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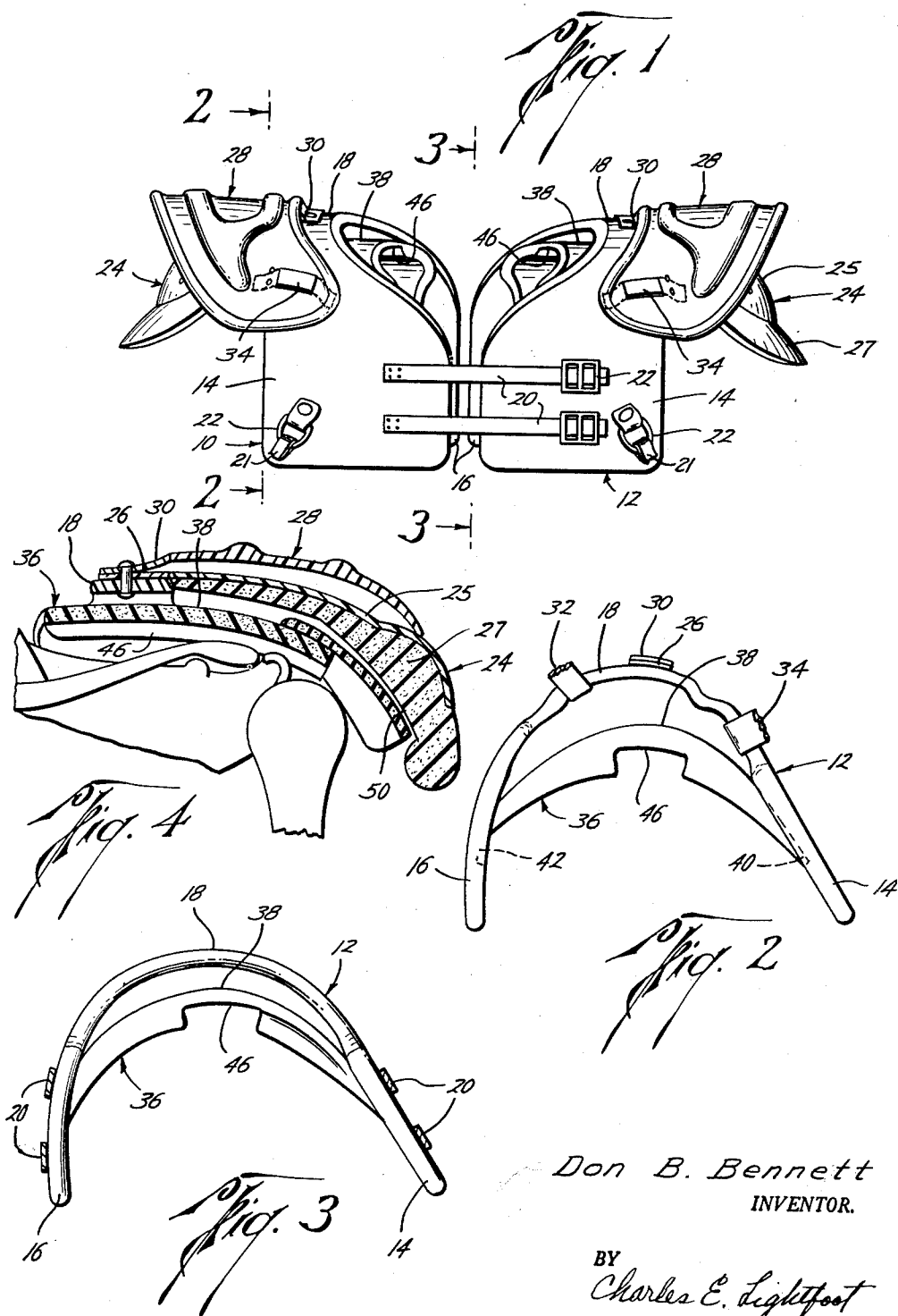
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3,127,614

