US 20050132470A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2005/0132470 A1**

Wong (43) **Pub. Date: Jun. 23, 2005**

(54) **ELASTIC CAP**

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(21) Appl. No.: **11/010,686**

(22) Filed: **Dec. 13, 2004**

(30) **Foreign Application Priority Data**

Dec. 23, 2003 (HK) 03109342.3

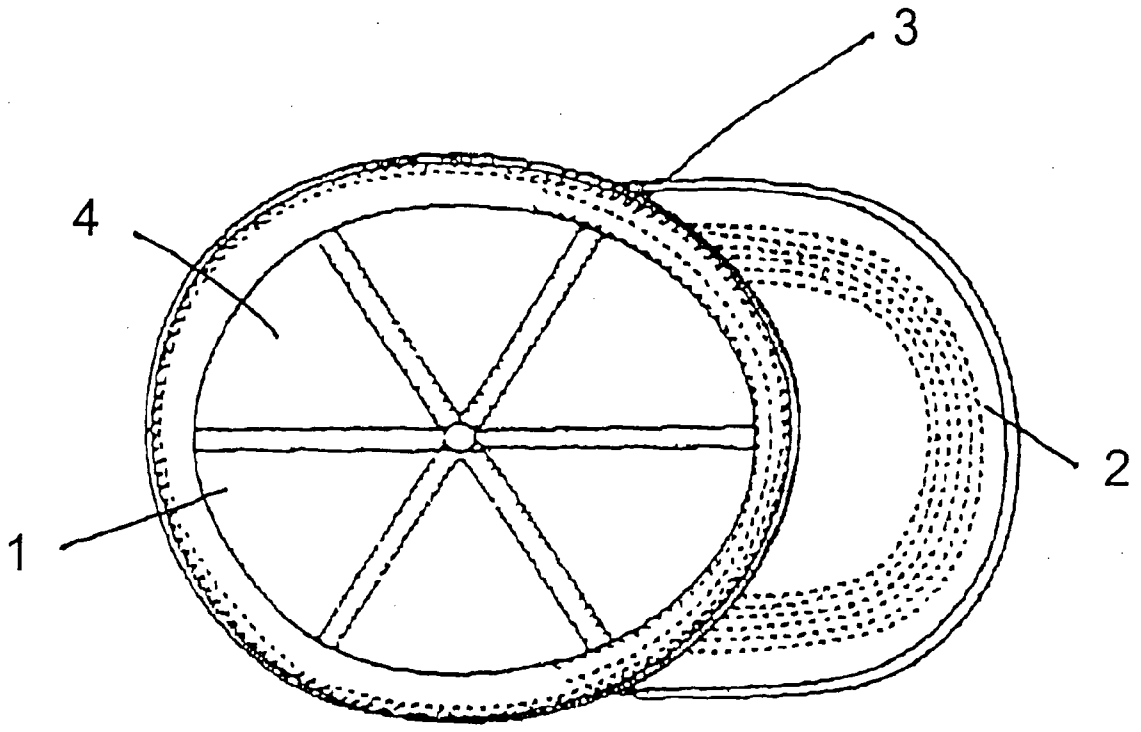
Publication Classification

(51) **Int. Cl.**[7] **A42B 1/22**; A42B 1/00

(52) **U.S. Cl.** **2/195.2**

(57) **ABSTRACT**

An elastic cap, comprising a cap body, cap bill and a sweatband, the fabric used for the cap construction includes a stretchable fabric woven with a high-elastic yarn as woof and an un-stretchable yarn as warp. The sweatband includes at least one of the first four pages having a web and at least one of next two pages does not have web, in order to proved excellent lateral tensile force. The cap is easily adjustable so as to adapt easily to various users head size.



