

[54] **BRUISE PAD ATTACHMENT**

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[58] Field of Search2/3 R, 2, 24; 36/71, 44, 29

[56] **References Cited**

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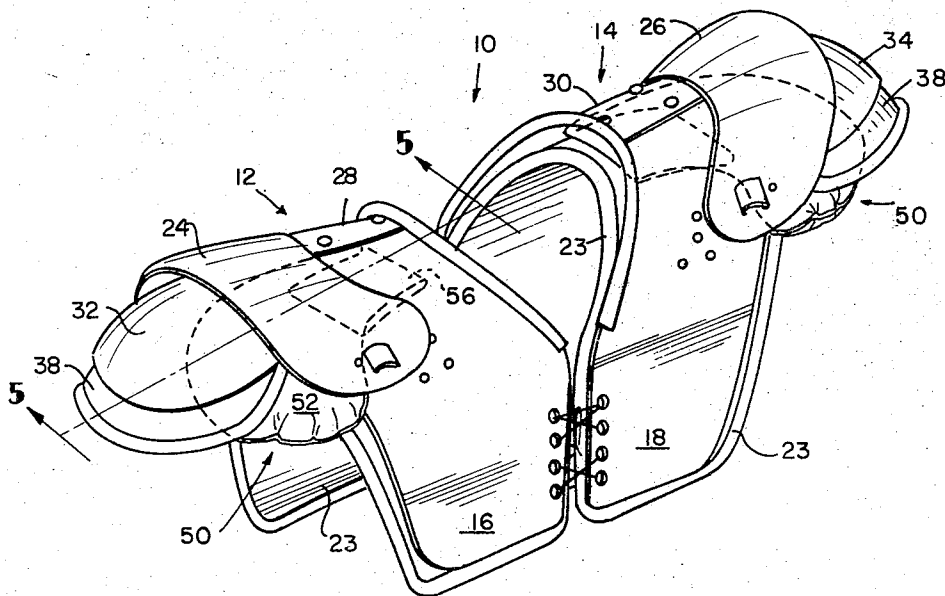
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[57]

ABSTRACT

An inflatable bruise pad insert for protective gear such as cantilever type shoulder pads is held firmly in place adjacent to a gap which exists between the top and front portions of the shoulder pads. When partially inflated, the pad insert fills the gap and cushions blows to that region to prevent injuries to the wearer.

