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(54) **Headguard with temple protecting scallop that does not cover the ears**

Kopfschutz mit Schläfenschutzbogen, der nicht die Ohren abdeckt

Casque avec languette de protection de branche qui ne recouvre pas les oreilles

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(73) Proprietor: **FULL90 Sports, Inc.
San Diego, California 92121 (US)**

(72) Inventors:
• **Cleveland, William K.
El Cajon, CA 92109 (US)**

• **Boelhauf, Russ
Coronado, CA 92118 (US)**
• **Skeen, Jeff D.
Rancho Santa Fe, CA 92067 (US)**

(74) Representative: **Heunemann, Dieter
Vossius & Partner
Siebertstrasse 4
81675 München (DE)**

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Description

BACKGROUND

[0001] The prior art contains many examples of protective headguard systems. The prior art describes a variety of fit and retention systems.

[0002] Headguard fit and retention systems are intended to keep the headgear on the head during use, maintain fit and comfort while in use, protect desired areas during use, and allow the user to easily put on and take off the headgear when desired.

[0003] Fit and retention systems must deal with the basic characteristics of the human head: the generally spheroidal shape; the neck; and the various features such as the face, ears, frontal bone, occipital bone, or the parietal eminences.

[0004] Protective helmets use various means to improve retention and fit. For those with hard and stiff shells, compressible padding, padding inserts, adjustable suspension are some of the means by which different head sizes can be accommodated. Football, hockey, bicycle helmets, and construction hard hats would fall into this category. For headgear with soft flexible shells, such as the headgear used in boxing, the martial arts, or soccer, the shape of the entire piece of headgear can be altered with, for example, adjustment straps to help conform it to the shape of the head.

[0005] In many instances, however, additional retention means such as chinstraps become necessary. Chinstraps typically attach near the edges of the helmet close to the ears and either pass under the chin or over the chin. A fastening system such as a buckle or snap allows the user to fasten and unfasten the chinstrap.

[0006] Various means have been attempted to improve fit and retention to overcome the shortcomings of systems that rely primarily on the chinstrap. Doing so often requires balancing fit, retention, and comfort. With almost any headgear, retention can be improved by simply making the headgear fit tighter. For headgear such as knit winter hats or winter headbands this does not typically pose a problem. A knit winter hat can fit relatively tight without causing discomfort. The lightness, elasticity, and conformability of such headgear are likely reasons for this.

[0007] For many kinds of protective headgear, however, creating a tighter fit merely results in discomfort. An American football helmet with a tight fit can be very uncomfortable. The bulk, inelasticity of the headgear structure, and the pressure points created where padding is compressed to fit variations on the head's surface could be causes for this.

[0008] Alternatives to simply tightening the fit have been developed. Many bicycle helmets, for example, have devices that cradle the occipital bone. These systems are not intended to eliminate the chinstrap but are intended to prevent minor shifts during normal use and to reserve the chinstrap for events such as accidents.

These systems rely on a retention system that applies pressure to selected points on the head. In the case of the bicycle helmets with the occipital cradle, what amounts to a triangular retention system is created. In this system pressure is applied to a set of points below the occipital bone, points above the occipital bone, and points approximately in the middle of the forehead. However, these systems still rely on a chinstrap for retention purposes. Therefore there is still a pressure point under the chin.

[0009] United States Patent No. 5,806,535 to Becker describes a head band with upper and lower bands continuously interconnecting along an entire circumference of a head.

[0010] International Patent No. PCT/KR03/001691 to Kim describes a head band with upper and lower bands episodically continuously interconnecting along an entire circumference of a head.

[0011] United States Patent No. 6,397,399 to Lampe et al. teaches padding enclosed in a fabric covering. The fabric covering stretches to conform the padding to the head.

[0012] United States Patent Nos. 6,266,827 and 6,349,416 to Lampe et al reveal fit and retention systems with adjustment straps located in positions other than those where chinstraps would typically be located. Unlike a baseball cap, these devices may have two or more dependent circular lines of retention created by ribs which are fastened together in an overlapping position to conform to a human head.

