioned in the fastening band 5 such that when it is put on a firefighter's helmet 6 (in the exemplary embodiment this is the F110 model), they correspond to the standardized helmet-insert holes of the firefighter's helmet 6. The fastening band 5 can thus be attached to the firefighter's helmet 6 by means of screws 52 that are passed through the holes 51 of the fastening band 5.

[0048] **Fig. 12** shows a firefighter's helmet (model F110) that is equipped with a fastening band 5. A lamp 3 is attached to the fastening band 5, which has a clamp 33 on its rear side facing the firefighter's helmet 6, which is guided through the receiving shoe 10 of the receiver 1, whereby the lamp 3 is fixed to the fastening band 5, which is fixed to the firefighter's helmet 6.

Claims

1. A device for attaching a lamp (3) to a helmet, comprising a fixture (2) that can be attached to the miner's lamp (3) and a receptacle (1) that corresponds to the fixture (2) and can be attached to a helmet, **characterized in that** the fixture (2) has a recess (213) into which a latching means (13) of the receptacle (1) can be latched.

2. Device according to claim 1, characterized in that the fixture (2) comprises a base plate (11), provided with a spacer formed by wings (211) bent essentially at right angles on both sides of the base plate (11).

3. A device according to one of the preceding claims, characterized in that the latching means is formed by a groove head (13) having undercuts (131) on two opposing sides, which undercuts delimit a web (132), and in that the recess (213) of the fixture (2) is formed by at least two recesses (2131, 2132) of different widths that merge into one another, wherein the first, wider recess (2131) is designed such that the groove head (13) can be pushed through and the second, narrower recess (2132) is designed such that the web (132) can be clamped.

4. A device according to claim 3, characterized in that the outer contour of the web (132) and/or the inner contour of the narrower recess (2132) are conical.

5. Devices according to one of the preceding claims, characterized in that the fixture (2) has a transverse web (214) at its free end.

6. A device according to one of the preceding claims, characterized in that the receptacle (1) is arranged on an annular fastening band (4).

7. A device according to claim 6, characterized in that the fastening band (4) is elastic.

8. A device according to claim 6 or 7, characterized in that at least two hooks (44) are provided extending around one side of the fastening band (4).

9. Lamp for mounting on a helmet, characterized in that the miner's lamp (3) has a fixture (2) according to one of claims 1 to 6.

10. Lamp according to claim 9, characterized in that the fixture (2) is attached to the lamp (3) such that it can pivot.

11. Lamp according to claim 10, characterized in that the pivotable attachment of the fixture (2) is designed such that it allows stepwise swiveling of the fixture (2).

12. Lamp according to one of claims 9 to 11, characterized in that an eyelet (32) is provided for accommodating a snap hook.

13. A fastening band for fixing a lamp (3) to a helmet, characterized in that the fastening band (4) is annular and has a receptacle (1) according to one of claims 1 to 4.

14. Fastening band for fixing a lamp (3) to a helmet (6), in particular a firefighter's helmet, characterized in that the fastening band (5) is designed as a flexible strip of material and has a receptacle (1) according to one of claims 1 to 4.

15. Fastening band for fixing a lamp (3) to a helmet (6), characterized in that the fastening band (5) is designed as a flexible strip of material and has a receptacle (1) in the form of a receiving shoe with an essentially rectangular cross section.

16. Fastening band according to claim 14 or 15, characterized in that the strip of material is made of plastic or sheet metal.

17. A fastening band according to one of claims 14 to 16, characterized in that the receptacle (1) is formed on the fastening band (5).

18. Fastening band according to one of claims 14 to 17, characterized in that the fastening band has holes (51) for attaching to a firefighter's helmet (6), which correspond to the helmet insert holes of the firefighter's helmet (6).

