HELMET HAVING REMOVABLE SIZE ADJUSTING MEANS

Hermann Tempelhof, La Favorie, Cortaillod, Neuchatel, Switzerland

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4 Claims

ABSTRACT OF THE DISCLOSURE

This invention is directed to a helmet, and particularly a helmet which has a wide array of convenient interchangeability, adjustability and utility. The helmet has a bowl and around the open edge of the bowl, the helmet is provided with a recess. Means adapted to fit the helmet to a particular head are engaged in this recess. Furthermore, such fitting means are movable along the length of the recess so that adjustment to a particular head is easily obtained. The fitting means includes such devices as chin straps and head pads. Furthermore, these fitting means are readily removed so that other persons can use the helmet, each person supplying his own fitting means, so that each helmet is personalized to the user.

BACKGROUND

Helmets are well known in the art. The purpose of a helmet is to protect the head of the wearer. Helmets best accomplish this purpose when they have means that permit an accurate fit on the head of the wearer by the head engaging means of the helmet. Furthermore, a possibility must be afforded, due to hygienic reasons, to exchange or replace the head engaging means in a simple manner. This is particularly so in civil defense organizations where one single helmet, within a particular time period, is worn by a number of people.

Similarly to the other portions of the head engaging means, it is necessary that those accessories which are engaged on the head of the carrier can be individually adjusted. For example, the strap and head engaging pads must be adjustable. The most useful position of the strap is dependent on the configuration of the head, of the neck and the chin of the carrier.

A need also exists to provide adjustability of additional accessories with respect to the helmet. Such additional accessories are not necessarily attached to the head engaging means of the helmet. For example a head lamp, a throat microphone, protective glasses, facial and neck protection, ear piece, functional indications, etc., may be attached to the helmet. Furthermore, particularly in a military use of helmets for drills, parades and in combat, there is a need to wear helmets of different types. It is convenient to wear a relatively light helmet for drills. At parades a similarly built light helmet is preferably worn. Combat puts completely different demands on the helmet and normally requires a different helmet. Obviously, it is inconvenient to provide a special helmet for each of these occasions and a need is present to adapt one helmet type in a simple manner to the various requirements by way of corresponding accessories.

DESCRIPTION

Accordingly, it is an object of this invention to provide a helmet which has at least one detachably secured part, which helmet can be used for military, business and sports purposes. It is a further object of this invention to provide a helmet which has detachable and replaceable head engaging means within the helmet so that different head engaging means may be employed by different helmet users so as to provide proper fit and hygienic conditions. It is a further object of this invention to provide a helmet to which additional accessories may be easily attached. It is another object of this invention to provide a helmet which affords different degrees of protection upon different assembly arrangements of the helmet so that the same general helmet assembly can be worn for all purposes including protective purposes. It is still another object of this invention to provide a helmet which has a fastening channel which is positioned adjacent the edge of the helmet bowl, to which channel various accessories can be detachably secured.

FIGURE 1 is a perspective view, with parts broken away of the preferred embodiment of the helmet of this invention.

FIGURE 2 is an enlarged perspective view of a part of the helmet.

FIGURE 3 shows a partial section taken at right angles to the helmet axis.

FIGURE 4 is a section on line IV—IV in FIGURE 3.

FIGURE 5 is a section on line V—V of FIGURE 3.

FIGURE 6 is a perspective view with parts broken away of a second embodiment of the helmet of this invention.

FIGURE 7 is a partial enlarged section taken along the rim of the helmet of FIGURE 6.

In the embodiment shown in FIGURES 1 through 5, helmet bowl 1 is provided with a fastening channel 3 developed as a dovetail groove along its thickened lower edge 2. Accessories which are made of elastic material, for example synthetic elastomeric, rubber or other flexible material are adapted to be snapped into and slidable along the groove. The accessories may be directly mounted in the groove or on an intermediate part 4. Intermediate part 4 is preferably used and is inserted into the fastening channel 3. One of the accessories 6 consists of a slide part 6a made of an elastic material, which is slidably mounted in the fastening channel, and upon which there is glued foam rubber support cushion 6b. Strap 8, see FIG. 5, is a part of the accessory 5. Slide piece 8a has a central bore, in which the pin 5b of a fastening disc 5c is located so that pin 5b and disc 5c are maintained at such distance from one another, that the eye 7 of the strap 8 is held between pin and disc, and is freely turnable if so desired. Since the slides are slidable along the length of dovetail 3, it becomes possible to provide accessories of any type, for example the support cushion or the chin strap, along the fastening channel 3 in any desired position.

Insert piece 4, similarly to the slide piece of the accessories 5 and 6, is provided with rib 9, see FIG. 2, standing out from its external side, which is slidably engageable within the fastening channel. Rib 9 is built in
order to permit the introduction of the rib into dovetail 3, with only one of its edges (in FIG. 2 the lower edge) corresponding to the groove shape of the fastening channel. The other edge apart from the projections 10 is constituted by surface 11 formed at right angles to the bottom of the groove 3. Projections 10 protrude beyond surface 11 and fit into the undercut part of groove 3. The profile of the rib in the region of projections 10 corresponds to the profile of the fastening channel. Slit 12 is provided below each projection 10 so that the projections can be resiliently pressed down to the level of surface 3. The insert pieces are slid into the fastening channel in this position. Due to the elasticity of the material of the insert pieces, the projections will again stand out when in groove 3, thus filling out the profile of groove 3, so that the insert piece is securely held. Should it be desirable to manufacture the insert pieces from a nonresilient material, then the fastening channel 3 would have to be interrupted by gaps, so that the insert pieces could be inserted and slid laterally into the groove.

