

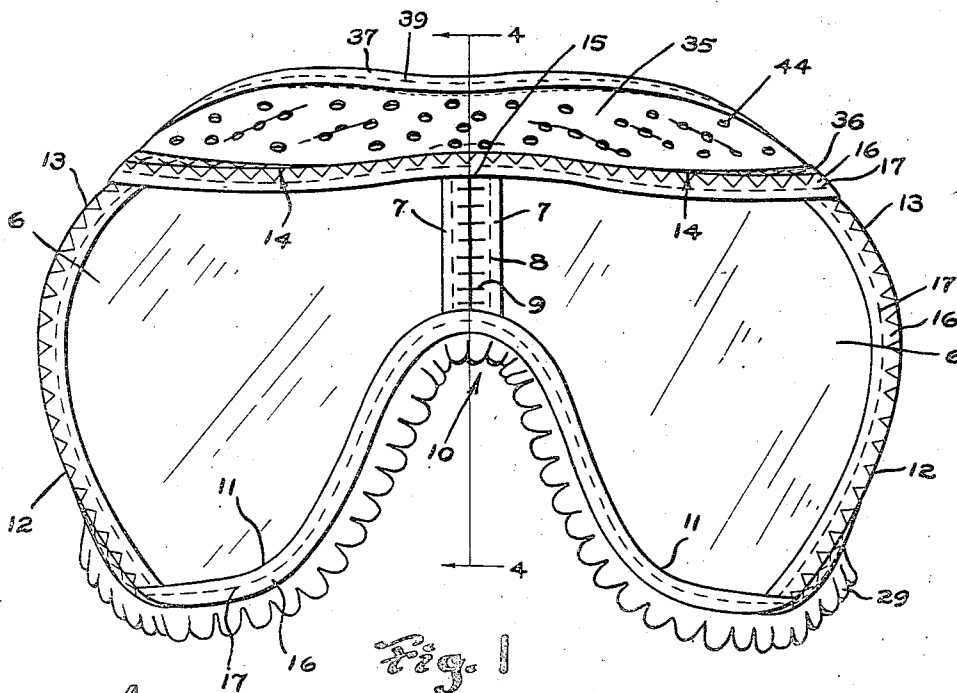
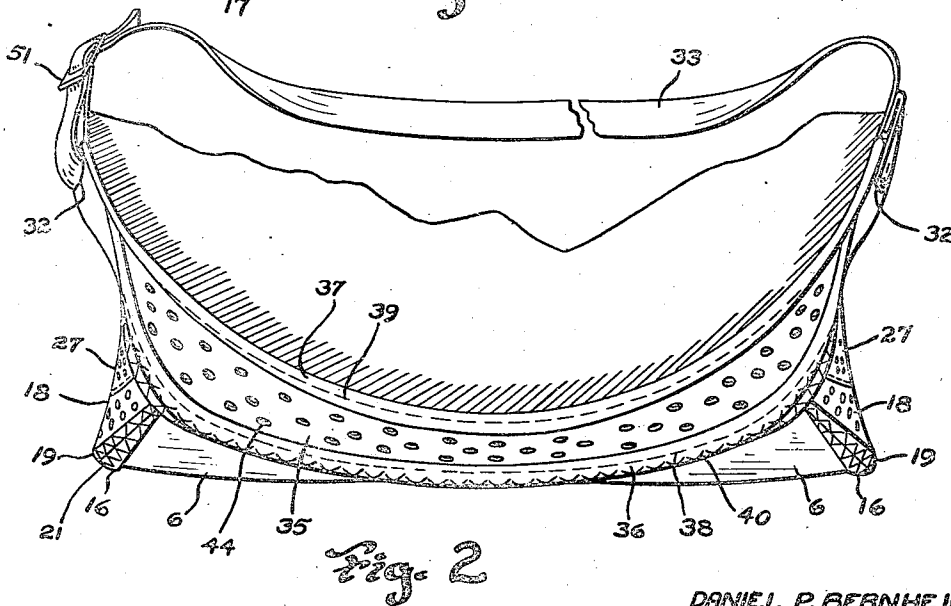
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D. P. BERNHEIM ET AL  
COLLAPSIBLE TYPE EYESHIELD

