July 13, 1948. C. B. REARICK 2,445,153

GLARE REDUCING DEVICE

Filed May 12, 1945

Fig. 1.

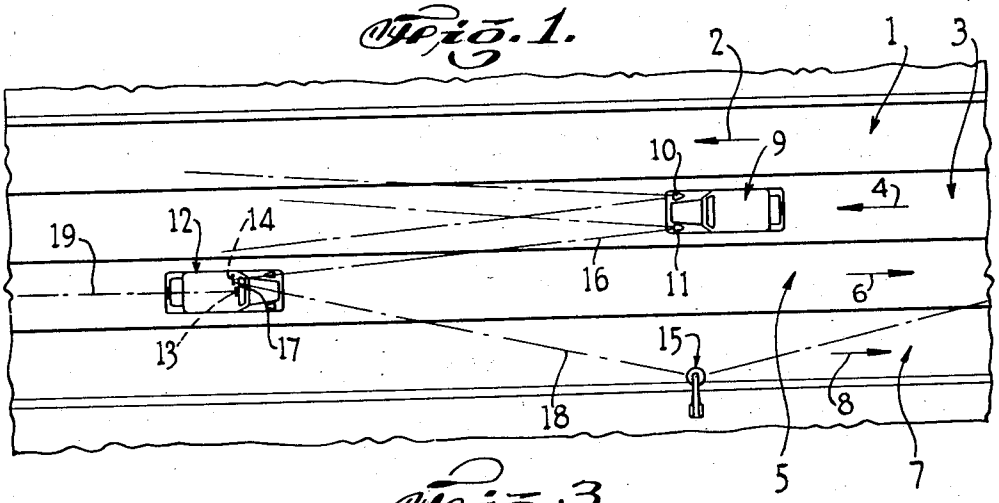



Fig. 3.

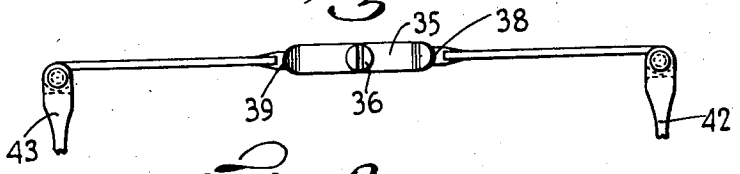



Fig. 2.

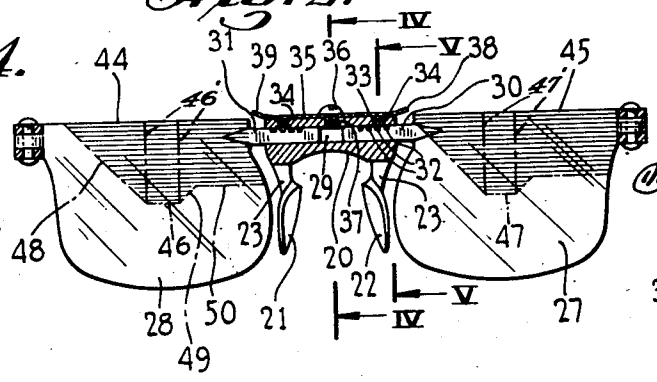



Fig. 4.

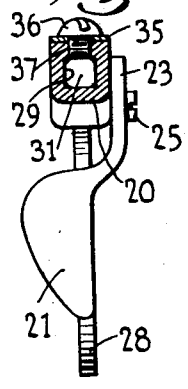



Fig. 5.

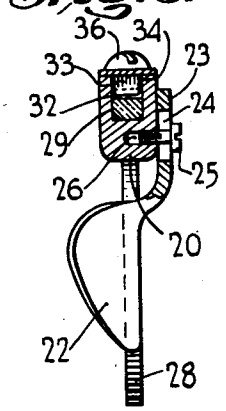
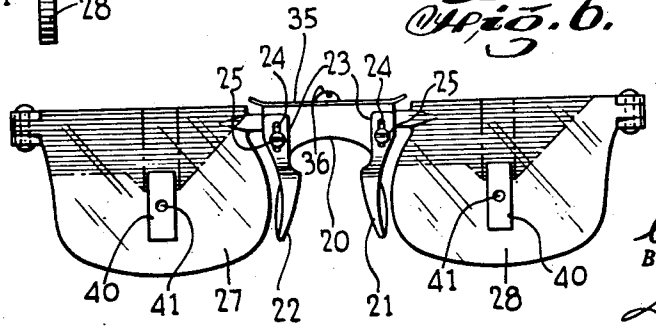



Fig. 6.




