

Sept. 17, 1935.

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SHOULDER GUARD

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2 Sheets-Sheet 1

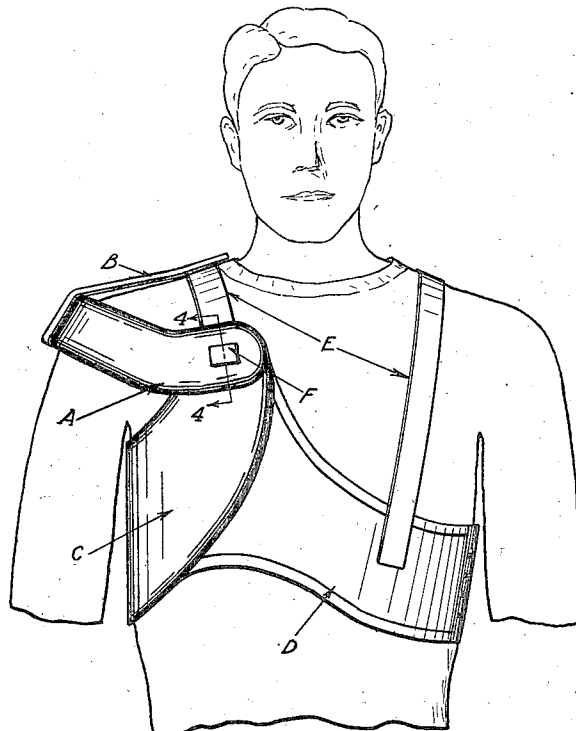


Fig. 1

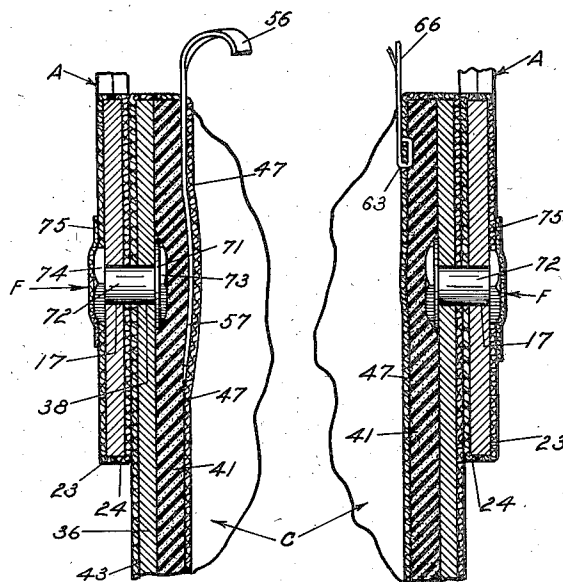


Fig. 4

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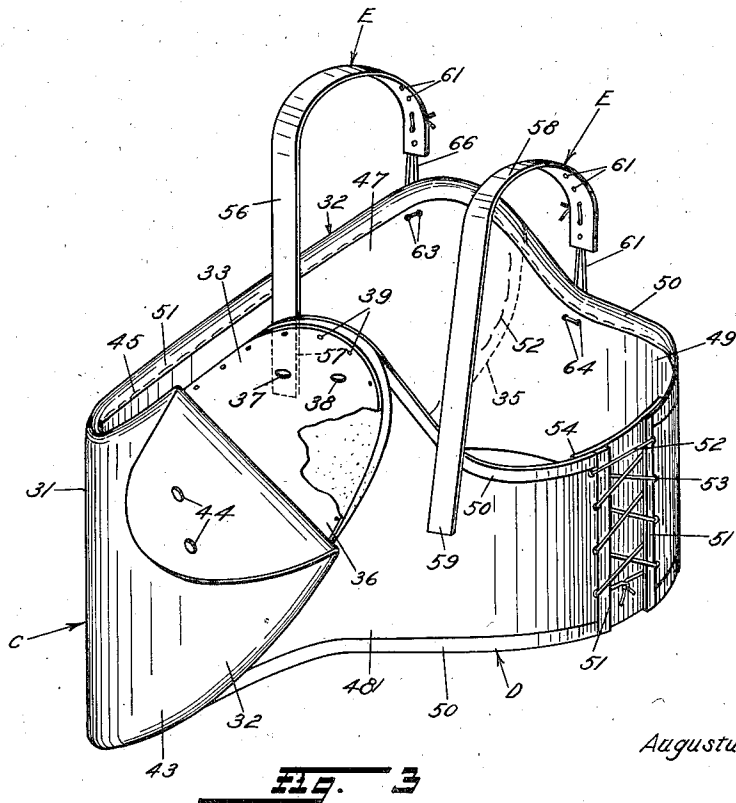
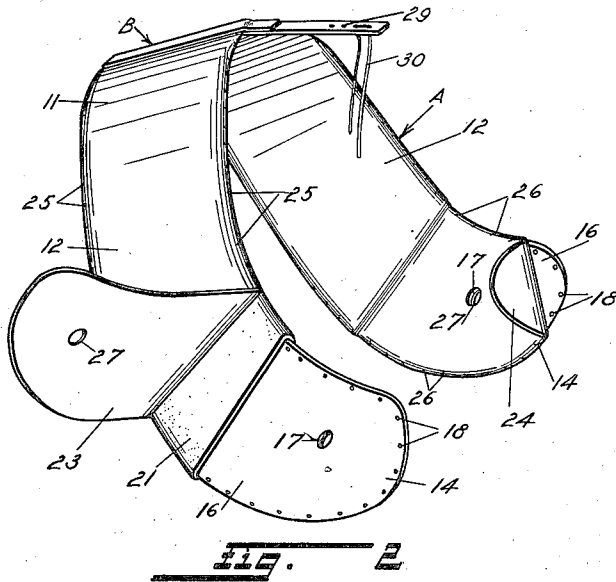
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2 Sheets-Sheet 2



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SHOULDER GUARD

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3 Claims. (Cl. 2-2)

The present invention relates to shoulder guards and particularly to shoulder protectors designed for use by players participating in the game of football.

5 The primary object of my invention resides in the provision of a shoulder guard or protector which will preclude the possibility of injury to the user's shoulder and will especially prevent recurrence of damage to a previously injured

10 shoulder. A further object of my invention resides in the provision of an improved shoulder protector which will allow complete freedom in the movements of the arm and shoulder, thus preventing

15 any interference by the protector with the throwing of forward passes, use of the arm and shoulder in tackling and blocking, or in the execution of any other movements attempted by the user. Still another object of the present invention

20 resides in the provision of a shoulder protector which is so designed as to be of a durable and strong construction, and at the same time of a minimum weight and bulk, thus affording the user ample protection with the least possible

25 encumbrance. A still further object of my invention resides in the provision of a shoulder protector which may be adjusted relative to the shoulder to particularly protect any specific localized portion

30 of the shoulder while still affording general protection to the entire shoulder. A still further object of my invention resides in the provision of a shoulder protector which will afford protection to the acromio clavicular

35 joint of the shoulder, and which is especially designed to permit the wearer to safely participate in the game without aggravation of any injury previously inflicted upon said joint. Another object of my invention relates to the

