

[72] Inventor **Mike C. Holt**
c/o Southern Athletic Service Inc., P.O. Box
46, Leesburg, Fla. 32748

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Primary Examiner—Jordan Franklin
Assistant Examiner—George V. Larkin
Attorney—Paul D. Boone

[54] **ATHLETIC HELMET**
4 Claims, 4 Drawing Figs.

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A42b 3/00
[50] Field of Search..... 2/3—10

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ABSTRACT: The athletic helmet is made of a hard, strong material, such as a molded plastic. A snap-in padding corresponding to the forehead and temple areas is attached to the inside of the helmet. This is formed preferably of more than one section, the ends of which padding taper off. Extending rearwardly from the respective ends of the padding is a head suspension of web structure, which affords not only a good fit of the helmet to wearer's head but a space between the latter and the shell. At the rear of the helmet and below the level of the head suspension is a detachable web neck protector. Both the head suspension and the neck protector are formed of a chordal web band attached to the shell, and attached to the chordal bands a head and a neck web contacting band respectively. At the top, inside of the helmet is a soft crown piece from which radiate spaced sling straps of the same soft material which are attached to the shell between the latter's inside surface and the chordal head band.

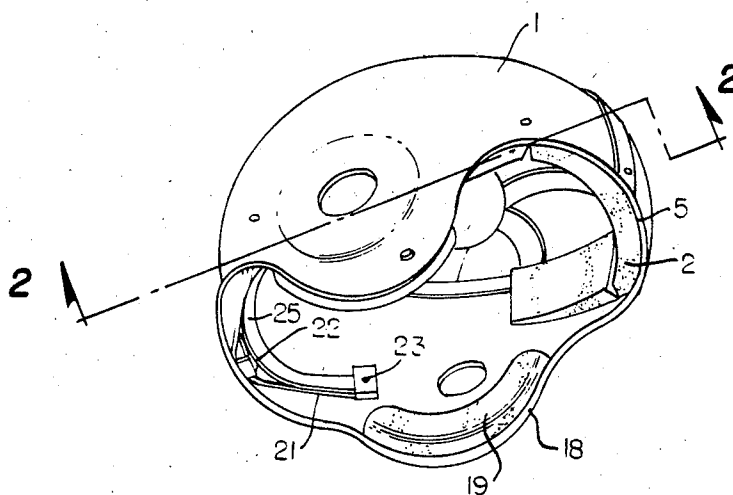


FIG. 1.

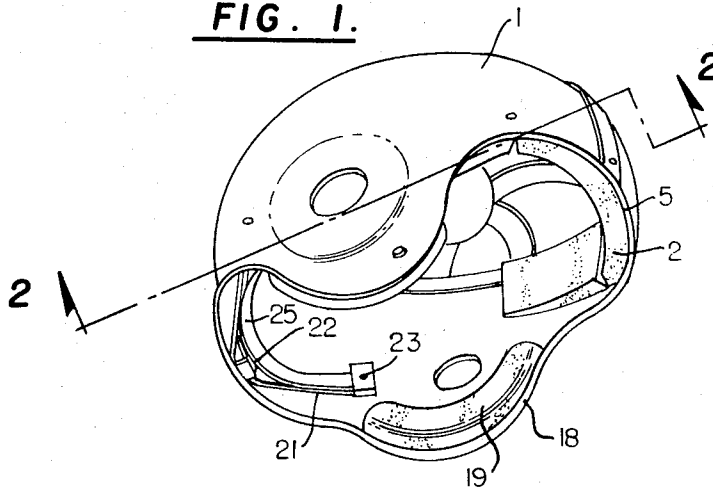
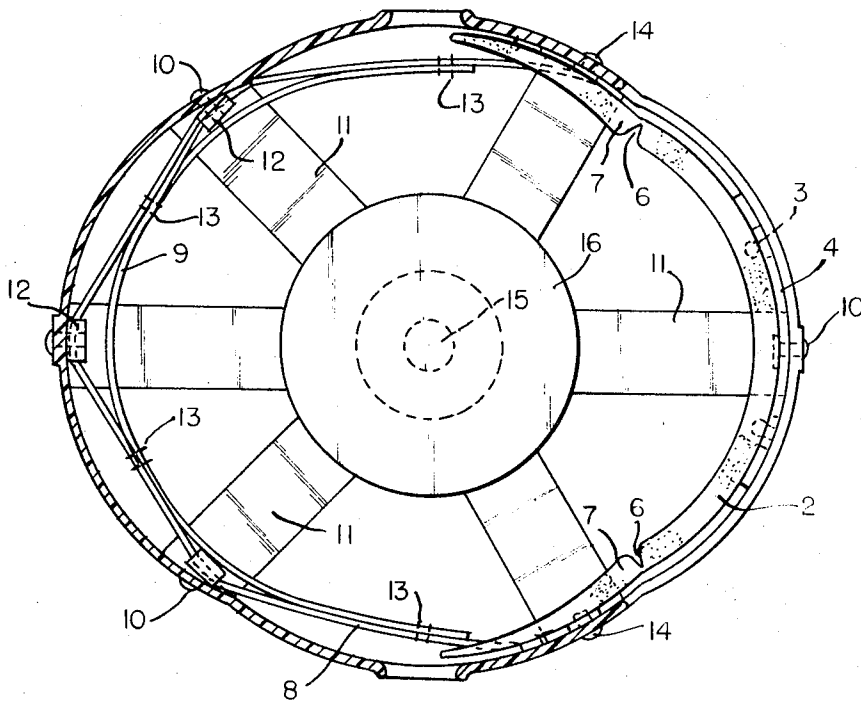