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## GLARE REDUCING DEVICE

Charles B. Rearick, Flushing, N. Y.

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3 Claims. (Cl. 2—14)

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This invention relates to apparel, more particularly eyeshields, and especially goggles.

A principal object of this invention is to provide a device of the type specified which will enable a wearer, driving a self-propelled vehicle, from being annoyed and endangered by glare from an approaching vehicle provided with headlights, a following vehicle so equipped, or by street illuminations, while at the same time having a clear view of the major portion of the roadway.

A further object of this invention is to provide a device of the type specified which will embody the virtues, hereinbefore mentioned, and in addition be of such construction that the user may himself adjust the device for maximum efficiency.

A further object of the invention is the production of a device of the type specified which is provided initially with temporary means, later discarded, facilitating a proper adjustment of the device to the eyes of a particular user.

Other objects and advantages will appear as the description of the particular physical embodiment selected to illustrate the invention progresses and the novel features will be particularly pointed out in the appended claims.

In describing the invention in detail and the particular physical embodiment selected to illustrate the invention, reference will be had to the accompanying drawings and the several views thereon, in which like characters of reference designate like parts throughout the several views, and in which:

Fig. 1 is a top plan, schematic view of a roadway, approaching vehicles, street illumination and an illustration of the position of my device, when worn, in relation to the various lights and to the usual rear-view mirror used on automobiles;

Fig. 2 is a rear elevational view of my device, but with certain parts in section, to more clearly illustrate the construction;

Fig. 3 is a top plan, fragmentary view of the device as shown by Fig. 2;

Fig. 4 is a cross-sectional view of the device as shown by Fig. 2 on the plane indicated by the line IV—IV, viewed in the direction of the arrows at the ends of the line;

Fig. 5 is a cross-sectional view of the device as shown by Fig. 2 on the plane indicated by the line V—V, viewed in the direction of the arrows at the ends of the line; and

Fig. 6 is a view of my device as it would appear to an observer when being worn by a person but illustrating temporary means used for initial adjustment of the device.

In Fig. 1, numeral 1 designates a roadway in

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which traffic is in the direction of the arrow 2; 3 a roadway in which the traffic is in the direction of the arrow 4; 5 a roadway in which the traffic is in the direction of the arrow 6; and 7 a roadway in which the traffic is in the direction of the arrow 8.

On roadway 3, a self-propelled vehicle 9 is illustrated provided with head lamps 10 and 11.

On roadway 5, a self-propelled vehicle 12 is illustrated provided with a rear-view mirror 13 and a line 14 indicating the position of my device on the head of a driver controlling the vehicle 12.

15 illustrates an ordinary and well-known street illuminating lamp.

From the illustration of Fig. 1, it will be seen that rays of light, such as 16, emerge from the headlight 11 of the vehicle 9 and proceed through the windshield 17 of the vehicle 12 in such a direction as to reach the eyes of a driver.

A ray of light 18 from the street lamp 15 also reaches the eye of the driver of the vehicle 12.

A ray of light 19 emerging from the headlight of a following vehicle reaches the rear-view mirror 13 and shines in the driver's eyes.

All those experienced in driving a self-propelled vehicle at night are acquainted with the annoyance and danger resulting from the glare from these particular sources, such as indicated, which reaches the eye of a driver.

Various and sundry expedients have been heretofore utilized in order to overcome the annoyance and danger of glare in a driver's eyes. These have most commonly taken the form of spectacles to be worn by the driver, and, usually, have been spectacles of such form that the driver receives the various rays of light heretofore mentioned through a medium which has been selected because of a nature such that it will reduce the glare of those lights. Further, the expedients have generally taken the form of a device which completely covers the field of vision of the driver, so that the driver is compelled, not only to view lights which produce glare, but also all other objects through the same medium.

