United States Patent [19]

Owl et al.

[11] **3,867,726**

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[54] **SHOULDER GUARD**

[75] Inventors: **Laurance J. Owl**, Hastings, Minn.; **Jimmy H. Cody**, Grand Prairie; **Bill Kelley**, Arlington, both of Tex.

[73] Assignee: **Becton, Dickinson and Company**, East Rutherford, N.J.

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[52] **U.S. Cl.** **2/2**

[51] **Int. Cl.** **A41d 13/00**

[58] **Field of Search** 2/2

[56] **References Cited**

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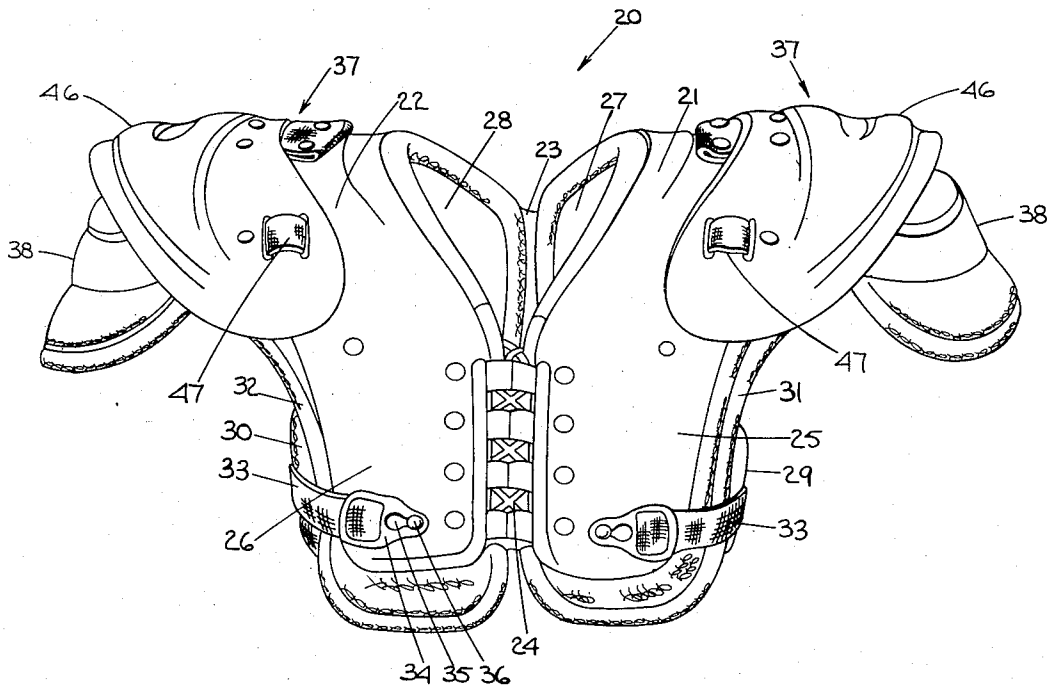
Primary Examiner—Alfred R. Guest

Attorney, Agent, or Firm—Kane, Dalsimer, Kane, Sullivan and Kurucz

[57] **ABSTRACT**

A semi-rigid protective shield device for athletes. The device includes a pair of opposingly formed and flexibly joined sections. Each section has an arcuate shoulder portion adapted to conformably embrace a shoulder and having front portions adapted to depend over the clavicular area and breast of the wearer and rear portions for depending over the shoulder blades. The rear portions have integral lateral radial extensions for embracing the rib cage and terminating forwardly thereof. Flexible structures on each of the lateral extensions for detachably and adjustably joining the same to the depending front portions. A shoulder cap is hingedly attached to the shoulder portion of each section. Finally, flange pocket forming structure is on the cap and the shoulder portion and is positioned so as to form a flange pocket for the cap to seat in when force is applied from the top or sides and restrain the cap from pressuring the athlete's shoulder while not restricting upward movement when force is delivered on the cap and shoulder portion.

