Oct. 3, 1944. G. MILLER, JR 2,359,435

EYE SHIELD

Filed Aug. 26, 1941

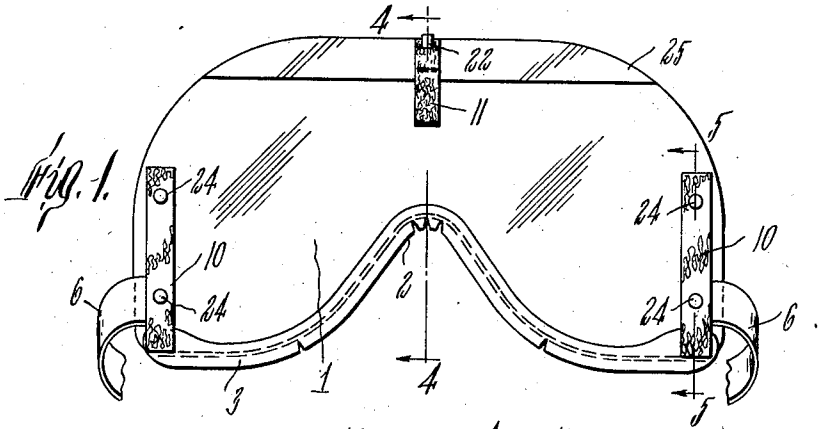


Fig. 1.

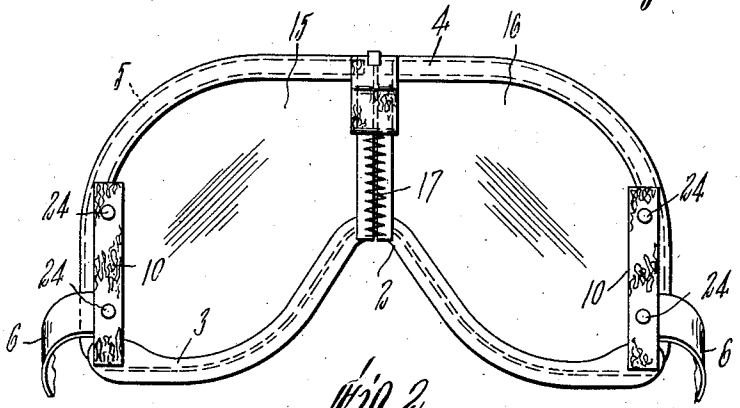


Fig. 2.

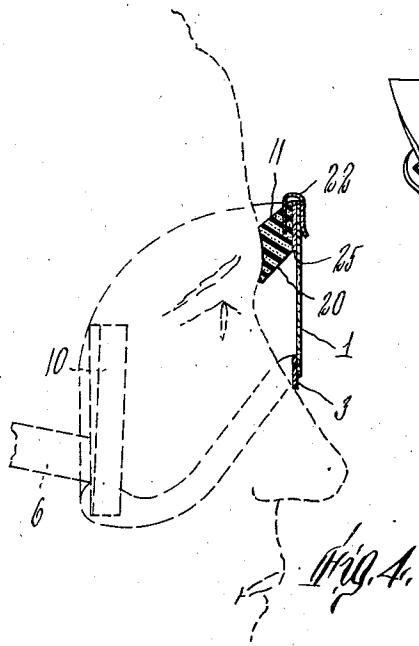


Fig. 4.

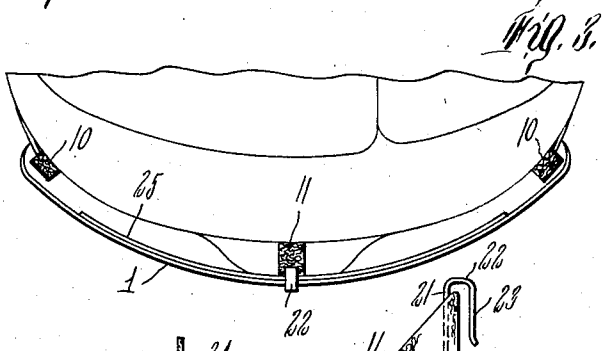


Fig. 3.

