

July 5, 1949.

C. O. BROWN ET AL

2,475,471

GLARE-ELIMINATING EYESHIELD

Filed Dec. 6, 1946

2 Sheets-Sheet 1

FIG. 1

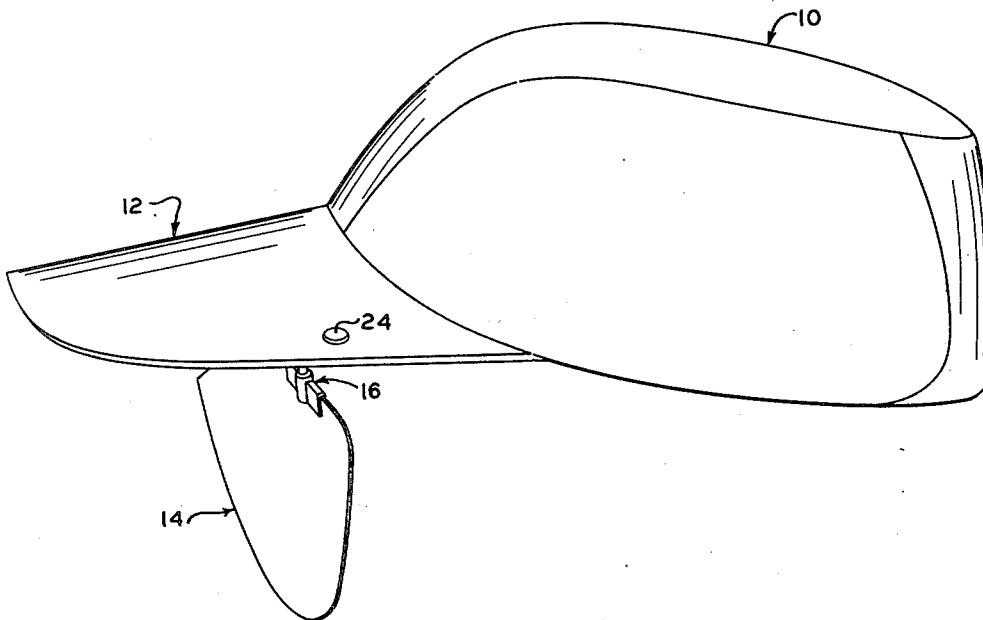
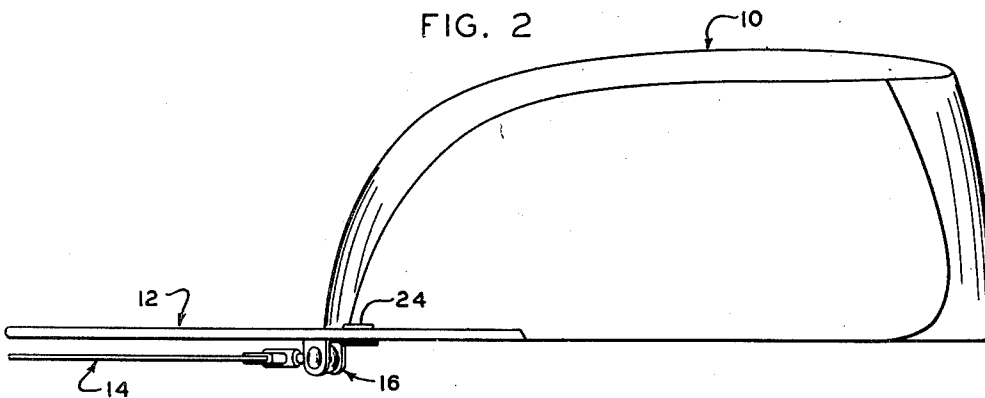