2,409,243

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2 Sheets-Sheet 1



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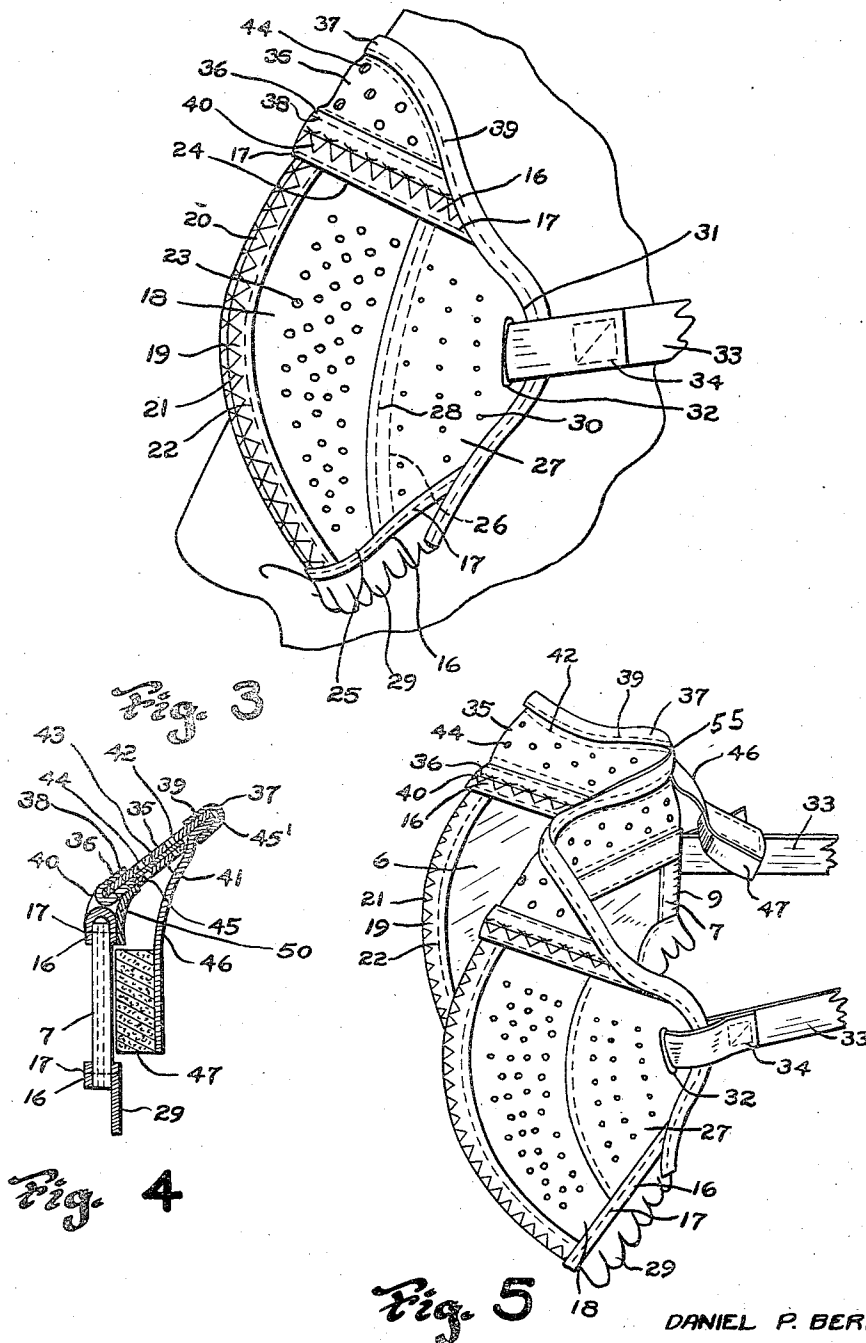
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## UNITED STATES PATENT OFFICE

2,409,243

## COLLAPSIBLE TYPE EYESHIELD

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## 3 Claims. (Cl. 2-14)

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This invention relates to eye protection means and more particularly to novel shield type protection means which may be folded when not in use and extended to afford substantially maximum field of vision with a relatively tight seal with the face.

One of the principal objects of the invention is to provide a light weight shield type eye protection device so constructed that the parts thereof may be folded in compact relation with each other when not in use and when in position of use, will afford a relatively wide field of vision with a relatively tight seal with the face whereby the said device may be subjected to a wide variety of uses.

Another object is to provide a device of the above character with novel means of ventilation.

Another object is to provide a device of the above character having its various parts joined with each other so as to permit said parts to be folded in compact relation and yet be sealed at the folds so as to prevent all entrance of light, other than through the main lens portion.

Another object is to provide a device of the above character having its various parts so shaped and joined with each other as to comfortably fit the general facial characteristics of most individuals with a relatively tight seal and so as to support the lens means thereof in proper spaced relation with the eyes.

