April 1, 1947. A. J. TURNER 2,418,376

EYE-GLASS PROTECTOR

Filed Sept. 2, 1941

Fig. 1

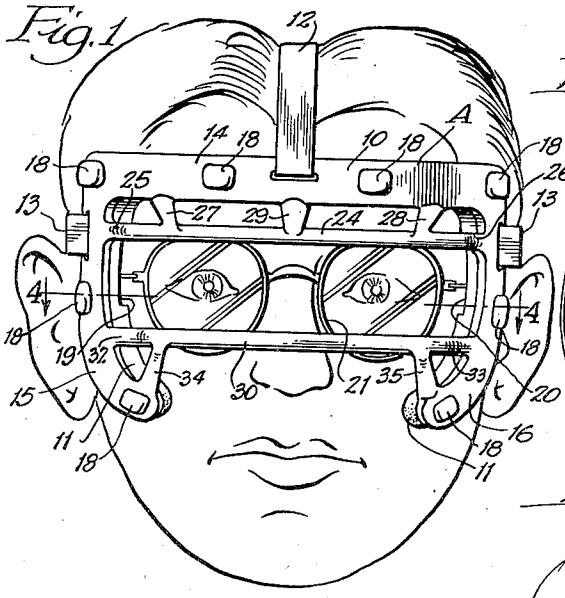


Fig. 2

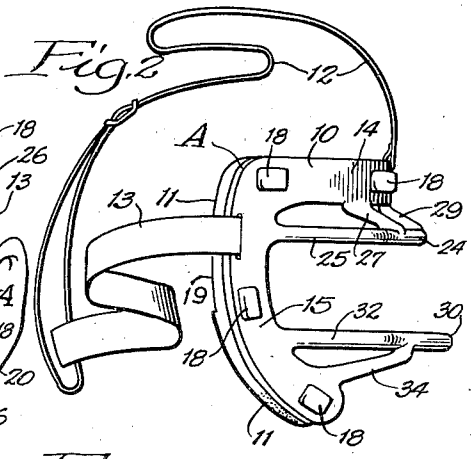


Fig. 5

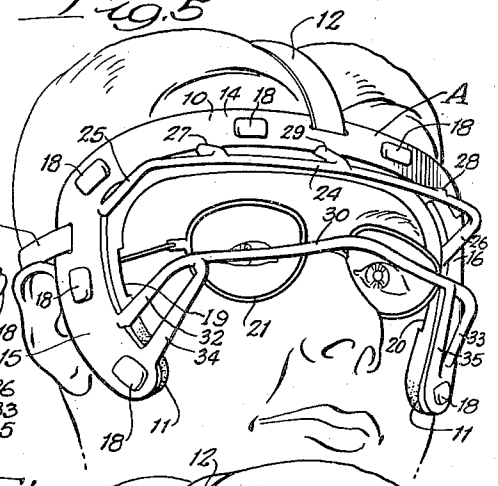


Fig. 3

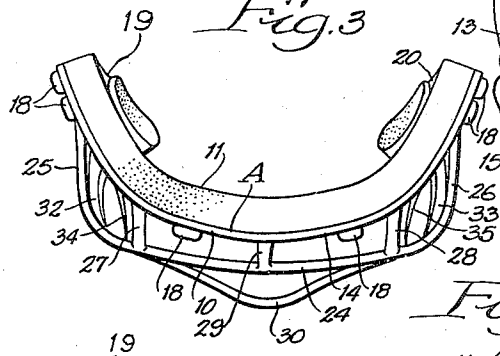


Fig. 4

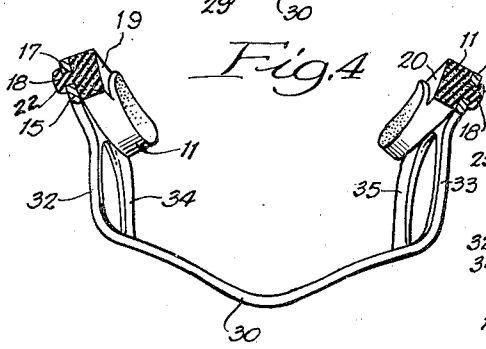
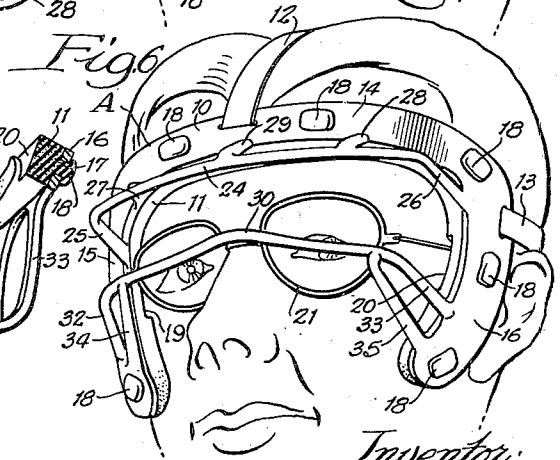