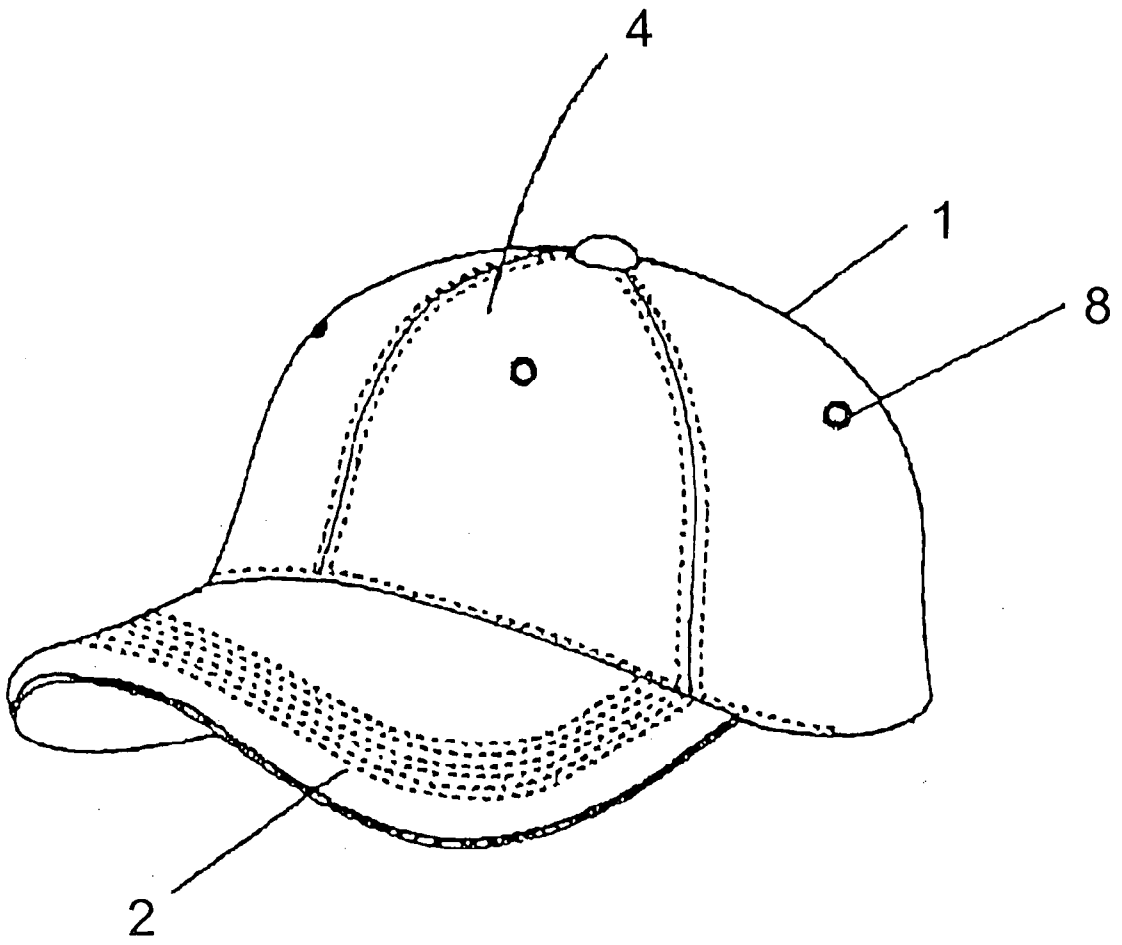


Figure 1

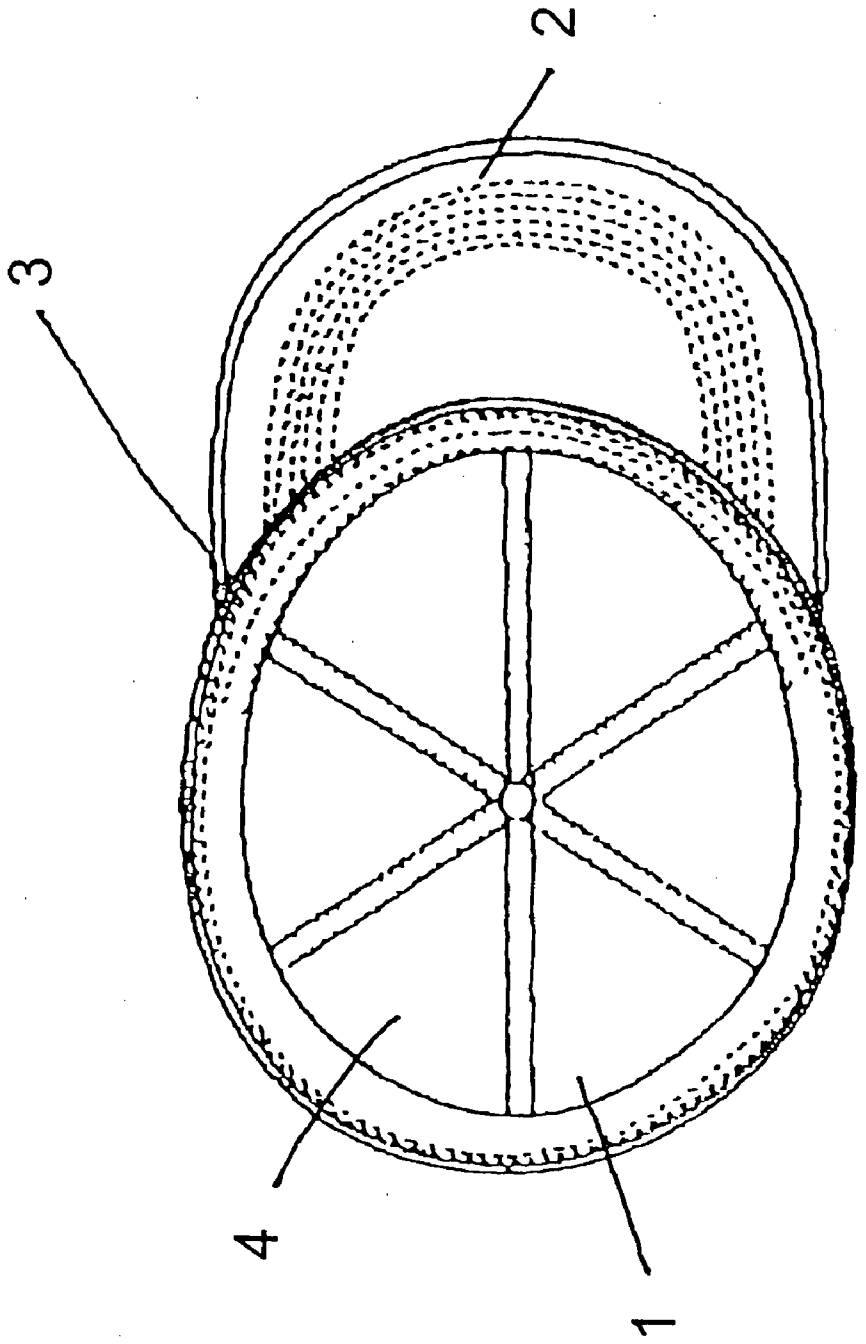


Figure 2

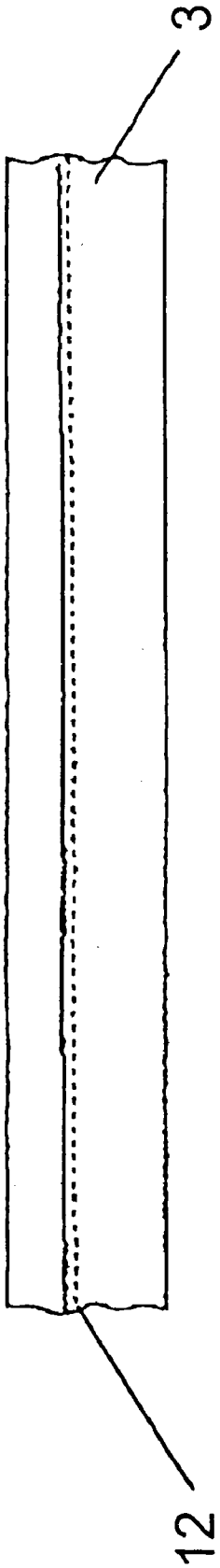


Figure 3A

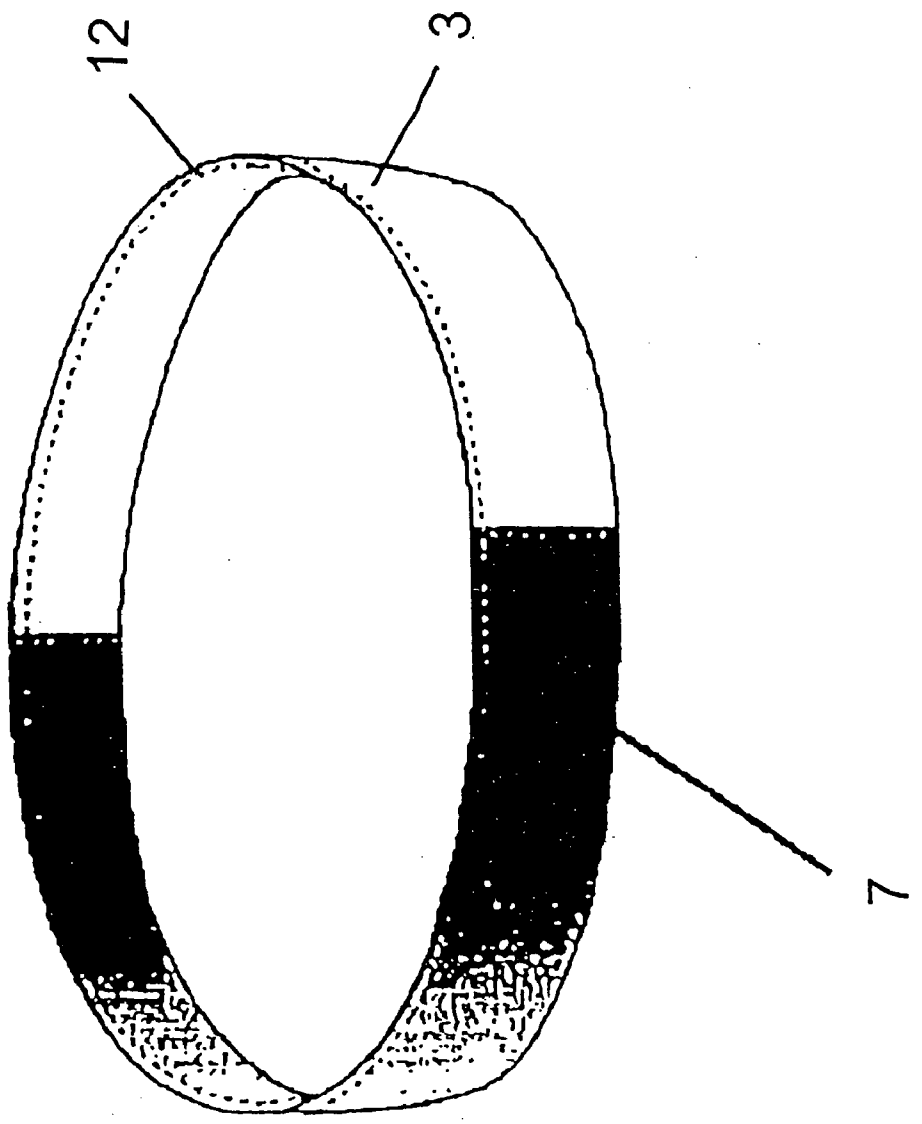


Figure 3B

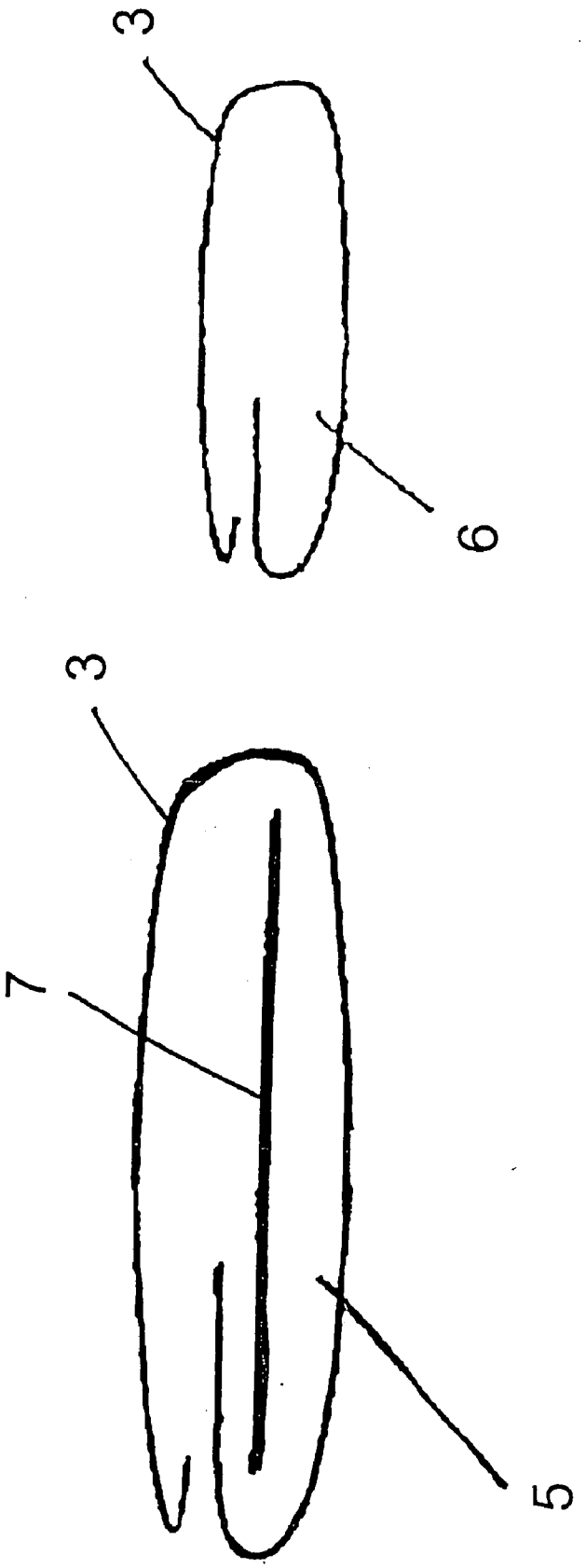


Figure 3C

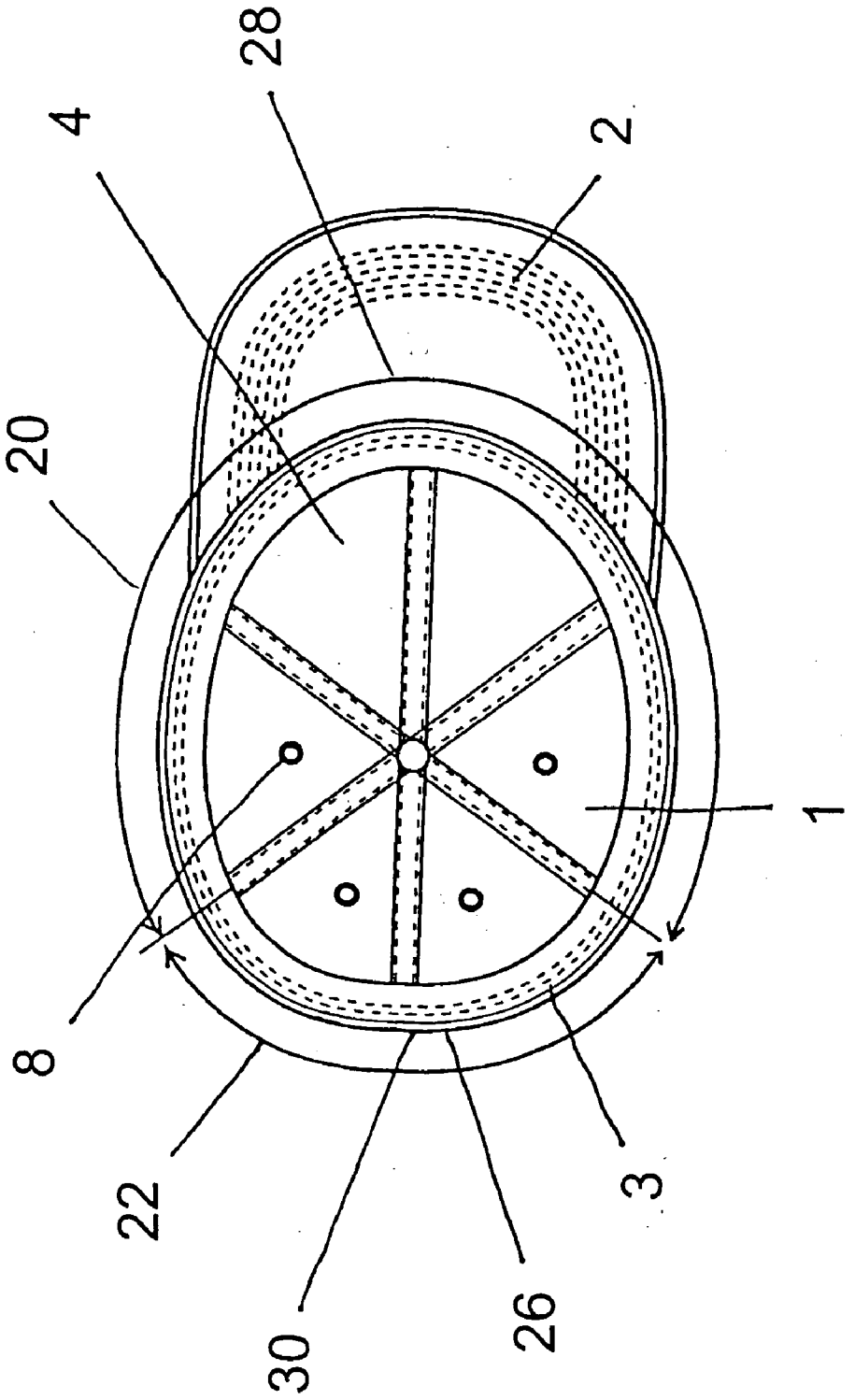


Figure 4

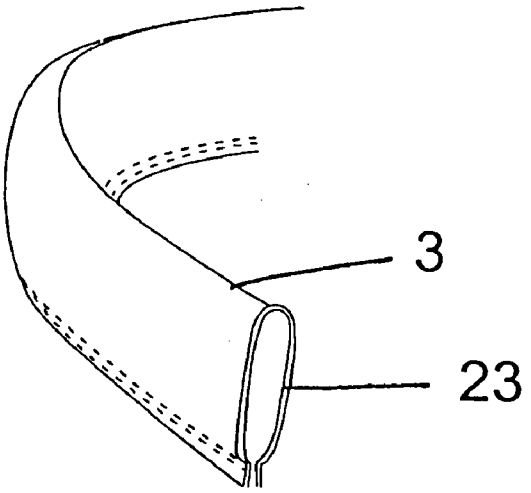


Figure 5

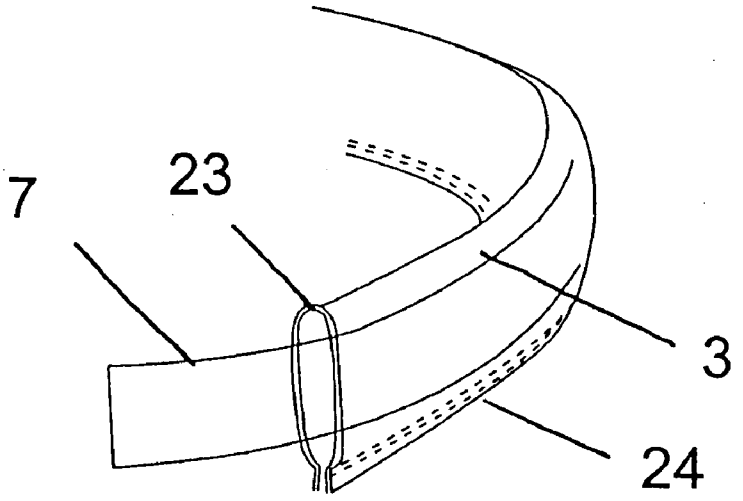


Figure 6

ELASTIC CAP

FIELD OF THE INVENTION

[0001] The present invention generally relates to head coverings, in particular, the invention relates to an elastic cap constructed of a fabric and having structures which allow the cap to be used on a variety of sized heads.

