United States Patent

[11] 3,628,190

[72] Inventor **Stephen J. Molitoris**
Farmington, Mich.

[21] Appl. No. **1,137**
[22] Filed **Jan. 7, 1970**
[45] Patented **Dec. 21, 1971**

[73] Assignee **American Safety Equipment Corporation of Michigan**
Detroit, Mich.

---

[54] **HELMET NECKGUARD**
1 Claim, 10 Drawing Figs.

[52] **U.S. Cl.** ..... **2/3 A**
[51] **Int. Cl.** **A42b 3/00**
[50] **Field of Search** 2/3, 6

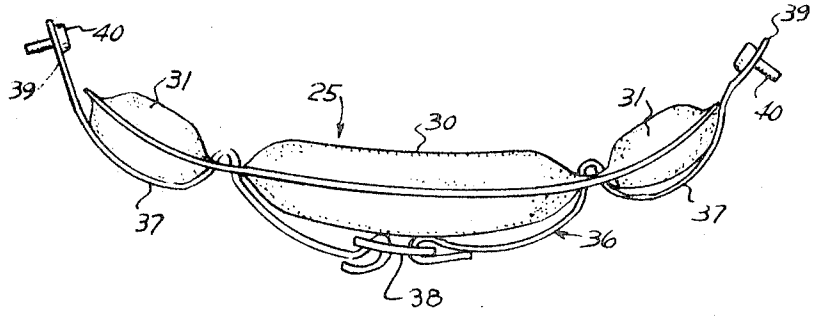
[56] **References Cited**

UNITED STATES PATENTS

2,371,712	3/1945	Scholl et al.	2/3 R
2,769,176	11/1956	Grancsay et al.	2/3 R
3,130,415	4/1964	Colley	2/6
3,241,154	3/1966	Aileo	2/3 R
3,353,187	11/1967	Lastnik et al.	2/3 R
3,354,468	11/1967	Bowers, Jr.	2/3 R

Primary Examiner—James R. Boler
Attorney—Cullen, Settle, Sloman & Cantor

ABSTRACT: A helmet neckguard formed of a horizontally elongated pad arranged within the rear lower edge of a helmet shell for engaging the rear and rear sides of the base of the wearer's skull, and secured to the shell by an adjustable length strap slidably arranged on the rear face of the pad and with its opposite ends fastened to the shell near the ends of the pad, for adjusting the position of the pad relative to the front of the helmet, and thereby the size of the helmet, by adjusting the strap length.



PATENTED DEC 21 1971

3,628,190

SHEET 1 OF 2

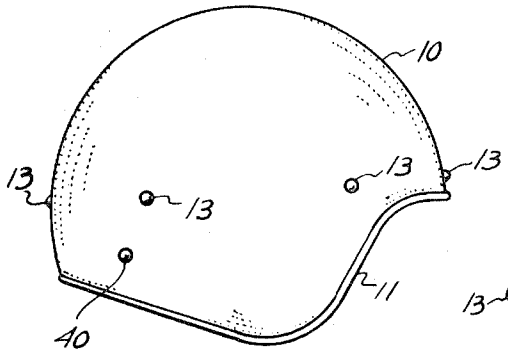


FIG. 1

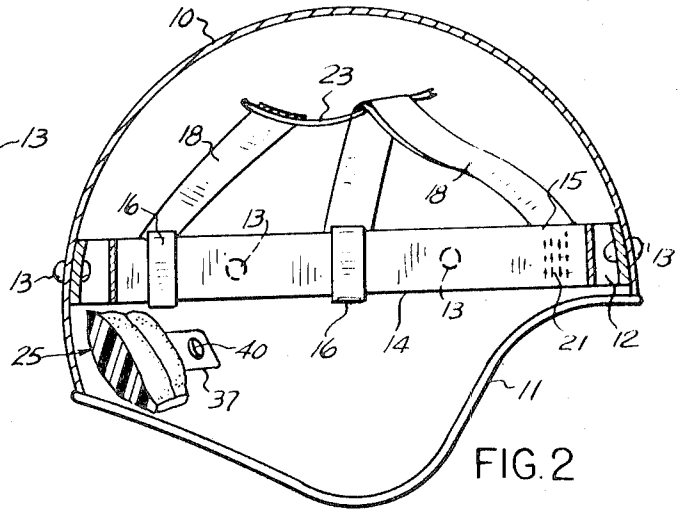
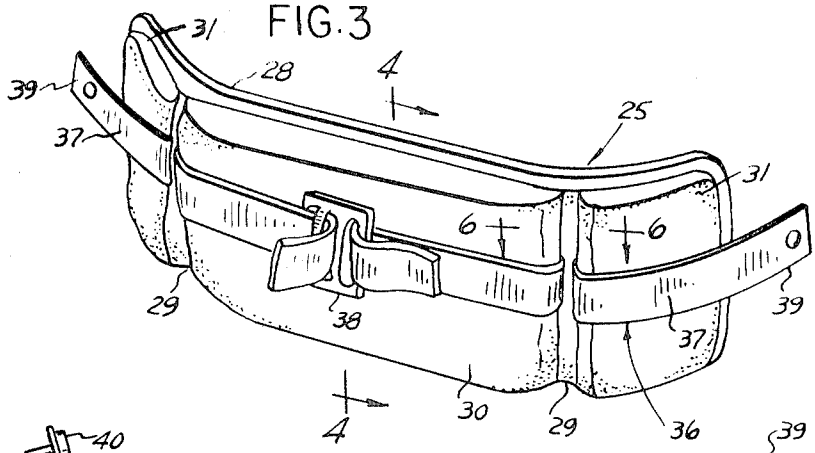


