HEADWEAR

Technical Field of the Invention

The present invention relates to a bill for headwear, headwear including a bill and a stiffening member for a bill for headwear.

Background to the Invention

Baseball caps include a bill. The bill may be substantially flat, but is often more desirably curved. Reversible baseball caps are known which may be turned inside out to display the other of two different designs presented on opposite sides of the cap. Where a reversible baseball cap has a curved bill then the curve in the bill must be reversed when the cap is turned inside out so as to maintain the correct appearance of the cap.

US6408443 discloses a reversible baseball cap. The bill of the cap is formed from a soft or rigid visor material sandwiched in between layers of fabric material. The visor material is partially cut though from opposite sides at spaced apart intervals across its width. The cuts are intended to allow the material, and thus the bill of the cap, to maintain a curved shape when bent along the cut lines and so allow the bill to adopt an appropriately curved shape when the hat is turned inside out. In practice, though, provision of a cut visor material does no more than allow the bill to be deformed, and so conform the shape of the edge of the cap. It does not allow any significant degree of curvature to be maintained. Further, as the visor material deforms more easily at the position of the cuts the bill is in effect formed from a series of flat portions hinged together which does not lend the cap an attractive appearance.

Embodiments of the present invention seek to address these problems.

Summary of the Invention

According to an aspect of the present invention there is provided a bill for headwear, the bill having first and second opposed surfaces and comprising a retaining means arranged to automatically retain the bill in either of a first curved state in which the first side of the bill is convex and the second side concave and a second, oppositely, curved state in which the first side is concave and the second side is convex when the bill is urged towards the first or second states respectively.

According to another aspect of the present invention there is provided a stiffening member for a bill of headwear, the stiffening member comprising a body having first and second opposed surfaces and comprising a retaining means arranged to automatically retain the body in either of a first curved state in which the first side of the stiffening member is convex and the second side concave and a second, oppositely, curved state in which the first side is concave and the second side is convex when the stiffening member is urged towards the first or second states respectively.

Provision of the retaining means enables the bill or stiffening member to be stably retained in one of two opposite states of curvature, enabling the appearance of a reversible cap incorporating the bill or stiffening member to be maintained in either of its two states.

The body of the stiffening member may comprise a flexible sheet of material. The sheet may be continuous, and the material may be resilient. The material may be a plastics material.

The retaining means may comprise a curved elongate member and may have a substantially circular cross-section. The elongate member may be resilient. The elongate

member may be rotatably secured to the bill or body of the stiffening member to enable it to rotate relative to the bill or body as the bill or body is urged between the first and second curved states.

The elongate member may be secured along an edge of the body of the stiffening member. The elongate member may be secured to the bill or body of the stiffening member by any suitable means. These include by stitches, by clips, by over moulding the body of the stiffening member over the elongate member, by forming a moulded pathway in the body of the stiffening member to receive the elongate member and by associating a flexible tube with the stiffening member and placing the elongate member in the flexible tube.

In other embodiments the elongate member is secured to the bill which may or may not include an additional stiffening member. The elongate member could be secured to the bill by any suitable means including by stitching and by forming a pocket or hem with fabric forming the bill for receiving the elongate member.

Two or more elongate members may be provided.

The bill or stiffening member may be incorporated into headwear, such as a baseball cap. The headwear may be reversible and may carry different designs on opposed surfaces and so may be worn in normal or reversed configurations to selectively reveal either of the two designs to the outside of the headwear.

Detailed Description of the Invention

In order that the invention may be more clearly understood embodiments thereof will now be described, by way of example only, with reference to the accompanying drawings, of which:

Figure 1 is a perspective view of a baseball cap;

Figure 2 is a part cut-away view of the baseball cap of figure 1;

Figure 3 is a perspective view of the baseball cap of figure 1 turned inside out, but without the bill reversed;

Figure 4 is a perspective view of the baseball cap of figure 1 turned inside out, with the bill reversed;

Figure 5 is a part cut-away view of the bill of the cap of figure 1;

Figure 6 shows the stiffening member of the bill of the cap of figure 1 in a first state;

Figure 7 shows an alternative stiffening member in a second state;

Figure 8 shows the rod of the stiffening members of figures 6 and 7;

Figure 9 shows an alternative stiffening member in a first state;

Figure 10 shows the stiffening member of figure 9 in a second state; and

Figure 11 shows another stiffening member in a first state.

Referring to the drawings, in which like reference numerals are used to denote corresponding components throughout, there is shown a reversible baseball cap 1 of conventional appearance. The cap comprises a crown portion 2, intended to fit over a wearer's head, and a bill 3 projecting from an edge of the crown portion 2.

The crown portion 2 is formed from a number of double layered fabric panels stitched together along seams 4. One layer of fabric carries one design, in the illustrated example a polka dot design, and the other layer presents a different design, in this case a

star design. At any one time one design is visible to the outside of the cap, and the other to the inside. Towards the centre of and of each side of the crown portion 2 there is a button 5.

Variations are possible. The cap could be produced from suitable materials other than fabric. The panels may comprise more than two layers of material, or could be formed from a single layer of material bearing different designs, or simply different solid colours, on opposite sides.

The bill 3 is curved and the cap is intended to be worn with the bill curved in the manner shown in figure 1, with the upper surface of the bill, the surface directed towards the crown portion rather than away from it, forming a convex curve. The bill is formed from a stiffening member covered in fabric 7. The fabric covering respective opposite sides of the stiffening member carries the same design as the fabric exposed to the corresponding side of the crown portion 2. The layers of fabric 7 on opposite sides respectively of the stiffening member are stitched together around the edges of the stiffening member along seams 8.

