ARRANGEMENT FOR CONNECTING A FACE GUARD TO A HELMET

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ABSTRACT
The specification discloses an athletic helmet, such as a football helmet, with a face guard mounted thereon, in which the face guard is in the form of a grid of rigidly interconnected bars with a resilient coating thereon. The connector arrangement provides for pivotally connecting the face guard to the helmet at the lower front edge of the helmet so that the face guard can swing in the fore and aft direction while strap elements are provided connecting the face guard to the helmet at the sides of the helmet, and normally preventing the aforementioned fore and aft movement. The last mentioned connector elements are somewhat resilient and can be cut with a knife to permit the face guard to be swung away from the player's face in case it is necessary to give the player emergency treatment.

7 Claims, 3 Drawing Figures
ARRANGEMENT FOR CONNECTING A FACE GUARD TO A HELMET

This invention relates to athletic equipment and is particularly concerned with the combination of a helmet, such as a football helmet, and a face guard, and a connecting arrangement for connecting the face guard to the helmet.

Football helmets and face guards are, of course, well known, and one of the more popular types of face guards is the one in which metal wires or tubes are arranged in intersecting relation to form a sort of grid and are welded together to form a unitary structure. The guard is concave toward the face of the wearer and is coated with a resilient rubber-like material to a substantial thickness. The guard is connected to the helmet along the front lower edge of the helmet and at the sides.

With such face guards, it is important to prevent the helmet from being stressed beyond a certain limit in the regions of connection of the face guard to the helmet because the helmet is ordinarily made of a relatively hard molded plastic material and can be cracked or broken if localized stresses are imposed therein.

A proper fitting football helmet embraces the head quite closely and is not easily put on and removed, particularly when it is fitted with a face guard. Thus, in conditions of emergency, when a player is injured, it is often difficult properly to administer to the player, and considerable hazard presents itself if it is attempted to remove the helmet from an injured player.

With the foregoing in mind, the present invention is concerned with an arrangement for connecting a face guard to a helmet, particularly a football helmet, in which the difficulties referred to above are overcome.

Another object of the present invention is the provision of a connecting arrangement for connecting a face guard to a football helmet in which the shocks and other loads imposed on the face guard are prevented from developing highly localized stresses in the helmet.

Still another object of the present invention is the arrangement for connecting a face guard to a football helmet in such a manner that the face guard can be released from the helmet at the sides and swung outwardly away from the player's face to permit the player to receive emergency treatment without removing the helmet from the player's head.

Still another object of the present invention is the provision of a connecting arrangement for connecting a face guard to a helmet, particularly at the sides of the helmet, in which the connecting arrangement, while yieldable, permits only a certain relatively small amount of movement of the face guard relative to the helmet, even when the face guard is rather strongly impacted.

The foregoing objects and advantages of the present invention will become more apparent upon reference to the following detailed specification taken in connection with the accompanying drawings in which:

FIG. 1 is a perspective view showing a helmet and a face guard mounted thereon with connecting elements according to the present invention;

FIG. 2 is a sectional view indicated by line II—II on FIG. 1 and drawn at enlarged scale showing a connector element according to the present invention more in detail; and

FIG. 3 is a view, partly broken away, looking in at the connector element of FIG. 2 from the bottom of FIG. 2.

BRIEF SUMMARY OF THE INVENTION:

According to the present invention, a grid-like face guard is connected to a helmet by resilient strap elements which resiliently connect the face guard to the helmet, and in a shock absorbing manner, while the connecting elements at the top of the face guard form a pivotal connection of the face guard to the helmet and the connecting elements at the sides, and which are strap-like elements, can be cut to release the face guard from operative position.

At least the elements at the sides of the face guard are arranged to absorb shocks imposed on the face guard to prevent overstressing of the material of the helmet while, furthermore, the side connectors are arranged to permit only a limited movement of the face guard on the helmet in the fore and aft direction, even when the guard is strongly impacted.

DETAILED DESCRIPTION OF THE INVENTION:

Referring to the drawings somewhat more in detail, in FIG. 1, a substantially conventional football helmet is indicated at 10, and a face guard, or mask, is indicated at 12. The guard is formed of intersecting wires or tubes welded together at the points of intersection and having a heavy coating of resilient material thereon. The guard comprises an upper bar 14 at the front lower edge of the helmet and comprises generally vertical bars 16 disposed at the sides of the helmet.

First clamp elements at 18 connect bar 14 to the helmet and these elements may be in the form of straps, which are placed in surrounding relation to bar 14, and with the ends of the straps brought into overlapping relation and secured to the helmet by screws passing through the overlapped ends of the straps and the helmet.

The first connector elements at 18 provide for swinging movement of the face guard on the helmet in the fore and aft direction. The said swinging movement of the face guard on the helmet is normally prevented by second connector elements 20 which engage the bars 16 and which connector elements are connected to the helmet by screws.

FIG. 2 shows more in detail one of the connector elements 20. In FIG. 2, it will be seen that element 20 is substantially in the form of a strap having an inner leg 22 adjacent the side of the helmet and at its forward end, that is, the end thereof toward the front of the helmet, being formed into a substantially circular configuration at 24. Leg 22 and portion 24 are of about the same thickness and portion 24 extends around about 270° of bar 16 of the face guard.