FOOTBALL SHOULDER PAD AND CUSHION LINER THEREFOR

Filed May 5, 1961

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

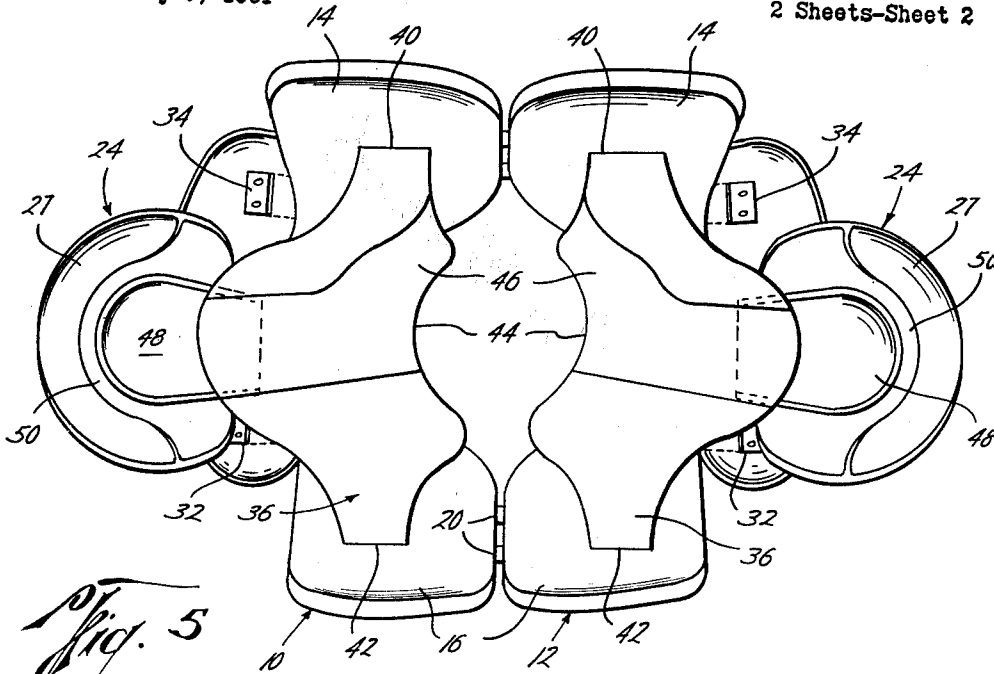


Fig. 5

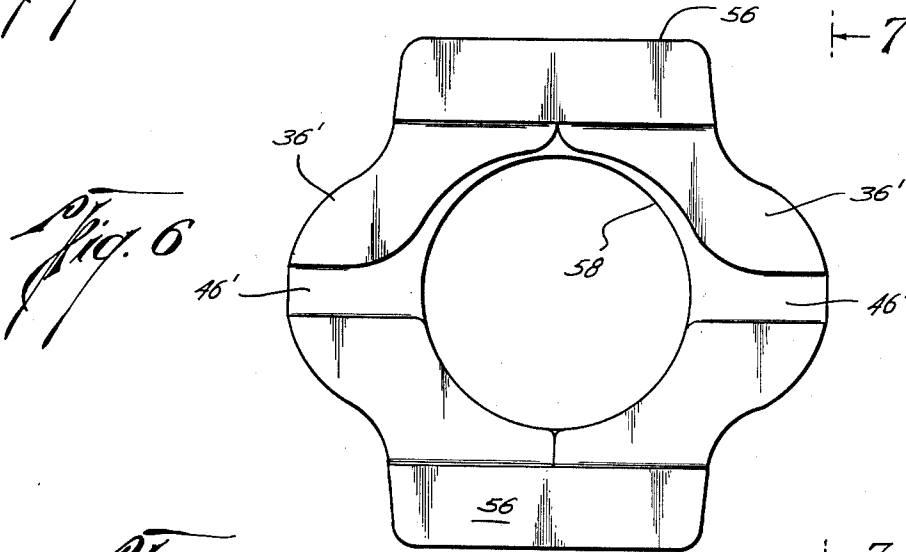


Fig. 6

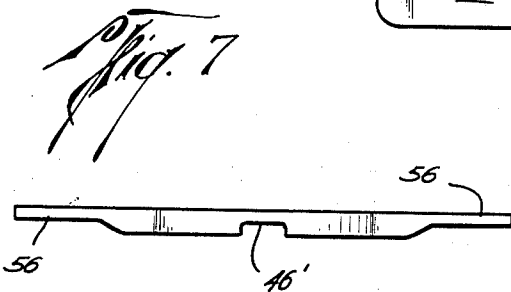


Fig. 7

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3,127,614 FOOTBALL SHOULDER PAD AND CUSHION LINER THEREFOR

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4 Claims. (Cl. 2—2)

This invention relates to football shoulder pads and more particularly to a shoulder pad of improved construction designed to afford increased protection to the clavicle bone and acromio-clavicular joint of the wearer and to a cushion liner for such pads.

