

Military protective helmet

The invention relates to a military protective helmet having a cap (1) withstanding bombardment and a band arrangement (2) as an interior fitting securely connected at a plurality of points (7, 8) to the helmet cap (1), this band arrangement, in the normal wearing position of an upright helmet wearer, comprising a ring-shaped carrying band (3) running peripherally and approximately horizontally, and bands (4) extending radially outwardly from a central securing piece (5) in the helmet cap (1), the ends of which bands (4) are securely connected to the carrying band (3), the band arrangement (2) comprising synthetic material and forming a carrying basket, and all the bands (3, 4) of the carrying basket (2) having integrally formed knobs (12) pointing towards the helmet cap (1).

A known band arrangement comprises, in the case of military protective helmets, textile bands which are connected in the region of the ring-shaped carrying band at a plurality of points, for example six, to the helmet cap, preferably by riveting. The band arrangement serves to keep the skull away from the cap so as not to transmit the impact energy in the event of impact directly through the cap to the skull of the helmet wearer. The contact of the skull with the upper side of the helmet cap is only possible if the textile bands have lengthened by a considerable amount, as a result of which part of the energy of impact has been consumed. Since the band arrangement is secured laterally directly to the helmet, lateral impacts can transmit directly to the skull of the helmet wearer. Since bombardment of the helmet cap is equally possible and probable from all sides, band arrangements of this type are not suitable for effecting a damping of the bombardment energy before it is transmitted to the skull of the helmet wearer for a large number of bombardment possibilities.

Work protective helmets, whereof the interior fittings are in principle subject to different requirements than military protective helmets, are known. For these interior fittings, it is known to produce the band arrangement from synthetic material

and, for damping violent impacts on the helmet to provide on the outside of the plastics bands knobs which deform plastically in the event of heavy impact and consequently only transmit the impact energy to the skull of the helmet wearer in damped form. At the point where the radial bands are secured to the helmet cap itself, there can be no further knobs. At these points, impact energies are therefore transmitted to the skull in undamped form. The function of the interior fittings of such work protective helmets is essentially based on the fact that the radially running bands are secured to the helmet cap and the carrying ring remains movable. In DE 76 23 197 U there is provided an additional band which forms the connection between the radially running bands and the carrying ring and is not itself secured to the helmet cap. This band is located on the rear of the helmet. The carrying ring is itself securely connected at the front side of the helmet to the helmet cap. A cushioning means is provided at this point.

An interior fitting which is known from work protective helmets cannot be transferred to military protective helmets without further measures. All-round impact damping could be achieved in the manner of a motorbike crash helmet by using an inserted Styrofoam cap. However, this construction is not possible, since it does not enable sufficient ventilation of the helmet interior. The interior ventilation of crash helmets is based on the wind which is caught in them during travel, so that this possibility does not exist with military protective helmets.

GB-1 108 502 discloses an interior fitting for a work protective helmet which comprises resiliently flexible strips tightly packed with rectangular ribs. Two Y-shaped strips run from a peripheral headband to the cap form in arched manner to two opposite securing points. A high density of the impact-absorbing ribs cannot thus be achieved, since the bands are relatively wide and a higher number of bands would result in an excessively heavy weight of the interior fitting. The known interior fitting is not provided for military protective helmets.

The object of the invention, on the other hand, is to construct a military protective helmet of the type mentioned at

the outset such that, on using a band arrangement which enables good ventilation, impact damping on all sides, in particular in the event of shooting action thereon, is achieved.

According to the invention, this object is achieved in a military protective helmet of the type mentioned at the outset by means of the characterizing features of Claim 1.

The band arrangement according to the invention is relatively stable per se, since the ends of the band arrangement are securely connected to the carrying band. Neither the radially running bands nor the carrying band are secured directly to the helmet cap. Securing is effected rather by way of the securing strips which extend from the bands above the carrying band. The construction according to the invention of the band arrangement enables integrally formed knobs, which are arranged between the bands and the helmet cap and bear preferably against the inside of the helmet cap, to be provided on all sides.

The basket of synthetic material according to the invention thus constitutes a single part which has an impact-damping property as a result of the knobs and is secured to the helmet by means of the securing strips. Thus the basket of synthetic material according to the invention on the one hand has properties of a Styrofoam cap, and on the other hand has properties of a conventional interior fitting for work protective helmets, in which the carrying band is movable relative to the radially running bands.

In a preferred embodiment, the securing strips extend outwardly from radial bands. Here, the securing strips have a length which corresponds approximately to half the length of the radial bands.

To produce a suitable damping profile, it can be advantageous if the knobs have different heights, as a general rule two different heights probably being sufficient. The damping effect is first determined solely by the higher knobs, while a stronger damping effect is also achieved in the subsequent deformation of the lower knobs.