FIG. 2

FIG. 3



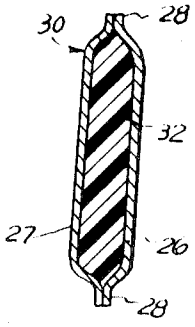


FIG. 4

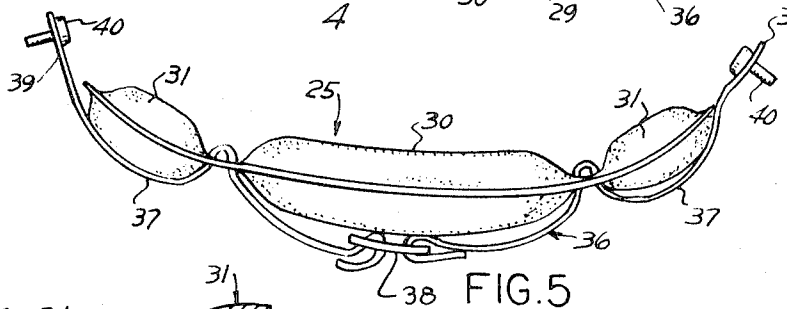


FIG. 5

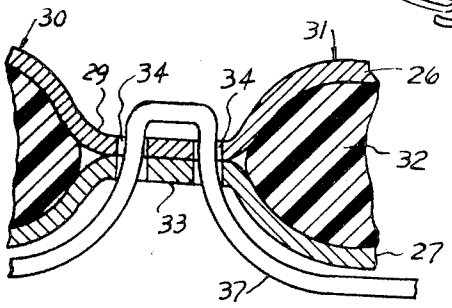


FIG. 6

INVENTOR

STEPHEN J. MOLITORIS

BY Cullen, Settle, Sloman & Cantor

ATTORNEYS

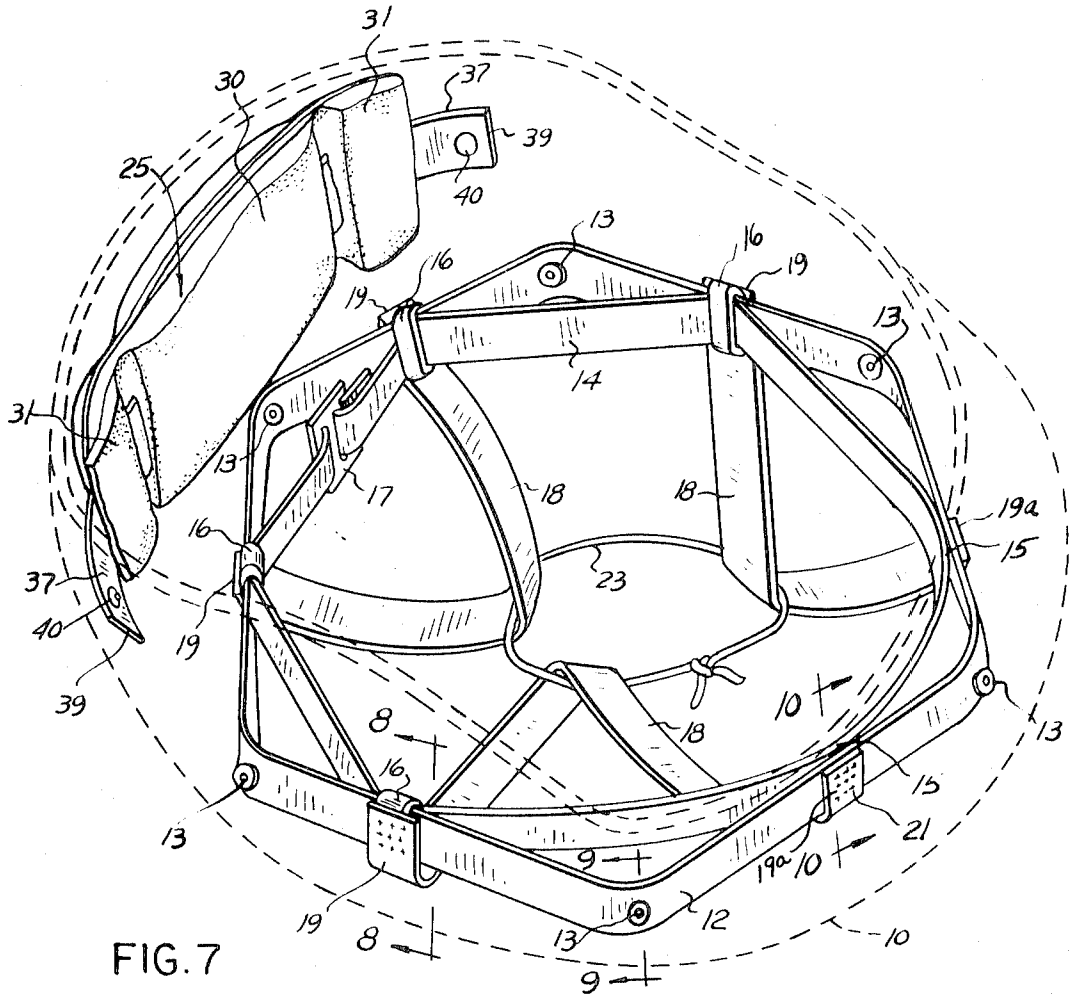


FIG. 7

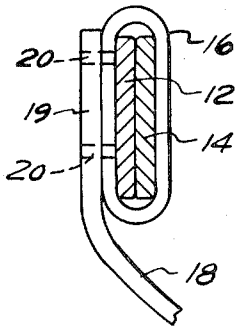


FIG. 8

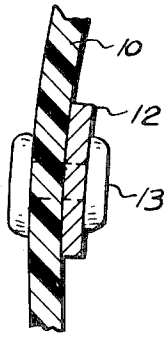


FIG. 9

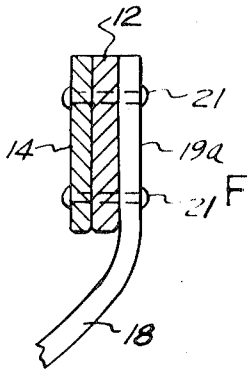


FIG. 10

INVENTOR
STEPHEN G. MOLITORIS
BY Cullen, Settle, Sloman & Cantor
ATTORNEYS

HELMET NECKGUARD

BACKGROUND OF INVENTION

In athletic and similar low impact types of protective helmets, it is customary to form the helmet of a hard outer shell and a suitable head engaging suspension arranged within the shell for mounting upon the wearer's head. Generally, the interior of the shell has been unpadded or unline, relying upon the suspension to absorbed impact caused energy.

Such types of helmet, particularly when designed for athletic types of activities, tend to move relative to the wearer's head or become dislodged therefrom when forces are applied there. For example, in football activities or wrestling activities or the like, the helmet may be twisted or pushed at angles which causes it to move relative to the users head. At times such movement causes impacts between the rear of the shell and the area generally around the base of the skull, causing injuries.

Thus, the invention herein is concerned with a protective neck guard or padding arranged within the rear lower portion of the shell for impact protection and in addition, for functioning to better grip the helmet upon the wearer's head and for assisting in properly sizing the helmet.

SUMMARY OF INVENTION