FIG. 2.



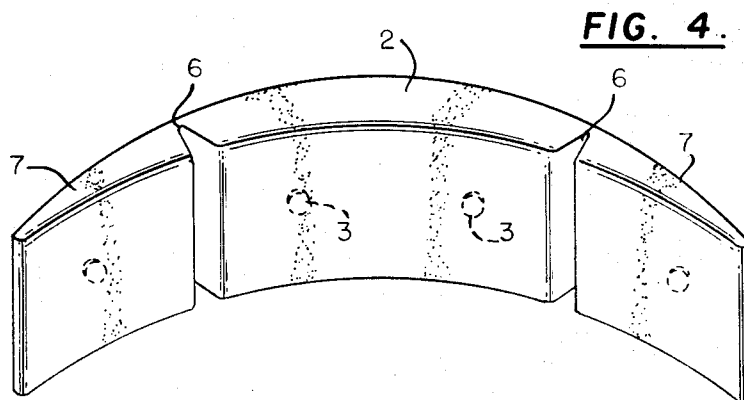
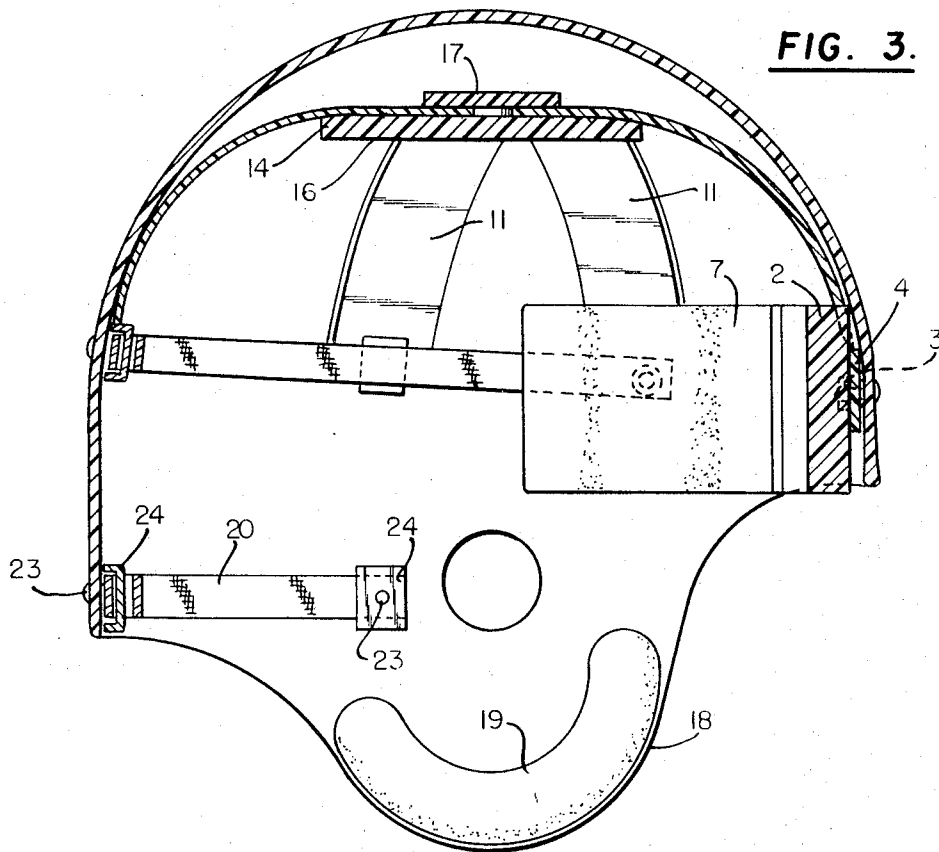
INVENTOR

