July 17, 1951 H. VACA 2,560,669

EYE SHIELD

Filed Feb. 12, 1948 2 Sheets-Sheet 1

FIG. 1.

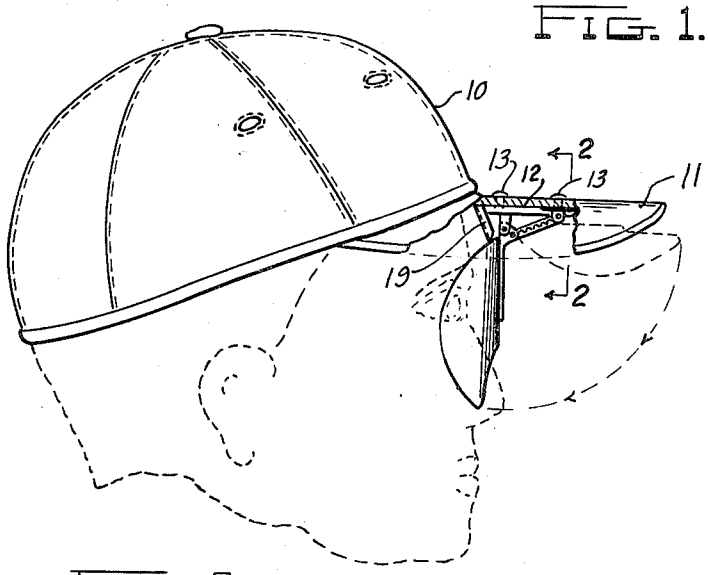


FIG. 2.

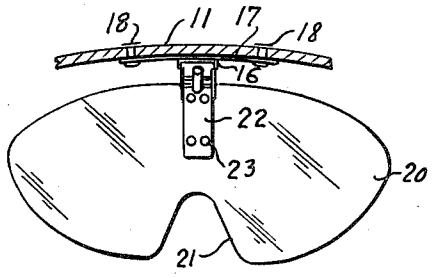


FIG. 3.

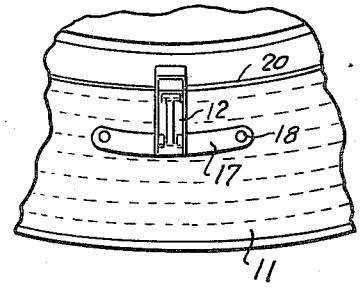


FIG. 4.

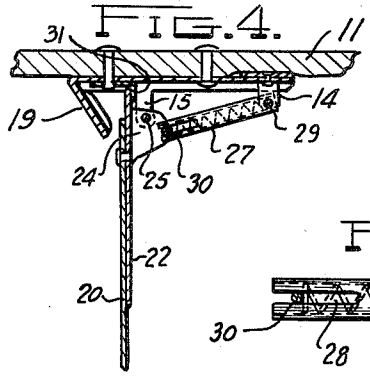


FIG. 5.

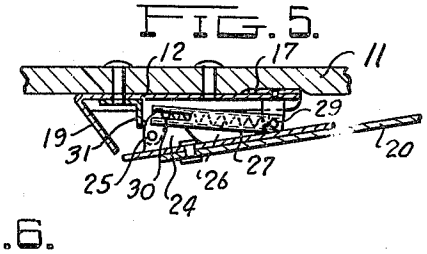
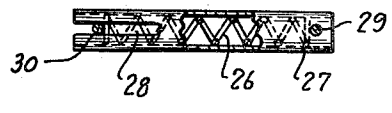


FIG. 6.



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July 17, 1951 H. VACA 2,560,669

EYE SHIELD

Filed Feb. 12, 1948 2 Sheets-Sheet 2

FIG. 7.

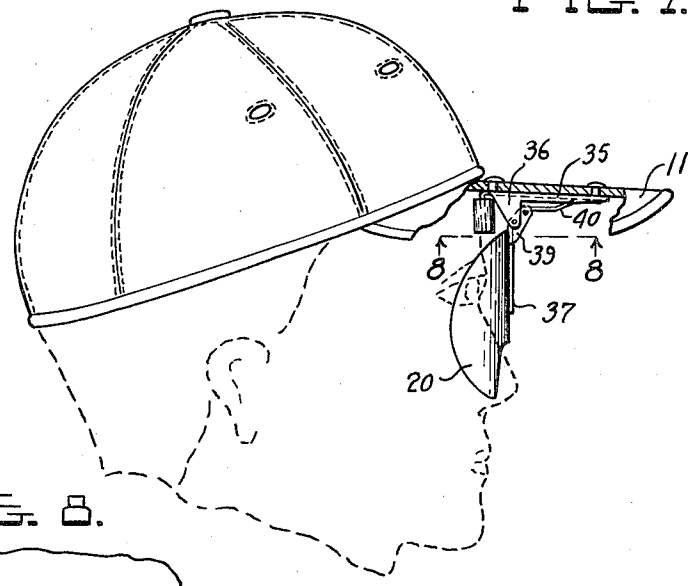


FIG. 8.

