July 21, 1953 E. M. SPLAINE 2,645,775

EYE PROTECTIVE DEVICE

Filed Nov. 18, 1950

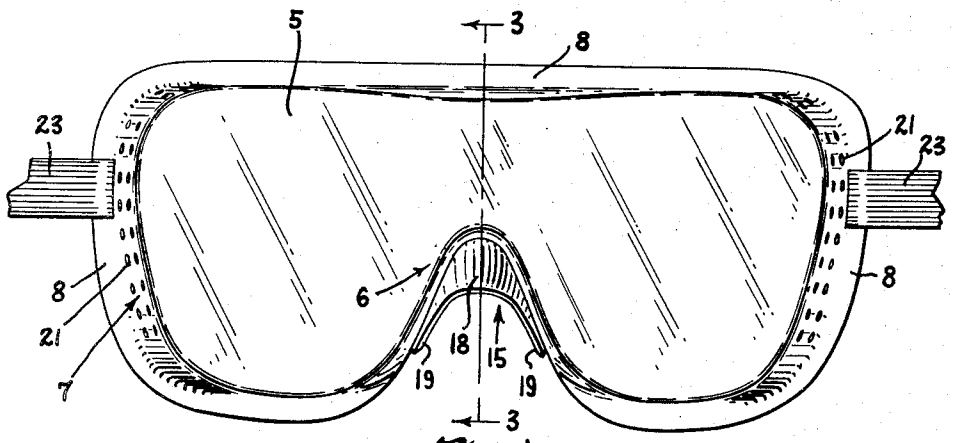


Fig. 1

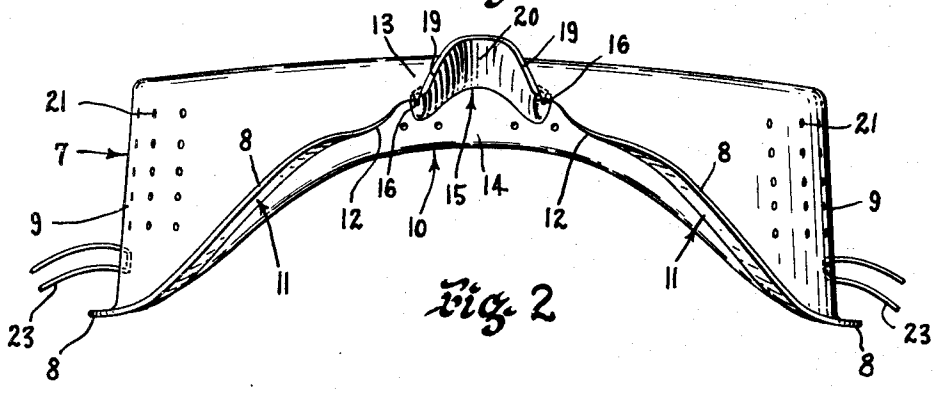


Fig. 2

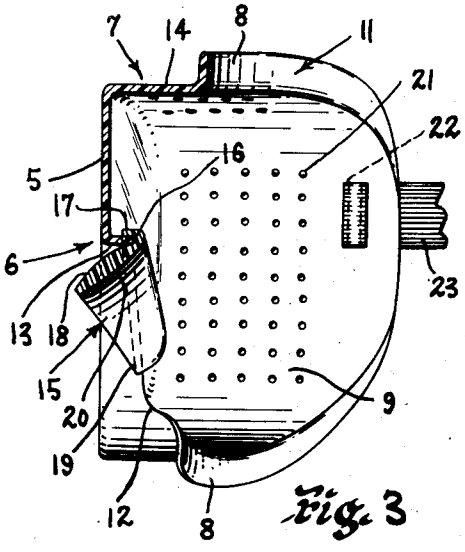


Fig. 3

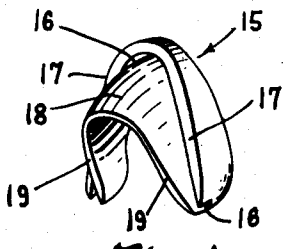


Fig. 4

INVENTOR
EDWARD M. SPLAINE
BY
Louis A. Lagna
ATTORNEY

Patented July 21, 1953 2,645,775

UNITED STATES PATENT OFFICE

2,645,775

EYE PROTECTIVE DEVICE

Edward M. Splaine, Southbridge, Mass., assignor to American Optical Company, Southbridge, Mass., a voluntary association of Massachusetts