5 Claims, 5 Drawing Figures



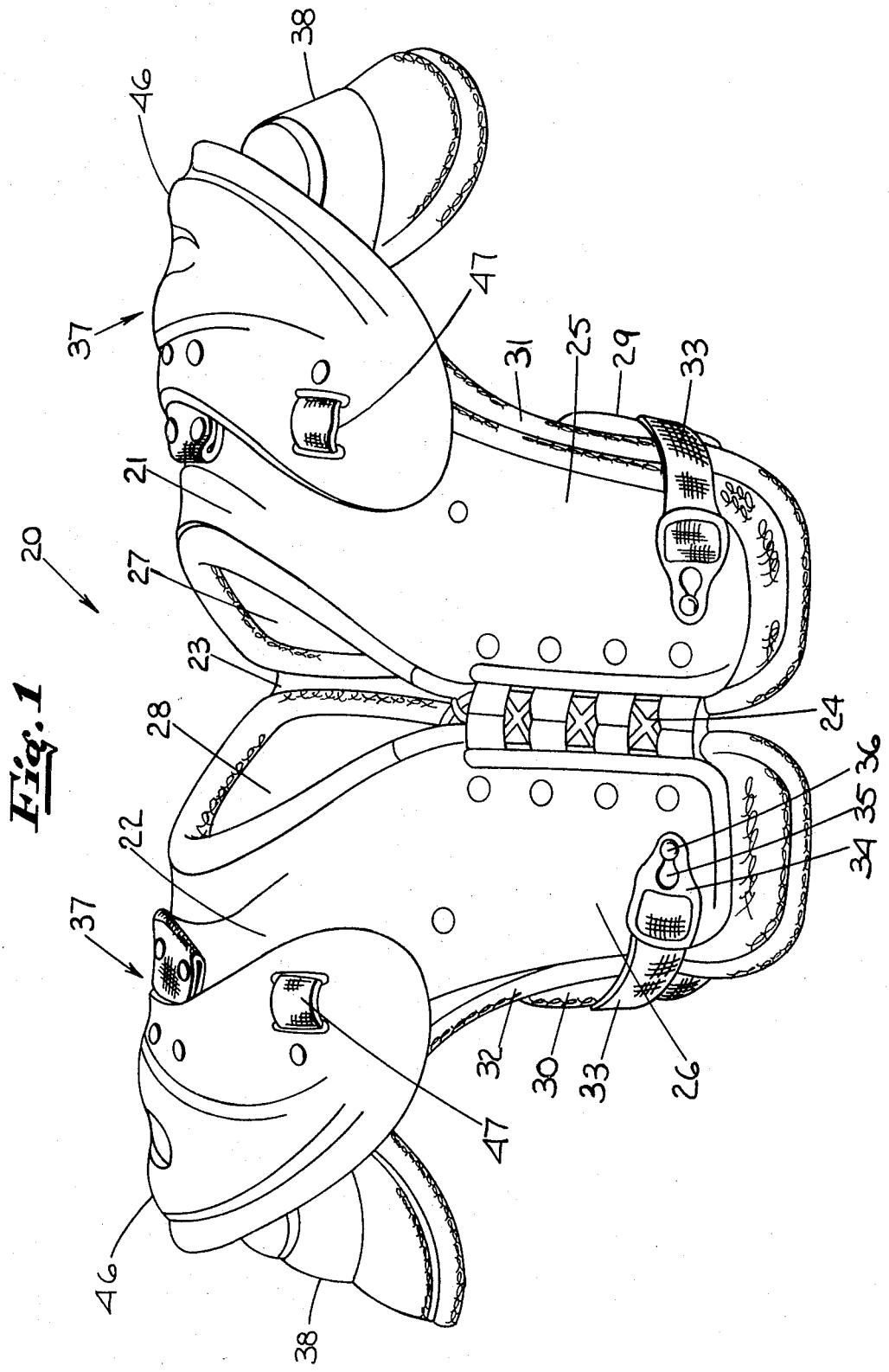

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Fig. 1

Fig. 2

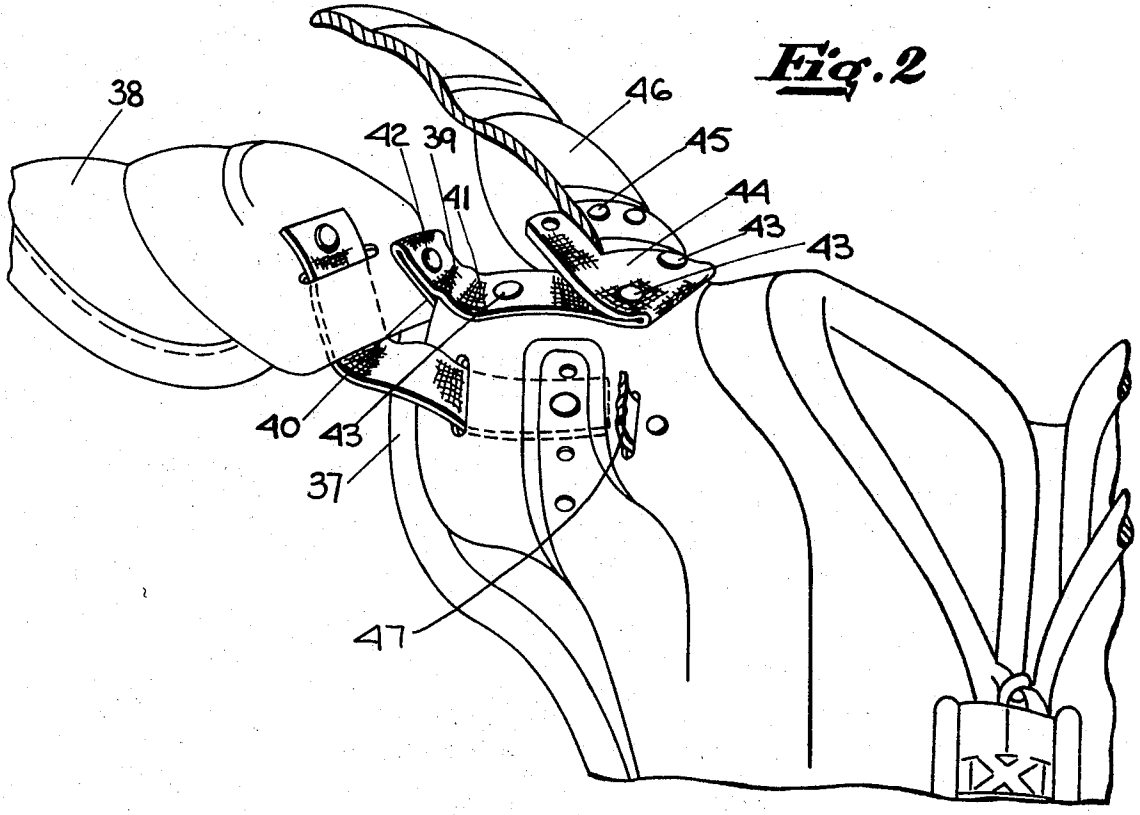


Fig. 3

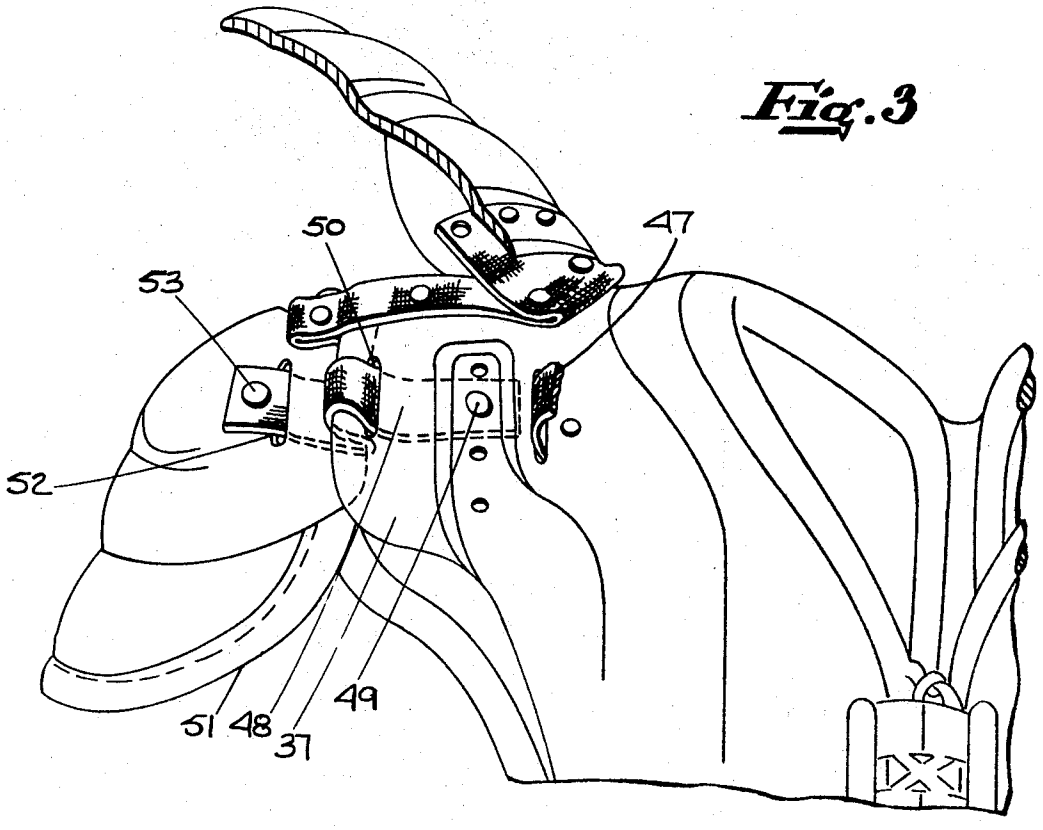


Fig. 4

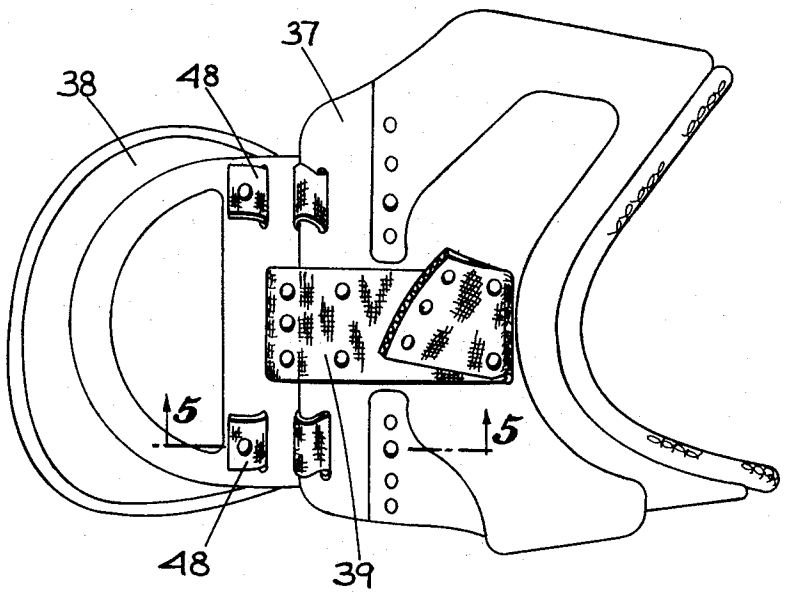
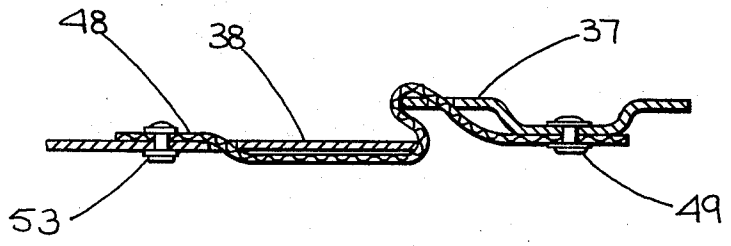


Fig. 5



SHOULDER GUARD

BACKGROUND OF THE INVENTION

Protective gear for athletes such as football players and hockey players include protective shoulder guards. In the past, a great variety of different configurations and designs have been employed for ensuring protection of the athlete's shoulder and chest area. Several of the more recent designs include those depicted in U.S. Pat. Nos. 3,528,106, 3,431,560 and 2,430,502. The specific shoulder pad designs as described in those references are great advantages in protecting the athlete, particularly the football player from shoulder injuries.