Another object is to provide a shield type protection device of the above character having main lens portions joined with each other by a central hinge member in combination with side shields for spacing the main lens portions a proper distance from the eyes, with said side shields each embodying a flexible portion for side surface engagement with the face, and a flexible spacer member secured throughout the top of the main lens portions and extending throughout a part of the upper edges of the side shield members adapted to be disposed rearwardly of the plane of the lenses when the device is in position of use and to assume a relatively tight seal with the face with the central portion thereof in substantial alignment with the central hinge member of the main lens portion being adapted to extend forwardly of the plane of the lens portions when said portions are folded forwardly in adjacent relation with each other with the said side shields being adapted to fold inwardly in adjacent relation with the rear surfaces of the main lens portion.

Another object is to provide simple, efficient and economical means and method of producing a device of the above character.

Other objects and advantages of the invention will become apparent from the following description taken in connection with the accompanying drawings and it will be apparent that many

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changes may be made in the details of construction, arrangement of parts and methods shown and described without departing from the spirit of the invention as expressed in the accompanying claims. We, therefore, do not wish to be limited to the exact details of construction, arrangement of parts and steps of the methods shown and described as the preferred forms only have been given by way of illustration.

The device embodying the invention is intended as general utility eye protection means particularly adaptable for use in protecting the eyes from dust, wind, glare and so forth and is constructed so that the parts thereof may be folded into compact relation with each other for ease of conveyance and, when the parts are extended to position of use, will afford maximum protection with extreme lightness in weight and comfort.

Referring to the drawings:

Fig. 1 is a front elevation of the device embodying the invention;

Fig. 2 is a top plan view of said device indicated as in position of use on the face;

Fig. 3 is a side elevation of said device shown in position of use on the face;

Fig. 4 is a slightly enlarged sectional view taken as on line 4-4 of Fig. 1; and

Fig. 5 is a perspective view illustrating how the device is folded when it is desired to position the parts in compact relation with each other.

Referring more particularly to the drawings wherein like characters of reference designate like parts throughout the several views the device embodying the invention comprises two transparent shield or lens portions 6 joined adjacent the nasal sides thereof by a flexible hinge member 7 formed of strips of leather folded over the adjacent edges of the shield members and secured thereto by stitchings or the like 8. The strips of leather or other material 7 are then joined to each other by suitable stitchings or the like 9. The shield or lens members 6 may be formed of any desirable transparent sheet material, such as methyl methacrylate, transparent light polarizing material such as is commonly referred to as polaroid or of any other desirable transparent material permitting the stitchings 8 to be formed therethrough.

The shields or lens members 6, when joined with each other by the hinge member 7, are so shaped as to provide a recess 10 intermediate the lower edge thereof shaped to fit about the nose of the wearer. The said shields or lens members 6 progress downwardly from said intermediate recessed portion and thence curve outwardly as indicated at 11 to fit over the cheek bones below the eyes and thence extend upwardly along outer curved side edges 12. The side edges 12 terminate in converging portions 13 above the eyes

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which join with the upper edge 14 at a relatively obtuse angle. The upper edges 14 of the respective lenses curve slightly downwardly intermediate the nasal and temporal sides of the lenses and thence curve slightly upwardly as indicated at 15 adjacent the location of the hinge members 7. This arrangement provides a relatively wide field of vision through the lenses. The edges of the lenses are provided with bindings of leather or other suitable material 16 which are secured thereto by stitchings or the like 17. The bindings 16, as shown in Fig. 4, are in the form of strips of leather or the like folded over the edges of the shield or lens members 6 to substantially a U-shaped cross section throughout the top and sides of said shields or lens members. The binding 16 throughout the lower edge of the lens, however, overlies only the front surface of the lens with its lower edge following substantially the line of the lower edge of the lens. The said device is provided at the sides with side shield members 18 having a forward edge binding 19 thereon simulating the side edge binding 16 of the main shield portions 6. The forward edge 20 of the side shield members 18 are curved forwardly about an arc of curvature substantially similar to that of the outwardly curving arc of the edges 12 of the main shield members 6. The said bindings 16 and 19 are hingedly connected with each other throughout the sides of the main shield portions 6 and the front of the side shield members 18 by suitable stitchings or the like 21. It is to be understood that the binding 19 is secured to the side shield 18 by suitable stitchings or the like 22 simulating the stitchings 17. The side shield members 18 are formed of material generally similar to the main shield portions 6 but if desired may be formed of opaque sheet material. In the drawings, the side shield members 18 are shown as being provided with a plurality of vent openings 23. Such openings are provided in the side shields 18 when the said shields are formed of transparent material but when formed with opaque material the said vent openings are omitted.