The invention herein relates to an elongated pad or neck guard arranged within the rear lower portion of a helmet shell and secured therein by means of an adjustable strap whose opposite ends are secured to the shell so that the pad may be adjusted forwardly or rearwardly within the shell, wherein the pad grips against the base of the wearer's skull for locking the helmet thereto, in addition to providing a means for a size adjustment, by adjusting the strap length, as well as functioning as in impact protective padding.

Preferably, the pad is arranged beneath the helmet headband which forms part of the helmet suspension, at the rear of the shell, with the rear face of the pad contacted by an adjustable horizontally arranged strap whose opposite ends are fixed to the shell so as to permit adjustment of the fore and aft distance between the pad or guard and the forward portion of the headband. This provides for a fore and aft size adjustment as well as positions the pad to grip at the base of the skull.

The skull-gripping function is generally similar to that described in connection with the retainer flap disclosed in the Marchello U.S. Pat. No. 3,314,077, granted Apr. 18, 1967. The pad or guard described herein improves upon the Marchello retainer and particularly makes it useful for the additional functions described above as well as for additional types of helmets, such as those particularly designed for athletic activity type of protection.

Further objects and advantages of this invention will become apparent upon reading the following description, of which the attached drawings form a part.

DESCRIPTION OF DRAWINGS

FIG. 1 is a side elevational view of a protective helmet.

FIG. 2 is an enlarged, cross-sectional elevational view of the helmet of FIG. 1.