Naturally, further improvement is always desired from a safety standpoint and it is extremely advantageous when the wearer is protected in all aspects of physical contact including protection from danger of injury from portions of the protective equipment such as the shoulder guard parts. The above mentioned prior patents do describe protective structure in the shoulder guards themselves to assure that certain types of blows do not cause parts of the protective equipment to endanger the athlete.

As stated above, further improvements and modifications in this area are welcome in the art and would add significantly to the safety features already present in the above discussed patents. One area of concern is in the danger of parts of the semi-rigid plastic portions of the protective shoulder guard being directed into portions of the wearer's body to cause possible injury. This danger may be noted with particular reference to the hinged interengagement between the shoulder cap or epaulet and the protective shoulder body portion. The cap has a rim of plastic which could if not restrained be directed by an external force into the football or hockey player's shoulder and deltoid area and cause potential injury or at least substantial discomfort. Consequently, structure on the shoulder pad which would restrain the movement of the cap with respect to the plastic body portion so that undesirable movement of this type cannot occur would be advantageous.

SUMMARY OF THE INVENTION

With the above thoughts in mind, it is among the primary objectives of the present invention to provide a shoulder guard which is designed to prevent the shoulder cap and the shoulder body portion of the shoulder pads which are made of plasticized semi-rigid or rigid material from coming down or resting upon the football or hockey player's shoulder and deltoid area to cause discomfort and possible injury. The shoulder guard protective device is designed with the shoulder portion and the cap of plasticized rigid material which are hingedly interconnected with the use of a strengthened webbing connector which is sewn and riveted in place. The connector extends from underneath the shoulder portion, ties into the cap and doubles back over the top of the shoulder portion thereby interconnecting the cap with the shoulder portion. The flexible webbing material provides the appropriate motion therebetween. Additionally, the present design contemplates the use of a flange pocket structure to restrict the motion of the cap with respect to the shoulder portion so that movement of the cap is restricted from excessive engagement with the player's shoulder but movement in the upward direction is not unduly restricted when the cap is subjected to forces from different directions. The depicted means for the flange pocket structure is the use of a pair of strips of strengthened flexible webbing connecting the front and back sides of the shoulder portion with the front and back sides of the cap respectively. The connection is made in a fashion so as to form a flange pocket for the cap to seat in when force is applied from the top or sides so that the cap is not permitted to apply pressure to the player's shoulder. On the other hand, movement is not restricted in the upward direction when the force or blow is delivered on the cap and shoulder portion. In this manner, the cap is seated in a locking motion within the pocket formed by the webbing flange. In general, the ultimate objective is to prevent the plastic material of the shoulder pad from pressuring the player when subjected to external force and causing discomfort or possible injury to him.

In summary, a semi-rigid protective shield device for athletes is provided. The device includes a pair of opposingly formed and flexibly joined sections. Each section has an arcuate shoulder portion adapted to conformably embrace a shoulder and having front portions adapted to depend over the clavicular area and breast of the wearer and rear portions for depending over the shoulder blades. The rear portions have integral lateral radial extensions for embracing the rib cage and terminating forwardly thereof. Flexible means is on each of the lateral extensions for detachably and adjustably joining the same to the depending front portions. A shoulder cap is hingedly attached to the shoulder portion of each section. Finally, flange pocket forming means is on the cap and shoulder portion and is positioned so as to form a flanged pocket for the cap to seat in when force is applied from the top or sides and restrain the cap from pressuring the athlete's shoulder while not restricting upward movement when force is delivered on the cap and shoulder portion.