11 Claims, 5 Drawing Figures



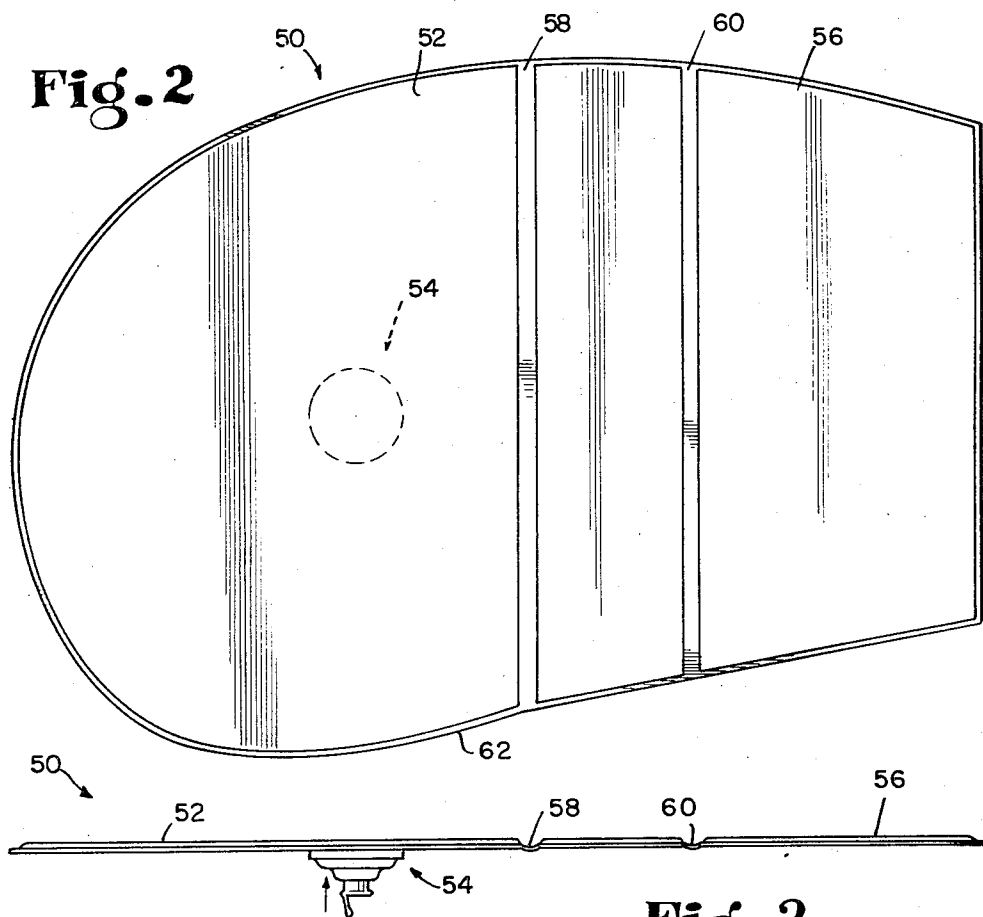
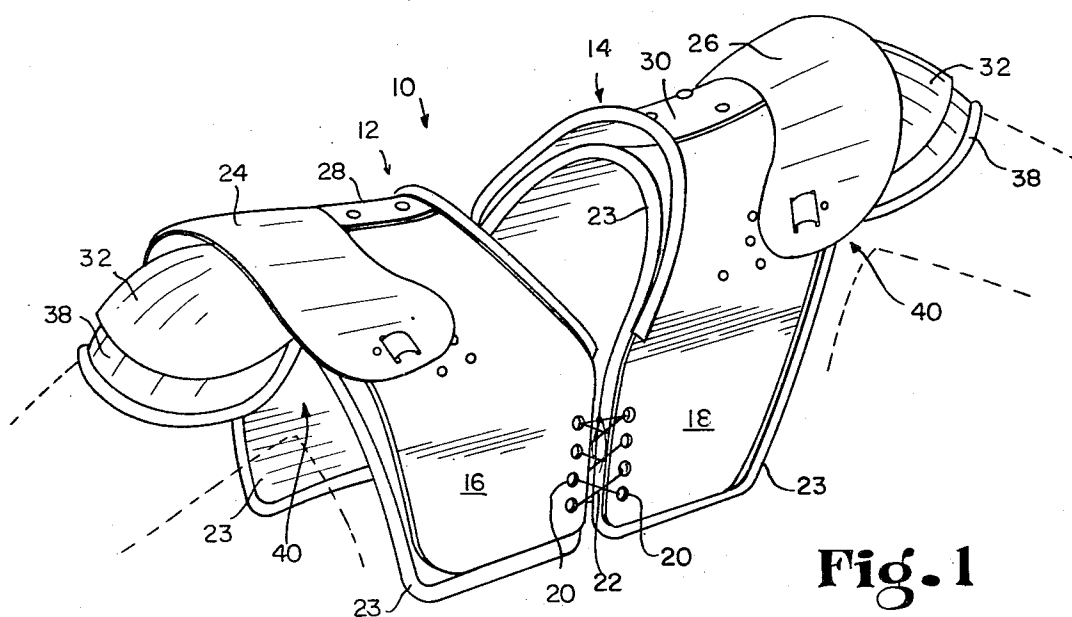