The stiffening member comprises a sheet 6 of flexible, resilient plastics material. Any suitable plastics material may be used, for example polypropylene. It is desirable that the material does not suffer from stress cracking. A thickness in the range 0.5 to 5mm is suitable. For sheets towards the thicker end of this range foamed materials are preferred so as to maintain lightness and flexibility. Other suitable materials could be used, for example cardboard. Along the free edge of the plastic sheet which will lie towards the front edge of the bill, most remote from the crown portion of the cap, a curved, resilient rod 9 is secured to the sheet by stitches 10. The resilient rod is preferably

formed from a suitable metal such as tempered steel and in the illustrated example it has a diameter of approximately 2mm. Other materials, or indeed other elongate members, with appropriate properties could be used. It is necessary for the rod or other elongate member to retain its curved shape and yet to flex sufficiently to enable the stiffening member to be moved between oppositely curved states. The rod extends over substantially the whole length of the side of the sheet material to which it is attached. The stitches 10 are formed by a Nylon thread, extend around the rod and through a series of apertures extending along the edge of the sheet material and permit the rod 9 to rotate along its length relative to the sheet material. The stitches 10 could be continuous or separate.

In other embodiments a similar rod could be secured to the opposite edge of the sheet member too, see figure 7. Or a rod could be secured at some position on the surface of the sheet material between its opposite edges or in a slot or elongate aperture formed in the material.

As the rod 9 is curved it holds the sheet material 6 and thus the bill 3 of the cap 1 in a curved state. The rod 9 is produced with the desired degree of curvature it is intended to impart to the bill. If the bill 3 is deflected, for example manually, to force it to adopt an opposite curvature the rod 9 rotates within the stitches until it takes up a stable position in which it acts to maintain the sheet material, and thus the bill, in an opposite state of curvature. The resilience of the rod facilitates movement of the sheet material between opposite curved states and provides an over centre retaining action such that the stiffening member is bi-stable and will remain in either of two oppositely curved states.

Thus, in use, when the cap is reversed, the curvature of the bill may be reversed.

Figure 1 shows the cap in one state. Figure 2 shows the same cap with the crown turned inside out and the cap turned over to show the alternate design, but with the bill in its original state of curvature. Figure 3 shows the cap after the curvature of the bill has been reversed so that its upper surface (as intended to be worn) is again convex. The process may of course be reversed and the cap brought back to the state shown in figure 1.

Figures 9 and 10 show another embodiment of a stiffening member. In this embodiment the rod 9 is secured to the sheet 6 by way of a series of spaced apart metal spring clips 11. The clips grip opposite sides of the sheet material 6 and define an passage between the clip and the edge of the sheet material through which the rod extends and within which the rod can rotate. Projections 12 are formed on the edge of the sheet member towards opposite ends of the rod 9 to stop the rod from sliding out of the clips.

Figure 11 shows another embodiment of a stiffening member. This embodiment is moulded from a resilient plastics material and comprises a sheet 6 of material with an upstanding flap 13 along one of its longer edges. The flap is shaped to retain the curvature of the sheet. If the curve of the sheet is reversed the flap will flip over to the other side of the sheet and thus retain the sheet in this opposite state of curvature.

The above embodiments are described by way of example only. Many variations are possible without departing from the scope of the invention as defined in the appended claims.

CLAIMS

1. A bill for headwear, the bill having first and second opposed surfaces and comprising a retaining means arranged to automatically retain the bill in either of a first curved state in which the first side of the bill is convex and the second side concave and a second, oppositely, curved state in which the first side is concave and the second side is convex when the bill is urged towards the first or second states respectively.

2. A bill as claimed in claim 1 wherein the retaining means comprises a curved elongate member.

3. A bill as claimed in claim 1 wherein the elongate member has a substantially circular cross-section.

4. A bill as claimed in either claim 2 or 3 wherein the elongate member is resilient.

5. A bill as claimed in any of claims 2 to 4 wherein the elongate member is rotatably secured to the bill to enable it to rotate relative to the bill as the bill is urged between the first and second curved states.

6. A bill as claimed in claim 5 wherein the elongate member is secured to the body of a stiffening member comprised in the bill.

7. A bill as claimed in claim 6 wherein the elongate member is secured along an edge of the body of the stiffening member.

8. A bill as claimed in any of claims 2 to 7 wherein the elongate member is secured to the bill or body of the stiffening member by stitches.

9. A bill as claimed in any of claims 2 to 8 comprising two or more elongate members.

10. Headwear comprising a bill as claimed in any preceding claim.

11. A baseball cap comprising a bill as claimed in any of claims 1 to 9.

12. A baseball cap as claimed in claim 11 carrying different designs on opposed surfaces and which may be worn in normal or reversed configurations to selectively reveal either of the two designs to the outside of the cap.

13. A stiffening member for the bill of headwear, the stiffening member comprising a body having first and second opposed surfaces and comprising a retaining means arranged to automatically retain the stiffening member in either of a first curved state in which the first side of the stiffening member is convex and the second side concave and a second, oppositely, curved state in which the first side is concave and the second side is convex when the stiffening member is urged towards the first or second states respectively.

14. A stiffening member as claimed in claim 13 wherein the body comprises a flexible sheet material.

15. A stiffening member as claimed in either claim 13 or 14 wherein the retaining means comprises a resilient, curved elongate member.

16. A bill as claimed in claim 15 wherein the elongate member is rotatably secured to the body of the stiffening member to enable it to rotate relative to the stiffening member as the stiffening member is urged between the first and second curved states.