FIG. 2



INVENTOR
Clarence O. Brown
and
Murry H. Kirkbank
BY Donald L. Brown
Attorney

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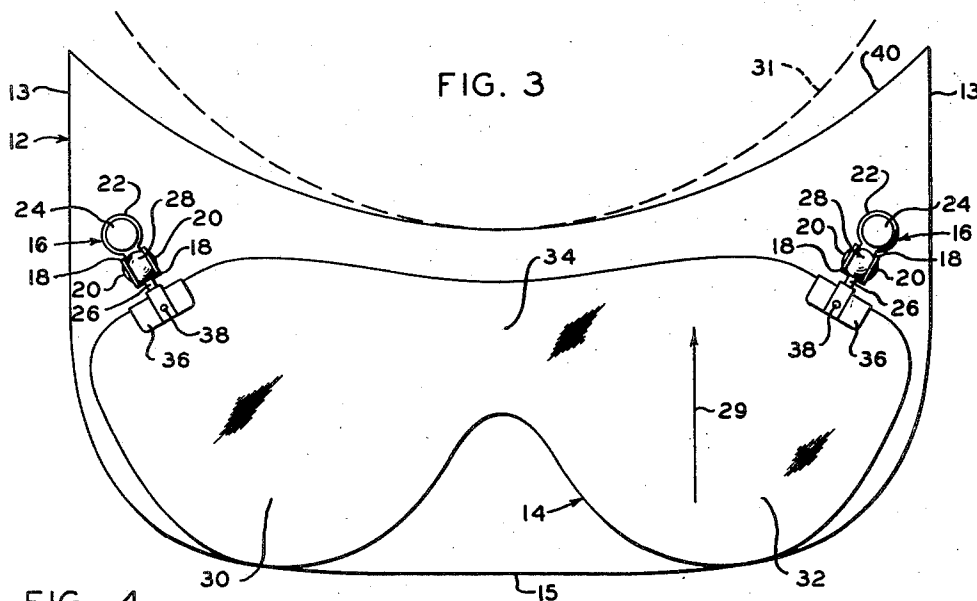


FIG. 4

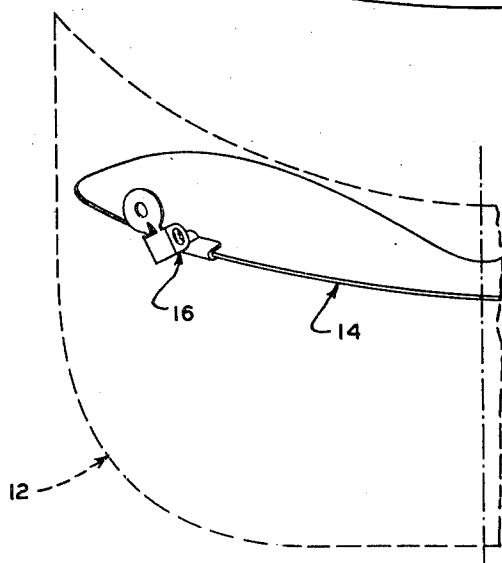
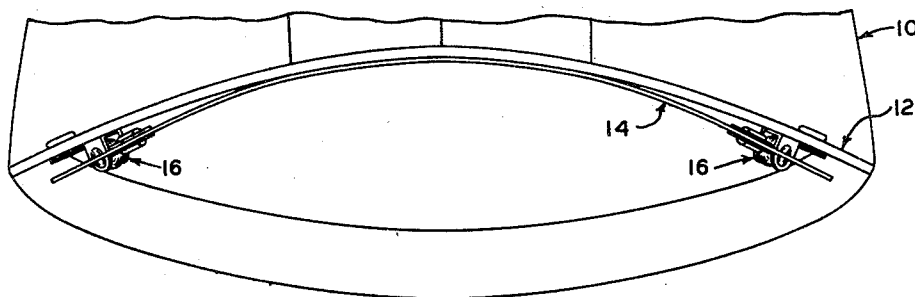


FIG. 5

INVENTORS
Clarence O. Brown
and
Murray H. Fairbank
BY *Donald L. Brown*
Attorney

UNITED STATES PATENT OFFICE

2,475,471

GLARE-ELIMINATING EYESHIELD

Clarence O. Brown, Waltham, and Murry N. Fairbank, Belmont, Mass., assignors to Polaroid Corporation, Cambridge, Mass., a corporation of Delaware

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4 Claims. (Cl. 2—10)

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This invention relates to eyeshields formed from a sheet of light-transmitting material and mounted on the bill or peak of a cap or hat.

An object of this invention is to provide an eyeshield adapted to be mounted on a cap or hat.

A further object of this invention is to provide an eyeshield mounted on the bill or peak of a cap or hat and adapted to be moved into and out of operative position.

A further object of the invention is to provide a normally flat cap or hat bill or peak having mounted thereon a normally flat eyeshield adapted to substantially conform to the curvature of the wearer's face.