FIG. 3 is a perspective, rear view of the neck guard, and

FIG. 4 is a cross sectional view taken in the direction of arrows 4—4 of FIG. 3.

FIG. 5 is a top, plan view of the neck guard.

FIG. 6 is an enlarged, fragmentary, cross-sectional view taken in the direction of arrows 6—6 of FIG.. 3.

FIG. 7 is an enlarged, perspective view, looking down into the helmet, arranged in its inverted position, with the shell shown in dotted lines.

FIG. 8 is an enlarged, cross-sectional, fragmentary view taken in the direction of arrows 8—8 of FIG. 7.

FIG. 9 is an enlarged, cross-sectional, fragmentary view taken in the direction of arrows 9—9 of FIG. 7, and

FIG. 10 is an enlarged, cross-sectional, fragmentary view taken in the direction of arrows 10—10 of FIG. 7.

DETAILED DESCRIPTION

FIG. 1 illustrates a conventional, so called "full coverage" helmet shell 10 with the conventional lower edge bead 11. A horizontal lower band 12 (see FIGS. 2 and 7) is arranged within the shell and secured by means of rivets 13 to the front, rear and to opposite side portions of the shell to form a roughly hexigon shape.

Arranged within the outer band is an inner or headband 14 which is secured by suitable mechanical fasteners, such as by sewing or the like, to two spaced-apart points 15 located at opposite sides of the forward position rivet 13. The headband is additionally secured to the outer band, between each pair of rivets, by means of loops 16 through which both the headband and outer band slidably pass. The opposite ends of the headband are adjustably connected together by means of a conventional buckle 17 for permitting size adjustment of the headband.

The helmet suspension which consists of the outer band 12 and the headband 14, also includes overhead loop straps 18, each having ends 19 secured by stitches 20 to loops 16. The two forward most loop straps have forward ends 19*a* sewn by stitches 21 to both the outer band and headband (see FIG. 10).

The upper ends of the loop straps are interconnected by a conventional tie cord 23.

Referring to FIGS. 31–6, the neck guard 25 is formed of a horizontally elongated pad arranged at the rear lower portion of the helmet's shell 10. The pad is mad of an envelope formed of an inner panel 26 and an outer panel 27 preferably formed of thin sheet plastic or plastic type fabric whose adjacent edges are secured together as by heat welding to form an edge bead 28. The panels are also secured together intermediate their opposite ends at intermediate lines of securement 29 (see FIG. 6) to thereby define a center section 30 and opposite end sections 31, with all the sections filled with a suitable resilient plastic foam or the like padding material 32.

Each of the two intermediate areas of securement 29 are provided with a pair of centrally located, parallel, vertical slits 34 to define between each adjacent pair of slits a strap loop 33.

Arranged along the rear face of the guard is a narrow strap 36 formed of two strap sections 37 interconnected by a buckle 38 for adjusting the length of the strap. The strap sections each pass through the slots 34 and around the strap loops 33 for slidably interconnecting the straps to the guard. The opposite ends 39 of the strap are connected by rivets 40 to the helmet shell.

By means of shortening or lengthening the strap 36 by adjustment at the buckle 38, the pad may be moved forwardly or rearwardly within the shell for adjusting its fore or aft position relative to the two fixed points 15 at which the headband is secured to the outer band. This provides a size adjustment to compensate for the distance between the rear of the wearer's neck or base of his skull to his forehead for more comfortably sizing the helmet upon his head, as well as gripping the skull at its base to prevent the helmet from being easily dislodged or moved relative to the head.

Although the guard strap 36 may be slid relative to the pad 25, such relative sliding is prevented when the helmet is worn, due to the crimps in the straps 36 at the guard strap loop portion 35, particularly since the bights of the crimps in the strap frictionally engage the wearer's head to thus, in effect, lock the strap against shifting relative to the pad when the helmet is twisted upon the wearer's head.

Having fully described an operative embodiment of this invention, I now claim:

1. An adjustable protective neck guard for a helmet formed of an inverted generally bowl-shaped shell having a forward portion and a rear portion;

said guard being formed of a horizontally elongated pad centered at the rear lower portion of the shell for engaging the rear side portions of the base of the wearer's skull;

a narrow elongated strap, encircling the rear of the pad near the center line thereof, and having its opposite ends fixedly secured to the shell near the opposite ends of the pad, the strap being connected to the pad and having adjustment means for adjusting the strap length for thereby positioning the pad at predetermined distances relative to the foreward portion of the shell;

and said pad having a pair of closely spaced vertically extending slits extending therethrough and located between

each of its opposite ends and the horizontally measured center of the pad to form strap-receiving loops between each adjacent pair of slits;

said strap extending through said loops so that small portions of the strap are arranged upon the forward face of the guard for frictionally contacting the wearer's head and thus resisting sliding movement between the guard and strap while the helmet is being worm.

* * * * *