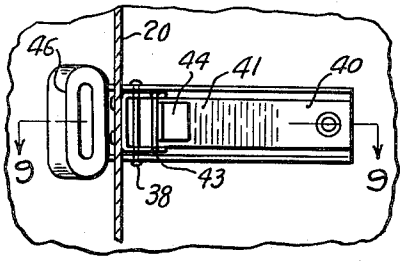
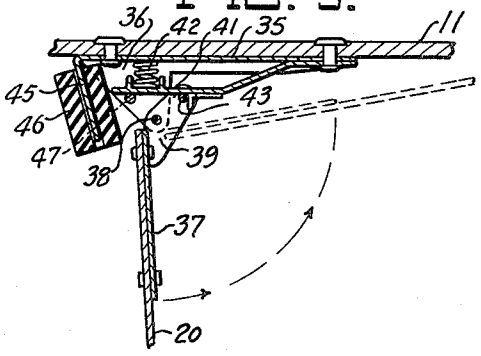


FIG. 9.



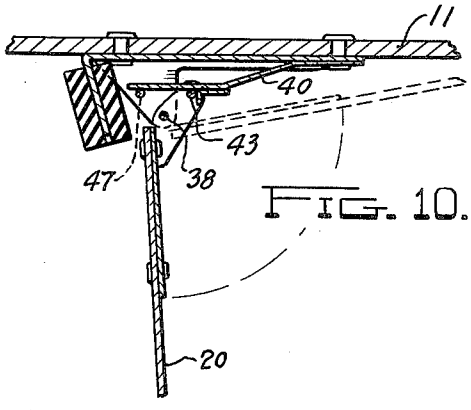


FIG. 10.

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EYE SHIELD

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4 Claims. (Cl. 2—10)

1

This invention relates to an eyeshield and it has to do more particularly with an attachment for a cap or the like in the form of an eyeshield which can be easily and quickly manipulated to its operative and inoperative positions.

More specifically, the invention is directed to an eyeshield which may be attached to the underside of the bill or brim of a cap or the like for protecting the wearer's eyes from the glare of the sun. Although the invention may be applied to most any type of hat or cap, it is particularly useful on caps of participants in sporting events, especially baseball, for instance, where the playing conditions may be such that the shield must be snapped into or out of operative position easily and very quickly.

It is an object of the invention first of all to provide an improved eyeshield for a cap which is simple in its construction and, therefore, economical to make. It is also an object to provide an eyeshield constructed such that it may be readily applied to the usual cap without defacing the cap to any great extent. The shield is adapted to be secured to the bill of a cap and lie adjacent the underside of the bill when not in use so as to be out of the way and not interfere with the wearer's vision.

It is also contemplated to provide a shield which can be quickly and positively snapped to either the operative or inoperative position and retained in either position without resorting to complicated latch mechanisms. This is accomplished by employing over center spring means which controls the pivotal movement of the shield.

Although in the accompanying drawings there are shown several forms of the shield applied to a baseball cap, it will be understood that the invention is applicable to head gear in general and not merely the type of cap shown in the drawings.

In the drawings:

Figure 1 is a side elevation partly in section showing the cap on the head of the wearer with the shield in the operative position.

Figure 2 is a sectional view taken substantially along the lines 2—2 in Figure 1.

Figure 3 is a partial bottom view of the bill of the cap showing the shield in the operative position.

Figure 4 is a central vertical section through the bill of the cap showing the operating means for the shield and the manner in which it is secured to the bill, the shield being shown in the operative position.

Figure 5 is a sectional view similar to Figure 4 showing the parts in the inoperative position.

2

Figure 6 is a view of the spring casing partly broken away showing the manner in which the spring is retained therein.

Figure 7 is a side elevation similar to Figure 1 showing a modified form of the invention.

Figure 8 is a bottom view partly in section taken substantially along the lines 8—8 in Figure 7.

Figure 9 is a sectional view taken along the lines 9—9 in Figure 8 showing the operating mechanism for the modified form of construction.

Figure 10 is a view similar to Figure 9 showing a further modified form of over center spring mechanism.