I have carefully studied the conditions surrounding a driver who is controlling a vehicle in those cases where glare is likely to reach the eyes of the driver. I have tried out various forms of anti-glare devices and I have found that they fall into two categories: first, those which entirely cover the field of vision of a driver so that he is obliged to view objects other than those which will cause a glare through a medium which is not as transparent as ordinary glass; second,

those which are only partially covered with a medium to cut down glare but in which the medium is either too small in area to be effective against all three sources of glare herein described, or so large in area as to approach the first form mentioned and obscure the clear roadside vision. From my observation and analysis I have conceived of a device which is so constructed that it contains glare-reducing medium in the proper places to prevent the danger and annoyance hereinbefore mentioned, but which at the same time does not have that medium interposed between the eyes of a driver and those portions of the roadway that it is essential the driver shall see most clearly while driving at either a high or a low speed.

One embodiment of my conception is illustrated in Figs. 2 to 6 inclusive. This embodiment takes the form, in general, of a pair of goggles or spectacles. The device, generally considered, is a pair of spectacles worn by a driver and held in place by the usual temples, and by a nose piece of novel form. The temples and nose piece support two viewing mediums, one opposite each eye of the wearer. These viewing pieces are partially completely transparent and in certain well defined areas are what might be called semi-transparent, or glare-reducing or eliminating.

The device includes a bridge 20 which spans the nose of the wearer. On each end of the bridge there is a nose piece, as 21 and 22. Each nose piece is suitably formed to bear against the side of the nose and has a projection, as 23, for connection to the bridge 20. The projections 23 are slotted, as at 24, and are held in placed on the bridge 20 by any suitable or appropriate means, as by a headed screw 25, threaded into a threaded cavity 26 of the bridge. By this construction I provide a bridge and nose pieces which are adjustable. By loosening the screw 25 the nose pieces, 21 and 22, are free to be moved up and down and in a circular path, also pivoting on the screw 25, so that they may be adjusted to the anatomy of a particular user so that the viewing mediums 27 and 28 may be suitably and properly positioned in a particular plane to suit a particular user.

The bridge 20 has a through orifice 29 therethrough from end to end. This through orifice is illustrated as being approximately square in cross section as this has been found to be the most advantageous shape, although other forms of cross section are not intended to be excluded.

Within the through orifice 29 there are positioned two viewing medium carriers, one for each viewing medium. One carrier is designated 30 and the other 31. These carriers are of such size that they may slide freely inwardly and outwardly of the through orifice 29. Each of the carriers, as 30, is provided with means for holding it in different positions. This means may take various forms, but I prefer a form of a series of slots, as 32, in the upper face of each carrier. These slots are made to nicely fit tiny plates, as 33, and the construction is such that when a plate, as 33, is in a slot, as 32, of a viewing medium carrier, as 30, that carrier is prevented from longitudinal movement.

The plates, as 33, are positioned in a plate orifice of the bridge 20 which extends from the top of the bridge down to the orifice 29, as 34, so that the walls of the orifice 34 are the means for preventing movement of a plate, as 33, longitudinally of the bridge 20.

Various means may be used for holding and



operating the plates 33, but I prefer to attach each of the plates to a resilient spring member 35. This spring member 35 is preferably attached to the bridge 20 by means of a threaded screw 36 threaded into a threaded orifice 37 of the bridge 20.

The resilient member 35 extends the full length of the top of the bridge 20 and slightly beyond, as at 38 and 39, forming a finger piece by which the resilient member 35 may be grasped on either end to raise the plates, as 33, from out of the slots 32 of the medium carrier, as 30, so that it may be adjusted longitudinally of the bridge 20.

By means of the mechanism hereinbefore described, the viewing mediums 27 and 28 may not only be adjusted in a vertical plane up and down, but they may also be adjusted inwardly and outwardly from the bridge 20, so that definite points thereon may be so adjusted as to be directly opposite the pupil of a wearer's eye.