[0013] US 6381760 discloses a protective headguard with the features of the preamble of claim 1.

SUMMARY OF THE INVENTION

[0014] The present claimed invention comprises the features of claim 1.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] FIG. 1 is a front perspective view of a first embodiment of the present invention when laid flat.

[0016] FIG. 2 is a side elevation view of the invention depicted in FIG. 1 worn on a human head.

[0017] FIG. 3 is a front perspective view of a second embodiment of the present invention when laid flat.

[0018] FIG. 4 is a side elevation view of the invention depicted in FIG. 3 worn on a human head.

DETAILED DESCRIPTION OF A PREFERRED EMBODIMENT

Nomenclature

[0019]

10	Headguard (First Embodiment)
20	Front Pad

30	Bands
32	Left Upper Band
34	Right Upper Band
36	Left Lower Band
36s	Left Scallop
38	Right Lower Band
38s	Right Scallop
39	Hook and Loop Tape
39a	Hook Portion of Hook and Loop Tape
39b	Loop Portion of Hook and Loop Tape
40	Adjustment Strap
42	Left Upper Adjustment Strap
44	Right Upper Adjustment Strap
46	Left Lower Adjustment Strap
48	Right Lower Adjustment Strap
50	Rear Pad
51	Interior Surface
52	Dimple
53	Exterior Surface
54	Channel
56	First Attachment Area
57	Second Attachment Area
100	Human Head
102	Forehead
104	Temple Area
106	Ear
108	Occipital Bone
200	Headguard (Second Embodiment)
220	Front Pad
236	Left Band
236s	Left Scallop
238	Right Band
238s	Right Scallop
239	Hook and Loop Tape
239a	Hook Portion of Hook and Loop Tape
239b	Loop Portion of Hook and Loop Tape
240	Adjustment Strap
246	Left Adjustment Strap
248	Right Adjustment Strap
250	Rear Pad
251	Interior Surface
252	Dimple
253	Exterior Surface
254	Channel
256	First Attachment Area
257	Second Attachment Area
T	Longitudinal Line
L	Lateral Line
P	Pad Thickness Line

Construction

[0020] The present claimed invention is intended to improve protection of the temple area **104** of a human head **100** with an athletic headguard **10**. The shape of the human head **100**, above the eye brows, is basically a cone. When any flat object, such as a headband or headguard **10**, is wrapped around the head **100** it has a tendency to

"slip or slide" upward exposing the temple area **104** of the human head **100**. A straight edged headband cannot protect the temple area **104** without covering the ears **106** which would muffle sounds and communication. The temple protecting headguard **10** can be used for many purposes. For example, uses could include soccer or other activities where it is necessary to protect the temple area **104** of a human head **100** from impact of a ball or player. A lightweight, well-ventilated, snug fitting, and securely affixed headguard **10** to protect the temple area **104** is desirable.

First Embodiment

15 [0021] The first embodiment of the present invention, depicted in Figs. 1 and 2, is a headguard **10** comprising a front pad **20**, a rear pad **50**, and left and right, upper and lower independently adjustable bands **32**, **34**, **36** and **38** (collectively bands **30**) and left and right scallops **36s** and **38s** on the left and right lower bands **36** and **38** respectively. As shown in Fig. 1, the front pad **20** can be oriented with a lateral line **L** and a longitudinal line **T** that is perpendicular to line **L**. The length of the front pad **20** is the maximum dimension of the front pad **20** measured parallel to the lateral line **L**. The width of the front pad **20** is the maximum dimension measured parallel to the longitudinal centerline **T** in the longitudinal direction. The thickness of the headguard **10** is the maximum dimension measured parallel to the line **P**.

20 [0022] The bands **30** extend laterally from the front pad **20** and wrap around the head **100**. When measuring from the longitudinally extending center line **T** which bisects the front pad **20**, the upper bands **32** and **34** are a shorter lateral length than the lower bands **36** and **38**. Left and right scallops **36s** and **38s** extend longitudinally downward from the left and right lower bands **36** and **38** respectively, and are positioned to protectively cover the right and left temple areas **104** without covering the ears **106** when the headguard **10** is worn.