As is shown in Figure 1, the cap is of the usual type having a body portion 10 which fits over the head of the wearer and a curved bill 11 at the front which projects outwardly and serves to shade the wearer's eyes. The shield of this invention is preferably attached to the underside of bill 11 by a mounting plate 12 which extends forwardly from adjacent the rear edge of bill 11 and which may be firmly attached to the bill as by rivets 13. Plate 12 may be conveniently stamped from sheet metal and is provided with a pair of depending ears 14 near its front end and a second pair of depending ears 15 spaced rearwardly of ears 14. Downwardly turned flanges 16 at each side of plate 12 may be formed to strengthen the plate and prevent it from flexing. At its front end plate 12 is provided with a curved brace 17 which extends transversely of the plate and conforms to the arcuate contour of the bill 11. Brace 12 is secured to the bill by means of rivets 18 and serves to maintain the arcuate shape of the bill. At its inner or rear end plate 12 is formed into a downwardly projecting guard 19 which extends more or less parallel to the forehead of the wearer when the cap is adjusted on the wearer's head.

The shield has a body 20 which may be shaped to conform to the contour of the bill so that in the inoperative position, shown by dotted lines in Figure 1, it lies adjacent the underside of the bill and does not interfere with the vision of the player. The shield is preferably fashioned from colored plastic, Celluloid or some similar material adapted to shield the player's eyes from the rays of the sun. The body 20 is of sufficient width so as to extend across the player's eyes and is provided with a notched-out portion 21 to accommodate the player's nose when the shield is in the operative position shown by solid lines in Figure 1. The shield is pivoted to plate 12 by means of a hinge plate 22 which may be riveted as at 33 to the central vertical portion of the shield. The upper end of plate 22 is formed into a pair of

spaced ears 24 which are pivotally attached to the ears of plate 12 by a pin 25 passing through both pairs of ears.

The actuating mechanism for shield 20 comprises a coiled compression spring 26 which is housed within a tubular casing 27. At one end the tubular casing 27 is pivoted between ears 14 by means of a pin 29 and at the other end the casing is slotted as at 28. A second pin 30 extends across ears 24 on hinge plate 22 and is arranged such that when shield 20 is in the depending operative position, pin 30 lies forwardly of and below pivot pin 25. Pin 30 is slidably retained within the slotted portion 28 of the casing so that spring 26 is at all times compressed between the pins 29 and 30. It will be seen that by arranging pin 30 in this manner spring 26 functions as an over center spring. When shield 20 is pivoted from the position shown in Figure 5 to the position shown in Figure 4 pin 30 rotates upwardly about pin 25 and spring 26 is compressed until a point in the movement is reached where pins 25, 30 and 29 are all aligned in a single plane, after which the distance between pins 29 and 30 becomes greater and the spring expands.

In the inoperative position shield 20 abuts against ears 14 and a stop 31 on plate 12 limits the downward pivotal movement of the shield to a substantially vertical operative position as shown in Figures 1 and 4.

The shield may be shifted to the operative or inoperative positions by merely snapping it either upwardly or downwardly. When the shield is disposed in the inoperative position shown in Figure 5, spring 26 is above center and urges hinge plate 22 to its uppermost position with the shield 20 lying adjacent the underside of the bill. The shield is retained in this position since spring 26 is arranged to be under compression at all times. If it is desired to shift the shield to the depending operative position, it is merely snapped downwardly so that spring 26 assumes a position to the other side of center, that is, to the position shown in Figure 4 with pin 30 lying below a line through pins 25 and 29. During the first part of this movement pin 30 rotates downwardly and toward pin 29 thereby further compressing spring 26. After spring 26 passes the center position, however, pin 30 rotates downwardly and away from pin 29 thus allowing spring 26 to expand. The shield is thereby snapped downwardly abruptly by the spring to the operative position, in which position the upper portion of plate 22 abuts against stop 31 to limit the pivotal movement of the shield to the depending position shown in Figures 1 and 4.

In Figures 7 to 10 there is shown a somewhat different form of operating structure which results in a similar snap action of the shield to and from the operative position. As in the previous structure described, a mounting plate 35 is utilized for attaching the shield to the bill of the cap. Adjacent the rear end of plate 35 a pair of depending ears 36 are formed on which the hinge plate 37 and shield 20 are pivoted as by a pin 38 passing through wing formations 39 at the upper end of the hinge plate. The pivotal movement of the shield to and from the operative positions, shown by solid lines in Figure 9, is controlled by a spring-loaded leaf member 40 which is secured to mounting plate 35 at its front end. Leaf 40 extends rearwardly of the bill of the cap and is fashioned so as to provide a downwardly offset portion 41 which is backed by a spring 42 acting between mounting plate 35 and the upper side of the leaf portion 41. If leaf 40 is made sufficiently resilient, spring 42 may be omitted as is shown in Figure 10.