19. Firefighter's helmet, characterized in that it has a fastening band (5) according to one of claims 14 to 18.

Five pages of drawings follow

Attached Drawings

Fig. 1

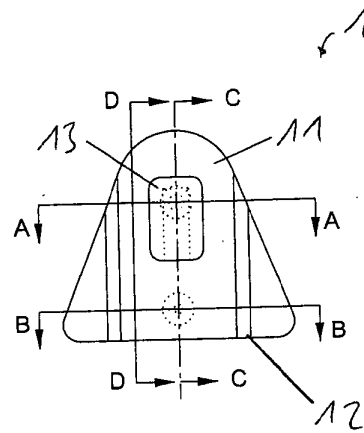


Fig. 2

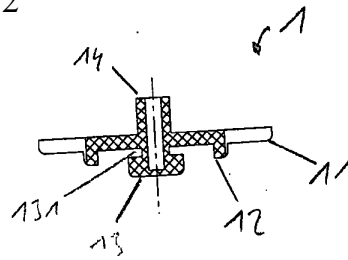


Fig. 3

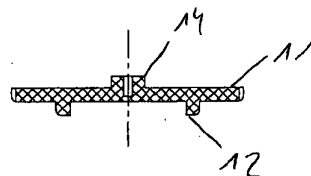


Fig. 4

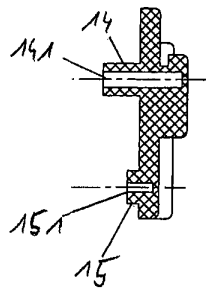


Fig. 5

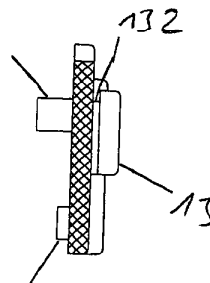


Fig. 6

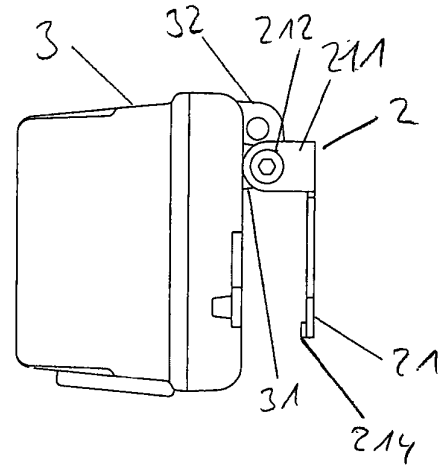


Fig. 7

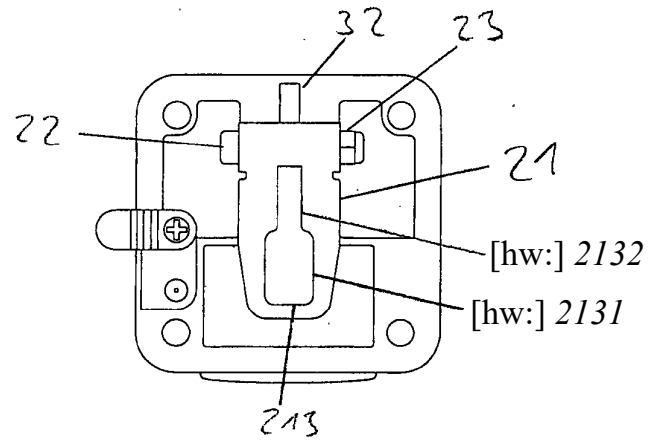
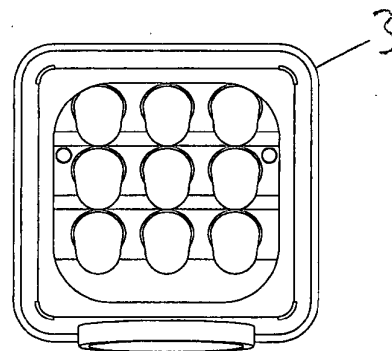
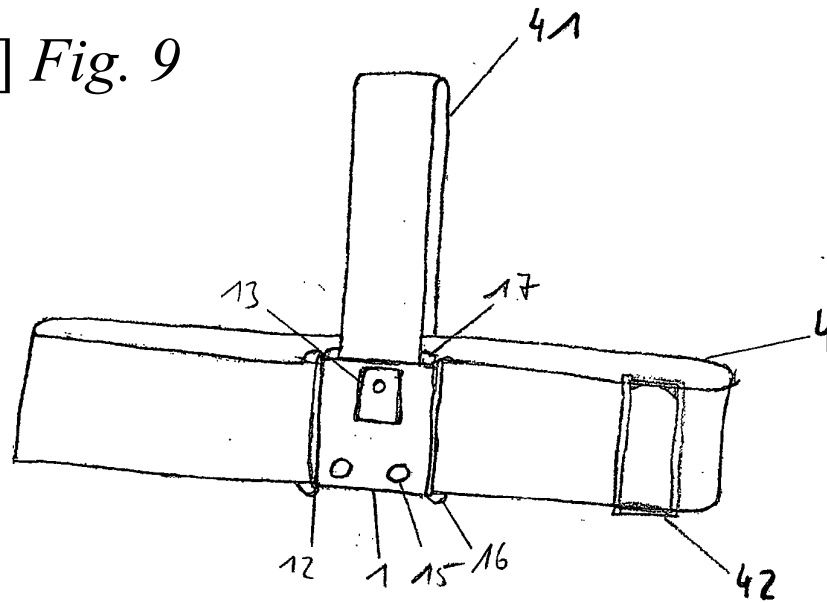


