HAIR STYLE ACCOMMODATING BALL CAP

A hair style accommodating ball cap has an enlarged aperture in the rear of the crown that allows for a ponytail, french braid, or other hair clip or hair accessory to protrude therethrough. The width of the aperture in the back of the crown is at least seventy percent of the overall width of the cap crown. Furthermore, the height of the aperture in the back of the crown is at least ninety percent of the overall height of the crown of the cap. The top of the aperture is further constrained to lie behind the peak of the crown. There are closure straps at the back of the cap that accommodate a variety of head sizes.
Figure 14
HAIR STYLE ACCOMMODATING BALL CAP

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit of provisional application 61/263569 filed Oct. 23, 2009 which is hereby incorporated by reference.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention
[0003] This invention relates generally to headwear and, more specifically, to a ball cap that accommodates long hair and related hair styles.
[0004] 2. Description of Related Art
[0005] Ball caps are available in a virtually limitless variety of colors, materials of construction, and displayed decorative appliques. Despite this wide variety, there are still needs that are not served by conventional ball caps. While the conventional ball cap design is suitable for men or women having short hair, individuals having long hair generally do not find that standard design to be acceptable.

[0006] It is common for a person to wear their long hair in a ponytail when wearing a ball cap, threading it out through the opening in the rear of the crown of the cap normally associated with size adjustment. If the ponytail is relatively thin and plain, this approach can work perfectly fine. In other cases, such as where the person’s hair is particularly thick or where a more elaborate hair style is desired, the rear opening in the standard ball cap is too small. There have been several attempts at addressing this situation, with two such examples provided below.

[0007] FIG. 1 depicts side and back views of a “Cap with Opening for Passage of Hair” by inventor Briske, that is the subject of Patent Application Publication US507/0061944. The Briske cap, like a conventional ball cap, has a brim 11 and crown 16. The accommodation for a wearer’s ponytail is that the opening 12 is enlarged. The opening 12 is both taller and wider than it would be in a conventional ball cap. While the enlarged opening 12 does permit some flexibility to wear a slightly thicker ponytail 14, it does not allow for any sort of elaborate braided hairstyle, such as a French braid. Furthermore, the shapes of the first rear panel 17A and second rear panel 17B are not very stylish. Even in view of the Briske cap, a cap is needed that will accommodate the largest of ponytails or braids, while also presenting a very pleasing style.

[0008] FIG. 2 is a side view of a second prior art cap. This cap, the subject of U.S. Pat. No. 5,875,494, granted to Garnier, Jr. et al. is entitled “Headwear with Closable Hair Opening.” The Garnier cap 18 seeks to accommodate larger ponytails by providing two separate openings in the back of the crown 20. The lower opening 24 is designed to allow size adjustment of the crown 20 (as with a conventional cap), while the upper opening 22 is provided for the users ponytail 14 to protrude. The upper opening 22 of the Garnier cap 18 also has a plurality of snaps or other conventional closure apparatus surrounding its rim, so that the size of the upper opening is actually adjustable.

[0009] By adding the second opening 22, Garnier does succeed in accommodating larger ponytails than does Briske, but even then, it will not work with a French braid or other types of hair clips/hair accessories. What is needed is a ball cap that has a very large opening in its crown that is not only functional, but also versatile and esthetically pleasing.

SUMMARY OF THE INVENTION

[0010] In light of the aforementioned problems associated with the prior devices, it is an object of the present invention to provide a hair style accommodating ball cap. The ball cap should have an enlarged aperture in the rear of the crown that will allow for a ponytail, French braid, or other hair clip or hair accessory to protrude therethrough. The width of the aperture in the back of the crown should be at least seventy percent of the overall width of the cap crown. Furthermore, the height of the aperture in the back of the crown should at least ninety percent of the overall height of the crown of the cap, though the top of the aperture should not occur forward of the peak of the crown. There should be closure straps at the back of the cap that accommodate a variety of head sizes.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] The objects and features of the present invention, which are believed to be novel, are set forth with particularity in the appended claims. The present invention, both as to its organization and manner of operation, together with further objects and advantages, may best be understood by reference to the following description, taken in connection with the accompanying drawings, of which:

[0012] FIG. 1 is a side and back views of a first prior art cap;
[0013] FIG. 2 is a side view of a second prior art cap;
[0014] FIG. 3 is a side view of the new ball cap;
[0015] FIG. 4 is a top view of the ball cap of FIG. 3;
[0016] FIG. 5 is a back view of the ball cap of FIGS. 3 and 4;
[0017] FIG. 6 is a perspective view of the ball cap of FIGS. 3-5;

[0018] FIG. 7 is a rear perspective view of a preferred embodiment of the new ball cap in position on a wearer’s head;

[0019] FIG. 8 illustrates the experimental cap configurations;

[0020] FIG. 9 shows side views of the experimental configuration;

[0021] FIG. 10 shows rear views of the experimental configuration;

[0022] FIG. 11 shows a side view of the small aperture condition;

[0023] FIG. 12 shows a side view of the preferred aperture condition;

[0024] FIG. 13 shows a side view of the larger aperture condition;

[0025] FIG. 14 shows a rear view of the small aperture condition;

[0026] FIG. 15 shows a rear view of the preferred aperture condition;

[0027] FIG. 16 shows a rear view of the large aperture condition.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0028] The following description is provided to enable any person skilled in the art to make and use the invention and sets forth the best modes contemplated by the inventor of carrying out her invention. Various modifications, however, will remain readily apparent to those skilled in the art, since the
The generic principles of the present invention have been defined herein specifically to provide a hair style accommodating ball cap.

