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(54) GENERALLY U-SHAPED BRACKET FOR DETACHABLY SECURING IN PARTICULAR A RESILIENT RETAINING STRAP OF SAFETY GOGGLES TO A SAFETY HELMET

(71) We, FRIEDRICH LAIBACH and LONI LAIBACH, née RADTKE, both German Nationals, of No. 1, Dieker Strasse, Haan, Federal Republic of Germany, trading together as FONDERMANN & CO., of No. 1, Dieker Strasse, Haan, Federal Republic of Germany, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to a generally U-shaped bracket for detachably securing in particular a resilient retaining strap of safety goggles to a safety helmet, said bracket being applicable to the rim of the safety helmet and being clampable to the rim by means of a clamp lever having a passage through which the retaining strap of the safety goggles placed about the safety helmet passes. Such brackets are arranged at both sides of the safety helmet.

With a conventional bracket which is known from German Utility Model No. 7,116,767, the attachment thereof to the safety helmet is effected by means of a retaining strap placed about the safety helmet, said strap being guided in the bracket. The bracket is displaceable on the retaining strap and arrestable in the adjusted position. The connection of the safety goggles to the two brackets is effected by means of coiled tension springs which with their one ends are secured to the safety goggles and with their other ends to the brackets, or by means of lever linkages pivoted to the safety goggles on the one hand and to the brackets on the other hand. This attachment of the bracket to the safety helmet as well as the connection of the safety goggles to the bracket is relatively complicated, however.

It is furthermore already known from German Utility Model No. 7,523,571 to use a frame of a U-shaped cross-section consisting of resilient material for the attachment of the safety goggles to the safety

helmet, said frame clampingly encompassing the rim of the safety helmet resiliently. The frame does not require any additional attachment to the safety helmet, but it brings about the disadvantage that thereby the weight of the safety helmet is not immaterially increased and the safety goggles at the frame are not able to be adjusted in relationship to the bearer of the safety goggles.

Also, a bracket produced by the firm to Focus Veilig B.V. Middelburg in the Netherlands and including a one-arm clamp lever is known which is provided for protective shields. By means of the clamp lever which is pivoted to one end of the bracket, the bracket is capable of being clamped tight to the rim of the safety helmet. The bracket brings about the material disadvantage, however, that its attachment to a safety helmet having no rain gutter is insufficient as a result of the narrow rim of the safety helmet. Furthermore, the relatively long clamp lever is projecting relative to the safety helmet, and thereby a striking of the safety helmet or the clamp lever against objects and thus an endangerment of the bearer of the safety helmet not being able to be precluded.

It is the object of the present invention to avoid these disadvantages and to improve the known brackets of the initially referred to species serving the attachment in particular of safety goggles to a safety helmet in their structure and in relationship to their attachment to the safety helmet.

To attain this object the present invention provides a generally U-shaped bracket for detachably securing in particular a resilient retaining strap of safety goggles to a safety helmet having a rim, said bracket being made of flexible material, having two limbs and comprising a two-armed clamp lever for detachably clamping the bracket to the rim of the safety helmet, said two-armed clamp lever having a passage through which the retaining strap of the

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safety goggles placed about the safety helmet passes, one of the limbs of the bracket having a bifurcation defining bifurcated ends and the two-armed clamp lever being pivotally mounted in and between said bifurcated ends.

The two-armed clamp lever rests with its one arm on the rim of the safety helmet in the clamping position and clamps with its other arm the hood-shaped portion of the safety helmet between itself and the other limb of the bracket. Thereby, even for a safety helmet which in contradistinction to one having a rain gutter only has a narrow rim a reliable, unshiftable securing of the bracket at the safety helmet is ensured. The bracket proposed by the invention furthermore excels itself over the conventional brackets provided with a clamp lever in that it defines a self-contained unit with the clamp lever.

An advantageous embodiment of the invention is one in which the bifurcated ends of the bracket internally each may have two longitudinally extending inclined surfaces defining an angle and one arm of the two-armed clamp lever may have on its one broad face two opposing, elongated jaws projecting lengthwise relative to the arm, said jaws having inclined countersurfaces at the projecting faces, related to the inclined surfaces of the bifurcated ends.

Thereby, in a simple way the clamp lever is retained in its clamping position in that upon pivoting the clamp lever into the clamping position by the coaction of the one inclined surfaces disposed at the bifurcated ends of the bracket with the one inclined countersurfaces disposed at the clamp lever the bifurcated ends are expanded so that the clamp lever may be pivoted unobstructedly through the bifurcated ends into the clamping position, the bifurcated ends upon reaching said clamping position recoiling into the initial position again, in doing so engaging with their other inclined surfaces the adjacent inclined countersurfaces of the clamp lever and thereby retaining it in the clamping position. In just as simple a way the clamp lever may be released from its clamping position again in that upon pivoting the clamp lever into the initial position the bifurcated ends of the bracket are again expanded and thereby release the clamp lever.

An embodiment of the invention will now be described by way of example and with reference to the accompanying drawing, in which:

Fig. 1 is a side elevational view of a bracket according to the present invention and of safety goggles secured to a safety helmet;

Fig. 2 is a sectional view, on an enlarged scale, taken on the line II-II of Fig. 1;

Fig. 3 is a sectional view taken on the line III-III of Fig. 2; and

Fig. 4 is a diagrammatic illustration of the securing of the clamp lever of the bracket in the clamping position.

Fig. 1 shows a hood-shaped safety helmet 1 which has a peak 2 and a rim. The rim of the safety helmet 1 is formed to define a rain gutter 3. The reference numeral 4 designates a generally U-shaped bracket which consists of flexible material and is applicable to the rim of the safety helmet 1 or to the rain gutter 3 and serves to connect safety goggles 5 to the safety helmet 1. A bracket 4 is arranged at both sides of the safety helmet 1.