40 provision of a shoulder protector which will completely protect the shoulder against injury, and the weight of which is supported by a portion of the body other than the shoulder. A very important object of my invention re-

45 sides in the provision of a shoulder protector which will intercept and counteract forces directed toward the shoulder, and in so doing will partly absorb the shock caused by such impacting forces and will transmit the remaining major

50 portion of the shock to a region of the body remote from the shoulder. In the accompanying drawings, wherein like reference characters are employed to designate like parts throughout:

Figure 1 is a view in front elevation of a preferred form of my invention assembled upon a user.

Figure 2 is a view in perspective of the guard or shoulder-protecting section forming a part of the device shown in Figure 1.

Figure 3 is a view in perspective of the body section and harness forming a part of the device shown in Figure 1.

Figure 4 is a fragmental view in section taken substantially along line 4-4 of Figure 1, showing the method of assembling together the guard section and body section of my invention.

With reference now to Figure 1 of the drawings, the illustrated embodiment of my invention will be seen to consist generally of a guard section A designed to be positioned above the user's shoulder and provided with an adjustment strap B for retaining the guard in selective position; a body section C adapted to bear against the user's torso and retained in position by means of a harness D encircling the torso; shoulder straps E fastened to the harness and body sections for assisting in retaining the protector in properly assembled disposition upon the user's body; and a pivotal assembly F for securing the guard and body sections together. As will be later set forth in detail, the protector may be readily assembled upon a player by applying the body section firmly against the torso, securing the harness about the torso, fastening the shoulder straps in place, and selectively positioning the guard section by means of its adjustment strap.