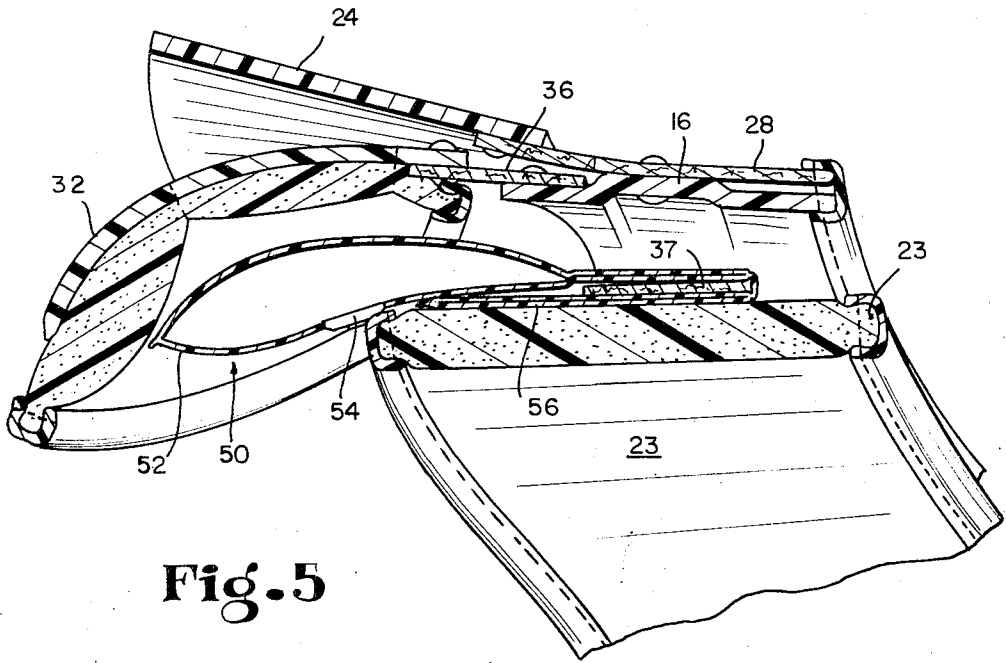
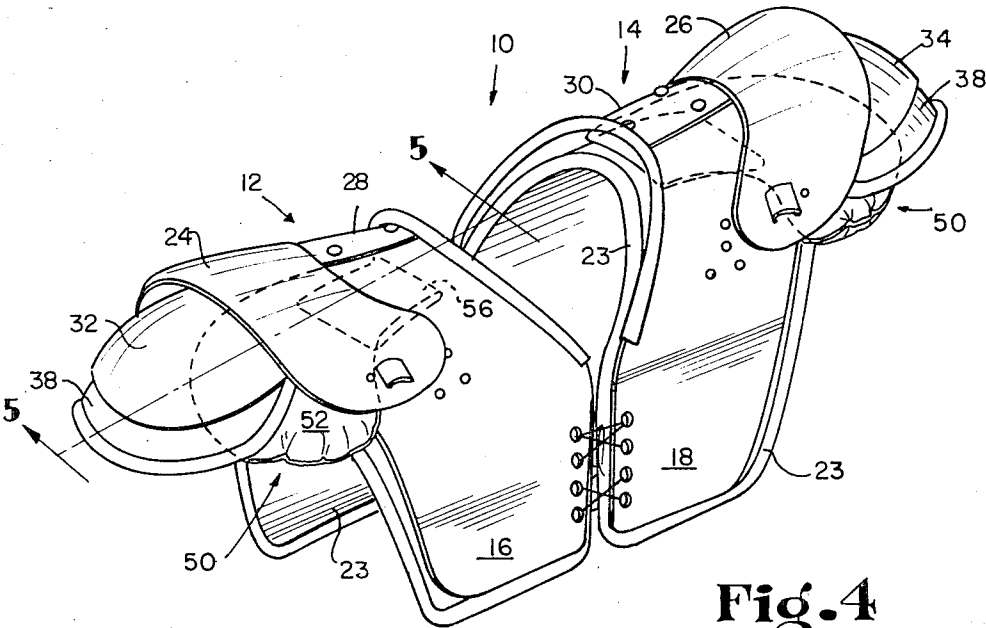