The snap action of this shield is obtained by means of a pin or roller 43 which is mounted between the upper ends of ears 39 and which bears against the spring-loaded leaf member 40. Pin 43 is arranged so that when the shield is in the operative position, the pin lies to the right of pin 38 as viewed in Figure 9 and when the shield is in the inoperative position, indicated by dotted lines in Figure 9, pin 43 is disposed to the left of pivot 38. A stop 44 is arranged on leaf member 41 so as to engage pin 43 and limit the downward pivotal movement of the shield to the operative position as shown. In the inoperative position the shield abuts against and lies adjacent the underside of the bill of the cap.

The guard 45 fashioned at the rear end of mounting plate 35 may be provided with a rubber cushion 46 for further protection of the player.

It will be appreciated that the operation and action of the shield structure shown in Figures 7 through 10 is quite similar to that previously described. Assuming that the shield is in the folded or inoperative position and is desired to shift it to the operative position, the player merely snaps the shield downwardly and it automatically assumes the position shown in Figure 7. With the shield in the inoperative position pin 43 lies to the left of pin 38 as shown by dotted lines at 47 and is urged downwardly by leaf member 40, which action assures the retention of the shield in the inoperative position until positively shifted by the player. As the shield is pivoted downwardly by the wearer, spring 42 is further compressed until pin 43 is over center, that, directly above pivot 38. Upon further downward movement of the shield pin 43 shifts to the other side of center position and spring 42 acting through leaf 40 snaps pin 43 downwardly and to the right until it abuts against stop 44 in which position it will be firmly retained by the tension in spring 42. The action is simply in reverse when the shield is shifted from the depending to the folded position.

I claim:

1. An eye shield attachment for a cap or the like comprising a support attached to the underside of the bill of the cap, a hinge member pivotally mounted on support member, a shield carried by said hinge member and pivotable therewith downwardly to an operative position depending from the bill of the cap and upwardly to an inoperative position underlying the bill, a bearing member on said hinge spaced from the pivotal connection between said hinge and support members, and a coil spring pivoted at one end on said support member and acting against said bearing member at the other end, said bearing member being disposed on opposite sides of a line through the pivotal connection between said hinge and support members and the pivotal connection between said spring and support member when the shield is disposed in said operative and inoperative positions.

2. An eye shield attachment for a cap or the like comprising a plate member secured to the underside of the bill of the cap, a hinge member pivotally mounted at the rear portion of said plate member for movement in a substantially vertical plane, a shield fixed on said hinge member and movable therewith to an operative

position depending from the bill of the cap and to an inoperative position adjacent the underside of said bill, means limiting the pivotal movement of said shield when it is in operative position, spring engaging means on said hinge member spaced from the pivotal connection between said support plate and hinge member, said spring engaging means being disposed between said pivotal connection and said bill when the shield is in the inoperative position and on the opposite side of said pivotal connection when the shield is in the operative position, and a spring secured at one end to said support plate and at the other end to said spring engaging means whereby the spring yieldably holds said shield in the operative position and also in the inoperative position.

3. An eye shield attachment for a cap or the like comprising a support member secured to the underside of the bill of the cap, a hinge member pivotally mounted on said support member, a shield carried by said hinge member and pivotable therewith to an operative position depending from the bill of said cap and to an inoperative position underlying the bill, stop means for limiting the pivotal movement of the shield when it is in operative position, a pin on said hinge member spaced from the pivotal connection between said hinge and support members and arranged to be disposed on opposite sides of said pivotal connection when the shield is pivoted to the operative and inoperative positions, and resilient means on said support member acting against said pin to produce a moment arm tending to pivot said shield to hold it in the operative position and to produce an opposite moment to hold the shield in the inoperative position.

4. An eye shield attachment for a cap or the like comprising a plate secured to the underside of the bill of the cap, a hinge member, means depending from said plate forming a pivotal connection with said hinge member, said pivotal connection being spaced downwardly from said plate, a shield fixed on said hinge member and pivotable therewith to a depending operative position and to an inoperative position with the shield underlying the bill of the cap, means on said hinge plate forming a localized bearing surface, and means forming a leaf spring on said plate acting against said localized bearing surface, said bearing surface being offset from said pivotal connection and being disposed on opposite sides of said pivotal connection when said shield is disposed in said operative and inoperative positions, thereby producing a moment arm tending to rotate the shield to hold it in the operative position and to produce an opposite moment to hold the shield in the inoperative position.

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