Referring now to Figure 2 of the drawings, guard section A will be seen to assume the configuration generally of an inverted U having a bridge portion 11 and legs 12 which are slightly offset as seen at their extremities 14. The general shape and properties of the guard section A are determined by a base plate 16 which forms the substructure of the guard, and in the illustrated embodiment of my invention is preferably fashioned from the commercial metal "duralumin" thus affording a light, strong, durable and slightly resilient construction. It will be appreciated that any other metal or material having the requisite characteristics and physical properties may be substituted for the purpose in lieu of the alloy utilized in my preferred structure.

Each offset extremity of base plate 16 is provided with a central aperture 17 and a plurality of small apertures 18 about the periphery of the extremity for a purpose to be presently disclosed. Encompassing the bridge portion and the major

extent of both legs of base plate 16 is a resilient and shock absorbing cushion 21 composed of sponge rubber or other material of similar impact dampening propensities which terminates adjacent the offset portions of the base plate.

Completely covering the guard structure thus far described are two sections of padding or similar material 23 and 24, one covering each side of the guard member and secured together throughout the major portion of their length in any suitable manner as for example by stitching 25 or the like. Adjacent the offset parts of the base plate, padding covers 23 and 24 are secured together by stitching 26 or the like which extend through apertures 18 in the base plate, thus providing guard A with relatively thin and flat offset portions which, as will presently appear in detail, are adapted to overlie the extremities of body section C. Padding covers 23 and 24 are each provided with apertures 27 designed to align with apertures 17 formed in the base plate.

From the description of the guard structure A above made, it will be apparent that a fabricated construction of light weight and great strength is provided due to the properties of the substructure, and that the fabrication further provides a construction of maximum shock absorbing and impact deadening properties due to the characteristics of the superstructure.

The guard structure when assembled above and in slightly spaced relation to the user's shoulder thus functions to efficiently protect the wearer against blows delivered adjacent the shoulder which would otherwise prove damaging and at the same time is prevented from itself inflicting injury upon a player contacting the guard by means of the ample padding covers which completely inclose and protect the same. The guard in actual practice is therefore found to amply fulfill its function of intercepting and counteracting forces directed toward the shoulder of the user and to efficiently absorb and deaden impacts arising from such forces.

Although in the embodiment of my invention illustrated in the drawings I have shown a specific type of guard section, it is to be understood that any structure having similar functions and characteristics may be substituted in lieu thereof without departing from the spirit of my invention. It is further to be understood that my invention may embody dual guard sections, one to be fitted over each shoulder, and that guard structures protecting either a localized portion or the entire region of the shoulder are intended to be embraced within the scope of my invention although I have illustrated a guard section adapted to particularly protect the acromio clavicular joint of the shoulder.

Completely encircling and secured about the bridge portion of guard section A is an adjustment strap B one end of which provides an extension having apertures 29 through which is woven a lace 30. The adjustment strap by means of lace 30 is adapted to be secured to any available portion of the user's playing equipment, as for example the standard shoulder pads generally worn by a football player, or may be secured to shoulder straps E of the protector as seen in Figure 1 for the purpose of retaining the guard section in adjusted position.

Referring now to Figure 3, body section C, harness D and shoulder straps E are seen to form one composite structure and are associated with guard section A in a manner hereinafter to be set forth. Body section C, having a central por-

tion 31 and legs 32, is provided with a base plate 33 formed from fibreboard or other similar material of a relatively stiff and rigid nature which determines the general physical characteristics of the body section. As seen in the drawings, base plate 33 is fashioned into a shape which may be readily accommodated against the user's thorax and takes substantially the form of a semi-inverted-U having a bridge portion adapted to bear against one side of the thorax, and having legs 35 and 36 adapted to extend ventrally and dorsally against the thorax.

Legs 35 and 36 near their extremities are each provided with dual apertures 37 and 38, and a plurality of small apertures 39 about the peripheries of the leg extremities, these apertures being provided for a purpose to be hereinafter disclosed.