A further object of the invention is to provide a normally flat light-polarizing eyeshield adapted to substantially conform to the curvature of the wearer's face when attached to the bill or peak of a cap or hat.

A further object of the invention is to provide a normally flat light-polarizing eyeshield hingedly mounted on a normally flat cap or hat bill or peak and adapted to be bent by the curvature of the wearer's head to substantially conform to the curvature of the wearer's face.

A further object of the invention is to provide a normally flat cap or hat bill or peak having attached thereto a normally flat eyeshield adapted to conform to the different facial curvatures of different wearers.

Other objects of the invention will in part be obvious and will in part appear hereinafter.

The invention accordingly comprises the product possessing the features, properties and the relation of components which are exemplified in the following detailed disclosure, and the scope of the application of which will be indicated in the claims.

For a fuller understanding of the nature and objects of the invention, reference should be had to the following detailed description taken in connection with the accompanying drawings wherein:

Figure 1 is a view showing, in side elevation, the positions the bill and eyeshield of the invention assume when in glare-eliminating position on the wearer's head;

Fig. 2 is a view showing, in side elevation, the normal positions of the bill of the cap and the eyeshield when not on the wearer's head, said eyeshield swung out of glare-eliminating position;

Fig. 3 is a bottom view of Fig. 2 showing only the bill of the cap and the glare-eliminating eyeshield;

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Fig. 4 is a fragmentary front elevation showing the positions bill and eyeshield assume when on the wearer's head; and

Fig. 5 is a plan view illustrating the position the eyeshield assumes when in glare-eliminating position on the wearer's head.

People engaged in outdoor activities often find it desirable to protect their eyes both from the direct rays of the sun and from reflected glare. The present invention provides a cap having a flexible bill or peak for shielding the eyes from the direct rays of the sun and having hinged thereto a transparent glare-eliminating eyeshield or visor which may be moved from a position against the under side of the bill or peak of the cap out of the wearer's line of sight to a position wherein it will cover and protect the wearer's eyes from glare, wind, or solid bodies.

It is desirable that the eyeshield or visor be curved when in use so that the inner surface thereof will not cast reflections of light or objects to the side or rear of the wearer into his eyes; to protect the eyes of the wearer from glare, wind, and dust coming from the side; to give a wider field of vision through the visor; and to improve the visor's appearance. It is also desirable, to obtain to the maximum the benefits mentioned above, that the curvature of the visor be such that it substantially conforms to the curvature of the wearer's face. The present invention results in a visor or eyeshield which is automatically curved to conform to the shape of the wearer's face by the shape of his head.

Referring now to the drawings there is illustrated by way of example a specific embodiment of a preferred form of the invention. The numeral 10 indicates the head-covering portion of a cap preferably made of a woven fabric but which can be made of any other suitable material as, for example, felt or leather. A flexible normally flat bill or peak 12 is attached to the front of the head-covering portion 10 to prevent direct rays from the sun from striking the eyes of the wearer. The bill or peak may be constructed in any well-known way as, for example, cut or stamped from cardboard or fiber board and covered with the same material, or a similar material, used to make the head portion. A glare-eliminating visor 14 is hingedly mounted on the under side of the bill 12 by means of two universal joint type hinge members 16.

The shape of the bill or peak 12 determines the curvature that the visor 14 will assume in use and comprises a flat sheet of flexible material having two substantially parallel sides 13, a front

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edge 15, and a concavely curved back edge 40 adapted to be attached to the lower edge or headband of a cap. The back edge 40 has a radius of curvature greater than the normal radius of curvature of the cap to which it is adapted to be attached and greater than the radius of curvature of the wearer's head, as illustrated in Fig. 3 wherein the dotted line 31 represents the normal curvature of the head-covering portion 10. Inasmuch as the head-covering portion 10 is made of flexible material it will be pulled out by the bill or peak 12 so that said bill will normally be in a flat condition. The bill or peak 12 is of sufficient size to protect the eyes of the wearer from the direct rays of the sun under all normal conditions of wear, and preferably is substantially 7½ inches wide, 3½ inches from the center of the curved edge 40 to the front edge, and the concavely curved edge 40 has a radius of substantially 4¼ inches.

