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(71) Applicant: **Plastino, Frank  
Morganville NJ 07751 (US)**

(72) Inventor: **Plastino, Frank**

**Morganville NJ 07751 (US)**

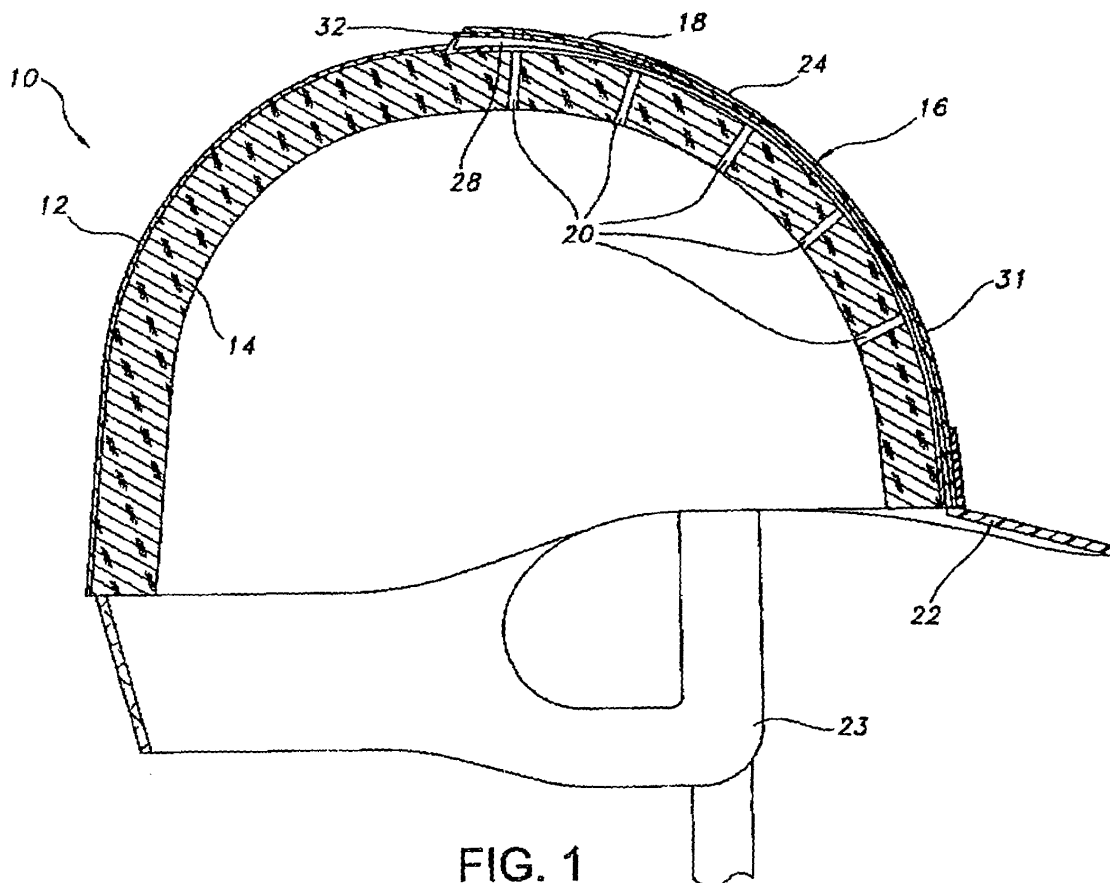
(74) Representative: **Dunlop, Brian Kenneth Charles et  
al**

**Wynne-Jones, Lainé & James LLP  
Essex Place  
22 Rodney Road  
Cheltenham  
Gloucestershire GL50 1JJ (GB)**

(54) **Vented helmet with insert**

(57) A helmet (10) is provided, having a vent assembly (16) allowing fluid communication between an exterior of the helmet and an interior of the helmet. The vent as-

sembly (16) includes an open-ended elongated sleeve (18) disposed on a frontal portion of the helmet (10), with the sleeve (18) being in fluid communication with at least one aperture (26) passing through to the helmet interior.



**FIG. 1**

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## Description

[0001] This application claims the benefit of priority in provisional patent application serial no. 60/783,672 filed on March 17, 2006, the disclosure of which is incorporated herein in its entirety by reference.