BACKGROUND OF THE INVENTION

[0002] Caps and hats are a staple of contemporary fashion apparel as well as providing functional protection against the environment. Typically, hats and caps are offered in either a single size or a variably adjustable size configuration. Size adjustment is an important quality for manufacturers of hats and caps since when the hat or cap is adjustable, the manufacturer needs to produce only hats and caps of a single or limited configuration.

[0003] Consumers of hats and caps require adjustability since head size is highly variable throughout the population. In addition, a change in a wearer's hair length or style may alter the fitting of a cap. Conventional adjustable caps utilize such things as plastic adjusting bands having a plurality of holes and associated pegs. A cap user can alter the fitting of the cap by changing the position of the pegs in the holes. This allows the cap user to either increase or decrease the size of the cap. Other caps use an adjustable sliding strap, while still other caps use an elastic cord to allow for size adjustment. However, these types of conventional caps have several disadvantages. For example, caps using the plastic adjusting strap often interferes with the wearer's hair or clothing. This may occur when the wearer turns, raises and/or lowers their head. During these movements, the plastic strap often becomes entangled in the hair or clothing, thus causing extreme discomfort to the wearer.

[0004] In other cases where the cap uses an elastic sweatband to adjust size, the elastic produces a folded or wavy deformation around the periphery of the cap. In addition to not being aesthetically pleasing, the folds or wave can result in an insecure and uncomfortable wearing experience for the wearer.

SUMMARY OF THE INVENTION

[0005] Briefly stated, the invention in a preferred form is a cap which includes a cap body, a cap bill, and sweatband. The material making up portions of the cap includes a stretchable fabric wherein the fabric is woven or knitted of a highly elastic yarn as the woof and an unstretchable yarn as the warp. The cap body has multiple pages of material wherein at least one page of the multiple pages is associated with a web, and at least one page of the next multiple pages is not associated with a web. In some cases, the cap sweatband has a web material sewn within layers of the cap body material.