As shown in Figs. 2 and 3 each of the brackets 4 has in one of its limbs a bifurcation defining bifurcated ends 9 and is associated with a two-armed clamp lever 6. The clamp lever 6 has a thickened portion 7 on one of its broad faces, at the free ends of which thickened portion there are spigots 8 which are integral with the thickened portion 7 and by means of which the clamp lever 6 is pivotally supported in and between the bifurcated ends 9 of the bracket 4. As shown in Fig. 4, the bifurcated ends 9 of the bracket 4 internally each have two lengthwise extending inclined surfaces 10 and 10' defining a blunt angle. The longer arm of the clamp lever 6 on its one broad face has two opposing elongated jaws 11 integral with the clamp lever 6, said jaws projecting lengthwise relative to the arm.

The jaws 11 have at their projecting longitudinal faces, related to the inclined surfaces 10 and 10', inclined countersurfaces 12 and 12' defining a blunt angle. The longer arm of the clamp lever 6 furthermore has an elongated passage 13 the one wall of which is provided with a transverse slot 14 (Fig. 2). The safety goggles 5 are provided with a resilient retaining strap 15 which is secured with its ends to the safety goggles 5. The retaining strap 15 placed about the safety helmet 1 is passed and guided through the passage 13 of each bracket 4 and is insertable through the transverse slot 14 into the passage 13. The upper end of the longer arm of the clamp lever 6 defines a handle 16. The lower end of the shorter arm of the clamp lever 6 is rounded.

Prior to pushing the bracket 4 onto the rain gutter 3 of the safety helmet 1, the clamp lever 6 is pivoted so far outwardly that the bracket 4 can be pushed onto the rain gutter 3 without being obstructed by the clamp lever 6. Thereafter, the clamp lever 6 is pivoted in direction to the hood-shaped portion of the safety helmet 1, and in doing so it slides along the wall of the safety helmet 1 with the rounded end of

its shorter arm in flexing apart the bracket 4. In doing so, the clamp lever 6 engages with its inclined countersurfaces 12' the inclined surfaces 10' of the bifurcated ends 9, the latter thereby being expanded. When the clamp lever 6 has reached the clamping position in which it rests with its lower shorter arm on the rain gutter 3 and clamps tight with its upper longer arm the hood-shaped portion of the safety helmet 1 between itself and the other limb of the bracket 4, it releases the bifurcated ends 9 of the bracket 4 with its inclined countersurfaces 12. The result thereof is that the previously stressed and now relieved bifurcated ends 9 engage the inclined countersurfaces 12 of the clamp lever 6 with their inclined surfaces 10 and secure the clamp lever in the clamping position. When the clamp lever 6 is to be released from its clamping position again, upon pulling on the clamp lever 6 as a result of the coaction between the inclined countersurfaces 12 of the clamp lever 6 and the inclined surfaces 10 of the bifurcated ends 9 the latter are expanded to such an extent that the inclined countersurfaces 12 are released from the inclined surfaces 10, the clamp lever 6 thereafter being able to be pivoted into the initial position unobstructedly.

This invention of course is not limited in its use to the retaining of safety goggles at safety helmets. Rather, by means of the bracket according to the invention for instance also face protection shields or the like may be connected to the safety helmet.

WHAT WE CLAIM IS:—

1. A generally U-shaped bracket for

detachably securing in particular a resilient retaining strap of safety goggles to a safety helmet having a rim, said bracket being made of flexible material, having two limbs and comprising a two-armed clamp lever for detachably clamping the bracket to the rim of the safety helmet, said two-armed clamp lever having a passage through which the retaining strap of the safety goggles placed about the safety helmet passes, one of the limbs of the bracket having a bifurcation defining bifurcated ends and the two-armed clamp lever being pivotally mounted in and between said bifurcated ends.

2. A bracket as set forth in claim 1, wherein the bifurcated ends of the bracket internally each have two longitudinally extending inclined surfaces defining an angle and one arm of the two-armed clamp lever has on its one broad face two opposing, elongated jaws projecting lengthwise relative to the arm, said jaws having inclined countersurfaces at the projecting faces, related to the inclined surfaces of the bifurcated ends.

3. A generally U-shaped bracket for detachably securing in particular a resilient retaining strap of safety goggles to a safety helmet, substantially as herein described with reference to the accompanying drawing.

For the Applicants:
CHATWIN & CO.,
Chartered Patent Agents,
253 Gray's Inn Road,
London, W.C.1.

This drawing is a reproduction of the Original on a reduced scale

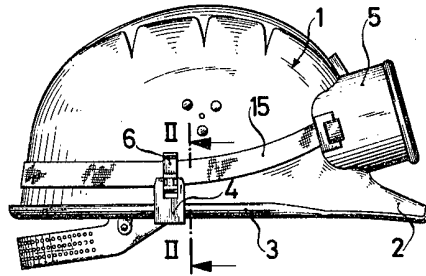


FIG. 1

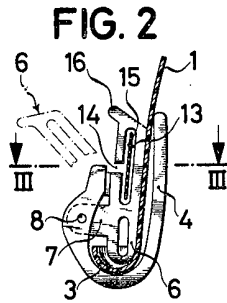


FIG. 2

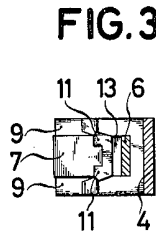


FIG. 3

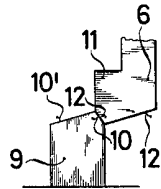


FIG. 4