25 [0023] Each of the four bands **30** are independently adjustable from each other. This allows a user to customize the length of all the bands **30** in order to position the left and right scallops **36s** and **38s** as desired and secure the headband **10** comfortably upon a human head **100**.

30 [0024] The left and right upper bands **32** and **34** will wrap around a human head **100** and connect to the rear pad **50** creating a first tensioned circumferential line of retention. The headguard **10** remains flush against the head **100** along the first line of retention. A second tensioned circumferential line of retention is created when the left and right lower bands **36** and **38** are secured flush around the head **100**. Because the circumference of the first line of retention is smaller than the second line, the headguard **10** remains flush upon the natural conical shape of a human head **100** thus minimizing the amount of slippage which occurs while wearing the headguard **10**.

[0025] Fig. 2 shows a profile of a human head 100 with a headguard 10 positioned on it. In this embodiment the headguard 10 can encircle the head 100. The front pad 20 can cover an area from the forehead 102 to a portion of the head 100 above the ears 106. The rear pad 50 can cover an area primarily on and around the occipital bone 108. Left and right scallops 36s and 38s extends longitudinally from the side of the headguard 10 to protectively cover at least a portion of the right and left temple areas 104 on a human head 100 respectively, without covering the ears 106. The lower bands 36 and 38 continue to protect the head 100 above the ears 106 without covering the ears 106. This allows the user to have protection to the critical temple areas 104 without sacrificing the ability to hear caused by coverage of the ears 106 by the headguard 10.

[0026] The scallops 36s and 38s include a protective padding material comprising closed cell foams of various kinds.

[0027] The left and right scallops 36s and 38s can also be encased in coverings. The coverings can be made of various kinds of materials such as fabric. For most applications, an elastic and highly breathable material would be most suitable. For example, a fabric such as Spandex® from Du Pont Company could be suitable for many applications. Many other fabrics such as CoolMax® from Invista could also be suitable. CoolMax® is a product that could aid in moisture management. Other materials such as mesh materials could be used alone or in combination with various fabrics.

[0028] Adjustment straps 42, 44, 46 and 48 (collectively straps 40) connect the left and right, upper and lower bands 30 to attachment areas 56 and 57 located on either side of the rear pad 50. The adjustment straps 40 can be made from an elastic material or stretchable foam to add additional tension to aid in retention of the headguard 10. Hook and loop tape 39 or a buckle (not shown) connects the adjustment straps 40 to the respective attachment area 56 or 57 on the rear pad 50. By adjusting the individual adjustment straps 40 all four bands 30 are independently adjustable to optimally fit the headguard 10 onto the human head 100.

[0029] The rear pad 50 can have a cup shape or eccentric dimple 52 with interior 51 and exterior 53 surfaces to better accommodate a user's occipital lobe 108 to allow the rear pad 50 to be secured flush to the back of the head. The rear pad 50 can also have a channel 54 running through the rear pad 50 to accommodate a user's hair or pony tail to extend through the channel 54 providing for a more comfortable and securely fitting headguard 10.

Second Embodiment

[0030] A second embodiment of the present invention is depicted in Figs. 3 and 4. Many aspects of the second embodiment can resemble those of the first. The second embodiment of the headguard 200 consists of a single set of left and right extending bands 236 and 238 with

left and right scallops 36s and 38s extend longitudinally downward from the bands 236 and 238 respectively.

[0031] The headguard 200 can function with or without the adjustment straps 246 and 248 as employed in the first embodiment. Without the adjustment straps 246 and 248, the bands 230 simply attach directly to the rear pad 250, such as via hook and loop tape 239 with the hook portion 239a on the distal end of the bands 236 and 238 cooperating with loop portions 239b covering the attachment areas 256 and 257 on the rear pad 250. However, stretchability of the headguard 10 could be somewhat more limited without the adjustment straps 246 and 248. The position of the scallops 36s and 38s protectively covering the temple areas 104 while not covering the ears 106 would remain relatively unchanged while the headguard 200 is being expanded or contracted. The left and right scallops 36s and 38s would still be positioned, configured and arranged to protectively cover the temple areas 104.