Fig. 6



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2,418,376

EYEGLASS PROTECTOR

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Application September 2, 1941, Serial No. 409,207

5 Claims. (Cl. 2—9)

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My invention relates to eye-glass protectors, especially for those engaged in sports.

In engaging in some sports the wearer of glasses frequently is handicapped either by the undue caution required to prevent their breakage and possible eye injury, or by leaving the glasses off and thus suffering from his impaired vision.

Among the features and objects of my present invention is the use of the bony structure of the head of a wearer including the cheek bones to support a combined frame and guard members, and by taking advantage of mechanical shapes and arrangement to provide an eye guard and eye-glass protector of maximum strength and effectiveness and minimum interference with wearer vision.

While primarily concerned with eye-glass protection, the device is recommended for those with normal vision as well, since its use frequently will prevent eye injury which is quite common in some sports such as tennis, basketball, softball, handball and others.

Among other features and objects of my invention is the improved cushioning of the metal frame and guard structure so as to attain maximum resistance to shock.

My improved guard is provided with a cushion across the top and along the sides of a wearer's eyes which is extremely absorbent so that it performs the dual function of cushion and sweat band.

The sides of the cushion are shaped to receive the temple pieces of eye-glasses without discomfort and to retain them against displacement.

The cushion is arranged with simple and easily attaching means to provide for firm attachment of the cushion to the frame, but which will permit easy removal of the cushion for cleaning or replacement.

The shape and mounting arrangement of a lower guard element is such as not to interfere simultaneously with the vision of both eyes throughout a major portion of its length and to provide a large wholly unobstructed forward and downward visual area.

Other objects and advantages of my invention will be apparent from the following description and the accompanying drawings.

In the drawings, of which there is one sheet:

Fig. 1 is a view in front elevation of my improved eye-glass guard and eye protector as it appears in use;

Fig. 2 is a side elevational view of the guard shown in Fig. 1;

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Fig. 3 is a plan view of the guard;

Fig. 4 is a section through the protector taken in the plane of the line 4—4 of Fig. 1;

Fig. 5 is a view in perspective looking upwardly at the wearer from a point well below his eye level, and from one side, showing the lack of simultaneous obstruction of the vision of both eyes by the lower cross bar; and

Fig. 6 is a view similar to Fig. 5, but from the other side of the wearer, this view and Fig. 5 also illustrating the large free unobstructed visual area below the lower cross bar.

Referring to the drawings in detail, an eye-glass protector A embodying my present invention has a cast or molded guard structure 10, a resilient cushioning pad 11, and elastic fastening straps 12 and 13.

The cast or molded guard member 10, which may be of aluminum or other light metal, or molded plastic, has a marginal frame comprising a brow portion 14 curved to fit across the forehead of a wearer, but having slightly larger radii than the proposed wearer's forehead to admit the resilient pad 11 between the frame and the wearer's forehead. Formed integrally with the brow portion 14 of the marginal frame are a pair of depending side portions 15 and 16. The lower ends of these side portions are curved forwardly, and are shaped to fit over the cheek bones of the wearer to provide a firm support for the guard against inward and downward stresses imposed upon it in use. The depending side portions are curved to be spaced outwardly from the face of the wearer similarly to the brow portion 14 to receive portions of the pad 11.

The marginal frame of the guard is provided with a number of elongated slots 17, each of which is adapted to receive and retain one of the resilient button-like protuberances 18 formed integrally with the pad or cushion 11. The cushion 11 preferably is made from a latex foam which may be molded in a suitable mold, not illustrated, and the button-like protuberances 18 may be molded of the same latex foam material, or they may be of solid resilient rubber. Each of the protuberances is molded with a neck portion of substantially the same cross section as the slotted opening 17 in which it is to be mounted, but is provided with somewhat enlarged head portions 22 to retain the protuberance in the opening and prevent the pad from accidentally becoming detached from the frame.