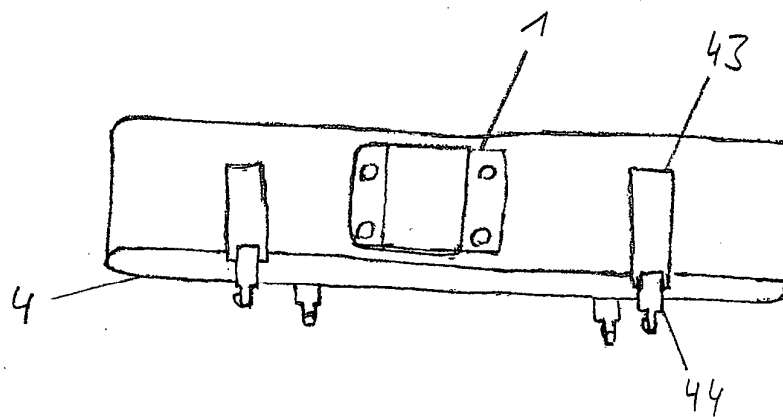
Fig. 8



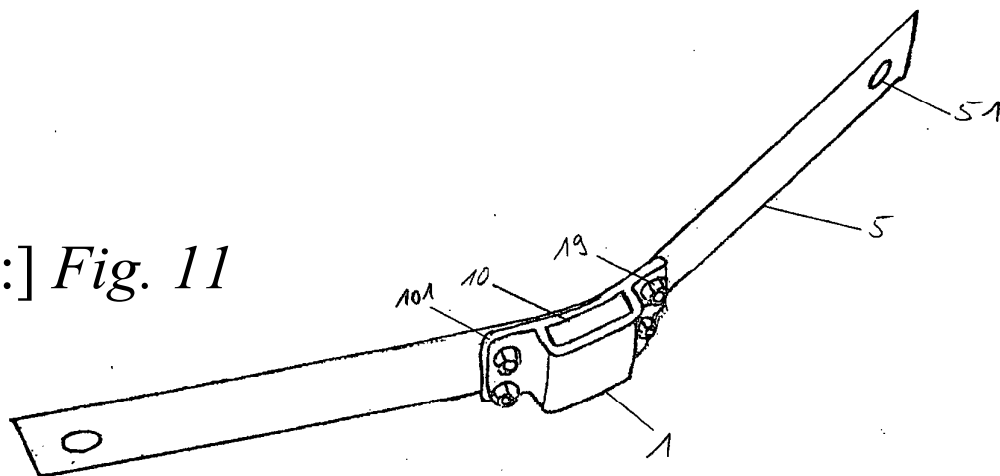
[hw:] *Fig. 9*



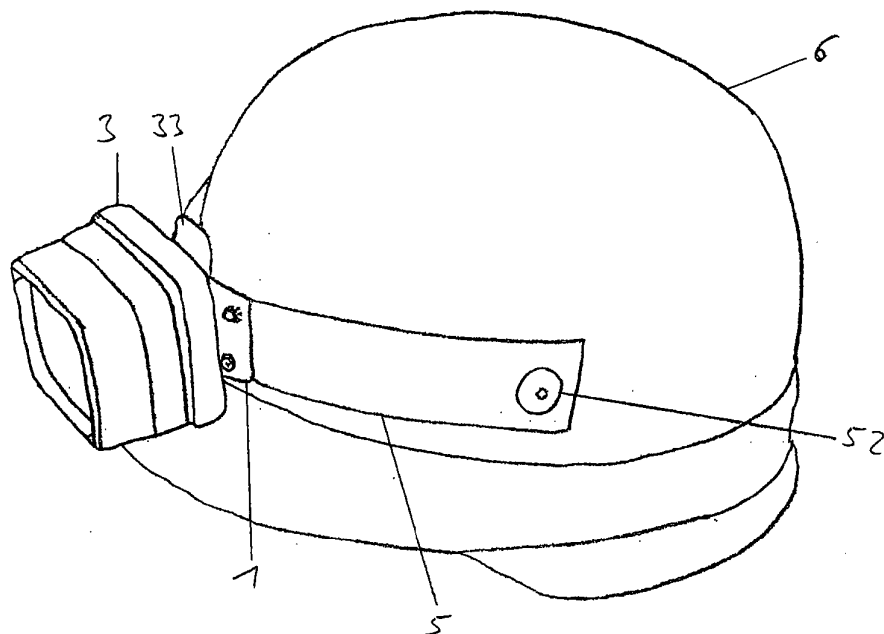
[hw:] *Fig. 10*



[hw:] Fig. 11



[hw:] Fig. 12



DECLARATION OF TRANSLATION

I, Deborah Lüdi Reidy, declare the following:

1. I am over 18 years of age and competent to make this declaration.
2. I am a qualified German to English translator with more than 8 years of experience.
3. I have translated into English the attached document identified as "DE_202006007009_U1," bearing a publication date of August 31st, 2006.
4. I affirm that the translated text has been translated and edited to the best of my ability and knowledge to accurately reflect the content, meaning, and style of the original text. I hereby certify under penalty of perjury under the laws of the United States of America that the foregoing constitutes, pursuant to my knowledge and belief, a true and correct translation of the original document.
5. I declare that all statements made herein of my knowledge are true, and that all statements made on information and belief are believed to be true, and that these statements were made with the knowledge that willful false statements and the like are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Deborah Lüdi Reidy
Deborah Lüdi Reidy

Dated and signed on March 19th, 2025