Claims

1. A protective headguard (10), comprising left and right side bands with first (36s) and second (38s) side scallops positioned, configured and arranged to protectively cover the left and right temple portions of a human head respectively, without covering the ears, when the headguard (10) is worn on the head, wherein the scallops (36s, 38s) extend below the top of the ears of the human head when the headguard is worn on the head, **characterized in that** the left and right scallops (36s, 38s) further include a protective padding material comprising a closed cell foam.

Patentansprüche

1. Kopfschutz (10) mit einem linken und rechten Seitenband mit einem ersten (36s) und zweiten (38s) Seitenbogen, die angeordnet und eingerichtet sind, jeweils die linken und rechten Schläfenabschnitte eines menschlichen Kopfes schützend zu bedecken, ohne die Ohren zu bedecken, wenn der Kopfschutz (10) am Kopf getragen wird, wobei sich die Bögen (36s, 38s) unter dem oberen Teil der Ohren des menschlichen Kopfes erstrecken, wenn der Kopfschutz am Kopf getragen wird, **dadurch gekennzeichnet, dass** die linken und rechten Bögen (36s, 38s) ferner ein schützendes Polstermaterial aufweisen, das einen geschlossenzelligen Schaum aufweist.

Revendications

1. Protège-tête (10), comprenant des bandes latérales

gauche et droite avec une première (36s) et une deuxième (38s) coquille latérale positionnées, prévues et agencées pour couvrir en les protégeant respectivement les tempes gauche et droite de la tête d'une personne, sans recouvrir les oreilles quand le protège-tête (10) est porté sur la tête, les coquilles latérales (36s, 38s) descendant du sommet des oreilles de la tête de la personne quand le protège-tête est porté sur la tête, **caractérisé en ce que** les coquilles latérales gauche et droite (36s, 38s) comportent en outre un matériau de rembourrage protecteur composé d'une mousse à cellules fermées.