Due to the snap in arrangement of one or more intermediate pieces 4, accessories may be placed in the desired position radially of the fastening channel, as this becomes necessary. This may be particularly helpful for the support cushion, for the position of the cushion 6 is determined by the head shape of the wearer indicated by dotted lines in FIG. 3. Such a use of intermediate piece 4 is shown to the left in FIG. 3 and in detail in FIG. 4. In order to accept accessories, spacer piece 4 is provided with a groove 13, corresponding to the fastening channel, which can receive an additional intermediate piece or an accessory. By virtue of this arrangement of intermediate pieces 4, one or more may be used to adjust the distance of the accessory in question from the inner surface of the helmet bowl 1 to any requirements. As shown in FIG. 4, the intermediate pieces are provided with additional fastening grooves 14 at their upper and/or lower sides, in which may be secured accessories, for example a throat microphone.

As shown in FIG. 4, the helmet bowl 1 may also be provided with a fastening channel 15 along its external edge. Fastening channel 15 can be used to fasten a decorative or visible strip 16, as shown on FIG. 1. The strip 16 is fastened in groove 15 by being snapped in. Instead of strip 16 a functional indication or, if necessary, a head lamp equipped with corresponding fastening means can be alternatively secured in channel 15.

In addition, intermediate part 17 is provided with ribs 18 and 19, one on each side. These ribs are each similar to rib 9, for they have elastomeric deformable projections, as shown on intermediate part 4 in FIG. 2. While the inner rib 18 of intermediate part 17 enters the external groove 16 of the helmet bowl 1, the external rib 19 serves to correspondingly fasten an external helmet bowl 20, which similar to the helmet bowl 1, now serving as internal helmet. Helmet bowl 20 is provided with inner fastening channel 21 and outer fastening channel 22 along its lower edge. Outer channel 22 in outer helmet 20 may serve for insertion of a visible strip, grade indication, a head lamp, etc.

If the internal helmet bowl 1 is built as light drill helmet, then the external helmet may be designed for decorative or protective purposes. It may serve as parade helmet or for combat purposes. Thus it is not necessarily to have one drill helmet, one parade helmet and one combat helmet for each soldier. Furthermore, heat insulation is provided by the air cushion between internal helmet 2 and external helmet 20. Furthermore, one may do away with ventilation openings in the external helmet 20 for it may be used as cooking and drinking utensil by soldiers in military operations.

The embodiment shown in FIGS. 6 and 7 differs from the preferred embodiment, in that the fastening channel in which the accessories are slidably secured is not directly formed in the helmet edge. Two ring shaped depressions 23 are formed on the internal side of the helmet along the helmet edge. Fastening channel 3a is formed on the inside ring shaped insert strip 24, which is made of an elastic material. The strip has ring shaped protrusions 25 which enter into the dovetail groove in question due to the elasticity of the material. Fastening channel 3a is identical to dovetail channel 3 and is formed as an undercut dovetail groove. Into channel 3a can be inserted various parts such as intermediate parts 4 and accessories 5 and 6. They are slidably arranged so they can be moved to the position desired. Helmet shell 2a is similarly provided with external groove 14a for connection with an external helmet, in the same manner as described with respect to the embodiment of FIG. 4.

In the alternative embodiment of FIG. 7, strip 24 is provided with elastic reinforcement band 26 which, on account of its elasticity, contributes to the securing of the strip 24 within the helmet edge 2.

Band 26 can be used, as shown in FIG. 7, for fastening of any type of accessory for which there is no requirement to as adjustability. The fastening element of the elastic strap 27a is indicated in FIG. 7 and is connected with the band 26 by rivet 28. Rivet 28 is positioned in recess 29 in strip 24. The recess extends through fastening channel 3a. The channel carries accessory 6 with the slide part 6a and the support cushion 6b, but the recess is less than the length of the accessory.

Furthermore, strip 24 has shoulders 30 and 31 respectively on its upper and its lower edges. Shield 33 and neck protector 32 are respectively fastened to shoulders 30 and 31. Strip 24 and all of the accessories secured to it can thus be easily interchanged.

This invention having been described in its preferred embodiment, and an additional embodiment disclosed, it is clear that this invention is susceptible to numerous modifications and changes within the ability of those skilled in the art and without the exercise of the inventive faculty.

I claim:

1. A helmet, said helmet comprising a helmet bowl adapted to be positioned over a person's head, said helmet bowl having an edge, a fastening channel positioned adjacent to said edge of said helmet bowl, said channel having an opening to the surface of said helmet which is smaller than the interior of said channel, said channel having a uniform cross-sectional configuration, a plurality of head engaging means can be inserted to engage a person's head, said head engaging means each including a portion fitting within said channel so as to be detachably secured to said helmet bowl by said fastening channel, said head engaging means having resilient engagement means thereon, so that said head engaging means are capable of being snapped into said fastening channel.

2. The helmet of claim 1 wherein a spacer strip is positioned intermediate said head engaging means and said fastening channel, said spacer strip comprising engaging means resiliently engaging said fastening channel and said fastening channel means to which said head engaging means are detachably secured.

3. The helmet of claim 2 wherein said channel has a female dovetail shape and each of said engaging means has a male dovetail shape, said male dovetail shapes each having an angular face and a right angle face, said right angle faces having resilient projections extending therefrom for snap engagement into said fastening channel in said helmet.

4. The helmet of claim 1 wherein said helmet bowl comprises an inner helmet bowl, a further fastening channel on said inner helmet bowl, securing means secured in said further fastening channel, an outer helmet bowl positioned exteriorly of said inner helmet bowl, said outer helmet bowl being secured to said inner helmet bowl by securing to said securing means, said outer
helmet bowl being detachable from said inner helmet bowl.

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JAMES R. BOLER, Primary Examiner

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