Mike C. Holt

BY

Paul R. Brown

ATTORNEY



INVENTOR

Mike C. Holt

BY

Paul L. Borne

ATTORNEY

ATHLETIC HELMET

This invention relates to protective helmets, particularly for football players. These helmets are characterized by a detachable, snap-in padding for the forehead and temple areas of the players; and extending to the rear from the respective ends of said padding is a pliable head suspension; and at the back of the helmet below the latter is a detachable, pliable neck protector. This combination just epitomized will protect the wearer-player to a greater extent than any helmet known to the applicant.

It is an object of the present invention to provide a head protector or helmet, the shell of which is of the rigid type, such as molded plastic, having snap-in cushioning padding positioned inside the shell corresponding to the front and temple areas of the player, having a head suspension that is somewhat elastic and having a neck band that is somewhat elastic also, such as of web structure; the head suspension provides lateral spacing of the wearer's head from the shell of the helmet where the aforesaid cushioning pads do not extend, and affords protection.

It is a more particular object of the present invention to provide a rigid type helmet, the shell of which is formed from molded plastic that has the combination of a detachable, or snap-on padded front, which protects the forehead and the two temple areas of the player, with a somewhat elastic head suspension or cradle that provides him a proper fit and maintains his head in that area a lateral distance from the shell, and with a somewhat elastic neck band; the latter two recited elements are preferably web structure. The neck band securely holds the helmet to the wearer's head. As to the snap-in padded front that characterizes this invention, because of the full, ample protection that this affords the forehead and temple areas of the head, this result can not be achieved with a full web, suspension helmet. Also because of the web head suspension and the web neck band, this type of fitting of the wearer's head in the helmet can not be secured with a fully padded helmet.

A great advantage of the snap-in padding in the front and temple areas of an athletic helmet that characterizes the present invention is that the same helmet can be custom fitted to the head of the wearer by various thicknesses of padding, which is available. The neck band, whereas not as readily removed as the snap-in padding, can be replaced and can vary in length to custom fit the player, having a thick to thin neck.

Whereas the aforesaid web neck band affords the wearer a proper fit which per se is important, it also, because of its cushioning nature and keeping the wearer's head away from the shell under all conditions, has a protective role as well.

Although the combination of detachable snap-in padding in the front and temple areas, with a web head suspension to the rear of the ends of the aforesaid snap-in protecting means, and a web neck suspension at the rear of the shell, below the head suspension of the helmet, each of which is affixed to the interior of the shell, are the features characterizing the present invention, this is not to be construed as meaning that other features assisting in the protection of the wearer-player cannot supplement these to make the protection of the wearer's head more complete. One such auxiliary protective means is shown in the drawing of this invention, and is the combination of a plurality of radiating bands of soft, resilient material to absorb a shock, which material is closed cell vinyl, extending from the top-center of the helmet to the spaced points on the shell of the helmet at the locus of the padded snap-in pads and the web suspension or cradle, thus to spaced points in one plane; this protection is further supplemented by a center piece of the same material both on top and below the center area of the radiating bands just mentioned.

For a further understanding of this invention, reference is made to the accompanying drawing, in which

FIG. 1 is a perspective view of a football helmet in such position as to display a portion of the internal structure, by

means of which said helmet is mounted on the head of the player.

FIG. 2 is a side view taken on line 2-2 of FIG. 1.

FIG. 3 is a transverse view of the helmet.