Application November 18, 1950, Serial No. 196,449

5 Claims. (Cl. 2—14)

1

This invention relates to improvements in eye protective devices and has particular reference to the provision of a light-weight device embodying a single apertured cup member shaped to surround the eyes and to comfortably fit the face and having a relatively thin shield-like lens portion on its forward side formed with a nasal recess in the lower portion thereof and having a separate and novel nose protective member secured within said recess.

One of the principal objects of the invention is to provide a light-weight device of the above nature with a main shield-like lens portion so supported throughout its entire periphery as to be rigidly held against distortion and to be more resistant to impact and strain.

Another object is to provide a device of the above character wherein the nose protective portion thereof may be secured in assembled relation with the device with little, if any, danger of having the securing means injure the lens portion thereof during assembly and which resultant device will afford maximum protection and comfort during use.

Another object is to provide a device of the above character which will afford a maximum field of vision.

Another object is to provide a device of the above character formed of relatively thin transparent material which is extremely light in weight and resistant to shock and breakage.

Other objects and advantages of the invention will become apparent from the following description taken in connection with the accompanying drawing and it will be apparent that many changes in the details of construction and arrangement of parts may be made without departing from the spirit of the invention as expressed in the accompanying claims. I, therefore, do not wish to be limited to the exact details of construction and arrangement of parts shown and described, as the preferred form only is given by way of illustration.

Referring to the drawing:

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

Fig. 2 is a bottom plan view of the device illustrated in Fig. 1;

Fig. 3 is a sectional view taken as on line 3—3 of Fig. 1 and looking in the direction indicated by the arrows; and

Fig. 4 is a perspective view of the separate nose bearing means.

Referring more particularly to the drawing wherein like characters of reference designate like parts throughout the several views, the device embodying the invention comprises a main transparent shield-like lens 5 formed of transparent material having a recess 6 formed in the lower portion thereof and having an integral cup-like portion 7 shaped to the contour shape of and surrounding said shield-like lens 5. The said cup-like portion has a rear edge portion shaped to the general contour shape of the face surrounding the eyes and provided with an outwardly flared flange-like face engaging portion 8.

2

The entire assembly is formed of relatively thin transparent material whereby the flared face engaging portion will have a comfortable fit with the general facial contours of different individuals.

It is pointed out that the cup portion 7 which surrounds the eyes of the wearer and which is formed integrally with the shield-like lens 5, as best shown in Figs. 2 and 3, is relatively wide at its respective temporal sides 9, and throughout the upper intermediate portion thereof, is curved, as illustrated at 10 in Fig. 2, substantially to the forward contour shape of the forehead of the wearer. The outwardly flared flange-like portion 8 extends throughout the upper curved portion 10, the sides 9 and into the lower portions 11 of the cup member 7, as shown in Fig. 2. The portions 11 curve forwardly and are shaped substantially to fit relatively intimately with the respective cheek portions of the individuals. The said portions 11 continue inwardly and blend into the opposed sides of the nasal recess 6. Said portions 11, however, are provided with the outwardly flared flange-like portions 8 which blend into the opposed sides of the nasal recess 6, as shown at 12. The walls of the cup portion 7 continue throughout the nasal recess 6 of the shield-like lens 5 to form an integral rearwardly extending narrow lip portion 13 whose rear edge portion blends at 12 with the lower outwardly flared portions 8 on the opposed sides of the recess 6. The lip portion 13 at the top of the recess is disposed in a plane substantially parallel with the upper wall portion 14 of the main cup member and is substantially normal to the plane of the shield-like lens 5. The said rearwardly extending lip portion 13 has a separate nose protective portion 15 secured thereto through the use of a suitable solvent, cement or other suitable means. The said nose protective portion 15 is provided with a groove 16 extending inwardly of the front thereof and in which the rearmost edge of the lip portion 13 extends throughout the upper and side portions of said member 15. The

grooved portion 16 has an adjacent surrounding forwardly extending relatively narrow portion 17 adapted to overlie the upper surface of the inwardly projecting lip portion 13 when secured thereto. The nose protective portion 15 has a forwardly and downwardly angled central portion 18 and depending rearwardly tapering side portions 19 to surround the nose and to provide relatively wide area contact therewith.