## Technical Field

[0002] The present invention relates to a safety helmet. In particular, the invention relates to a helmet for use in equitation, having a vent assembly with a cooperating insert.

## Background of the Invention

[0003] In equitation and other sports, a helmet is an essential element of equipment, providing protection for the user's head in the event of a fall or a blow. In certain sports such as English-style equitation, the style and appearance of the helmet used is strongly dictated by tradition. In particular, in English riding competitions and show events, the helmet used is typically of fairly consistent outward appearance and design, providing a rigid or semi-rigid head covering, a brim, and optionally a suitable retention system such as a chin strap. For example, particularly for events such as dressage, show jumping, and the like, tradition dictates that the English-style riding helmet be substantially black, and covered with a velvet or velvet-like material. Of course, other helmet styles are known in the art, such as those used cross-country competition and the like.

[0004] Disadvantageously, the conventional riding helmet such as the English-style riding helmet may be quite uncomfortable, particularly during hot weather, due to the lack of ventilation. Other helmet styles, such as for example helmets for bicyclists or motorcyclists, are able to incorporate various designs of vents and venting systems to address the need for ventilation without concern for tradition or traditional style. Indeed, the types of vents and venting systems which may be incorporated into helmets for other sports are limited only by the manufacturer's creativity and by consumer preferences. In contrast, due to the traditionally-mandated styling for English riding equipment as discussed above, the type of venting system or assembly which may be incorporated into an English-style riding helmet is limited. There is accordingly a need in the art for a helmet for use in English-style equitation which provides adequate ventilation to increase user comfort, but which also comports with traditional styling needs.

## Summary of the Invention

[0005] In accordance with the need identified in the art, the present invention provides a helmet having a venting assembly, for use in sports such as equitation. The helmet of the present invention comports with the conven-

tional appearance of the English-style riding helmet, but provides improved ventilation or airflow to the user's head. The venting assembly of the present invention also allows altering the appearance of the helmet to suit the user's taste in appropriate situations.

[0006] In one aspect, the present invention provides a helmet comprising a vent assembly allowing fluid communication between an exterior of the helmet and an interior of the helmet. The vent assembly comprises an open-ended elongated sleeve disposed on a frontal portion of the helmet, the sleeve being in fluid communication with at least one aperture passing through to the helmet interior. In one embodiment, the elongated sleeve may include a first wall having at least one aperture therethrough, a second wall spaced from the first wall and having at least one aperture therethrough, at least one closed edge, and at least one open edge. The at least one first wall aperture, at least one second wall aperture, and at least one inner shell aperture cooperate to allow fluid communication between an exterior and an interior of the helmet. An insert is provided, which is slidably receivable within the elongated sleeve.

[0007] In another aspect of the present invention, a vent assembly for a helmet is provided, comprising an open-ended elongated sleeve including a first wall having at least one aperture therethrough, a second wall spaced from the first wall and having at least one aperture therethrough, at least one closed edge, and at least one open edge. The first wall, second wall, and closed edge define an internal lumen. An insert which is slidably receivable in the lumen is provided.

[0008] The insert typically includes at least one insert aperture that is at least partially alignable with the at least one first wall aperture and the at least one second wall aperture to permit a suitable level of ventilation to reach the user's head. In alternative embodiments, an insert may be provided which lacks apertures, in the event that restriction of the flow of ventilation is desirable. Alternatively an insert may be provided which allows incremental degrees of alignment of the insert apertures with the elongated sleeve first wall and second wall apertures, to allow adjusting the airflow to the interior of the helmet to a desired degree.

[0009] These and other embodiments, aspects, advantages, and features of the present invention will be set forth in the description which follows, and in part will become apparent to those of ordinary skill in the art by reference to the following description of the invention and referenced drawings or by practice of the invention. The aspects, advantages, and features of the invention are realized and attained according to the apparatuses particularly pointed out in the appended claims.