The glare-eliminating visor 14 is preferably comprised of a flat sheet of flexible light-polarizing material such, for example, as any of the light-polarizing sheet materials sold under the trade name "Polaroid." It may, however, comprise any suitable flexible light-polarizing material or, if desired, it may be manufactured from a flexible sheet of nonpolarizing material which is adapted to reduce the intensity of transmitted light. The width of the visor 14 is preferably slightly less than the width of the bill or peak 12 and is preferably shaped to provide two generally elliptical eye-protecting lens portions 30 and 32 connected by a bridge or nose-spanning portion 34. The light-polarizing material of the visor 14 is preferably positioned with its axis of transmission at an angle of substantially 90° to the front edge of said visor, as illustrated by the arrow 29, so that when the visor is swung into the glare-eliminating position illustrated in Figs. 1 and 5 the axis of transmission will be substantially 90° to the horizontal.

Each of the universal joint type hinges employed to hingedly mount the visor 14 on the bill or peak 12 is comprised of two parts. One part comprises a pair of spaced apart resilient arms 18, each of which has formed therein a cup-shaped depression 20, said arms being attached to a base member 22. Each of said base members 22 is attached to the under side of said visor by means of rivets 24. The other part of the hinge members 16 is comprised of a shank 26 having a bifurcated portion providing a notch, adapted to receive the visor 14, formed on one end and a ball 28 formed on the other end. The ball 28 is pivotally held, in spaced relation to the base member 22, between the resilient arms 18 and in the cup-like depressions 20 to hingedly attach the shank 26 to the cap bill 12.

The visor 14 is attached to the shank 26 adjacent each end of the upper edge thereof. The places on the visor 14 which are attached to shanks 26 are so located that straight line drawn between them does not fall outside the area of said visor 14. The attachment to said shank is effected by reinforcing the visor in the immediate area of the connection to the shank 26 by means of a thin sheet of metal 36 as, for example, sheet aluminum or sheet steel, which is folded over the upper edge of each lens portion, and the area thus reinforced is inserted in the notch provided by the bifurcated portion of the shank 26. The shank, folded piece of sheet metal, and visor are rigidly fastened together by means of rivet 38 which passes through aligned holes therein.

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The hinge base members 22 are attached to the bill or peak 12 at such a location that the visor 14 is adjacent to, but spaced from, the center of the edge 40 a distance of the order of three quarters of an inch when said visor is in the inoperative position illustrated in Fig. 2. This spacing allows the cap and visor of this invention to be worn over glasses, and also provides proper eye protection when glasses are not worn.

When the bill or peak 12 is attached to the lower edge or headband of the head-covering portion 10 and the cap placed on the head of the wearer, the drawing of the headband pulls the back edge 40 of the bill in to conform to the shape of the wearer's head. This will cause the bill to slant downwardly to shield the eyes and will also cause it to arch transversely thereof, as illustrated in Fig. 4. This arching of the bill will cause the visor 14 to be arched and pressed against the under side of the bill in the manner illustrated in Fig. 4 and thus be completely out of the wearer's line of sight. The visor will be pressed into contact with the under side of the bill because the resilient arms 18 which hingedly carry the visor are slanted inwardly toward each other when the bill is arched, thus imparting a slightly greater bend to the visor. When the wearer desires to eliminate glare from objects being viewed or to protect his eyes from wind, dust, or other foreign particles, the visor is swung downwardly into the position illustrated in Figs. 1 and 5 where the curvature or arching introduced into said visor is maintained and causes it to substantially conform to the curvature of the wearer's face. It will be noted that the angles between the axis of rotation of the visor 14 and the bill or peak 12, and between said axis and the upper edge of said visor are not constant but are different for each degree of arch that is imparted to said bill or peak. It is the function of the universal joint type hinge 16 to automatically compensate for these different angles and permit the visor to swing smoothly from inoperative to operative position and back again.

It will be apparent to those skilled in the art that the curvature imparted to the visor 14 for any given head shape may be varied by increasing or decreasing the curvature of the back edge 40 of the bill 12. It will also be apparent that the curvature of a visor attached to any given bill may be varied by placing the bill and visor on heads having different curvatures. Thus, given two persons having the same headsize but having differently shaped heads, for example, one head being narrower than the other, the bill and visor would have a more pronounced arch when worn by the person with the narrower head because the greater space between his head and the edge 40 would impart a greater curvature to the visor and cause it to conform to the narrower face, whereas the smaller amount of arch caused by the second person would result in less curvature in the visor which would correctly follow the curvature of his face. This feature makes possible the use of the bill and visor of the present invention on an adjustable cap because regardless of the size or shape of the wearer's head the visor will bend to conform substantially to the curvature of his face.