In the playing of football, the shoulders of the players are specially vulnerable to injury due to the frequency with which these parts are subjected to impact, and the clavicle bones and acromio-clavicular joints are particularly likely to be broken or severely injured despite the use of shoulder pads.

Football shoulder pads, as commonly constructed are made up of two complementary rigid body members of generally U-shape which are positioned over the shoulders of the user to form an inner shell, extending downwardly in engagement with the chest and back, and to each of which a shoulder cap is hingedly connected in overlying relation to the acromio-clavicular joint. An epaulet is also provided for each of the body members, which is hingedly connected to the member in overlying relation to the shoulder cap and member and extending over the clavicle bone and acromio-clavicular joint. The body members are usually padded interiorly, as are also the caps and epaulets.

Heretofore, various methods have been proposed for use in football shoulder pads to improve the distribution of the impact in a manner to more effectively protect the clavicle bones and acromio-clavicular joints, such as by the use of specially designed arch structures, bow-string or cantilever strap arrangements, or the like, built into the shoulder pads at locations to increase the area of distribution of impact, or transmit the impact to the chest and back of the user to reduce the shock on the shoulders. For the most part, however, shoulder pads constructed in this manner have not proven entirely satisfactory, due to the difficulty of properly fitting the pads to the individual user to function most effectively, and also because of the difficulty of supporting the pads on the user in a manner to maintain the portions of the pads located immediately over the clavicle bones and acromio-clavicular joints out of pressure transmitting relation thereto.

The patent invention has for an important object the provision of the football shoulder pad of improved design, which is constructed to greatly increase the area of distribution of the impact and to transmit the impact to areas remote from the clavicle bones and acromio-clavicular joints.

Another object of the invention is to provide a shoulder pad which is constructed for engagement with the body of the user at locations to maintain the portions of the pad immediately above the clavicle bones and acromio-clavicular joints out of impact transmitting relation thereto.

A further object of invention is the provision of a football shoulder pad having an inner cushion liner which is shaped for engagement with the chest and back of the user to more effectively absorb the shock of impact and which is formed with downwardly opening recessed portions positioned over the clavicle bones and acromio-clavicular joints to allow these parts of the shoulders to move into such recessed portions when an impact is delivered against the pad to prevent the transmission of shock to such parts.

The invention also contemplates the provision of an inner cushion liner of the kind referred to, which is

adapted to be applied to existing shoulder pad structures to reduce the shock of impact on the clavicle bones and acromio-clavicular joints.

A still further object of the invention is to provide an inner cushion liner for football shoulder pads, which is of simple design and economical manufacture and which is adapted to be easily incorporated in new shoulder pads, or which may be readily applied to existing pad structures.

The above and other important objects and advantages of the invention may best be understood from the following detailed description, constituting a specification of the same, when considered in conjunction with the annexed drawings, wherein:

FIGURE 1 is a front elevational view of a football shoulder pad structure embodying a preferred form of the invention;

FIGURE 2 is a cross-sectional view, taken along the line 2—2 of FIGURE 1, looking in the direction indicated by the arrows, with the shoulder cap and epaulet of the shoulder pad structure removed;

FIGURE 3 is a cross-sectional view, taken along the line 3—3 of FIGURE 1, looking in the direction indicated by the arrows;

FIGURE 4 is a vertical, central, transverse, cross-sectional view, on a somewhat enlarged scale, showing details of construction of the portion of the shoulder pad of FIGURE 1 located over the left shoulder of the user, and showing the relationship of the parts to the clavicle bone and acromio-clavicular joint;

FIGURE 5 is a bottom view of the shoulder pad illustrated in FIGURE 1, showing the internal arrangement of the parts;

FIGURE 6 is a bottom plan view of a somewhat modified form of the inner cushion liner of the invention; and

FIGURE 7 is a side elevational view of the inner cushion liner of FIGURE 6.

Referring now to the drawings in greater detail, the shoulder pad of the invention comprises right and left hand body members 10 and 12, each of which is of generally U-shape having a front portion 14 and a rear portion 16, positioned for overlying engagement with the chest and back, respectively, of the user and a curved, top portion 18 which extends over the user's shoulder. The right and left hand body members are of usual construction and may be formed of an external arch of relatively rigid material, such as hard fibre and an internal pad or lining, secured together in any convenient manner, as by riveting or cementing. The two body members are releasably connected together at the front and back as by means of straps 20 connected at one end to one of the members and whose other ends may be adjustably secured to the other member by means of buckles 22, or the like, to form a protective shell about the body of the user.