## Brief Description of the Drawing

[0010] The accompanying drawings incorporated in and forming a part of the specification, illustrates several aspects of the present invention, and together with the

description serves to explain the principles of the invention. In the drawings:

Figure 1 is a side cross-sectional view of a helmet in accordance with the teachings of the present invention;

Figures 2a and 2b show a portion of the vent assembly of the present invention in isolation from a front view (Figure 2a) and a rear view (Figure 2b);

Figure 3 is a front view of the helmet of the present invention;

Figure 4 shows a helmet insert in isolation; and

Figure 5 shows the insert without apertures of the present invention.

**[0011]** Reference will now be made in detail to the best mode contemplated for carrying out the invention, examples of which are illustrated in the accompanying drawings. The examples are presented in support of and to further illustrate the invention as described herein. However, the invention is not to be considered as limited thereto.

### Description of the Invention

**[0012]** With reference to Figure 1, in one aspect the present invention provides a helmet 10 comprising an outer shell 12, an inner shell 14 nested within the outer shell 12, and a vent assembly 16 for allowing fluid communication between an exterior of the helmet 10 and an interior of the helmet 10. In one embodiment, the vent assembly 16 comprises at least one open-ended elongated sleeve 18 disposed on the helmet. The elongated sleeve 18 is in fluid communication with at least one aperture 20 passing through the inner shell 14, allowing fluid communication between the helmet interior and exterior or atmosphere. As is known in the art, the helmet 10 may further include a brim 22, a retention system such as a chin strap 23, and one or more layers of padding (not shown for convenience) in the interior of the helmet 10 to improve user comfort. Of course, additional vents (not shown in the depicted embodiments) may be provided, for example passing through a rear portion of helmet 10, to further improve and increase air flow there-through.

**[0013]** In one embodiment (see Figures 2a and 2b), the elongated sleeve 18 includes a first wall 24 having at least one aperture 26 therethrough, a second wall 28 spaced from the first wall 24 and having at least one aperture 30 therethrough, at least one closed edge 31, and at least one open edge 32. That is, elongated sleeve 18 defines an interior lumen accessible via open edge 32. The at least one first wall aperture 26, the at least one second wall aperture 30, and the at least one inner shell aperture 20 cooperate to permit fluid communication between an exterior and an interior of the helmet 10. In this manner, airflow may be established to cool a user's head while wearing the helmet 10.

**[0014]** As also shown in Figures 2a and 2b, in one embodiment elongated sleeve 18 may be provided with a flange 34 to allow a more secure connection between elongated sleeve 18 and helmet 10. For example, flange 34 may include a plurality of apertures 36 allowing securement of elongated sleeve 18 to a surface of helmet 10 by any suitable fastener such as a pin, screw, rivet, or like fastener (not shown). Alternatively, flange 34 provides additional surface area for securement of elongated sleeve 18 to a surface of helmet 10 via a suitable adhesive. Of course, any desired combination of such fasteners can be used.

**[0015]** The elongated sleeve 18 second wall 28 may be disposed adjacent to or overlaying the inner shell 14. Typically, at least a portion of closed edge 31 of the elongated sleeve 18 traverses the outer shell 12 (see Figures 1 and 3). In the depicted embodiment, elongated sleeve 18 is disposed on an outer surface of the frontal portion of inner shell 14. Outer shell 12 includes a cutout 37 through which elongated sleeve 18 protrudes (see Figure 3). When the helmet 10 is assembled, flange 34 is captured between outer shell 12 and inner shell 14, and at least a portion of closed edge 31 and open edge 32 traverse at least a portion of the thickness of outer shell 12 through cutout 37. The elongated sleeve 18 first wall 24 may extend from an outer surface of outer shell 12, may be flush with the outer surface of outer shell 12, or may be at least partially recessed within cutout 37. Regardless, it will be appreciated that the elongated sleeve 18 is securely fastened to helmet 10, and open edge 32 is accessible to the user. Of course, alternative configurations for the elongated sleeve 18 and helmet 10 are possible. The elongated sleeve 18 may be disposed on an outer surface of the outer shell 12, or alternatively may be inset or recessed into the material of the inner shell 14, with the proviso that fluid communication is maintained between the exterior and the interior of the helmet 10.

**[0016]** In the depicted embodiment of the present invention, the elongated sleeve 18 is disposed on a front portion of the helmet 10. That is, the elongated sleeve 18 extends from a front bottom rim of the helmet 10 to substantially a top of the helmet 10, thereby providing ventilation to the frontal head portion or forehead of a user. Alternatively, elongated sleeve 18 may be configured to extend only a portion of the distance between the top and bottom rim of helmet 10.