Whereas this invention has been disclosed in connection with a cap having a bill or peak it will be apparent to those skilled in the art that the invention can be applied to a hat having a circumferential brim or to a bill or peak attached to a head band only.

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Since certain changes may be made in the above product without departing from the scope of the invention herein involved, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

What is claimed is:

1. A normally flat flexible cap bill having one edge thereof adapted to be attached to the edge of a flexible cap, said one edge comprising a concave curve of greater radius than the normal curvature of the cap edge to which it is adapted to be attached, a plurality of universal joint type hinges mounted on said bill with their centers of rotation spaced from the under side of said bill and located between a line tangent to the mid-point of said concave edge and the front edge of said bill, each of said hinges comprising a ball receiving socket formed by a pair of spaced apart resilient arms, a ball rotatably carried by said socket, and a shank extending from said ball out of said socket, a normally flat flexible eye-protecting visor attached to said hinges for pivotal movement around said centers of rotation, said visor being attached to said hinges at spaced points thereon capable of being connected by a straight line falling entirely on said visor, said visor having an upper edge, said upper edge being adjacent to said centers of rotation whereby said visor can be pivoted between an operative position and an inoperative position and whereby said bill is adapted when arched longitudinally by the shape of a wearer's head to bend said visor when it is in operative position to substantially conform to the curvature of said wearer's face.

2. A normally flat flexible cap bill having one edge thereof adapted to be attached to the edge of a flexible cap, said one edge comprising a concave curve of greater radius than the normal curvature of the cap edge to which it is adapted to be attached, a plurality of universal joint type hinges mounted on said bill with their centers of rotation spaced from the under side of said bill and located between a line tangent to the mid-point of said concave edge and the front edge of said bill, each of said hinges comprising a ball receiving socket formed by a pair of spaced apart resilient arms, a ball rotatably carried by said socket, and a shank extending from said ball out of said socket, a normally flat flexible eye-protecting visor attached to said hinges for pivotal movement around said centers of rotation, said visor being attached to said hinges at spaced points thereon capable of being connected by a straight line falling entirely on said visor, said visor having an upper edge, said upper edge being adjacent to said centers of rotation whereby said visor can be pivoted between an operative position and an inoperative position and whereby said bill is adapted when arched longitudinally by the shape of a wearer's head to bend said visor when it is in operative position to substantially conform to the curvature of said wearer's face, and to arch said visor when it is in inoperative position a greater amount than

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said bill to cause said visor to press against the under side of said bill out of the wearer's line of sight.

3. A normally flat flexible cap bill having one edge thereof adapted to be attached to the edge of a flexible cap, said one edge comprising a concave curve of greater radius than the normal curvature of the cap edge to which it is adapted to be attached, a plurality of universal joint type hinges mounted on said bill with their centers of rotation spaced from the under side of said bill and located between a line tangent to the mid-point of said concave edge and the front edge of said bill, each of said hinges comprising a ball receiving socket formed by a pair of spaced apart resilient arms, a ball rotatably carried by said socket and a shank extending from said ball out of said socket, a normally flat flexible light-polarizing eye-protecting visor having its axis of transmission perpendicular to its longitudinal axis attached to said hinges for pivotal movement around said centers of rotation, said visor being attached to said hinges at spaced points thereon capable of being connected by a straight line falling entirely on said visor, said visor having an upper edge, said upper edge being adjacent to said centers of rotation whereby said visor can be pivoted between an operative position and an inoperative position and whereby said bill is adapted to be arched longitudinally by the shape of the wearer's head to bend said visor when it is in operative position to substantially conform to the curvature of said wearer's face.

4. In combination, a flexible visor member adapted to be positioned above the eyes of a wearer, a flexible eye shield member adapted to extend before both eyes of a wearer and means for interconnecting said members at spaced points near their respective extremities, each interconnecting means comprising a spherical element, means projecting from said spherical element and directly secured to one of said members for supporting said element in spaced relation to said member, a pair of flexible resilient hollow ears receiving said element under light resilient pressure and means extending from said ears for directly connecting said ears to said other member.

CLARANCE O. BROWN.
MURRY N. FAIRBANK.

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