Fig. 3



BRUISE PAD ATTACHMENT

BACKGROUND OF THE INVENTION

This invention relates to a bruise pad attachment, and more particularly to an inflatable pad which may be inserted or attached to shoulder pads in a manner and position to cushion blows and reduce injuries.

Anyone who has ever played or watched football or any other body contact sport is well aware of the ever-present danger of injury to players. From the early days of football to the present time, injuries have occurred all too frequently. Unfortunately, the need for improved equipment has often become known only after serious injuries or fatalities have occurred.

In the early days of football little if any protective equipment was used by the players. Over the years, however, protective equipment such as helmets, shoulder pads, thigh pads, and face guards, have been introduced and their use has become mandatory. And numerous improvements in protective gear have been made. For example, the close fitting "aviator" type helmets of the early days have gradually evolved into the strong padded helmets of today which are capable of withstanding heavy blows. In addition, present day helmets are equipped with protective face guards which serve to further reduce injuries. Shoulder pads too have evolved from the generally flat form-fitting padding of the past, to the padded plastic so-called cantilever pads of today. The cantilever type shoulder pads of today in which shoulder or cantilever straps support at least part of the arch portions of the pads away from the wearer's shoulders are much better able to absorb and diffuse heavy blows to which they are subjected.

Injuries to and about the shoulders began plaguing football players with the beginning of the game. Broken collar bones, separation of the bones at the joint between the humerus and the shoulder blade, injury to the joint between the collar bone and the shoulder blade, injury to the deltoid muscle, and severe bruises in these areas have been continual problems. These problems have been readily apparent, and numerous suggested solutions have been advanced, as seen for example, in U.S. Pat. Nos. 1,757,019, 2,071,827, 2,247,961, and 2,761,143. Special pads to protect injured areas of the body have also been suggested as in U.S. Pat. No. 2,663,020.

Notwithstanding the many advances which have been made in protective gear and the rather sophisticated cantilever-type shoulder pads of today, such injuries persist. In fact, injuries to and around the shoulder areas, and particularly to the deltoid muscle and front portion of the shoulder area have even increased. This particular area of the body is left somewhat exposed, especially to frontal blows. The so-called cantilever-type shoulder pads, with all their advantages, leave an opening or gap beneath the floppet and cap on each side of the body in the deltoid regions, exposing these vulnerable parts of the anatomy. This gap in the protective armor creates a serious hazard of painful and debilitating injuries. The significant increase in such "point" injuries in football in recent years is believed to be due in large part to the frontal attack or "stand-up" blocking and "bear-hug" tackling techniques now being used so extensively. When a football player is in an essentially upright position when tackling or blocking, with his arms extended and par-

tially raised, the exposed front areas of the shoulders, or "point" areas, are extremely vulnerable to injury.

The necessary mobility of a football player, or any participant in any other physically active sport, militates against using unduly rigid or heavy protective gear. For example, the shoulder pads worn by football players must not unduly restrict arm movements, and should not be more heavy or bulky than absolutely necessary. These limiting factors have no doubt contributed to the inability to solve the "point" gap problems in the design of shoulder pads.

Football trainers and coaches have sometimes tried to remedy this deficiency by stuffing the shoulder pad gaps with sponge rubber or cloth. But such expedients have not been very successful. Not only do such stuffings generally fail to adequately absorb blows, but they often shift about, add bulk, and impede arm movements.

SUMMARY OF THE INVENTION

This invention solves these perplexing problems. This invention provides protective means effective to significantly reduce injuries. And it does so without structural complexity and at low cost.

An inflatable insert is held by or secured in the shoulder pad structure. The size and shape of the insert is such that when in place and partially inflated, it will fill the shoulder pad "point" gap region and provide an air cushion effective against severe blows to the deltoid and outer crest at the ball joint of the humerus. Not only does the insert and shoulder pad combination provide a cushion for blows to the previously unprotected point-gap region, but also cushions blows to the top portions of the shoulder pads. The player's arm movements are not impeded and the additional weight is essentially nil. The pad inserts are constructed so that they may be firmly held in the proper place without the necessity of extra attaching mechanisms, and may be readily removed, replaced, inflated, and deflated, as desired. Shoulder pads equipped with the pad inserts are able to repeatedly absorb and widely distribute the impact of heavy blows, protecting the wearer and without damage to the equipment. Such pad inserts may be a part of the original equipment, or they may be used in conjunction with existing shoulder pads.