As my viewing mediums 27 and 28 had been intentionally rendered semi-transparent or glare-resistant in different portions only, it is essential that the wearer of my device positions it exactly and precisely to match the position of his pupils. To this end, I provide, initially with the device, that is with the device as sold, a small opaque rectangle of material of size to blind the pupil, as 40, best shown in Fig. 6, attached to the forward side of each viewing medium, as 27 and 28. This small rectangular piece 40 is provided with a small hole 41 and this hole is placed in such position that it will be directly opposite the pupils of a wearer's eye when the viewing mediums 27 and 28 have been properly positioned. The purchaser of one of my devices would place the device upon his head with the nose pieces 21 and 22 bearing on each side of the nose and the temples 42 and 43, of the usual form passing behind the ears, and then, with his head in the usual position in which it would be held while driving a vehicle, would adjust the nose pieces 21 and 22 and the medium supports 30 and 31 in such wise that the orifices or holes, as 41, were directly opposite the pupils of his eye, so that he could see clearly therethrough. The device would then be adjusted properly for that particular wearer and pieces 40 removed.

When my viewing mediums 27 and 28 are placed on a wearer and properly positioned, the only portions of the viewing mediums 27 and 28 which it is necessary to render semi-transparent or glare-resisting are those portions designated as a whole by 44 and 45 and shown by parallel lining.

One equipped with my device properly adjusted while driving a vehicle, with the head in normal driving position, would view the road directly ahead through the entirely transparent portion of the medium below the dash and dot lines 46 and 47. Upon approaching a vehicle traveling in the opposite direction, while the vehicle is still a very considerable distance ahead, the glare would be neutralized by slightly dropping the head so that the approaching vehicle would be viewed through the semi-transparent portion of the viewing medium just above the central horizontal portion of the lines 46 and 47.

While viewing the approaching vehicle through the portion of the viewing medium just above the central horizontal portion of the lines, as 46 and 47, any street light illumination to the left of the driver would be cut off by that portion of the semi-transparent section to the left of the left-hand end of the lines, as 46 and 47. The slop-

ing portion 48 would start about ¼ inch to the left of a vertical line through the center of the hole 41 and proceed at an angle of about 45° to the horizontal. This would cut off the glare from approaching street illumination to the left of the driver. All of the rest of the viewing medium to the left of the horizontal portion thereof is clear and fully transparent.

In order to cut off glare from street lamps or illumination to the right of the driver a semi-transparent portion is formed starting at the right-hand end of the lines, as 46 and 47, and then proceeding upwardly and to the right at an angle of approximately 45° to the horizontal, the lower end of the line starting about ⅛ inch to the right of a vertical line through the center of the hole 41.

In order to cut off the glare of head lights on following vehicles which is reflected from the rear view mirror, a semi-transparent portion is formed bounded at the bottom by line 50 and the sloping line 49. This horizontal line 50 would be about ⅛ inch above the horizontal lines, as 46 and 47. All of that portion of the viewing medium above the line 50 to the right hand margin of the viewing medium and to the semi-transparent portion designed for cutting off glare from street lights would be semi-transparent.

It will be observed that both of the viewing mediums 27 and 28 exhibit entirely transparent portions to the eyes of a driver when the driver holds his head in normal position so that the road ahead and the sides of the road, especially the right-hand side may be clearly seen by the driver through a clear transparency, in fact only about 30% of the viewing medium reduces glare.

In forming my semi-transparent portions of the viewing mediums 27 and 28 I may do it in various ways. I may paste a portion of suitable material onto each of the viewing mediums 27 and 28, or I can have the semi-transparent portion formed directly in the glass by any suitable means. It is also to be observed that my anti-glare portion may be applied to a transparent medium which is not a lens or it may be applied to lenses ground in accordance with a proper prescription to fit the eyes of a wearer.

The viewing mediums 27 and 28 may be made of transparent plastic or they may be made of glass or any other material suitably and properly transparent. The semi-transparent portions may be formed by melting into the glass any of the usual materials used for rendering glass semi-transparent or may be formed by painting on the desired area or by adhesively attaching thereto a proper shaped piece of paper-like material of the proper semi-transparency.

It is to be understood that when I use the terms semi-transparency or semi-transparent, I intend to indicate a light-transmitting medium which is of such a nature that the human eye may view a substantially high-candle power lamp therethrough without substantial annoyance or so-called "glare."