Against the concave surface of base plate 33 formed by the legs and bridge thereof and coextensive therewith is provided a cushion 41 of sponge rubber or other material especially adapted by its resilient nature to absorb shock and deaden impacts. Cushion 41, by virtue of its application to the concave face of base plate 33, is when assembled interposed between the base plate 33 of the protector and the body of the user, and any shock or impact delivered to the base plate in a manner to be presently set forth is appreciably dampened and deadened before being transmitted to the body of the user.

The exterior convex surface of base plate 33 is covered by a padding blank 43 which is coextensive therewith and held in position in a manner to be presently described. Blanket 43 near each extremity thereof is provided with dual apertures 44 adapted to register with apertures 37 and 38 formed in the extremities of the base plate.

The interior concave surface of cushion 41 is covered by means of a lining 47 formed from fabric or other suitable material, which extends beyond the cushion form harness sections 48 and 49 and which is provided with binding 50 along its edges. Lining 47 is joined to padding blanket 43 by means of stitching 51 or the like, and adjacent the extremities of the base plate the padding cover and lining are secured together by stitching 52 which extends through apertures 39 in the base plate thus holding the cover and lining against displacement with respect to the base plate and cushion. The padding blanket and lining in the region adjacent apertures 37 and 38 of the base plate are, however, free from stitching and left unsecured with respect to the base plate in order that access may be had to the inner concave surface of the base plate in the region adjacent the apertures 37 and 38 for assembling pivotal structure F in a manner to presently be described in detail.

From the description above of the body section C of my protector it will be seen that the fabrication of the body section affords a relatively stiff and rigid construction due to the fibre-board substructure which also shapes the body section to fit snugly against the thorax of the user. It will further be seen that due to its cushioned and padded superstructure the body section is adapted to resiliently contact the thorax of the user and to cushion and mitigate any shock which may be transmitted to the user from the body section of the protector. The structure is thus especially designed to render less jarring to the user any blows which may be transmitted to him by means of the body section, and at the same

time is designed by means of the padding blanket to prevent infliction of injury by the structure upon other players.

It is to be understood that although the preferred form of my invention contemplates a single body section which is adapted to fit against one side of the user's torso, the construction may assume the form of a vest or jacket having plural sections for fitting against side portions of the user's thorax and secured together in any convenient manner as for example by lacing or the like. Such a construction which is adapted to support more than a single guard section and will allow complete protection of both shoulders, is embraced within the scope of the present invention and any structure designed to serve such functions is intended to be anticipated by the present invention.

Body section C of the protector is adapted to be secured against a selected large area of the user's thorax and maintained in proper position by means of harness D comprising sections 48 and 49 formed integrally with and extending away from the lining of the body section C as previously described. With the protector assembled upon a user the free ends 51 of the harness section are designed to lie in close proximity to each other although separated slightly from overlapping, and are adapted to be bound together in permanent adjustment upon the user by means of lacing 52 which passes through a series of apertures 53 provided near edges 51. A flap 54 is secured in any suitable manner to harness section 48 adjacent its free end and is adapted to underlie lacing 52 and free end 51 of harness section 48, the flap in this manner being interposed between the body of the user and lacing 52 to prevent the latter from scarring the body of the user upon being drawn taut when assembled.

It will thus be appreciated that harness D by means of lacing 52 is readily adjustable and may be accommodated to bodies of varying proportions, thus enabling the protector to be used upon any player regardless of the latter's size.

The protector is further adjustable upon the user's body by means of shoulder straps F comprising a strap 56 secured to the body section between cushion 41 and lining 47 as seen at 57, and a second strap 58 secured to harness section 48 as seen at 59.

Shoulder straps 56 and 58 near their free ends are each provided with a series of apertures 61, the lining of body section C being provided with apertures 63 aligned with respect to apertures 61 in strap 56, and harness section 49 being provided with apertures 64 aligned with apertures 61 in the end of strap 58. Passing through body section apertures 63 is a lace 66 which extends upwardly and is secured in selected apertures 61 in strap 56 thus adjustably lashing strap 56 over the user's shoulders and with respect to the body section. In a similar fashion a lace 67 after passing through apertures 64 in the harness section, extends upwardly and is secured in selected apertures 61 in strap 58.