**[0017]** The helmet 10 may further include an insert 38 slidably receivable within the elongated sleeve 18 (best seen in Figure 4). Typically, the insert 38 includes at least one insert aperture 40 that is at least partially alignable with the at least one first wall aperture 26 and the at least one second wall aperture 30 to permit a suitable level of ventilation to reach the user's head. Insert 38 may also be provided with a stop 42, to improve ease of insertion and removal of insert 38 from elongated sleeve 18.

**[0018]** It will be appreciated that an insert 38 may be provided that lacks such apertures 40 (Figure 5), in the

event that restriction of the flow of ventilation is desired, such as during inclement or cold weather. Alternatively (embodiment not shown), insert 38 may be configured to allow more than one position for insert apertures 40 relative to first wall apertures 26, allowing insert 38 to be translated between a first, open position and a second, closed position. In the first, open position, insert apertures 40 are at least partially aligned with first wall apertures 26 and second wall apertures 30 to permit fluid communication between the exterior and the interior of the helmet 10. In the second, closed position, insert apertures 40 are substantially removed from alignment with first wall apertures 26 (see Figure 2a), reducing or substantially preventing airflow to the interior of the helmet.

**[0019]** Numerous structures could be used to provide this feature. For example (embodiment not shown), one or more detents could be provided on or near open edge 32, with corresponding sequential ridges provided on an edge of insert 38, or vice versa (that is, ridges near open edge 32 with flexible detents provided on an edge of insert 38). Additional detent/ridge structures could be provided to allow different increments of alignment of insert 38 apertures 40, first wall apertures 26, and second wall apertures 30 to allow increasing or restricting air flow therethrough as desired. Of course, any other suitable design could be used which allows incremental translation of insert apertures 40 relative to first wall apertures 26 and second wall apertures 30. For example (embodiment not shown), a suitable friction or interference fit could be established between insert 38 and elongated sleeve 18. Still further (embodiment not shown), a spring-loaded detent could be provided for engaging ridges formed in or on insert 38, to prevent unrestricted motion thereof. Any such structures are well within the knowledge of the skilled artisan, with the proviso that the structure permit translation of insert 38 (within elongated sleeve 18) from an open or partially open position to a closed position and back, as described above.

**[0020]** In one embodiment of the present invention, at least a portion of the elongated sleeve 18 may be fabricated of a suitably transparent or translucent material, and an insert 38 may be provided which is visually distinct from at least an outer surface of the outer shell 12 of helmet 10 (see Figure 2a). For example, first wall 24 of the elongated sleeve 18 may be fabricated of a suitably translucent or substantially transparent material, and insert 38 may be visually distinct from an outer surface of helmet 10 by virtue of color, texture, or both. Multiple inserts 38 may be provided, each visually distinct from the helmet 10 and from one another. Of course, an insert 38 may be provided also which matches at least an outer surface of helmet 10, i.e., is not visually distinct therefrom, when a consistent or congruous external appearance of helmet 10 is desired. Thus, in addition to the advantages of the present vent assembly 16 as described above, a decorative and ornamental feature is provided, whereby the user is able to alter the appearance of helmet 14 according to personal tastes and preferences.

**[0021]** The foregoing description has been presented for purposes of illustration and description. It is not intended to be exhaustive or to limit the invention to the precise form disclosed. Obvious modifications or variations are possible in light of the above teachings. Accordingly, the drawings and descriptions provided will be regarded as illustrative in nature, and not as restrictive. The described embodiments were chosen and described to provide the best illustration of the principles of the invention and its practical application to thereby enable one of ordinary skill in the art to utilize the invention in various embodiments and with various modifications as are suited to the particular use contemplated. All such modifications and variations are within the scope of the invention as determined by the foregoing description and appended claims, when interpreted in accordance with the breadth to which they are fairly, legally and equitably entitled.