**FIG. 3** is a side view of the new ball cap. The cap **30** has a dome-shaped crown **36** and a brim **38** extending forward therefrom. The crown **36** is preferably made from a series of panels (e.g., **40A**, **42B**), and has a large aperture **44** formed in its rear face. In order to clearly demonstrate the extreme size of the aperture **44**, the rear panels **48** as they would exist in a conventional ball cap are shown in dashed lines.

**FIG. 4** is a top view of the ball cap **30** of FIG. 3. It is noted that the cap **30** can be made from a wide variety of materials, in many colors, and with limitless textures. In the most common embodiment, the cap **30** would be made from a canvas or breathable woven material, as is very popular with conventional ball caps.

The crown **36** in this embodiment **30** is made from first and second front panels **40A**, **40B**, and third and fourth rear panels **42A**, **42B**. The tail ends of the two rear panels **42A** and **42B** terminate in first closure strap **46A** and second closure strap **46B**. These two straps **46A**, **46B** detachably attach to one another (such as by the hook-and-loop fastener shown here) in order to provide the necessary size adjustability. The aperture **44** is so large that it reaches at its bottom end from the straps **46A**, **46B** all the way up to the peak **52** of the crown **36**. The aperture **44** is large, but it does not extend forward of the peak **52**, or the midline **53** that denotes the center of the crown **36** (from front to back). As such, the cap **30** is not similar to a conventional sun visor, which is essentially a headband with a visor (i.e., there is effectively no crown at all).

**FIG. 5** is a rear view of the ball cap **30** of FIGS. 3 and 4 that illuminates the dimensions of the aperture. In order to replicate the cap **30** in any size of cap (even a doll-sized cap), the height **HA** is measured from the base of the crown **35** and is at least ninety (90) percent of the overall height of the crown **36** (if a person’s head were in the crown **36**). Similarly, the width **WA** is at least seventy (70) percent of the overall width of the crown **36**.

Finally, **FIG. 6** is a perspective view of the ball cap **30** of FIGS. 3-5. As can be seen in this view, the edge of the aperture **50** reaches from the peak **52** to the straps **48A**, **48B**. The edge **50** does not reach all the way to the midline **53** of the crown **36**. In most versions, a sweatband **54** (or another haberdash) will be provided for the user’s comfort. **FIG. 7** is a rear perspective view of a preferred embodiment of the ball cap **30** of the present invention shown in place on a wearer’s head. As can be readily seen, the rear of the wearer’s head **32** is nearly completely exposed from the rear of the cap **30**. Because of the rear opening is so large, even a hair style as large as the french braid shown here, is easily accommodated. From a styling standpoint, the rear of the cap **30** somewhat resembles a scarf wrapped around the user’s head **32**.

The aperture dimensions listed above were arrived at through experimentation. A series of ballcaps having gradually increasing aperture dimensions was fabricated. The experimental ball caps were tested by attaching them to a hair design mannequin (brand, model #) having particularly long, thick hair and quantifying the extent to which the resulting hair cascade was confined by the caps. Additionally, qualitative assessments of the attractiveness of the resulting display were also attempted and were correlated with the quantitative measurements. Table 1 shows the approximate dimensions of the aperture in each experimental cap. The crown of the cap was **20 cm** in diameter and **10 cm** tall.

**FIG. 8** shows side and rear views that illustrate the configurations of the experimental caps. The aperture boundaries are shown for cap number 1 (801), cap number 2 (802), cap number 3 (803), cap number 4 (804) and cap number 5 (805). Note that for caps 4 and 5 the top of the aperture has moved past the center of the crown, so that the aperture height as measured from the rear view becomes smaller.

<table>
<thead>
<tr>
<th>Cap number</th>
<th>Aperture height (cm)</th>
<th>Aperture height (% of crown height)</th>
<th>Aperture width (cm)</th>
<th>Aperture width (% of crown width)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4.8</td>
<td>48</td>
<td>10</td>
<td>50</td>
</tr>
<tr>
<td>2</td>
<td>8.4</td>
<td>84</td>
<td>13</td>
<td>65</td>
</tr>
<tr>
<td>3</td>
<td>9.9</td>
<td>99</td>
<td>14</td>
<td>70</td>
</tr>
<tr>
<td>4</td>
<td>9.7</td>
<td>97</td>
<td>15</td>
<td>75</td>
</tr>
<tr>
<td>5</td>
<td>8.1</td>
<td>81</td>
<td>17</td>
<td>85</td>
</tr>
</tbody>
</table>

**FIG. 9** contains photographs showing side views of the experimental arrangement for cap number 1 (901), cap number 2 (902), cap number 3 (903), cap number 4 (904) and cap number 5 (905). Experimental results were quantified by measuring the extent of the sweatband that is covered by hair and are summarized in Table 2. As can be seen in 901 and 902, caps 1 and 2 result in severe confinement of the thick hair cascade, forming a ponytail that completely clears the sweatband. Cap 3 in 903 results in partial release of the thick hair cascade covering 25% of the sweatband, providing subtle confinement and an overall styling that was judged to be attractive. Caps 4 and 5 in 904 and 905 result in little, if any, confinement wherein the hair cascade falls over the wearer’s ears covering 43% of the sweatband and resulting in an undesirable, unkempt appearance.