It will be appreciated that since laces 66 and 67 may be secured within selected apertures within the shoulder straps, and further since the effective length of the laces extending between the shoulder straps and harness may be varied, that the shoulder straps may be readily varied in effective length to raise or lower the body section upon the thorax or to accommodate the body section to users of different physical proportions.

It will also be readily appreciated that since the body section and harness are securely strapped about the user's chest the weight of the protector is largely carried by the chest and no appreciable load is imposed upon the user's shoulders through the shoulder straps, any small load which is imposed upon the shoulders being carried mainly by the shoulder on the opposite side of the user's body.

The manner of assembling guard section A with respect to body section C of the protector will now be described. As previously set forth each extremity of guard section A is provided with an aperture 17 and each extremity of body section C is provided with dual apertures 37 and 38. In assembling the individual units of the protector, apertures 17 of the guard sections are designed to be selectively registered with apertures 37 of the body section or, as seen in Figure 4, apertures 17 of the guard section may be registered with apertures 38 of the body section.

As the manner of securing each leg of the guard section to the body section is identical, only the structure employed for securing a single leg will be described, and it will be readily appreciated from a study of Figure 4 that the structure employed in connection with the opposite leg is similar.

Upon proper registry of aperture 17 with either of selective apertures 37 or 38, a washer 71 is positioned on the inner surface of base plate 36 of the body section concentrically with respect to the selected aperture, and a bolt 72 having a head 73 is inserted through the registering apertures in washer 71, body section C, and guard section A, with the head of the bolt bearing against washer 71 and the threaded shank of the bolt projecting slightly beyond the exterior surface of the guard section.

Washer 71 and bolt 72 may be assembled in the manner just described with respect to base plate 36 of the body section by virtue of the fact that the cover blanket and lining of the body section are left unsecured in the region adjacent apertures 37 and 38, as previously set forth, and ready access to the concave face of the base plate in this region is available.

Upon the shank of bolt 72 is threaded a nut 74 which is turned into abutting relation with guard section A and which in finally assembled disposition is covered in any suitable manner as for example by means of an adhesive patch 75 or the like, to render the nut less unsightly and to prevent the nut from inflicting injury upon other players.

It is thus seen that washer 71 bolt 72 and nut 74 comprise the composite pivotal assembly F previously referred to by means of which guard section A and body section C are secured in assembled relation. It will be appreciated that by provision of the structure just set forth, guard section A may assume any selected angular position with respect to the body section and in this manner may be adjusted upon the user to protect any desired localized area of the shoulder. The guard section as seen in Figure 1 being disclosed as protecting particularly the acromio clavicular joint while at the same time affording general protection to the entire shoulder area. Adjustment of the guard section to any selected position may be readily effected by means of the flexible adjustment strap B in the manner previously described.

A very important feature of my invention resides in the location of the pivot with respect to

the fender portion 11 of the guard section and that portion of the body section which snugly engages the thorax. This pivot is located high, substantially on a level with the acromio clavicular joint of the shoulder when in use, and hence transmits the thrust almost horizontally, and entirely, to the thorax. The shoulder thus is fully protected from shock, and the large area of the body section comfortably and uniformly, as well as cushionly, transfers the impact to the thorax.

Since the aperture in guard section A may register with either of two selective apertures in the body section, it will be seen that the assembled protector is adjustable to users of different sizes and the guard section may therefore be selectively assembled upon the body section in order to allow the protector to have universal application and be accommodated upon any user, thereby eliminating the necessity of providing protectors of varying sizes in order to meet the different requirements in size of various users.

Although in the embodiment of my invention shown in the drawings, I have illustrated a single bolt aperture in each leg of the guard section and dual bolt apertures in each leg of the body section, it is to be understood that a converse structure is contemplated by my invention with plural apertures in the guard section and a single aperture in the body section by which structure the pivotal bolt may be, if desired, permanently assembled with respect to the body section thus permitting the cover and lining of the body section to be secured together throughout the complete periphery of the base plate, and obviating the necessity of re-assembling the pivotal bolt for each re-adjustment of the guard section.