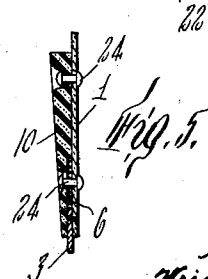


Fig. 5.

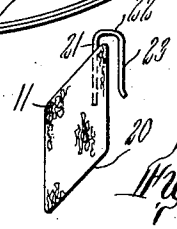


Fig. 6.

Inventor
Gray Miller, Jr.
by Wright, Brown, Quinby & May
Attys

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UNITED STATES PATENT OFFICE

2,359,435

EYE SHIELD

Gray Miller, Jr., Southbridge, Mass.; James C. Gahan, Jr., Belmont, Mass., administrator of said Gray Miller, Jr., deceased, assignor to Polaroid Corporation, Dover, Del., a corporation of Delaware

Application August 26, 1941, Serial No. 408,357

6 Claims. (Cl. 2—12)

In my Patent No. 2,192,092 for Eye shield granted February 27, 1940, there is disclosed an eye shield which is arranged to conform to the face of the wearer below the eyes and to be spaced away from the face along its upper edge along the forehead of the wearer. This is for the purpose of providing proper ventilation so that the shield does not cloud or fog in use and air currents are effective to maintain unimpaired vision and produce comfort and adequate protection to the eyes.

The present invention relates to eye shields of the same general type and has for certain objects to improve the fit of the shield to the face and to add to the wearer's comfort. More particularly this invention provides against the possibility of the shield slipping relative to the face of the wearer, as by wind pressure or other fortuitous causes and in its more highly developed forms provides a shaping which tends to equalize the pressure on the face and thus adds to the wearer's comfort, and to prevent any tendency of wind pressure to distort the shield and introduce undesirable reflections from its inner surface.

In accordance with the present invention, therefore, the shield is provided with a spacer or spacers of substantially less width than the shield which engage the face of the wearer and act to support the upper portion of the shield spaced out of contact with the wearer's forehead in a positive manner so that no reliance has to be placed on the springy nature of the eye shield itself for insuring proper ventilation and shaping of the shield.

Further objects and advantages will appear from a more complete description of certain embodiments of the invention shown in the accompanying drawing in which

Figure 1 is an inside elevation of an eye shield embodying certain features of the invention.

Figure 2 is a view similar to Figure 1, but showing a modification.

Figure 3 is a fragmentary top plan view of the structure shown in Figure 1 in place on the wearer's face.

Figure 4 is a detail section on line 4—4 of Figure 1, but showing the shield in use.

Figure 5 is a detail section on line 5—5 of Figure 1.

Figure 6 is a side elevation of a center spacing member.

Referring first to Figures 1, 3 and 4, the eye shield comprises a body portion 1 of transparent flexible sheet material quite similar in general form to that shown in my Patent No. 2,192,092 to which reference has been made. At its lower edge it is provided with an upwardly extending notch 2 to form a space through which the nose of the wearer may extend, the side edges of the notch engaging the sides of the nose, while the lower edge portions on each side of the notch engage beneath the eyes with the wearer's cheeks. Preferably, and in order to present a soft surface for contacting with the face, this lower edge, including the edges of the notch, are provided with an edge piece 3 of some soft material such as light leather, or the like. If desired, also, the upper edge and the ends also may be provided with a similar edging 4 to act as a finish and if desired the edging may be folded to enclose therein a spring wire 5 (see Figure 2) as shown in my application Serial No. 329,189, filed April 11, 1940, for Eyeshields, now Patent No. 2,337,617, issued December 28, 1943. Where such a spring wire is used, it acts to shape the body portion to the desired contour and may be so formed as to hold the body portion in such position as to prevent the formation of undesired reflections on the inner face of the body member. Adjacent to opposite side edges of the body member means such as strap members 6 may be provided for securing the shield about the wearer's head.