The body members are also conveniently provided with the usual body straps 21 or other similar means, which may be releasably connected to the members by means of the rings 22 attached to the front and back of each member, or by other suitable means, to adjustably connect the front and back of each member together under the arms of the wearer so that the front and back of the member may be held in frictional contact with the chest and back of the user to hold the member against downward movement relative to the user's shoulder.

A shoulder cap 24 is provided for each of the body members, which is positioned exteriorly above the top of the member in overlapping relation thereto, and extending laterally outwardly therefrom, which cap is of usual construction, being of generally rounded, upwardly convex shaped, and is attached to the body member by a flexible hinge or strap 26. The caps 24 are each formed

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of an outer portion 25 composed of a relatively rigid material such as hard fibre, plastic, or the like, to which an inner pad 27 of resilient material, such as sponge rubber is attached.

Externally above the cap 24, each of the body members is also provided with a curved epaulet 28, of usual construction, which is of generally U-shape in cross-section, overlying the cap 24 and having the usual flexible connection with the body member as by means of the strap 30.

The body members 10 and 12 and the caps 24 and epaulets 28 are of conventional construction, located and connected together in the usual manner, to be positioned over the shoulders of the user to protect the user against injury, while allowing free and unrestricted use of the arms in playing the game.

The epaulets 28 are connected to the body members by means of the flexible hinge straps 30 as mentioned above, and are additionally connected to the body members by spaced apart, flexible straps 32 and 34, to effectively hold the epaulets against forward and backward horizontal swinging movement relative to the body members, while permitting the epaulets to swing freely upwardly relative thereto. The straps 32 and 34 are each attached at one end to one of the epaulets, the straps then passing through slits in the epaulets and being attached at their other ends to the exterior of the corresponding body members beneath the epaulets.

Each of the body members is provided interiorly with a cushion liner or inside cantilever 36, of upwardly arch shape formed of suitable resilient material such as sponge rubber, which is positioned with the uppermost portion 38 of the arch in downwardly spaced relation to the upper portion 18 of the body member and whose opposite end portions 40 and 42 are extended into internal recesses in the front and back portions of the body member, as best seen in FIGURE 2 of the drawings. The inside cantilever elements 36 are secured at their opposite ends to the body members in the recesses, as by means of rivets, cementing, or the like, to securely attach the same to the body members. The inside cantilever elements 36 are cut away along their adjacent marginal portions, as shown at 44, to form with the body members when attached thereto a central opening through which the wearer's neck may be extended, and the elements are formed with centrally located downwardly opening recesses 46, shaped to provide clearance for the clavicle bones and acromio-clavicular joints of the user when the pad is worn. The cantilever elements are also shaped to extend outwardly over the shoulders of the wearer and each of the members is provided at its outer extremity with an outwardly extending, upwardly convex sub-cap 48, preferably formed of resilient material, such as sponge rubber, which sub-cap is shaped externally to fit within a downwardly opening recess 50 in the corresponding overlying shoulder cap 24, as best seen in FIGURE 4.

It will be apparent that when the shoulder pad, constructed as described above, is worn by the user, the body members 10 and 12 will extend over the shoulders of the user with the front portions 14 in engagement with his chest and the back portion 16 in engagement with the user's back, the pad being supported on the shoulders by the inside cantilever elements 36 with the downwardly opening recesses 46 forming clearance spaces for the clavicle bones and acromio-clavicular joints of the shoulders, as clearly shown in FIGURE 4. With the shoulder pad thus positioned and the body straps tightened through the rings 22 of the body members to hold the front and back portions 14 and 16 in close engagement with the user's body, the shoulder caps 24 and epaulets 28 will overlie and extend outwardly beyond the user's shoulders to protect the same, the upper portions 18 of the body members being supported in upwardly spaced relation to the shoulders. During the use of the pad in this man-

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ner, an impact delivered downwardly against the pad toward the user's shoulder will be transmitted to the inside cantilever element to absorb the shock, the cantilever element, together with the front and back portions of the body member coacting to hold the upper portion 18 of the body member out of force transmitting relation to the shoulder. Due to the clearance provided by the recess 46 of each cantilever element, the clavicle bones and acromio-clavicular joints are protected against impact, whereby breakage or severe injury to these parts is effectively prevented.