With the above objectives, among others, in mind, reference is had to the attached drawing.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings:

FIG. 1 is a front elevation view of the shoulder guard of the invention;

FIG. 2 is a fragmentary side elevation view thereof and showing the cap in the upper position;

FIG. 3 is a fragmentary side elevation view thereof showing the cap in the lower position;

FIG. 4 is a fragmentary top plan view thereof with the top flap removed; and

FIG. 5 is a sectional view thereof taken through the plane of line 5-5 of FIG. 4.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Shoulder guard **20** provides a protective device including a left section **21** and a right section **22** which are flexibly joined at the back by one or more straps **23.** Rivets or other well known securing means are acceptable for attaching the straps **23** to sections **21** and **22** at appropriate points thereon. The shoulder guard **20** is secured to the wearer by means of appropriate lacing **24** as shown in FIG. **1.**

Each section **21** and **22** is substantially U-shaped in vertical section so as to conformably embrace the shoulders of the wearer and provide a shield for the breast, rib cage and clavicular area in front of the

wearer and for protection of the shoulder blades and rib area in the back.

While the front depending portions **25** and **26** of the sections **21** and **22** respectively, when associated as in FIG. **1**, present a marginal contour defining a breast protector, the corresponding portions **27** and **28** in the rear have extending portions **29** and **30** respectively which are curved radially in slightly inclined planes around the body, embracing the rib cage on each side and under the arms, terminating in front of the body adjacent to the marginal edges **31** and **32** of the portions **25** and **26** respectively. Straps **33** detachably secure portions **29** and **30** to portions **25** and **26** with the assistance of suitable fastening means. The straps **33** are connected to members **29** and **30** in any convenient manner and terminate in a buckle **34** with a variable radius slot **35** adjacent its forward end. Slot **35** is slidably mountable on pin **36** extending from the appropriate portion **25** or **26.** As shown, one portion of slot **35** is of greater radius than the head of pin **36** and another part of slot **35** is of lesser radius than the head of pin **36** so that the buckle **34** can be slidably engaged and interengaged with the pin **36** for fastening and unfastening straps **33.** Naturally, other well known fastening means can be similarly employed to removably fasten straps **33** to portions **25** and **26.**

The entire assembly is preferably formed of plastic material having suitable flexibility yet possessing sufficient rigidity to withstand shocks or substantial force. The wrap-around feature provided by the radial extensions **29** and **30** obviously affords protection for the wearer's rib cage without restricting body movements or the discomfort resulted from a sense of confinement.

The shoulder portion **37** of each of the sections **21** and **22** is arcuate in configuration. A shoulder cap or epaulet **38** is hingedly attached to shoulder portion **37** by means of a strengthened webbing connector **39** which is appropriately fastened. The lower leg **40** of webbing connector **39** is fastened by rivets or other appropriate means at its free end to the underside of shoulder portion **37** (not shown). Leg **40** then extends to the upper side of cap **38** and is doubled upon itself to form leg **41** of webbing connector **39.** The overlapping portion of legs **40** and **41** of webbing connector **39** is riveted to the top of cap **38** by means of rivet **42.** Leg **41** then extends into engagement with the upper surface of shoulder portion **37** and is appropriately affixed in position by means of rivets **43** in any desirable predetermined pattern. Any number of rivets **42** and rivets **43** may be employed as well as similar fastening means on the underside of shoulder portion **33** to appropriately fasten connector **39** in position.

Leg **41** in fixed position on the upper surface of shoulder **37** is then doubled back upon itself to form leg **44** for attachment to a shoulder flap **46.** Certain of the rivets **43** can be positioned so as to pass through both legs **41** and **44** where they overlap to provide proper positioning of leg **44** for engagement with flap **46.** Flap **46** is connected by rivets **45** to leg **44.** Connector **39** is of a flexible material to permit hinged relative movement to a limited degree between shoulder portion **37,** cap **38** and flap **46.** In contrast, flap **46** and cap or epaulet **38** are of plastic material as is shoulder portion **37.** Naturally, stitching or other appropriate conventional expedient may be employed in place of the rivet for the interconnection between the elements as described above.