The portion 18 has an inner surface which tapers downwardly and outwardly as illustrated at 20, substantially to the downward and outward angle of the nose.

Due to the fact that the walls of the cup-like portion 7, including the lip 13, continue uninterruptingly about the entire contour of the shield-like lens, and that the lens is formed in integral relation with said walls and lip, the said lens is positively held against distortion and its resistance to impact and strain is greatly increased.

This supporting of the lens against distortion is of utmost importance in a device of this character for even slight distortions have a decidedly detrimental effect as to the visual comfort of the wearer.

The rearwardly extending lip portion 13 further affords ease in assembling the nose piece 15 therewith in that the area at which the nose piece is cemented to the lip is removed from the plane of the lens and the danger of having the cement accidentally flow onto the face of the lens and possibly blemish the same is obviated.

In the normal use of the device, the portion 15 has but very little, if any, pressure engagement with the nose of the wearer. However, if the device should receive a substantial blow on the top thereof and in a downward direction, the said portion 15, having relatively wide area contact with the nose is intended to prevent injury thereto and the rearwardly extending portion 13, if the blow is of sufficient force will tend to yield, due to the inherent resiliency of the material, and further provide shock absorbing means.

The said inwardly extending portion 13 also permits portions of the nose protective portion 15 to be disposed substantially equally on the opposed sides of the plane of the shield-type lens 5 and the positioning of said portion 15 in a more desirable relation with the nose of the wearer when the device is in position of use on the face.

The outwardly flared flange-like portion 8 which extends throughout the face engaging portion of the cup portion 7 from adjacent the opposed sides of the nasal recess 6 provides wide area side surface and sliding contact with the face as further protective means functioning cooperatively with the separate nose protective means 15.

The upper and side walls of the cup member are provided with a plurality of ventilation perforations 21.

The said rearwardly extending portions 9 on the temporal sides of the device are provided with spaced slots 22 through which a suitable headband or the like 23 may be threaded for supporting said device on the head of the wearer. The headband 23 may be formed of any desirable resilient or elastic material.

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

Having described my invention, I claim:

1. An eye protection device of the character described comprising a cup-like member embodying a face shield having a top contour shaped to extend across both eyes of the wearer and having a substantially U-shaped recess in the lower contour thereof dividing said shield into a pair of eye portions, and a continuous side wall extending rearwardly from the side, top and lower contours of the shield including the nasal recess, the portion of the side wall extending rearwardly from the recess being disposed approximately normal to the general plane of said shield, and a nose protective member having a groove on its outer surface disposed with its mouth facing forwardly to receive said normally disposed walls of the recess and being secured thereto, said nose protective member extending forwardly of the front surface of the shield and having its inner surface angled downwardly to approximate the shape of the wearer's nose and to have wide area surface contact therewith.

2. An eye protection device of the character described comprising a cup-like member embodying a face shield having a top contour shaped to extend across both eyes of the wearer and having a substantially U-shaped recess in the lower contour thereof dividing said shield into a pair of eye portions, and a continuous side wall extending rearwardly from the side, top and lower contours of the shield including the nasal recess, said side wall excluding the portion thereof extending rearwardly of the nasal recess terminating in an outwardly flared face engaging portion, and with the portion of the side wall extending rearwardly from the recess being disposed approximately normal to the general plane of said shield, and a nose protective member having a groove on its outer surface disposed with its mouth facing forwardly to receive said normally disposed walls of the recess and being secured thereto, said nose protective member extending forwardly of the front surface of the shield and having its inner surface angled downwardly to approximate the shape of the wearer's nose and to have wide area surface contact therewith.