[0006] An object of the present invention that is provide a comfortable and simple size adjustable cap which readily adapts to different sizes and shapes of heads.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] Other objects and advantages of the invention will be evident to one of ordinary skill in the art from the following detailed description made with reference to the accompanying drawings in which:

[0008] **FIG. 1** is a perspective view of elastic cap in accordance with the invention;

[0009] **FIG. 2** is a bottom view of an elastic cap in accordance with the present invention;

[0010] **FIG. 3A** is a profile plan view of a portion of a sweatband included in an elastic cap in accordance with the present invention;

[0011] **FIG. 3B** is a perspective view of a sweatband included in an elastic cap in accordance with the present invention;

[0012] **FIG. 3C** is a sectional view of forward and rearward portions of a sweatband included in an elastic cap in accordance with the present invention;

[0013] **FIG. 4** is a bottom view of the elastic cap showing an example of the extent to which the web material extends about the perimeter of the elastic cap in accordance with the present invention;

[0014] **FIG. 5** is a cut away view of a portion of the sweatband which does not include web material; and

[0015] **FIG. 6** is a cutaway view of a portion of the sweatband which includes web material.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0016] With reference to **FIGS. 1 and 2**, in one embodiment of the invention, an elastic cap comprises a cap body **1**, a cap bill **2** and a sweatband **3**. The material used to construct the cap is a fabric woven or knitted from a highly elastic yarn as the woof (the yarn woven across the warp yarn) and a substantially un-stretchable yarn as the warp. For example, the highly elastic yarn may be composed of 11646/20*16+70D fibers which include 97% cotton and 3% spandex material. The un-stretchable yarn may be composed of 9042/12*10+70D fibers which include 97% cotton and 3% spandex material.

[0017] The cap body **1** includes multiple sector pages **4**. For example the cap body **1** may include six sector pages **4**. The cap body **1** is joined to a cap bill **2**. The cap bill **2** is, for example, of a perspective arc shape. This shape can be achieved by forming the cap bill **2** to a model of a typical wearer's forehead. The bill **2** may include an internal plate (not shown) which adds structural rigidity to the bill **2**. The plate may be composed of plastic or natural materials. For example, the plate may be made of polyethylene, cardboard and/or other material well known in the cap art.

[0018] In one embodiment of the invention, the sweatband **3**, as shown in **FIGS. 3A** to **3C**, includes fours pages **4** of which at least one page **4** of the four pages is associated with a web **7**. The web **7** is configured to influence the shape of the whole cap. The web **7** may be constructed of 6112H or non-woven cloth material or a knitted material. In addition, the web **7** may include absorbent and/or liquid draining properties which allow for the advantageous management of sweat produced by a wearer of the cap. The web **7** can, prior to cap construction, be immersed in a chemical. For example, the web **7** may be immersed in chemical for about four hours to modify moisture management properties. Such

a chemical may modify the hydrophilic and hydrophobic properties of portions of the web.

[0019] The web **7**, in one embodiment of the invention, as shown in **FIG. 4** may extend partially about the perimeter of the sweatband **3**. For example, **FIG. 4** shows an extent line **20** that is coextensive with the length and position of the web **7** within the sweatband **3**. A second extent line **22** shows the length and position of the sweatband **3** which does not contain the web **7**. **FIGS. 5 and 6**, respectively, show a portion of the sweatband **3** without the web and with the web **7**.

[0020] In one embodiment of the invention, wherein the cap has six sector pages **4**, the web **7** is included in a forward portion **28** of the cap and has a length that spans about four sector pages **4**. The rear **26** of the cap, does not included web for a length of about two pages **4**. The inclusion of the sweatband portion without the web **7** provides advantageous cap wearing characteristics. For example, the rear portion of the cap body **1** has a substantially flat appearance. In addition, the cap does not produce a head clamping effect on the wearer. The head clamping effect includes excessive pressure on the wearer's head and/or points of pressure on the wearer's head.

[0021] The sweatband **3** may be formed, as shown in **FIG. 6**, in one embodiment of the invention, by putting the web **7**, for example a web made from 6112H material, between a double folded material **23** which can, for example, be woven or knitted. The double folded material **23** may be material of the original cap body **1** or may be different from the cap body **1**. For example, the sweatband **3** may include a double folded material which is knitted fabric and the cap body **1** may include woven fabric or vice versa. The double folded material **23** is then sealed by a sewn seam **24**. The sweatband **3**, when sewn, includes a level and smooth appearance. The sweatband thickness is minimized since the web **7**, for example made from 6112H material, is sandwiched, as shown in **FIG. 3C** between at least one page near the front page **5** and the side page. The 6112H material includes about 65% polyester and about 35% cotton.