In actual practice I find that my semi-transparent area must start approximately ⅛ inch from the center of the adjusting hole, as 41, and above it, and must extend in a horizontal direction on each side of a vertical line through the center of the hole 41 about ⅛ inch. The left-hand portion should proceed from the horizontal line, as 46, at an angle of about 45°. The right-hand portion should extend upwardly from the horizontal portion 46 at about an angle of 45°



to a point ⅛ inch to the right of the right-hand end of the horizontal line 46 and about ⅛ inch from above and should then extend in a horizontal line, as 50, to the edge of the viewing medium.

The semi-transparent area of each viewing medium, includes a rectangular portion, defined by the horizontal lines 46 and 47 respectively in the viewing mediums 26 and 27, the vertical dot and dash lines 46' and 47', and the upper edges of the viewing medium, the lower horizontal extremities of the rectangular portions beginning a slight distance above the straight ahead vision of the wearer, more clearly shown in Figure 2.

Although I have particularly described a preferred form of my invention, it is to be understood that all of the refinements and adjustments therein included may, under certain circumstances, be not included. For instance it may well be found that a few, what may be called sizes, of my spectacles may be made and some one of these few sizes will be found to fit the majority of people. That is, I may attach the supports for my viewing mediums rigidly to the arch and I may have my nose pieces non-adjustable. In such case I may also do away with the use of the opaque rectangles 40, but I might very well use the opaque rectangles 40 and have them on each pair of spectacles. In such case, the prospective purchasers could try each of the various sizes and could determine which was suitable for his eyes by viewing a suitable object at a suitable distance and suitably positioned through the holes, as 41. If the prop[illegible] object appeared properly with the head in normal driving position, then a proper size would have been selected. If such procedure does not seem to be feasible, then I may, at least, retain the adjustable nose pieces, as 21 and 22, even if I do not retain the adjustability of the viewing medium supports.

Although I have particularly described one particular physical embodiment of my invention, nevertheless I desire to have it understood that the form selected is merely illustrative and does not exhaust the possibile physical embodiments of the idea of means underlying my invention.

What I claim as new and desire to secure by Letters Patent is:

1. A device for reducing glare in human eyes, including, in combination: two viewing mediums, one for positioning in front of each eye of a wearer, each formed with portions of semi-transparency, one, comprising a rectangular portion beginning a slight distance above the straight ahead normal line of vision of a wearer, extending to the upper edge of the viewing medium and having a width of about twice the distance between the beginning line and the normal line of vision, two, another portion comprising a portion which is an extension to the left of the first described portion, extending to the top of the viewing medium, and having a lower boundary defined by a line drawn at about 45° to the horizontal lower line of the first described portion, three, comprising a portion which is an extension to the right of the first described portion extending to the top of the viewing medium and to the right edge thereof and defined by a lower line which starts at an angle of about 45° from the right hand lower corner of the first described portion and extends upwardly and to the right for a vertical distance about a distance equal to about one-half the width of the first described portion

and then in a horizontal line to the right-hand edge of the viewing medium.

2. Glare reducing spectacles, in combination: two vision members, one adapted for positioning in front of each eye, each vision member divided into two fields; one, translucent and glare reducing, this portion positioned above the eye center and within two angularly upwardly extending limits, the angular portion overlying and extending on both sides of a vertical line passing through the eye center with the apex of the angular portion in this vertical line and about at the eye center, the lower limits formed by two horizontal lines, one ending within the angular portion and in extent being at least two times the distance between the eye center and this horizontal, the second horizontal starting at the line on the right hand side of the angular portion and extending to the vision member limit at the right, the two horizontals spaced vertically substantially the same amount as the lower horizontal is spaced from the eye center; and all the remaining portions of each vision member above and below the eye center being transparent and non-glare reducing.

3. Driver's goggles comprising translucent and clear portions alike for each eye, the translucent area arranged entirely above the lens horizontal axis with clear vision areas both right and left of straight ahead line of vision and above this horizontal axis, that to the left rising at an angle of about 45° with a central part limited by a horizontal just above the eye pupil and a little each side thereof and to the right a second horizontal starting just above this central horizontal and about ⅛ inch higher and terminating at the goggles rim, the clear vision portion being delimited thereby upwardly and covering the remainder of the goggle area below, thereby providing a clear vision of the roadway both right and left for a considerable distance ahead of the wearer at times when the translucent area is interposed over the eye pupil by dipping the wearer's head and a clear view of all the roadway at all other positions.



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