3. An eye protection device of the character described comprising a cup-like member embodying a transparent shield portion shaped to extend across both eyes of the wearer and having a substantially U-shaped recess in the lower contour thereof dividing said shield into a pair of eye portions, and a continuous side wall extending rearwardly from the opposed temporal side, top and lower contours of the shield including the top and opposed sides of the nasal recess, with the rearwardly extending side wall along the opposed temporal side contours of the shield being of the greatest width and progressively decreasing in width in directions inwardly toward each other along the upper and lower contours of the said shield to follow approximately the face contour of the average wearer along the brow and cheeks, and with the portion of the side wall extending rearwardly from the top and opposed sides of the nasal recess being the most narrow and disposed approximately normal to the general plane of said shield portion of the device, said rearwardly extending side wall along the opposed temporal, upper and lower contours of the shield excepting the top and opposed sides of the nasal recess having an outwardly extending flange portion for engagement with adjacent portions of the face, and an approximately U-shaped nose protective member having a groove on the forward surface of its top and depend-

ing sides extending about and secured to the end of said rearwardly extending side wall along the opposed sides and top of the nasal recess, the top portion of said nose protective member extending forwardly of the plane of the shield and in a forwardly and downwardly angled direction approximating the angle of the wearer's nose and the depending sides of said nose protective member tapering in a rearward direction whereby said U-shaped nose protective member will be adapted to have wide area contact with the nose to prevent injury thereto as from sudden impact or the like on the device.

4. An eye protection device of the character described comprising a cup-like member embodying a transparent face shield having a top contour shaped to extend across both eyes of the wearer and having a substantially U-shaped recess in the lower contour thereof dividing said shield into a pair of eye portions joined by an integral narrower bridging portion, and a continuous side wall extending rearwardly from the opposed temporal side, top and lower contours of the shield including the nasal recess, the portion of the side wall extending rearwardly from the recess being disposed approximately normal to the general plane of said shield, and an inverted U-shaped nose protective member having a groove on its outer surface disposed with its mouth facing forwardly to receive said normally disposed wall of the recess, said wall having its edge portion fitting in said groove and secured thereto, said nose protective member extending in a direction forwardly from said secured edge of the rearwardly extending side wall and having its inner surface angled downwardly to approximate the shape of the wearer's nose and to have wide area surface contact therewith.

5. An eye-protection device of the character described comprising a one-piece integrally formed cup-like member to fit over both eyes of the wearer and embodying a transparent shield having a substantially inverted U-shaped nasal recess in the lower contour thereof dividing said shield into a pair of eye portions joined integrally by a relatively narrow intermediate bridging

portion, and a continuous wall integrally formed with said shield and extending rearwardly from the opposed temporal side, top and lower contours of the shield including the top and sides of the nasal recess, said portion of the continuous wall following along the lower contour of the eye portions of the shield from adjacent the opposed sides of the nasal recess, thence along the opposed temporal side contours and continuing along the upper contour of the shield having an integrally formed outwardly flaring flange-like portion shaped to engage and have wide area side surface contact with the wearer's face so as to obtain a comfortable fit therewith, said flange-like portion terminating on opposed sides of the nasal recess with ends tapering inwardly toward said nasal recess whereby the free edges of said inwardly tapering ends will blend with the free edge of the rearwardly extending wall about the nasal recess, the portions of said continuous wall following the sides of the nasal recess being disposed substantially normal to the transparent shield, with the portion of the continuous wall at the top of the nasal recess being the narrowest, and the portions of said wall following the opposed sides of said recess progressively increasing in width to the locations at which the free edge thereof blends with the free edges of the tapering ends of the flange-like portion, said free edge of the portion of the continuous wall about the nasal recess lying substantially entirely between the shield and the area of the contact of the said flange-like end portion with the wearer's face when the device is in position of use so as to provide clearance between it and the wearer's face.

EDWARD M. SPLAINE.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
2,274,791	Huggins	Mar. 3, 1942
2,358,934	Lee	Sept. 26, 1944
2,472,731	Splaine	June 7, 1949