The inner face of the cushion 11 which is adapted to rest against the brow and cheeks of the wearer preferably has the skin-like covering

of the pad, formed during the molding process, cut or ground away so as to expose the cell-like inner structure of the material. The purpose in thus removing the mold skin from the cushion is to facilitate the absorption of perspiration, since, although the skin-like covering acquired during the molding process is substantially water-tight, the inner structure of the molded latex foam is etxremely absorbent. The cushion thus performs a very important additional function by being constructed in this manner. The cushion is molded with a pair of recesses 19 and 20 on each side thereof to receive the temple pieces of eye-glasses 21. These recesses preferably are quite shallow so as to contact with light resiliency the temple pieces of the glasses to assist in maintaining them in position on the wearer, but at the same time, preventing pressure which would be apt to cause discomfort by pressing the temple pieces tightly against the wearer's head.

An upper transverse guard member 24 is supported on end posts 25 and 26, formed integrally with the frame and with the member 24. The member 24 is curved forward slightly, but materially less than the curvature of the frame brow portion 14, so that the ends of the upper guard member 24 are spaced well forwardly from the sides of the frame in order to protect the outer ends of the eye-glasses, the central portion of the member 24 being closer to the frame member 14 so as to interfere less with upward vision. A pair of intermediate support posts 27 and 28 are connected from the brow member 14 to points adjacent the outer ends of the guard member 24 and a central support post 29 likewise is connected from the brow portion 14 to the guard member 24. This structure provides an extremely strong bracing for the upper guard member 24, combined with a minimum amount of interference with wearer vision.

A lower transverse guard member 30 similarly is mounted on forwardly projecting support posts 32 and 33, formed integrally with guard member 30 and with the depending side portions 15 and 16 of the marginal frame. A pair of additional support posts 34 and 35 extend from the lower forward portions of the side frame members 15 and 16, these support posts extending upwardly and being integrally connected to the lower transverse guard member 30 approximately at its point of connection with the side posts 32 and 33.

This construction provides a triangular supporting frame portion at each end of the transverse guard member 30 which is of great strength, the posts 34 and 35 having the additional function of supporting the member 30 against downward stresses which frequently are imposed in use, as when the guard is struck by a ball or by another player.

The lower transverse guard member is in the form of a rounded V shape in plan, best illustrated in Fig. 4, the central portion extending forwardly a distance considerably in advance of the central portion of the upper transverse guard member 24. The purpose for thus carrying the lower transverse guard member 30 forward at its central portion is three-fold: First, it provides greater clearance for the nose of the wearer; second, it increases greatly the downward-forward vision of the wearer, and third, it does not produce a large blind spot as is the case with a straight or only slightly curved or bent bar.

The reason for this substantial absence of blind spot lies in the fact that where the two sides of the guard member thus are disposed with their axes offset angularly from each other, what is blocked off from the vision of one eye, is not blocked off from the other. In other words, the portion of the visual field of one eye which is blocked off is not coextensive with the blocked off portion of the field of vision of the other eye. This is clearly apparent from Figs. 5 and 6. In Fig. 5 the narrow guard bar 30 blocks off a narrow angularly disposed strip of vision from the wearer's right eye, but the left eye is not blocked off from this same field. In Fig. 6 the reverse is true. In actual tests it has been demonstrated that whereas a substantially straight bar produces a blind spot throughout its entire length, the lower bar of the present construction produces only a small diamond shaped blind spot in the region of the apex of the V, so small as to be unnoticed in the normal activity of a sport.

It will be noted in Fig. 1, that for normal forward and lateral vision, the visual area of the guard is completely open and unobstructed, while a similar examination of Fig. 5 shows that the same is true for downward and forward vision. The complete open and unobstructed condition of these two visual areas permits the wearer to engage in such sports as tennis, basketball, softball, handball, and the like, without visible obstruction, and the wearer soon becomes entirely unconscious of the fact that he is wearing the guard.