[0022] The sweatband **3**, in one embodiment of the invention, is attached to the cap body **1** by highly elastic thread **12**, as shown in **FIGS. 3A and 3B**. The attachment with the highly elastic thread provides the periphery of the cap with an unexpected stretching potential. The attachment with the highly elastic thread also allows the periphery of the cap to elastically expand or contract. For example, the periphery of the cap may elastically expand or contract five to six centimeters. The highly elastic thread **12**, when used for attachment of the sweatband **3** to the cap body, **1** provides elasticity in both the vertical and horizontal directions. In addition to maintaining the elasticity of the sweatband **3** for securing the hat to the head, the highly elastic thread **12** contributes to the prevention or reduction of the head clamping phenomena often experienced with conventional caps. The elastic thread **12** included the property of being able to elastically stretch at least twice its unstretched length.

[0023] In one embodiment of the invention as shown in **FIG. 4**, the cap top has a plurality of holes **8** which allow for air permeability and heat dissipation. For example, there may be one hole in each of the sector pages **4**. For example, if there are six sector blades **4** then there would be six holes **8**. The air permeability and heat dissipation, provided by the holes **8**, allows fresh air to reach a wearer's head and allows head generated by the wearer to escape.

[0024] In one embodiment of the invention, the rear bottom of the cap **26** is configured to form an inner arc shape. The shape is achieved by, among other things, the stretchable fabric. This shape allows the hat, when placed on the wearer's head, to remain substantially flat. Among other thing, this shape provides an improved secure attachment to a wearer's head.

[0025] While preferred embodiments of the foregoing invention have been set forth for the purpose of illustration, the foregoing description should not be deemed a limitation of the invention herein. Accordingly, various modifications, adaptations and alternatives may occur to one of skill in the art without departing from the spirit and scope of the present invention.

1. An elastic cap, comprising a cap body having a plurality of joined sector blades, a cap bill and a sweatband, said cap body made of stretchable fabric having high-elastic yarn as woof and an un-stretchable yarn as warp, said sweatband includes a web in a portion of the sweatband.

2. The elastic cap of claim 1, wherein said web is non-woven material having absorbent and liquid draining properties.

3. The elastic cap of claim 1, wherein said sweatband includes a web disposed between a double-folded portion of fabric of the cap body, said double-folded portion is sealed by stitching.

4. The elastic cap of claim 3, wherein said web is non-woven material.

5. The elastic cap of claim 3, wherein said web is a knitted material.

6. The elastic cap of claim 3, wherein said stitching is a highly elastic thread.

7. The elastic cap of claim 1, wherein the fabric has portion of different colors.

8. The elastic cap of claim 1, wherein said web immersed in a chemical for about 4 hours.

9. The elastic cap of claim 1, wherein the web is 6112H material.

10. The elastic cap of claim 1, wherein there are 6 sector pages, said web material extends for a length four pages in a forward portion of the cap.

11. The elastic cap of claim 1, wherein a periphery of the cap can elastically deform about 6 centimeters.

12. The elastic cap of claim 1, wherein the cap body and the sweatband are constructed with a woven fabric.

13. The elastic cap of claim 1, wherein the cap body and the sweatband are constructed with a knitted fabric.

14. The elastic cap of claim 1, wherein the cap body includes one of either a knitted or a woven fabric and sweatband includes the other of either the knitted or the woven fabric.

15. An elastic cap comprising a cap top, cap forehead and sweat cord, said cap top consists of six sector pages, characterized in that the cloth of whole cap body is made of stretchable fabric, and said fabric is woven with high-elastic yarn as woof and un-stretchable yarn as warp; in which in said sweatband at least one page of first four pages has a web and at least one page of next two pages does not have web.

16. The elastic cap according to claim 15 of the invention, said cap characterized in that wherein said web is web or

non-woven cloth and such web or non-woven cloth may have or may not have high absorbing wet and draining sweat functions.

17. The elastic cap according to claim 15 of the invention, said cap characterized in that wherein said sweatband is constructed by putting web in between double folded cloth of original cap body and sewing it.

18. The elastic cap according to claim 17 of the invention, wherein said web is of non-woven or web.

19. The elastic cap according to claim 17 of the invention, said cap characterized in that during sewing sweatband and cap body high elastic thread is used.

20. The elastic cap according to claim 15 of the invention, said whole cap may be of knit goods or fabric matched with different color or same color.

21. The elastic cap according to claim 15 of the invention, said web is completed by immersing web or non-woven cloth into chemical for about 4 hours.

22. The elastic cap according to claim 15 of the invention, 6112H web or matched with other non-woven fabric may be used for said web.

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