FIG. 4 is a perspective view of the detachable, snap-in pad for the front or forehead and the temple areas.

For the purpose of illustrating the present invention, the drawing shows the protective helmet for a football player. The outer shell is made of a suitable, solidified plastic material, such as vinyl resin, or cellulose acetate, or analogous functioning solid hard, molded plastics; this invention is not tied to any particular composition from which the shell is made. The shell is shaped to conform generally to the head of the wearer, and is of such size that the shell per se will be spaced a lateral distance from the head of the wearer.

In the form shown in FIG. 1, the football helmet's shell is provided with a detachable padding for the front 2, which protects the forehead and the temple portion on each side of the wearer's head. From FIGS. 2 and 4 it will be perceived that, this particular front pad is composed of three joined sections or units, the two end sections or units tapering off in thickness; that is important from the standpoint of comfort to the wearer. From FIGS. 2 and 4 it will be observed that the entire sections removably attached and detached; the front section of this pad is attached by two fasteners 3 to a plastic band 4 that extends contiguous the inner surface of the shell about one-fourth the circumference of the shell near its edge 5. These fasteners, as well as the other fasteners to be mentioned shortly, are composed of a male portion and a coacting female portion. As to the front section of the pad the male portion is attached to and through the plastic band, in turn fastened to the shell, and the female portion to the front surface of the pad. The front pad is joined at 6, on each end thereof to a side section of the pad 7. Each side section of the pad is fastened by a fastener of the type mentioned supra, the male portion of which is affixed to the head suspension's chordal band 8, concerning which more will be recited later in this presentation.

The padding which protects the forehead of the player and also the forward sides of his head, as mentioned previously, is the snap-in type, affording quick removal and replacement thereof. Because of this snap-in type connection of the pads with the shell of the helmet, the helmet can be custom fitted to the wearer's head by installing padding of various thicknesses that are available. Although the embodiment shown in this drawing has three joined units or sections, more or less than three could be used, provided the contact surface with the wearer is smooth. Preferably a plurality of units or sections exceeding two are employed in order to achieve smoothness. The angle at the edge of each joint on each unit should be such, as shown in the drawing, to avoid folds or bulging; that is important.

This detachable front suspension 2 has as a role the alleviation of abrasion or skinning of the forehead of the wearer, and also the protection of the nose of the wearer in the event the helmet is rolled forward due to impact; this happens quite often in football games. Of course, it also protects the wearer from the shock of impact on that portion of the football helmet.

The snap-in, detachable front suspension pad is preferably made of closed cell vinyl to absorb the blow and is covered with a coated fabric sold under the brand name DOE-LON/ODM 6841 (marketer is Uniroyal, Inc., of Stoughton, Wisconsin), to give a smooth surface against the forehead and front sides of the wearer's head.

The web head suspension or cradle is composed of two bands, one of which, namely the chordal web band 8, has been mentioned previously. The other band of the head suspension or cradle combination is the contacting head band, also of web structure, 9. This structure provides lateral spacing of the shell from the wearer's head in that portion of the shell lying between the two ends of the snap-in end pad, as seen from FIGS. 2 and 3. The web head band that contacts the player's head is carried by chordal suspension web band 8 in the

manner shown in FIG. 2. The chordal suspension strap or band is shown fixedly fastened to the shell by rivets 10, which also fasten the lower ends of crown suspension, sling straps or bands 11 to the shell. As also shown in the drawing the opened ends of the rivets 10 are protected from any contact per se with the wearer not only by the web, head band but also by a one piece resilient cover 12. The chordal suspension strap 8, is stretched taut in chordal relation to those areas of the shell that are bridged by it; this web strap or band has its medial portions secured to the head contacting web band 9 by double rows of stitches at points denoted by the numeral 13. As seen from FIG. 2 the chordal suspension web strap or band assumes, because of this spaced manner of anchoring, a polysided form, and the head contacting band 9 has the configuration approximately of an ellipse, which is the configuration of most heads. The chordal suspension band or strap of the web structure is affixed at the two ends by a rivet 14 that likewise secures the front plastic band to the shell of the helmet.