By referring to Fig. 3, it is to be noted that the upper edge 24 of the respective side shields 18 is much wider than the lower edge 25 of said shields and that the rear edge 26 of said side shields is curved forwardly along the radius of curvature which is much longer than the radius of curvature of the front edge 20 of said side shields. This causes the said side shields 18 to have a slighter wedge shape which, when the device is in position of use on the face, causes the lenses to tilt forwardly so that the upper portions of the lenses are further away from the eyes than the lower portions thereof.

The respective side shield members 18 are provided with rearwardly extending flexible portions 27 formed of leather or other suitable material secured to said side shields adjacent the rear edges 26 thereof by stitchings or the like 28 which extend through overlapping portions of said members 18 and 27 respectively. The lower binding 16, as shown in Fig. 3, extends about the lower edges of the side shield portions 18 and 27 respectively and is secured thereto by the stitchings 17. The binding 16, throughout the upper edges of the lenses 6, extends about the upper edges of the respective portions 18 and 27 and is secured thereto by the stitchings 17.

While the stitchings 17 are adapted to secure the binding strips 16 throughout the lower edge of the lenses 6 and the respective side shield por-

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tions 18 and 27 the said stitchings 17 also, as shown in Figs. 1, 3 and 4, are adapted to simultaneously secure a pinked leather edge 29 throughout the lower edges of the lens members 6 and the respective side shield portions 18 and 27. The flexible side shield portions 27 may or may not be provided with vent openings 30 therein, as desired, depending upon the use to which the device is to be put. The said side shield portions 27, as illustrated in Fig. 3, have a rearwardly curving edge portion 31 in which a slot 32 is formed for receiving a suitable headband or the like 33. The end of the headband 33 is threaded through the slot 32 and the said end is secured in side surface relation with an adjacent portion of the band 33 by suitable stitchings or the like 34. This is best seen in Fig. 5. Throughout the upper edges of the main shield or lens portions 6 and the respective upper edges of the side shield portions 18 and 27 there is provided a flexible spacer member 35. The spacer member 35 is preferably formed of leather or other suitable material and is provided along its opposed edges with suitable binding means 36 and 37. The said binding means are secured to the spacer member 35 by suitable stitchings 38 and 39 respectively. The binding means 36 like the adjacent binding means 16 folds over the edge of the spacer member 35 with a U-shaped cross section. The binding means 36 and 16 throughout the upper edges of the lenses 6 and respective side shield portions 18 and 27 are hingedly connected with each other by suitable stitchings or the like 40. The spacer member 35, internally thereof, has a strip of leather or other suitable material 41 secured thereto by suitable stitchings 42 along the opposed edges of the strip 41. Between the spacer member 35 and the strip 41 there is a suitable layer of filtering material such as gauze or other suitable means 43. The spacer member 35 and the strip 40 are provided with a plurality of communicating vent openings 44 and 45 respectively. The binding 37 extends, as shown in Figs. 3 and 5, throughout the length of the rear edge of the spacer member 35 downwardly about the rear edge 31 of the side shield portion 27 and is secured throughout the length thereof to said portions by the stitchings 39. As shown in Fig. 4, the binding 37 and stitchings 39, also function to secure the end 45' of a bridge strap 46 to the spacer member 35. The bridge strap 46, as shown in Figs. 4 and 5, extends downwardly adjacent the center of the main shield portions 6 adjacent the hinge member 7 and is provided with a spacer pad 47. The spacer pad 47 is suspended by the strap 46 and is adapted to aid in spacing the main shield or lens portions 6 from the eyes. Due to the fact that the pad 47 is suspended by the strap 46 the device may be readily folded as illustrated at 55.

The device is particularly adaptable to several different uses and the material of the lenses or shield members 6 is selected according to the particular use to which the device is to be put. For example, if the device is to be used purely for protection against dust, wind, etc., the lenses 6 are of a clear colorless material. If the device is to be used as a dark adaptation goggle the lenses 6 are of a clear transparent red color. Another lens desirable for other particular uses is a polarizing lens of red color. In instances when the device is to be used as a dust or wind protection goggle, the side shield portions 18 and 27 are provided with ventilation openings as illustrated in the drawings. It is to be understood, of course, that the spacer member 35 in all instances has