A somewhat modified form of the inside cantilever arrangement of the invention is illustrated in FIGURES 6 and 7, wherein the cantilever device is formed in one piece, having counterpart portions 36' corresponding to the separate cantilever elements 36 previously described which are similarly formed with downwardly opening recesses 46', to provide clearance for the clavicle bones and acromio-clavicular joints. This modified form of the inside cantilever is intended for application to existing shoulder pad structures, the member being formed with opposite marginal portions 56, of reduced thickness, which are adapted to be secured to the body members of the pad with the cantilever member arched upwardly in the interior of the body members and the upper portion of the arch thus formed spaced downwardly from the upper portions 18 of the body members. The cantilever member may be attached to the body members in any suitable manner, as by riveting or cementing. The cantilever member is formed with a central opening 58, through which the user's neck may extend. The cantilever or inner cushion lining of FIGURES 6 and 7, when applied to a shoulder pad in the manner described coacts with the body members of the pad in the same manner as previously described to effectively cushion impacts against the pad and to protect the clavicle bones and acromio-clavicular joints of the user against injury.

It will thus be seen that the invention, constructed as described above, provides a football shoulder pad of improved shock absorbing character, as well as an inner cushion lining for such pads, which may be built into new shoulder pad structures, or which may be readily applied to existing pads, and by which injury to the clavicle bones and acromio-clavicular joints will be prevented.

The invention is disclosed herein in connection with certain specific embodiments of the same, but it will be understood that these are intended by way of example only and various changes can be made in the shape, construction and arrangement of the parts within the spirit of the invention and the scope of the appended claims.

Having thus clearly shown and described the invention, what is claimed as new and desired to secure by Letters Patent is:

1. In a football shoulder pad a pair of body members shaped to be positioned over the shoulders of a user and having front and rear downwardly extending portions positioned for engagement with the chest and back of the user, an internal element in each member formed of resilient material attached to said front and rear portions at locations to form an arch shaped to extend over the user's shoulder in engagement therewith at locations spaced forwardly and rearwardly from the top of the shoulder to support the member out of contact with the element above the shoulder, each of said elements having a downwardly opening recess in its lower surface positioned to overlie the clavicle bone and acromio-clavicular joint of the shoulder.

2. In a football shoulder pad a pair of body members having front and rear portions positioned for engagement with the chest and back of the user and an upwardly arched portion connecting said front and rear portions in position to extend over the user's shoulder, means for connecting the front and rear portions of each member together at one side of the user's body to hold said front and rear portions in frictional contact with the chest and

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back of the user to resist downward movement of the member relative to the shoulder, an internal upwardly arched element in each member positioned for engagement with the shoulder in downwardly spaced relation to said upwardly arched portion, each of said elements having spaced apart portions positioned for engagement with the shoulder at locations to hold the element out of contact with the clavicle bone and acromio-clavicular joint of the shoulder.

3. In a football shoulder pad a pair of body members having front and rear portions positioned for engagement with the chest and back of the user and an upwardly arched portion connecting said front and rear portions in position to extend over the user's shoulder, means for connecting the front and rear portions of each member together at one side of the user's body to hold said front and rear portions in frictional contact with the chest and back of the user to resist downward movement of the member relative to the shoulder, an internal upwardly arched element in each member attached to the member at spaced apart locations in position for engagement with the shoulder in downwardly spaced relation to said upwardly arched portion, each of said elements having a downwardly opening recess in its lower surface positioned to provide spaced apart portions engageable with the shoulder at locations to hold the element out of force

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transmitting relation to the clavicle bone and acromio-clavicular joint of the shoulder.

4. In a football shoulder pad a pair of body members shaped to be positioned over the shoulders of a user, a shoulder cap movably connected with each member in position to extend laterally beyond the end of the shoulder and having a downwardly opening recess in its lower surface, an internal upwardly arched element in each member positioned for engagement with the shoulder and attached to the member at spaced apart locations to hold the member in upwardly spaced relation to the element mediate said locations and having spaced apart portions positioned for engagement with the shoulder at locations to hold the element out of force transmitting relation to the clavicle bone and acromio-clavicular joint of the shoulder and a sub cap on each element beneath the shoulder cap in position for movement into and out of the recess of the shoulder cap.

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