While I have illustrated a preferred embodiment of my invention, many modifications may be made without departing from the spirit of the invention, and I do not wish to be limited to the precise details of construction as set forth, but desire to avail myself of all changes within the scope of the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. An eye-glass protector comprising a strong marginal frame curved to fit across a wearer's brow, a pair of depending side frame portions integral with the brow portion, the lower ends of the depending side portions curving forwardly and inwardly and adapted to be supported over the cheek bones of a wearer, and terminating short of the chin of a wearer, a triangular frame based on each of the forward curving side portions, and extending forwardly therefrom a forwardly offset narrow guard bar supported solely on said triangular frames and extending forwardly to clear a wearer's nose and to free the area below and above the guard bar for unobstructed vision, an upper guard bar supported transversely of the frame near the upper end thereof, and positioned forwardly therefrom, and a plurality of support posts from the frame to the upper guard bar, the space between the guard bars being free and unobstructed throughout the width of the frame.

2. An eye-glass protector comprising a strong marginal frame of flattened section and inverted U-shape, the web of the U being curved to fit across a wearer's brow and the sides thereof being curved forwardly and adapted to overlie a frontal portion of the cheek bones for support, said sides terminating short of the chin of a wearer, a forwardly projecting support at each side of the frame near the brow portion, a transverse guard member connected to said supports and interconnected at horizontally spaced intervals upwardly to the brow portion, and projecting forward at its ends from the frame and close to the frame at its center, a pair of forwardly projecting sup-

ports at the lower ends of the frame sides, and a transverse guard member carried by the lower supports, the lower transverse member being substantially V-shaped in plan but straight in elevation to provide fields of largely non-coextensive visual interference for the two eyes of a wearer to minimize blind spot area.

3. An eye-glass protector comprising a marginal frame of flat sectional shape, having a substantially U-shaped transverse top portion adapted to conform to a wearer's brow, a pair of separate and forwardly curved depending side frame portions carried by the ends of the U-shaped top portion and shaped to be supported against rearward and lateral stresses by fitting over the cheek bones and terminating short of the chin of a wearer, a forwardly projecting support frame carried by each of the forward curving side portions, and a narrow transverse guard bar supported by the forwardly projecting support frames, said guard bar being in the form of a horizontally disposed V, with its apex projecting forwardly to provide non-coextensive visual areas for each eye of a wearer for maximum overlapping of an obstructed visual area of one eye with an unobstructed visual area of the other eye.

4. An eye-glass protector comprising a strong, rigid, marginal frame, including a portion curved transversely to fit across a wearer's brow, and having a pair of integral depending side portions to extend downwardly along the sides of a wearer's face, the lower ends of the side portions being curved forwardly and inwardly to overlie frontal marginal portions of a wearer's cheek bones to resist rearward and lateral stresses, a brow element projecting forwardly from the curved brow portion of the marginal frame, and a thin, rigid guard bar having its ends rigidly supported on the depending side portions of the frame and curved forwardly therefrom to clear a wearer's nose, the space below the guard bar, and between the guard bar and the brow element, being free, open, and unobstructed, to provide a large, free visual field, said brow element and said guard bar providing the only connections between said side portions below said transversely curved portion.

5. An eye-glass protector comprising, in combination, a support including a strong marginal frame of relatively flat section having a curved brow portion adapted to fit transversely across a wearer's brow, integral downwardly extending side frame portions at the ends of the brow portion curved forwardly and inwardly to fit over the cheek bones of a wearer, and a pad of resilient material contiguous and conforming to the inner surface of said marginal frame to engage the wearer's skin, said marginal frame having a series of spaced apertures in the brow and side frame portions thereof, and said pad including on the surface adjacent said marginal frame a series of integral resilient button-like tabs of oblong shape positioned to fit into said apertures and extend therethrough, said button-like tabs having head portions embracing the outer surface of said marginal frame firmly to hold the pad in place during use, said head portions being of relatively flat section so as to be easily deformed and compressed manually for passage through the apertures whereby to effect quick removal and installation of the pad; a pair of vertically spaced transverse guard bars secured at their ends to said side frame portions, said guard bars being curved forwardly intermediate their ends normally to clear the wearer's face, the curvature and vertical spacing of said bars being such as to limit interference with the wearer's vision; and means bracing one of the guard bars intermediate the ends thereof.

ARCHIBALD J. TURNER.

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