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vent openings therein. If the device is to be used as a dark adaptation goggle the vent openings in the side shield portions 18 and 27 are omitted as all light must be shunted from the eyes other than the light passing through the red lenses of the device. This shunting of all the light is insured by providing the various hinge joints as diagrammatically illustrated at 50 in Fig. 4 with a cover strip of leather or other suitable flexible and opaque material. The strip 50 is secured over the various points of joinder by the stitchings, for example, 17 and 38, which secure the bindings as well as those which produce the hinge effect. It is to be understood that strips of material, such as illustrated at 50 in Fig. 4 are extended over all of the joined edges of the device so that all light is prevented from passing through said points of joinder. Instead of providing strips 50 the said joints may be provided with a suitable filler, such as latex adhesive, or the like, which will seal the said joints. In this particular instance, the filtering material 43 is such as to prevent light passing through the aligned vent openings 44 and 45 respectively. If desired, instead of omitting the vent openings 23 and 30 in the side shield portions, the said side shield portions can be covered in a manner simulating the spacer strip 35 as illustrated in Fig. 4 through the use of a suitable inner filler liner simulating the liner 43.

The side shield portions 18 are preferably formed relatively rigid as compared with the flexible side shield portions 27. When the device is in position of use on the face the edge binding 37 throughout the line of the forehead assumes an intimate fitted sealed relation with the forehead. The flexible side shield portions 27 assume an intimate side surface contact with the sides of the head and the lower pinking 29 also assumes an intimate sealed fit with the face throughout the contour of the portion of the nose and cheek bones of the face with which it is engaged by said pinking. The headband 33 is preferably formed of resilient material and may be adjusted through the provision of a suitable buckle or the like 51 whereby the sealing pressure of the device on the face may be varied. The completed device is extremely light in weight and comfortable in use and when not in use may be folded so that the various parts thereof are in compact relation with each other for ease of conveyance.

From the foregoing description it will be seen that simple, efficient and economical means and method have been provided for accomplishing all of the objects and advantages of the invention.

Having described our invention, we claim:

1. An eye protection device of the character described comprising a main shield portion of transparent plastic material embodying two sections hingedly connected with each other and so shaped as to form a nasal recess in the lower edge thereof and having opposed side edges curving outwardly, said main shield portion constituting the entire front area portion of the eye protection device, edge binding means of flexible means secured throughout the entire contour edge of said main shield portion by threadlike stitchings, side shield portions formed with forwardly curving edges of a shape similar to the shape of the side edges of the main shield portion, said side shield portions each having a

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flexible binding throughout the contour edge thereof with the portion of the binding throughout the forwardly curving edges being hingedly connected to the binding of said side curved edges of the main shield portion, a top shield member of flexible material having a flexible binding throughout its contour edge with the forward portions thereof secured to the binding on the upper edge of the main shield portion and continuing outwardly and secured to the binding throughout the major portion of the upper edge of the side shield portions, said top shield member having a rear edge portion throughout the length thereof shaped substantially to a controlled face engaging edge shape, the opposed ends of the hinged edge portion of the top shield member tapering toward and blending with the rear contour edge adjacent the ends thereof, said top shield member thereby forming closure means extending between the top edges of the main and side shield portions and the face engaging edge thereof, and a strap-like member suspended from the top shield member having a cushion-like member carried by its free end adapted to lie between the connection hinge of the sections of the main shield portion and the bridge of the nose so as to space the main shield portion from the face.

2. An eye protection device of the character described comprising a main shield portion of transparent plastic material shaped to have a nasal recess in the lower edge thereof and to extend outwardly beyond the sides of the eyes when in position of use, side shield portions formed with a forward edge of a shape similar to the shape of the side edges of the main shield portion, a flexible binding securing said side shield portions to said main shield portion, a top shield member of flexible material having an inner edge portion shaped substantially to the contour of the forehead and having a forward edge portion secured throughout the upper contour edge of the main shield portion and the major portion of the upper edges of the side shield portions and a spacer member supported by the device so as to lie between the main shield portion and the face to space said main shield portion from the face.

3. An eye protection device of the character described comprising a main shield portion of transparent plastic material shaped to have a nasal recess in the lower edge thereof and to extend outwardly beyond the sides of the eyes when in position of use, side shield portions formed with a forward edge of a shape similar to the shape of the side edges of the main shield portion, a flexible binding securing said side shield portions to said main shield portion, a top shield member of flexible material having an inner edge portion shaped substantially to the contour of the forehead and having a forward edge portion secured throughout the upper contour edge of the main shield portion and the major portion of the upper edges of the side shield portions and a strap-like member suspending from adjacent the top shield member and having a cushion-like member carried thereby adapted to lie between the intermediate portion of the main shield portion and the bridge of the nose to space said main shield portion from the face.

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