Assembly and proper adjustment of my shoulder protector upon a user may be readily effected in the following manner. Body section C of the device is first fitted against the side of the thorax below the shoulder to be protected, and harness section D is then passed about the remainder of the thorax with flap member 54 underlying the free ends of the harness. Lacing 52 is next passed through the apertures in the free ends of the harness and is drawn tight to securely strap the harness about the thorax and effect intimate cushioning of the body section C against the user's thorax. Shoulder straps E are then passed over the shoulders and lashed in position by laces 66 and 67 which after being passed through accommodating apertures in the body section and harness are drawn taut through apertures in the free ends of the shoulder straps.

With my shoulder protector partially assembled as thus far described, body section C which comprises the main bulk and weight of the device is securely adjusted upon the wearer by the action of the harness section, and it will thus be appreciated that substantially the entire weight of the device is borne by the wearer's body with no appreciable weight imposed upon the shoulders through the shoulder straps which function primarily to prevent displacement and maladjustment of the device after being assembled. Any slight load, which is, however, transmitted to the shoulder straps is imposed upon the shoulder on the opposite side of the user from the body section C and the injured shoulder is thus substantially free from supporting any of the weight of the protector.

The guard section A is next assembled upon body section C by registering apertures 27 in the guard section with the proper selective apertures

37 or 38 in the body section and passing pivotal bolts 72 through the registering apertures. Nuts 74 are then turned upon the pivotal bolts and cover patches 75 are applied over the nuts.

Guard section A is next rotated with respect to body section C into selective position over the shoulder and adjustment strap B is anchored to any suitable portion of the user's equipment in order to retain the guard section in correctly assembled disposition.

It is to be understood that the detailed method of application just described is used normally only when fitting or adjusting the parts to the body proportions of the wearer and that, once this adjustment has been made, the particular wearer may thereafter on each occasion for use simply pass his arm through the opening defined between the guard section and body section, bring the latter section into cushioned contact with the thorax and then tighten the straps and laces.

In addition, the preferred form of my invention is interchangeable with respect to the shoulders of the user and may indiscriminately be applied to either shoulder or, as previously pointed out, a guard section may be provided for each shoulder and assembled upon a modified body section of suitable design.

By virtue of the fact that the guard section is retained in selective angular disposition by means of a completely flexible adjustment strap, the guard section may be temporarily and unresistingly displaced toward the user's neck by any movement of the arm or shoulder tending to cause contact with the guard section, and in this manner complete freedom of movement is insured for the user's arm and protected shoulder, the possibility of any restriction or hindrance to such movement being completely obviated. In addition, due to the relatively light weight and flexibility of the complete protector, substantially no additional increase in load is imposed upon the wearer.

The invention may be embodied in other specific forms without departing from the spirit or essential characteristics thereof. The present embodiment is therefore to be considered in all respects as illustrative and not restrictive, the scope of the invention being indicated by the appended claims rather than by the foregoing description, and all changes which come within the meaning and range of equivalency of the claims are therefore intended to be embraced therein.

What is claimed and desired to be secured by United States Letters Patent is:—

1. In a shoulder protector, an adjustable guard adapted to receive any shock delivered adjacent the acromio clavicular joint of the shoulder, a body member adapted to transmit said shock to the thorax of the body, and means adapted to secure said guard and said member together in pivotal relation, said means being located to bring the pivotal point to a level about half-way between the arm pit and the top of said joint when the protector is in use, whereby said shock is effectively diverted from the shoulder and transmitted to the body.

2. In a shoulder protector a U-shaped section adapted to be positioned superjacent the shoulder and having integral legs designed to extend before and behind the body; a second U-shaped member adapted to be secured against the body and having integral legs disposed adjacent the legs of said first member and substantially normal thereto; means for securing said members in pivotal relation; means for adjustably securing

said first member relative to the shoulder; and means for securing said second member with respect to the body.

3. In a shoulder protector, a relatively rigid member designed to be fitted below the arm pit of the wearer and having an upward extension, said rigid member being of expansive area and of relatively large vertical dimension below the arm pit, a fender adapted to be disposed adjacent

the shoulder joint and secured to said upward extension at a point at a level well above the arm pit of the wearer, and means extending around the other side of the body and connected to the bottom of said rigid member, thereby to prevent cocking of said rigid member when shocks are transmitted from said fender to said upward extension of the rigid member.

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