Flap **46** extends over cap **32** and is downwardly curved over the upper portions of the appropriate front member which is in adjacent relationship therewith. Each end of each flap **46** is flexibly anchored to the appropriate section **21** and **22** by straps **47** as shown in FIG. **1.**

A pair of flexible strips **48** cooperate with shoulder portion **37** and cap **38** which are interconnected by connector **39** to form a flange pocket for protection of the wearer. Strips **48** are of strengthened webbing of a flexible nature and are connected to the front and back sides of the shoulder portion **37** respectively. As shown in FIG. **3,** each strip **48** extends along the underside of shoulder portion **37** and is riveted in position by means of rivet **49.** It then extends through slot **50** adjacent the rim of shoulder portion **37** onto the exterior edge surface of shoulder portion **37** and then under the rim **51** of cap **38** to the underside of cap **38.** Strip **48** extends along the underside of cap **39** until it is passed through a slot **52** in cap **38** and onto the upper surface of cap **38** where it is riveted in position by means of rivet **53.** A strip **48** is fastened in the above manner between the front of shoulder portion **37** and the front of cap **38.** A second strip is fastened between the back of shoulder portion **37** and the back of cap **38** in somewhat parallel fashion. Connection in this manner provides a flange pocket for cap **38** to seat in when force is applied from the top or sides and not permitting it to come down with pressure on the wearer's shoulder. In contrast, the pocket does not restrict movement to a degree in the upward direction when the force or blow is delivered on the cap or shoulder portion within the limits defined by the hinged connection provided by connector **39.** In this manner, the cap is seated in floating position within the webbing flange defined by the cooperating structure including strips **48.**

Both the left and right sides of shoulder guard **20** are constructed in the same manner. Once again, appropriate connecting means other than rivets may be employed to attach strips **48** where necessary. Additionally, although two strips **48** are shown for each interengagement between cap and shoulder portion, any number of such strips can be employed depending upon space limitations and individual preferences. As shown in detail in FIG. **5,** each strip **48** assists in forming a flanged pocket to restrain the rim of cap **38** from pressuring the wearer's shoulder.

Both of the sections **21** and **22** as well as the epaulets or caps **32** are padded with a suitable material such as foam rubber, covered by a lining material. All edges of the members are provided with a cushion binding. The sections **21** and **22,** the caps **38** and the flaps **46** are suitably reinforced by embossments.

Thus, the above discussed objectives, among others, of the present invention are effectively attained.

What is claimed is:

1. A semi-rigid protective shield device for athletes comprising:

a pair of opposingly formed and flexibly joined sections;

each section having an arcuate shoulder portion adapted to conformably embrace a shoulder and having front portions adapted to depend over the clavicular area and breast of the wearer and rear portions for depending over the shoulder blades;

the rear portions having integral lateral radial extensions for embracing the rib cage and terminating forwardly thereof;

flexible means on each of said lateral extensions for detachably and adjustably joining the same to said depending front portions;

a shoulder cap hingedly attached to the shoulder portion of each section;

means hingedly connecting each shoulder cap to the respective shoulder portion of each section, and

means on the cap and shoulder portion positioned so as to form a flange pocket for the edge of cap to seat in when force is applied from the top or sides and restrain the cap from pressuring the athlete's shoulder while not restricting upward movement.

2. The invention in accordance with claim **1** wherein the means for hingedly interconnecting the shoulder portion with the cap includes a strengthened webbing connector which is fixed in place on the underside of the shoulder portion, extends into fixed position on the top of the cap and then doubles back over the top of the shoulder portion into a final fixed position on the top thereof.

3. The invention in accordance with claim **2** wherein the webbing connector is fixed in position with respect to the cap and shoulder portion by means of stitching and rivets.

4. The invention in accordance with claim **1** wherein the flange pocket forming means includes a pair of strips of spaced webbing with the strips of webbing connected between the front of the shoulder portion and the front of the cap and between the back of the shoulder portion and the back of the cap respectively.

5. The invention in accordance with claim **4** wherein the strips of webbing are fixed in position by means of rivets.

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