## Claims

1. A helmet, comprising a vent assembly allowing fluid communication between an exterior of the helmet and an interior of the helmet; wherein the vent assembly comprises an open-ended elongated sleeve disposed on a frontal portion of the helmet, said sleeve being in fluid communication with at least one aperture passing through to the helmet interior.
2. The helmet of claim 1, wherein the elongated sleeve includes a first wall having at least one aperture therethrough, a second wall spaced from the first wall and having at least one aperture therethrough, at least one closed edge, and at least one open edge; and further wherein the at least one first wall aperture, the at least one second wall aperture, and the at least one inner shell aperture cooperate to allow fluid communication between an exterior and an interior of the helmet.
3. The helmet of claim 1, wherein the elongated sleeve second wall is disposed adjacent to the inner shell.
4. The helmet of claim 3, wherein at least a portion of an edge of the elongated sleeve traverses the outer shell.
5. The helmet of claim 4, wherein the elongated sleeve extends from a front bottom rim of the helmet to substantially a top surface of the helmet.
6. The helmet of claim 1, further including an insert slidably receivable within the elongated sleeve.
7. The helmet of claim 6, wherein the insert includes at

least one insert aperture that is at least partially alignable with the at least one first wall aperture and the at least one second wall aperture.

8. The helmet of claim 6, wherein at least the elongated sleeve first wall is fabricated of a substantially transparent or translucent material. 5
9. The helmet of claim 8, wherein the insert is visually distinct from at least an exterior surface of the helmet. 10
10. The helmet of claim 9, wherein the insert is visually distinct from at least an exterior surface of the helmet by at least one of color or texture. 15
11. A vent assembly for a helmet, comprising an open-ended elongated sleeve including a first wall having at least one aperture therethrough, a second wall spaced from the first wall and having at least one aperture therethrough, at least one closed edge, and at least one open edge, the first wall, second wall, and closed edge defining an internal lumen. 20
12. The vent assembly of claim 11, further including an insert slidably receivable in the lumen. 25
13. The vent assembly of claim 12, wherein the insert includes at least one aperture that is at least partially alignable with the at least one first wall aperture and the at least one second wall aperture. 30
14. A helmet, comprising a vent assembly allowing fluid communication between an exterior of the helmet and an interior of the helmet; wherein the vent assembly comprises an open-ended elongated sleeve defining an internal lumen, said sleeve being disposed on a frontal portion of the helmet and in fluid communication with at least one aperture passing through to the helmet interior; and an insert slidably receivable within the lumen for modifying an airflow into the helmet interior. 35 40
15. The helmet of claim 14, wherein the elongated sleeve includes a first wall having at least one aperture therethrough, a second wall spaced from the first wall and having at least one aperture therethrough, at least one closed edge, and at least one open edge. 45
16. The helmet of claim 15, wherein the insert includes at least one aperture therethrough, and further wherein the at least one first wall aperture, the at least one second wall aperture, the at least one inner shell aperture, and the at least one insert aperture cooperate to modify fluid communication between an exterior and an interior of the helmet. 50 55
17. The helmet of claim 14, wherein the elongated

sleeve extends from a front bottom rim of the helmet to substantially a top surface of the helmet.

18. The helmet of claim 15, wherein at least the elongated sleeve first wall is fabricated of a substantially transparent or translucent material.
19. The helmet of claim 18, wherein the insert is visually distinct from at least an exterior surface of the helmet.
20. The helmet of claim 19, wherein the insert is visually distinct from at least an exterior surface of the helmet by at least one of color or texture.