BRIEF DESCRIPTION OF THE DRAWING

This invention is illustrated in the accompanying drawing in which:

FIG. 1 is a perspective view of currently used cantilever type shoulder pads, without the pad insert of the present invention;

FIG. 2 is an enlarged plan view of an uninflated pad insert in accordance with this invention;

FIG. 3 is a front view of the insert shown in FIG. 2;

FIG. 4 is a perspective view of a cantilever shoulder pad with a pad insert in place therein and inflated for use; and

FIG. 5 is a partial cross-sectional view along the line 5—5 of FIG. 4, illustrating means for locating and securing the pad insert in place.

DETAILED DESCRIPTION OF A PREFERRED EMBODIMENT

Protective gear such as a pair of cantilever-type shoulder pads of a known type is illustrated generally in FIG. 1 by reference numeral 10. The shoulder pads 10 have two complementary portions 12 and 14, which are right hand and left hand sides. The two side portions 12 and 14 are firmly but flexibly joined together at their backsides by webbing (not shown) which is riveted to the backsides of arch portions 16 and 18. Openings 20 in the front sides of arch portions 16 and 18 and the lacing 22 permit the two side portions 12 and 14 to be held together in the front. Padding 23 is attached to the undersides of arch portions 16 and 18 and protrudes beyond their extent.

Floppets or flaps 24 and 26 are attached by webbing 28 and 30 to the arch portions 16 and 18, respectively. Caps 32 and 34 are attached to arch portions 16 and 18, respectively, as by webbing 36 (FIG. 5). The caps 32 and 34 are positioned generally between the arch portions and the floppets, and extend outwardly beyond both. Padding 38 is attached to the undersides of caps 32 and 34 and protrudes well beyond their extent. Padding 23 and padding 38 is interposed between the wearer's body and the hard structure of arch portions 16 and 18, floppets 24 and 26, and caps 32 and 34. Moreover, at least part of the arch portions 16 and 18 are supported away from the wearer's body by straps 37 (FIG. 5) which are attached to the undersides of arch portions 16 and 18 above the padding 23. These straps 37, referred to as "cantilever" straps, provide a means for at least partially absorbing blows to the upper portions of the shoulder pads.

As illustrated in FIG. 1, these shoulder pads leave sizable unprotected areas or gaps, illustrated at 40, in the region beneath the caps 32 and 34 and beyond the outer sides of the front of arch portions 16 and 18. These gaps 40 leave the deltoid muscles and the front portion of the shoulder areas generally exposed and vulnerable to injuries, especially from frontal blows. These gaps 40 become even larger when the wearer raises his arms or extends his arms horizontally (as indicated in FIG. 1), as he almost always does when blocking or tackling. As has been indicated, these gaps in the protective armor present serious safety hazards.

The gaps 40 in the wearer's deltoid regions are closed by inserts 50. The inserts 50 are made of a strong, flexible material such as polyethylene, polypropylene, or polyvinyl chloride, and may be formed of complementary halves, heat-sealed together about their peripheries. Each insert 50 has an inflatable portion 52 with air ingress and egress means, such as a soft air valve 54. The portion 52 may be readily inflated by blowing into valve 54. Pushing in on valve 54 closes it and locks in the air. A flexible non-inflatable flap 56 is attached to the inflatable portion 52, and is preferably unitary therewith. A heat seal 58 separates the inflatable portion 52 from the flap 56. A second heat seal 60 is provided across the entire width of the flap 56. The distance between seals 58 and 60 is preferably about equal to the width of a shoulder or cantilever strap 37. The flap 56 is of sufficient length (i.e., in the left to right direction of FIG. 2) to fit over and back under strap 37 and to extend partially under the inflated insert portion 52. The shape and overall