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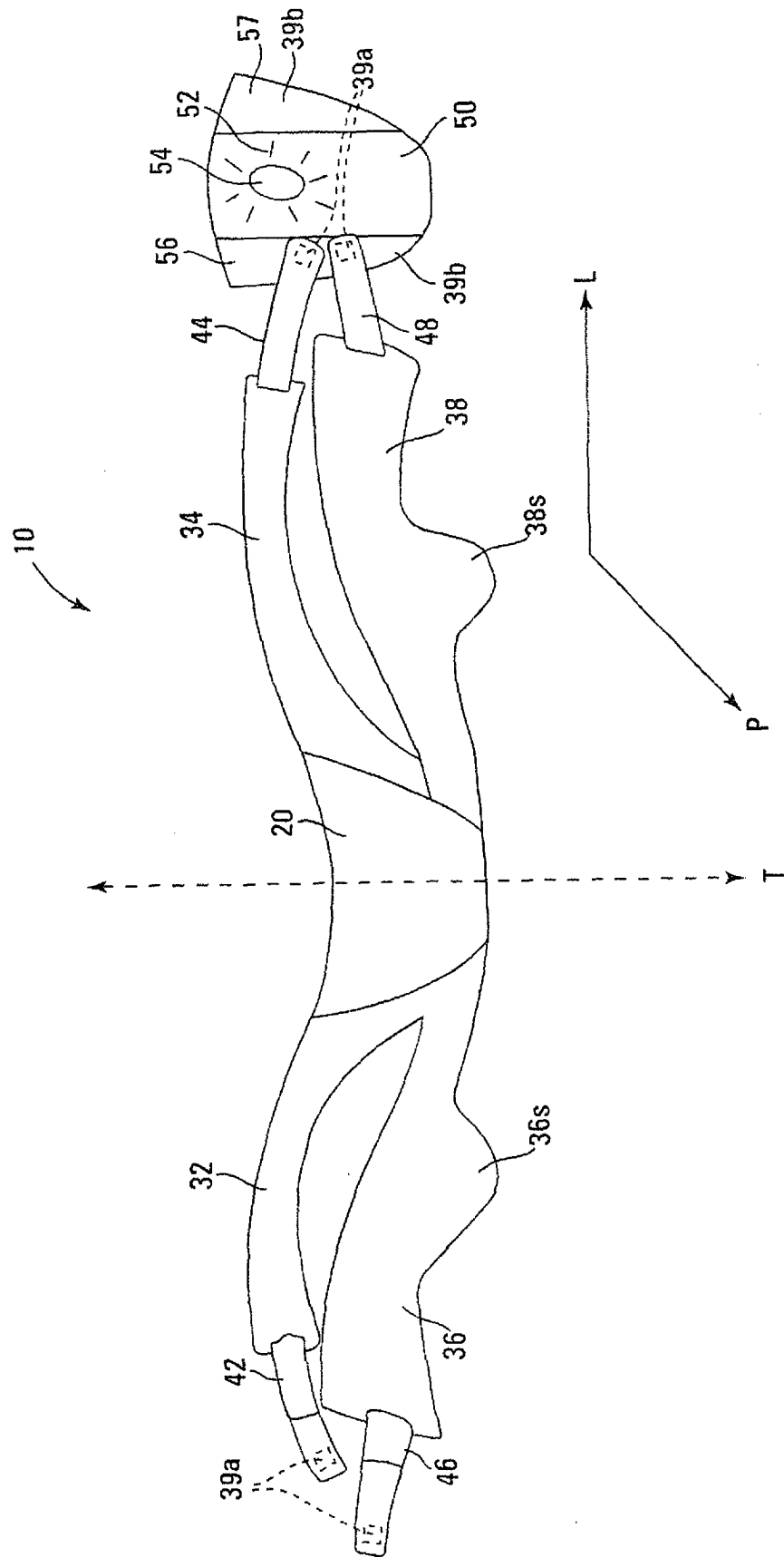
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Fig. 1