In order to prevent the shield from slipping from the face of the wearer, as by the force of winds or other fortuitous forces, means are provided in accordance with this invention for supporting the shield above its lower edge spaced a desired extent from the wearer's face. Such means may directly engage the face of the wearer and present relatively soft friction material which will hold the shield firmly where it belongs and with comfort to the wearer. Such means may be arranged in widely spaced relation around the margin of the body member above its lower edge. As shown in Figures 1 and 2, for example, there may be a pair of side spacing elements 10 and a central top element 11. The side spacing elements 10, as shown in Figure 5, are of general wedge shape having their thinner ends located toward the lower edge of the body portion and their thicker ends located higher up on the shield. While these spacing elements may be made in various forms and of various materials, a very satisfactory material is sponge rubber, and as shown wedge shaped blocks of this rubber are employed for this purpose. They are of substantially less width than the body member and may be suitably attached to the inner face of

the body member adjacent to its side edges so as to engage the wearer's face and act to space the upper portion of the shield on each side forwardly from the wearer's face to form the desired ventilating openings of substantial lengths between the face of the wearer and the back face of the body member. The central spacer 11 may be similarly formed and applied to the back or inner face of the body member substantially centrally above the notch 2 so as to engage the forehead of the wearer and act as a spacer to locate the central upper edge portion of the shield spaced forwardly of the wearer's forehead and form ventilating openings of substantial lengths on either side of the spacer.

There is also another important result attained by the use of the spacing elements, aside from ventilation. It is desirable that the lower edge portion of the shield lie close against the face in order to provide the largest possible field of vision. Under such conditions, unless the wearer has deep set eyes, contact of the upper edge of the shield with the forehead brings the shield so near to the eyes as to provide insufficient clearance for the eyelashes. It is, of course, desirable to provide a shield suitable for the largest possible number of users regardless of variations in specific facial contours. By spacing the upper edge of the shield forwardly of the forehead, therefore, the same shield design may be employed for a larger number of people, while maintaining the maximum downward field of vision.

In some cases it may be desired to make the shield in such a manner that it may be folded or collapsed for ease in carrying when it is not desired for use. Such a construction is shown in Figure 2 wherein the body portion comprises a pair of side parts 15 and 16 which are hinged together centrally as at 17. Such hinge connection may comprise zigzag stitching connecting marginal portions, preferably overlaid with an edging material such as leather, and applied to the adjacent edges of the parts 15 and 16. Where such an arrangement is employed, it is highly important to use a central spacing block 11 and in order that this central spacing block may be brought into substantially the plane of the parts 15 and 16 when they are folded together and yet be held in proper position as a spacer when the parts 15 and 16 are opened and applied to the wearer's head, this central block may be attached to the hinge portion as by being engaged by the zigzag stitches, or by any other suitable means, and it is of sufficient width so that when the parts 15 and 16 are unfolded and brought into operative position, both these side portions 15 and 16 engage with the flat forward face of the block 11 and thus hold it projecting backwardly in position to act properly as a spacer between the upper portion of the eye shield and the wearer's forehead.

The upper edges of the body may be provided with the spring wires 5 to tend to retain them in the desired curvatures but with capabilty of being pressed out substantially flat for compactness in folding, each of the portions 15 and 16 being provided with its own individual spring wire. Where the body portion is in one piece a single spring wire extending across its entire upper portion would be used.

While it is preferred to employ the spacers at the sides as well as at the upper middle portion, it should be understood that one or more of these spacers may be omitted or they might be otherwise arranged without departing from the spirit or scope of this invention. Preferably as shown best in Figures 4 and 6, the upper spacer member 11 has its lower face upwardly and outwardly inclined as at 20 so that it may not act unduly to impede the upward vision of the wearer.

If desired, the spacer members may be so formed as to be readily removable from the body member. Such a construction is illustrated in connection with the central spacer 11. This spacer may have molded into or otherwise secured thereto an end portion 21 of a spring clip 22, the outer free end portion 23 of which may be engaged with the outer face of the body member, thus to hold the spacing element in position. As shown the side spaces 10 are secured as by rivets 24. Particularly in case it is not desired to employ the central spacer member, it may be found advantageous to substantially stiffen the top edge of the body member as by a normally flat stiffening strip 25 (Figure 1) where this body member is arranged as a single piece. Such a stiffener will tend to preserve the desired spacing between the upper portion of the shield and the head of the wearer between the side spacing elements 10 but a spring wire having an inherent curvature of the proper amount is preferred for best results.