dimensions of insert 50 are such that when the flap 56 is folded over and then back under strap 37 between the strap 37 and the padding 23, the cooperative action between the flap 56, the strap 37, and the padding 23 will hold the insert firmly in place. When the inflatable portion 52 is partially inflated, it will fill the gap 40 and provide an air cushion covering the previously exposed deltoid region of the wearer. For this purpose, the more rounded edge 62 of the insert 50 is positioned in the front. Identical inserts may be used on both the right hand and left hand sides of the shoulder pads. With the edge 62 positioned in the front, the soft valve 54 will be on the top on one side and on the bottom on the other side.

The partially inflated insert 50 is maintained securely in place by the flap passing over then back under the strap 37 in the manner previously described. When secured in this manner, it does not shift about, notwithstanding the severe forces it absorbs. The partially inflated insert fills the gap 40 and provides an air cushion to blows to that region, and also to blows from above, such as blows more directly to the floppets 24 and 26 and the caps 32 and 34. The air cushion will repeatedly absorb blows and dissipate their impact over a wider area. The inserts 50 are capable of withstanding such punishment over a long period of time, providing protection to relatively delicate regions of the anatomy.

The insert 50 may be quickly and easily inserted or removed from the shoulder pads which house them.

I claim:

1. In a protective shoulder pad having an arch portion and a shoulder strap which supports at least part of the arch portion away from the shoulder of the wearer, a bruise pad attachment comprising a flexible insert having an inflatable portion, securing means for securing the insert and the shoulder pad together, the size and shape of the insert being such that said inflatable portion, when partially inflated, extends beyond the arch portion to cover the deltoid region of the wearer.

2. In a protective shoulder pad having an arch portion and a shoulder strap which supports at least part of the arch portion away from the shoulder of the wearer, a bruise pad attachment comprising a flexible insert having an inflatable portion, means for inflating said inflatable portion, and a flap connected to said inflatable portion, said flap being of sufficient length to be folded around said strap to secure the insert in position with said inflatable portion located in the gap adjacent the deltoid region of the wearer to cushion blows to that region.

3. The invention set forth in claim 2 wherein said inflatable portion and said flap are of unitary construction.

4. The invention set forth in claim 2 wherein said flap is at least two times as long as the width of said shoulder strap.

5. The invention set forth in claim 2 wherein said insert is formed of complementary portions sealed about the periphery and sealed between said inflatable portion and said flap.

6. The invention set forth in claim 2 wherein said inflatable portion and said flap are separated from one another by a first seal extending entirely across the insert.

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7. The invention set forth in claim 6 wherein a second seal extends entirely across said flap, said second seal being generally parallel to said first seal and spaced from said first seal a distance approximately equal to the width of said shoulder strap.

8. An improved cantilever type shoulder pad having an arch portion with padding thereunder, a floppet, a cap with padding thereunder, and a shoulder strap which supports at least part of the arch portion away from the shoulder of the wearer leaving an unprotected gap in the deltoid region of the wearer, comprising a flexible insert having an inflatable portion and a non-inflatable flap extending therefrom, means for inflating said inflatable portion, said flap passing over said strap and then under said strap between said strap and the arch padding, the size and shape of said flap and said inflatable portion being such that said inflatable por-

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tion, when partially inflated, fills the gap in the deltoid region of the wearer to cushion blows to that region.

9. The invention set forth in claim 8 wherein the partially inflated portion of said insert is carried on the outside of the arch portion and partially beneath the shoulder pad cap and extends outwardly and downwardly from the front part of said cap.

10. The invention set forth in claim 1 wherein said inflatable portion of the insert is formed of complementary portions sealed about the periphery and said securing means is connected with said inflatable portion exteriorly of the seal about the periphery.

11. The invention set forth in claim 1 wherein the partially inflated portion of said insert is carried on the outside of the arch portion and extends outwardly beyond the arch portion.

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