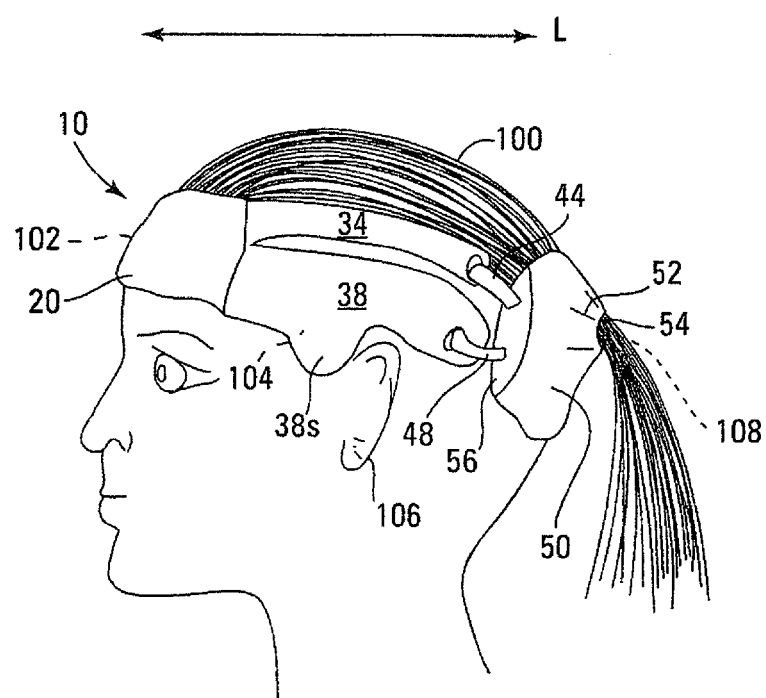


Fig. 2

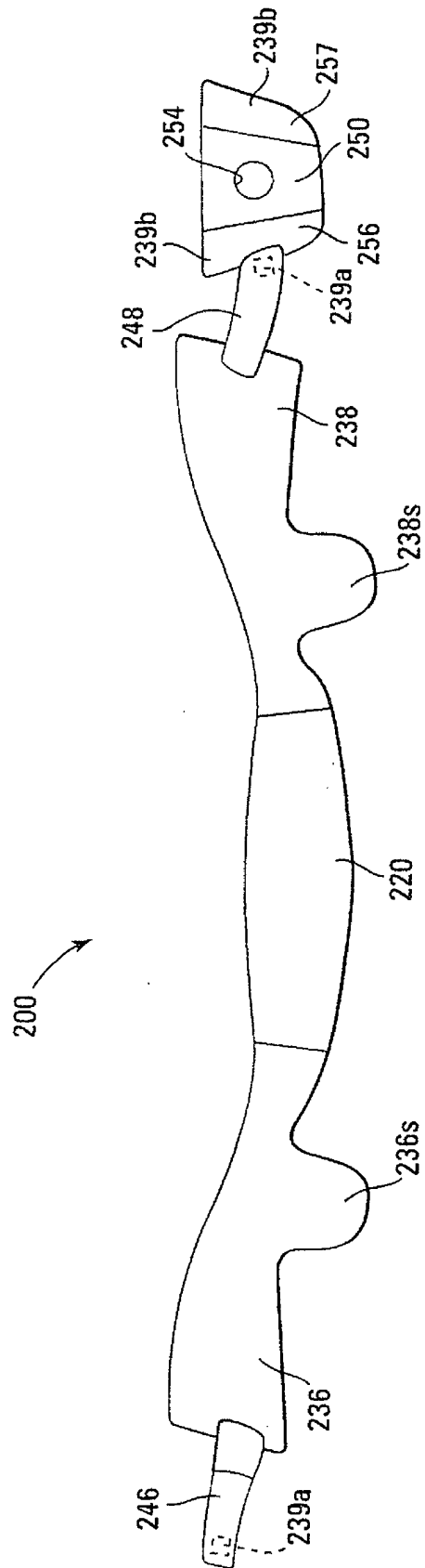


Fig. 3

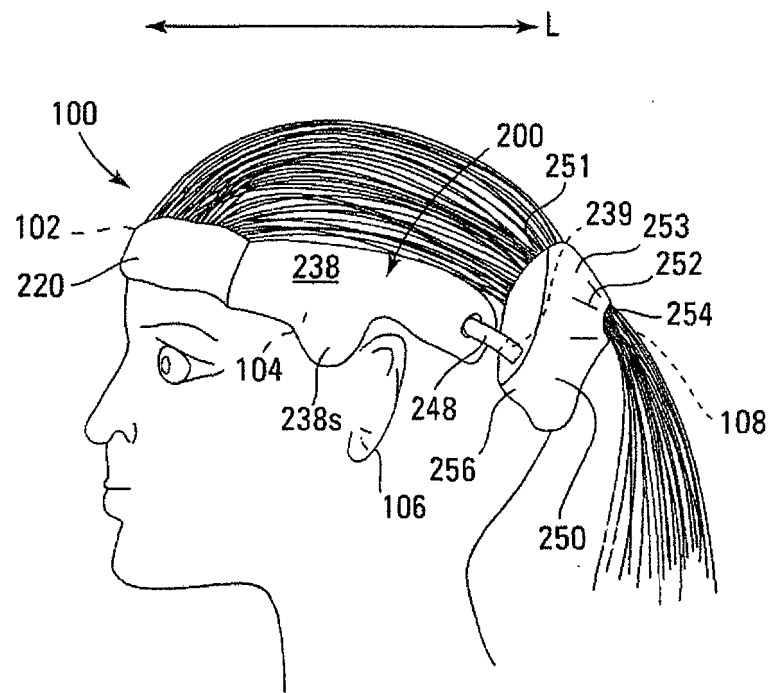


Fig. 4

REFERENCES CITED IN THE DESCRIPTION

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