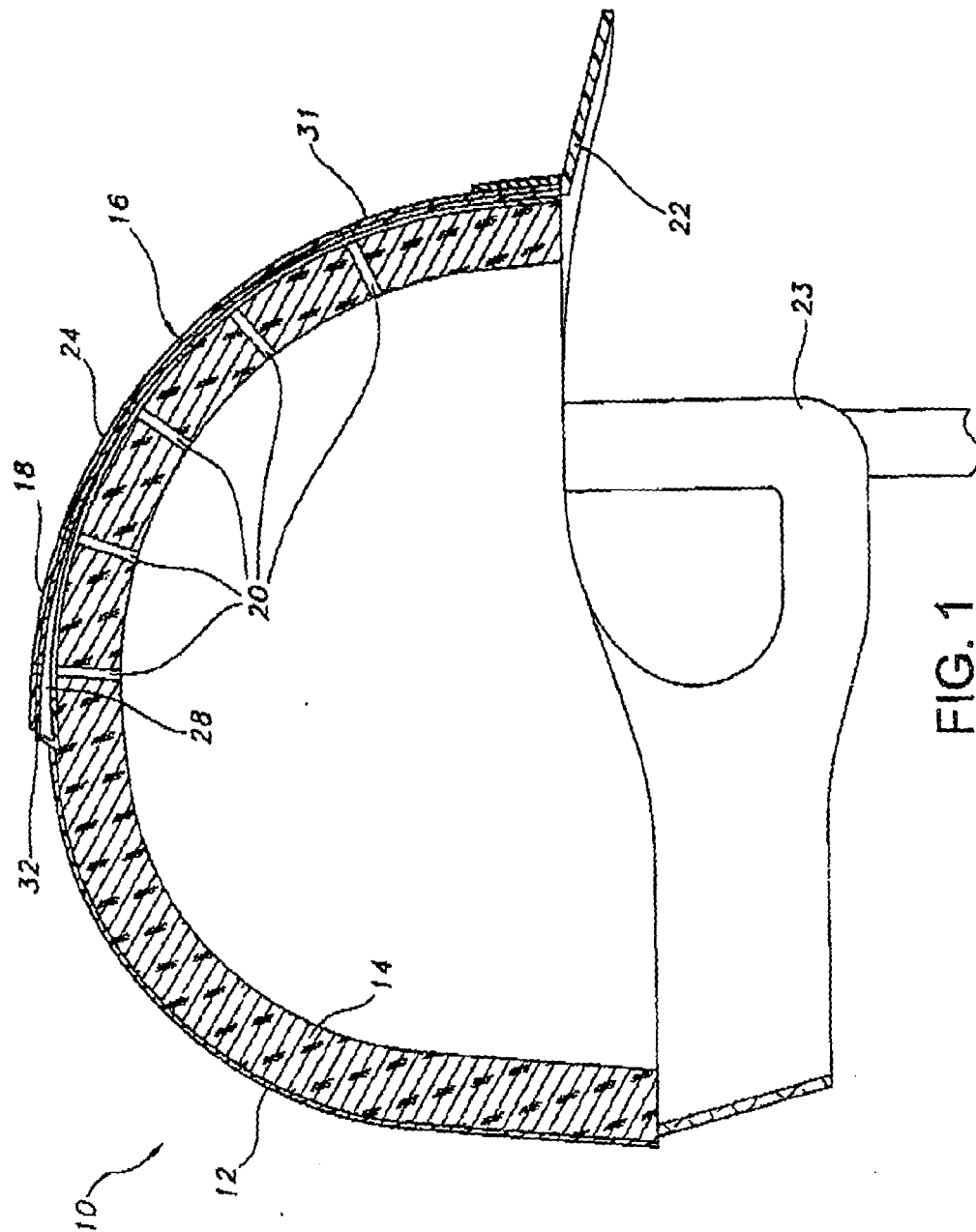


FIG. 1

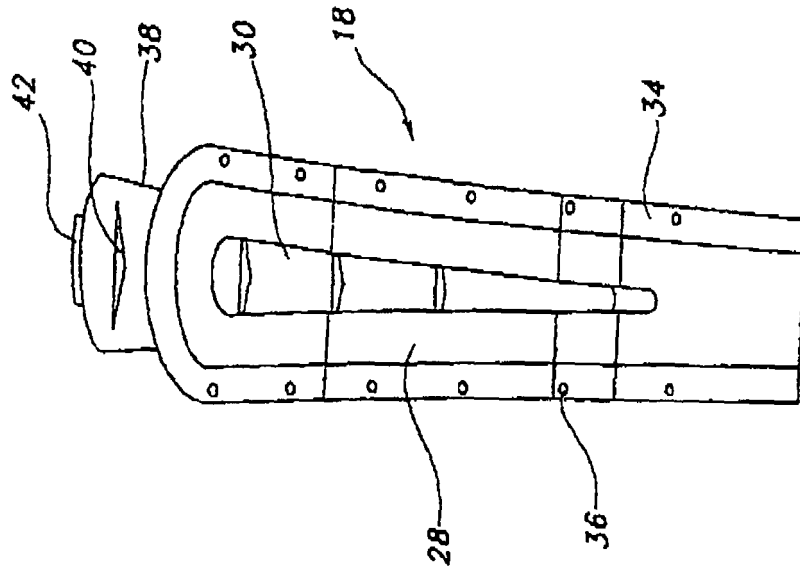


FIG. 2B

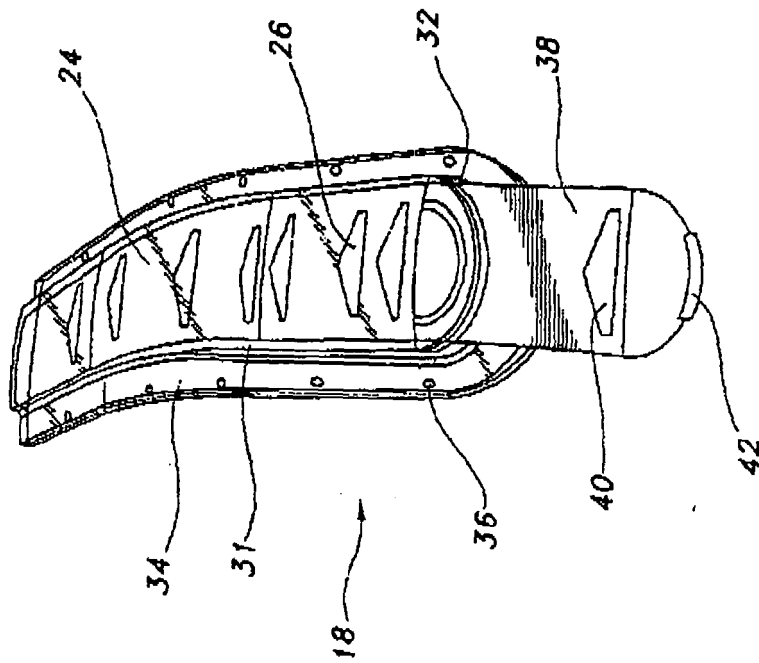


FIG. 2A