It is preferable to provide only three securing strips, so that only three securing means, for example rivets, penetrate

through the helmet cap. Advantageously, two securing points are provided on the side in the front region and one securing point is provided in the middle at the rear.

The stability of the basket of synthetic material and a uniform damping effect are achieved if two adjacent bands are connected to one another by at least one connection strip. If, in preferred manner, eight radially running bands are provided, together with the connection bands, a sufficiently uniform distribution of the knobs, and thus of the damping resistance, can be achieved.

The knobs can preferably have a diameter of approximately 10 mm. This dimension enables a desired damping effect for the heaviest possible types of bombardment with the smallest possible weight of the carrying basket to be achieved, if the radial bands have approximately the width of the knobs. Here, the knobs can be constructed as hollow cylinders or taper conically towards the helmet cap in order to achieve a progressive increase in the damping effect.

The invention will be described in more detail below with reference to an embodiment illustrated in the drawing, in which:

Figure 1 shows a view of the inside of a military protective helmet, and

Figure 2 shows a longitudinal section through the helmet according to Figure 1.

The military protective helmet illustrated in Figures 1 and 2 has a helmet cap 1, on the inside of which a carrying basket 2 is secured for the purpose of forming an interior fitting. The carrying basket 2 is formed from synthetic material and comprises an approximately horizontally running, ring-shaped carrying band 3 and eight radially running bands 4 which are securely connected to the carrying band 3, for example by riveting, and extend approximately radially from a central elliptical securing ring 5 at the upper side of the helmet. Each two radial bands 4 are connected to one another by a respective connection band 5, which connection bands are aligned approximately tangentially and open into the radial strips 4 at approximately half the length of the latter or outwardly offset therefrom.

Two securing strips 6 extend from the radial bands in a manner pointing obliquely backwards towards lateral securing points 7, where they are secured to the helmet cap 1, for example by riveting. A third securing point 8 is located centrally on the helmet rear side. A securing strip 9 connected hereto is bent out of a section 4", which is widened in this region, of a radial band 4' which extends backwards, so that the connection of the radial band 4' to the ring-shaped carrying band 3 is effected via two lateral strips 4'''.

To the side of the radial band 4' which points backwards, there are integrally formed on the carrying band 3 two obliquely upwardly standing tabs 10 which have holes 11 in pairs for securing a net strip which is to extend in the longitudinal direction over the helmet and improve wearing comfort.

Both the radial bands 4 and the ring-shaped carrying band 3 have a plurality of knobs 12 which are arranged next to one another in the longitudinal direction of the bands and which are constructed as hollow cylinders, as Figure 2 shows, and taper upwards conically somewhat.

The entire carrying basket 2 thus bears via the knobs 12 against the inside of the helmet cap 1.



Claims

1. Military protective helmet having a cap (1) withstanding bombardment and a band arrangement (2) as an interior fitting securely connected at a plurality of points (7, 8) to the helmet cap (1), this band arrangement, in the normal wearing position of an upright helmet wearer, comprising a ring-shaped carrying band (3) running peripherally and approximately horizontally, and bands (4) extending radially outwardly from a central securing piece (5) in the helmet cap (1), the ends of which bands (4) are securely connected to the carrying band (3), the band arrangement (2) comprising synthetic material and forming a carrying basket, and all the bands (3, 4) of the carrying basket (2) having integrally formed knobs (12) pointing towards the helmet cap (1), characterized in that securing strips (6, 9) having no knobs extend outwardly from the bands (4, 5') above the carrying band (3), the ends of which securing strips (6, 9) are securely connected to the helmet cap (1) so that the carrying basket (2) bears via the knobs (12) against the inside of the helmet cap, in that two adjacent radially running bands (4) are connected to one another by at least one connection band (5'), and in that the radially running bands (4) have approximately the width of the knobs (12) of hollow construction.

2. Protective helmet according to Claim 1, characterized in that the bands (3, 4, 5') bear via their knobs (12) against the inside of the helmet cap (1).

3. Protective helmet according to Claim 1 or 2, characterized in that the knobs (12) have different heights.

4. Protective helmet according to one of Claims 1 - 3, characterized in that the securing strips (6, 9) extend outwardly from radial bands (4, 4').

5. Protective helmet according to one of Claims 1 - 4, characterized in that three securing strips (6, 9) are provided.



6. Protective helmet according to Claim 5, characterized in that two securing strips (6) are arranged on the side in the front region of the helmet cap (1) and one securing strip (9) is arranged in the middle at the rear side of the helmet.

7. Protective helmet according to one of Claims 1 - 5, characterized in that a securing strip (9) is bent out of the material of a radial band (4').

8. Protective helmet according to one of Claims 1 - 7, characterized in that the knobs (12) taper conically towards the helmet cap (1).

9. Protective helmet according to one of Claims 1 - 8, characterized by at least eight radially running bands (4, 4').