**FIG. 10** contains photographs showing rear views of the experimental arrangement for cap number 1 (1001), cap number 2 (1002), cap number 3 (1003), cap number 4 (1004) and cap number 5 (1005). Experimental results were quantified by measuring the width of the hair cascade at the base of the cap and are summarized in Table 2. As before, caps 1 and 2 result in severe confinement that produces nearly equal ponytail widths. The subtle confinement of cap 3 provides a partial release of the cascade, again giving a well styled appearance. The style width at the base of the cap is slightly larger than the width of the cap, and the top of the crown is just visible over the top of the hair style. Caps 4 and 5 result in no apparent confinement of the hair cascade, resulting in nearly equal style widths that are significantly larger than the cap and completely obscure the cap in the rear view.

<table>
<thead>
<tr>
<th>Cap number</th>
<th>Percent of sweatband covered in side view</th>
<th>Width of hair cascade at cap base in rear view (cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>17</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
<td>16</td>
</tr>
<tr>
<td>3</td>
<td>25</td>
<td>20</td>
</tr>
</tbody>
</table>
TABLE 2-continued

<table>
<thead>
<tr>
<th>Cap number</th>
<th>Percent of sweatband covered in side view</th>
<th>Width of hair cascade at cap base in rear view (cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>43</td>
<td>27</td>
</tr>
<tr>
<td>5</td>
<td>43</td>
<td>27</td>
</tr>
</tbody>
</table>

FIGS. 11-13 illustrate the key teachings from the side views shown in FIG. 9. FIG. 11 shows the limiting case of a small aperture in which the severe confinement of the hair cascade produces a ponytail-like style. FIG. 12 shows the intermediate (preferred) case in which the hair cascade is subtly confined to provide a neat, attractive hair style. FIG. 13 shows the limiting case of a large aperture wherein there is effectively no confinement of the hair cascade, resulting in no apparent styling.

FIGS. 14-16 illustrate the key teachings from the rear views shown in FIG. 10. FIG. 14 shows the limiting case of a small aperture in which the severe confinement of the hair cascade produces a ponytail-like style having a narrow width. FIG. 15 shows the intermediate (preferred) case in which the hair cascade is subtly confined to provide a neat, attractive hair style wherein the edges of the cap are just visible at the sides and top of the hair style. FIG. 16 shows the limiting case of a large aperture wherein there is effectively no confinement of the hair cascade, resulting in no apparent styling and complete obscuration of the cap.

The results of the experiment show that, of the five aperture sizes tested, cap #3 possesses the preferred aperture dimensions. Thus, the preferred aperture height (measured from the base of the crown) is essentially the full crown height, while the preferred aperture width is 70% of the width of the crown. For practical manufacturing purposes, the height of the aperture can be characterized as having a minimum of 90% of the height of the crown, while the top of the aperture is constrained to fall behind the peak of the crown, thereby excluding caps having the configuration of experimental caps #4 and #5. Since the degree of constraint of the hair style appears to be more strongly correlated with the forward location of the edge of the aperture which is, in turn, related to the location of the top of the aperture, the aperture width constraint can be relaxed to allow widths greater than the minimum width established in the experiment.

Those skilled in the art will appreciate that various adaptations and modifications of the just-described preferred embodiment can be configured without departing from the scope and spirit of the invention. Therefore, it is to be understood that, within the scope of the appended claims, the invention may be practiced other than as specifically described herein.

1. A ball cap comprising:
   A sweatband configured to encircle the head of a wearer having a top edge and a bottom edge, an inside surface and an outside surface, and having a forward portion extending around the wearer's forehead and a rear portion extending around the sides and rear of the wearer's head,
   A bill attached to and extending forwardly from the bottom edge of the forward portion of the sweatband,
   A dome-shaped crown having a height and a width attached to the bottom edge of the outside surface of the sweatband and extending upwardly from the forward and rear portions of the sweatband to cover the forehead, sides and back of the wearer's head,
   Said crown defined by at least four panels made at least in part from a flexible material and joined to each other,
   Said crown presenting an opening above the center of the rear portion of the sweatband for passage of wearer's hair,
   Said opening having a round shape, a height greater than ninety percent of the height of the crown and a width greater than seventy percent of the width of the crown.

2. The ball cap of claim 1 wherein the sweatband includes means to adjust its diameter to accommodate different size wearer's heads.

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