Reference has previously been made to the crown sling straps 11, having their lower ends fastened to the shell of the helmet by rivets 10 that likewise anchor chordal suspension band 8. These crown sling straps are made of a soft, closed cell vinyl to absorb the shock from impacts, more particularly on the top or in the upper region of the shell. These crown straps or bands radiate from central portion 14, analogous to spokes from the hub in a wheel; the central portion is of the same material as the crown sling straps. In the very top and center of this central portion 14 is a hole 15. Through this hole projects a dual cushioning member; the lower section or portion of it is circular in design and is of a diameter about twice that of the upper section 17; this dual cushioning member is soft and has cushioning characteristics.

In the embodiment shown in the drawing and as to be seen from FIGS. 1 and 3, the helmet's shell is provided with cheek extensions 18, one on each side. They are each provided with protective pads 19 for the cheek and ear areas of the face; these pads are of sponge rubber, covered by soft leather to prevent chafing of the cheeks and ears.

Positioned below the web, head suspension or cradle bands 8 and 9, referred to previously, and in the rear portion of the helmet, is a neck protector 20; it is fastened in the neck portion of the helmet. As seen from FIG. 3 of the drawing, it extends horizontally between the rear portions of the protective pads 19, just mentioned, but slightly above the tips thereof. The neck protector is formed of the web chordal strap 21 that spans inwardly the areas mentioned between the ear pads, and a web neck contacting strap 22, having a curvature; the mid-portion thereof to contact the player's neck. The chordal web strap is fastened by a screw 23 to the base midpoint of the shell. This screw is protected from contacting the wearer by a one piece resilient cover 24, as protects the ends of other screws and several rivets. The neck contacting strap 22 is firmly stitched to the chordal neck strap by stitches of two rows on each side at points 25. Both the web neck contacting strap and the chordal web strap are fastened at their respective ends by a screw 23 to the shell. Each screw is protected by

a one piece resilient member 24. The neck protector is replaceable, and it can be varied in length to custom fit the players of thick to thin necks.

This invention may be further developed within the scope of the following claims. Accordingly the above specification is to be interpreted as illustrative of only a single embodiment of this invention, rather than in a strictly limited sense.

I claim:

1. An athletic helmet for protecting the head of a wearer, comprising a hard stiff shell, a readily detachable snap-in pad of a soft material having a smooth exterior surface, affixed to a horizontal band secured to the interior surface of the shell, said pad extending over both the forehead and the temple areas and whose two ends are tapered outwardly, a head suspension comprising a pliable web chordal band and an outer web head-contacting band extending rearwardly from the end areas of the aforesaid snap-in pad, the said chordal web band secured the shell at spaced intervals and the outer web head-contacting band affixed to this band at approximately medial points thereof to give the head-contacting band approximately elliptical configuration, a neck protector consisting of two web bands positioned horizontally below the aforesaid web head suspension in the rear of the helmet, the said neck protector consisting of a chordal web band attached at spaced intervals to the interior of the shell, and a neck contacting web band affixed at spaced intervals of the last-named chordal band to give a curved configuration.

2. An athletic helmet as set out in claim 1, wherein at the interior top of the shell there is a crown piece of soft, closed cell plastic from which radiate a plurality of spaced sling straps of the same material, whose lower ends are fastened underneath the web suspension band to the shell.

3. An athletic helmet for protecting the head of a wearer, comprising a hard stiff shell, a readily detachable snap-in pad of soft material formed of a plurality of sections, the ends of the pad tapering outwardly, which pad has a smooth exterior surface, said pad being affixed to a horizontal band that is secured to the inside surface of the shell, said pad extending over the forehead and temple areas, a head suspension comprising a pliable web chordal band and an outer web head-contacting band, extending rearwardly from the end areas of the aforesaid snap-in pad, the chordal web band secured to the shell spaced intervals and the outer web head-contacting band affixed to this band at approximately medial points to give the head-contacting band an approximately elliptical configuration, a neck protector consisting of two web bands positioned horizontally below the aforesaid web head suspension and in the rear of the helmet, the said neck protector consisting of a chordal web band attached at spaced intervals to the interior of the shell, and a neck-contacting web band affixed at spaced points of the last-named chordal band to give a curved configuration.

4. An athletic helmet as set out in claim 3, wherein at the interior top of the shell there is a crown piece of soft, closed cell plastic from which radiate plurality of spaced sling straps of the same material, whose lower ends are fastened underneath the web chordal suspension band to the shell.