From the foregoing description of certain embodiments of this invention, it should be evident to those skilled in the art that various changes and modifications might be made without departing from the spirit or scope of this invention as defined by the appended claims.

I claim:

1. An eye shield comprising a transparent sheet material body portion having a notch in its lower edge to engage about the nose of the wearer and with its lower edges on opposite sides of said notch shaped to engage with the wearer's face beneath the eyes, means engaging the body portion adjacent to opposite ends for securing the eye shield to the head of the wearer, and an element secured to and projecting rearwardly from the inner face of said body portion adjacent the upper edge thereof, said element being of substantially less width laterally than the lateral width of said body portion and serving to space the upper margin of said body portion from the wearer's forehead and thereby to provide ventilating spaces on either side of said element.

2. An eye shield comprising a transparent sheet material body portion having a notch in its lower edge to engage about the nose of the wearer and with its lower edges on opposite sides of said notch shaped to engage with the wearer's face beneath the eyes, means engaging the body portion adjacent to opposite ends for securing the eye shield to the head of the wearer, and elements secured to said body portion widely spaced around its margin about its upper edge and extending rearwardly in position to engage the face of the wearer and retain said margin spaced forwardly of the wearer's face and defining therewith ventilating openings of substantial lengths.

3. An eye shield comprising a transparent sheet material body portion having a notch in its lower edge to engage about the nose of the wearer and with its lower edges on opposite sides of said notch shaped to engage with the wearer's face beneath the eyes, means engaging the body portion adjacent to opposite ends for securing the eye shield to the head of the wearer, and widely spaced wedge shaped elements carried by said

body portion on its inner face adjacent to its side edges, the thinner portion of said elements being downwardly positioned for spacing said body member in increasing amount from the face of the wearer from said lower edge upwardly.

4. An eye shield comprising a transparent sheet material body portion having a notch in its lower edge to engage about the nose of the wearer and with its lower edges on opposite sides of said notch shaped to engage with the wearer's face beneath the eyes, means engaging the body portion adjacent to opposite ends for securing the eye shield to the head of the wearer, wedge shaped elements carried by said body portion adjacent to its side edges on its inner face, the thinner portion of said elements being downwardly positioned for spacing said body member in increasing amount from the face of the wearer from said lower edges upwardly, and an element for a substantial portion of the length of said margin secured to said body portion adjacent to its upper margin on the inner face thereof in position to space the upper margin of said body portion from the face of the wearer.

5. An eye shield comprising a transparent sheet material body portion having a notch in its lower edge to engage about the nose of the wearer and with its lower edges on opposite sides of said notch shaped to engage with the wearer's face beneath the eyes, means engaging said body portion adjacent to its side edges for securing the eye shield to the wearer's head, said body portion comprising a pair of side parts hinged together on an axis substantially in line with the apex of said notch to be folded together about said axis, and a spacer block secured to the upper portion of said body at said hinge and overlying both of said side parts when said side parts are unfolded and said eye shield is in use to be held by said side parts extending rearwardly and supporting the upper margins of said body member at opposite sides of said block spaced from the wearer's head.

6. An eye shield comprising a transparent sheet material body portion having a notch in its lower edge to engage about the nose of the wearer and with its lower edges on opposite sides of said notch shaped to engage with the wearer's face beneath the eyes, means engaging the body portion adjacent to opposite ends for securing the eye shield to the head of the wearer, an element secured to and projecting rearwardly from the inner face of said body portion adjacent the upper edge thereof, said element being of substantially less width laterally than the lateral width of said body portion and serving to space the upper margin of said body portion from the wearer's forehead and thereby to provide ventilating spaces on either side of said element, and means for removably securing said spacing element to said body portion.

GRAY MILLER, JR.