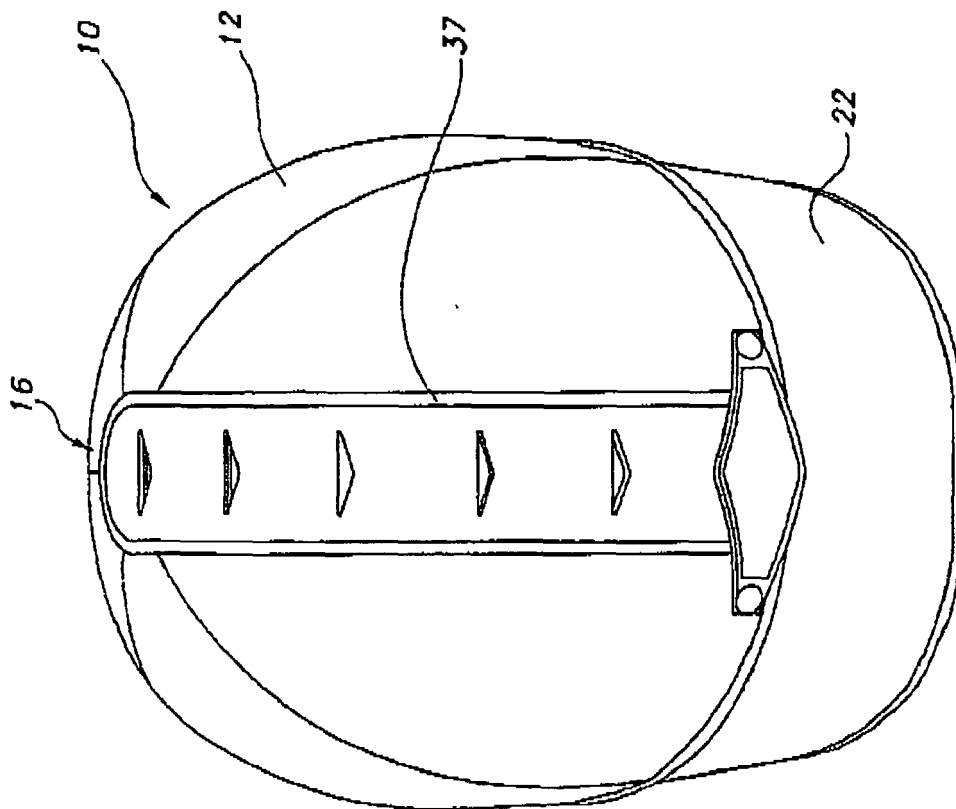
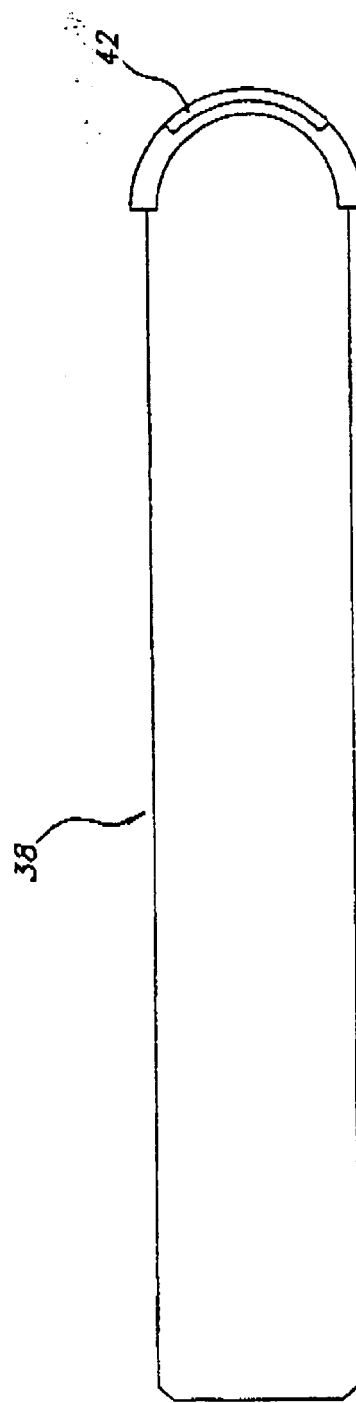
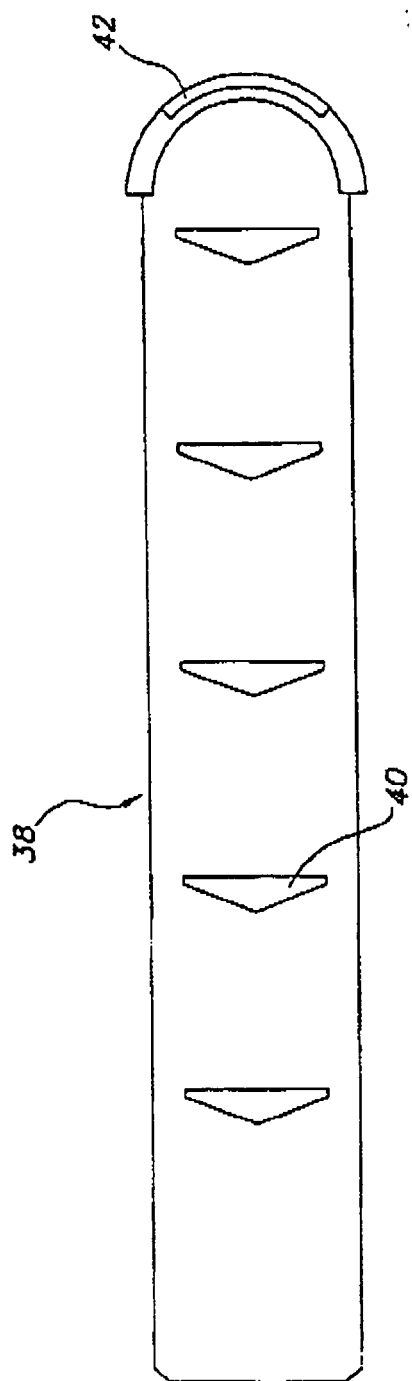


FIG. 3





**REFERENCES CITED IN THE DESCRIPTION**

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**Patent documents cited in the description**

- WO 60783672 A [0001]