From the terminal portion of portion 24, there extends an outer leg 26, which is somewhat thinner than leg 22, and which is in face to face engagement therewith. The end of leg 22, remote from portion 24, is thickened as at 28, and the rearward portion of thickened portion 28 is beveled off as at 30. Between thickened portion 28 and portion 24, which surrounds bar 16, is a notch 32.

The overlapping ends of legs 22 and 26 are provided with bores 34 and 36 respectively, and extending inwardly from the outer side of thickened portion 28 is a
The connector element 20 is made of a strong but somewhat resilient plastic material and is advantageously formed by injection molding. The connector element provides some resilience in the connection of the face guard to the helmet, permitting a certain limited amount of fore and aft movement of the guard on the helmet and, similarly, permitting a small amount of lateral movement of the guard on the helmet, due to the gap 46 between inner leg 22 of the connector and the side of the helmet adjacent portion 24.

The notch 32 imparts substantial resilience in the fore and aft direction, while the thickened region 28, at the end of outer leg 26, serves as a bumper to limit the rearward movement of the face guard on the helmet under extremely heavy impact. Also, if the connector element 20 twists, or turns, about the axis of the connecting screw 40 under conditions of heavy impact on the guard, the thickened region 28 will abut bar 16 and prevent the face guard from being pushed backwardly on the helmet.

The beveled rear corner 30 of the thickened region 28 eliminates a sharp corner that could, on occasion, be disadvantageous.

The material of the connectors 20, while extremely strong, so as to withstand any tensile loads that might be placed thereon, is nevertheless easily cut with a sharp knife so that, under emergency conditions, when a player might be injured, the trainer can easily cut the portions 24 of the connectors 20 at the sides of the face guard, and whereupon the face guard can be tilted away from the face on the helmet and thereby expose the player's face for receiving emergency treatment.

Modifications may be made within the purview of the appended claims.

What is claimed is:

1. In combination: an athletic helmet and a face guard, said guard comprising intersecting and rigidly interconnected bar-like elements forming a grid disposed in protective relation to the face of the wearer of the helmet, said bar-like elements including a horizontal element at the front lower marginal portion of the helmet and generally vertical elements at the sides of the helmet, first means connecting said horizontal element to the helmet to permit swinging movement of the guard on the helmet in the fore and aft direction, and second means connecting said vertical elements to the sides of the helmet and normally restraining said guard from said swinging movement, said second means comprising straps surrounding said vertical elements and each having the ends of the legs thereof of overlapping relation, each strap having a connector element inserted through the said overlapped ends and the respective side of the helmet and each connector element having flanges at the opposite ends, the leg of each strap which is outermost being thickened at the end in the axial direction of the connector element and counterbored from the outside to receive the respective end of the connector element and the flange thereon in a recessed location, a notch extending across the outermost leg of each said strap between the portion thereof surrounding said vertical element and the counterbored thickened region at the end of said outermost leg, the said ends of the legs of each strap being disposed rearwardly of the respective vertical element engaged by the strap, each said strap being formed of a resilient material so as to inhibit the transfer of shocks from said guard to said helmet.

2. A combination according to claim 1 in which each said strap is formed of a material which can readily be cut to permit the guard to be swung away from the face of the wearer of the helmet in an emergency situation.

3. A combination according to claim 1 in which each strap has the leg adjacent the helmet formed to substantially uniform thickness from end to end, said vertical elements being substantially round in cross section, the portion of said strap continuing from the said leg thereof adjacent the helmet around the respective said vertical elements being of substantially the same thickness as the said leg and encompassing about 270 degrees of the circumference of said vertical element, the outer leg of the said strap being thicker than the leg adjacent the helmet and extending from said vertical element in face to face engagement with the said leg adjacent said helmet and integrally joined to the said portion of the strap encompassing said vertical element, said thickened region at the end of said outer leg being spaced from the juncture of said outer leg and said portion of said strap.

4. A combination according to claim 3 in which said strap is formed of resilient and severable material.

5. A combination according to claim 4 in which said thickened region is beveled off toward the free end of said outer leg.

6. A connector member, especially for connecting a face guard to an athletic helmet, and comprising: a strap formed of strong resilient material and having a substantially circular portion at one end adapted to embrace a round bar-like element of a face guard, a first leg joined to and leading tangentially from said circular portion toward the rear and adapted to engage a surface of a helmet, a second leg also joined to said circular portion and leading generally radially therefrom toward the rear and adapted to be disposed in face to face relation with said first leg, said second leg having the end thereof remote from said circular portion thickened, registering aperture means in the ends of said legs remote from said circular portion to receive a connector element with a head thereon to connect the strap to a helmet, and a counterbore extending inwardly from the outer face of said thickened region and coaxial with said aperture means whereby the connector element can be inserted in said aperture means with the head disposed in said counterbore, said thickened region projecting outwardly from the outer face of said second leg about the same distance as said circular portion whereby rotation of said strap about the axis of said connector element as might be brought about by a heavy impact on the front of the face guard will be limited by abutment of said bar-like element against said thickened region.
7. A connector member according to claim 6 in which the portion of said thickened region of said second leg is beveled off toward the rear.

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