GLARE SUBDUING APPARATUS

FIELD OF THE INVENTION

The present invention relates to a glare subduing apparatus. The glare subduing apparatus is most suitably embodied in a sun visor that may be used in most vehicles.

BACKGROUND OF THE INVENTION

The following discussion of the background of the invention is intended to facilitate an understanding of the present invention. However, it should be appreciated that the discussion is not an acknowledgement or admission that any of the material referred to was published, known or part of the common general acknowledge in any jurisdiction as at the priority date of the application.

Glare is a bright and high intensity light acknowledged to be harmful to the human eyes. It is generally accepted that glare, consisting of ultra violet radiation, can contribute towards many eye diseases including cataract and even age related macular degeneration. It is therefore important to protect one's eyes against such harmful high intensity light. In addition, the most dangerous aspect of glare is its contributing factor to vehicle accidents, as the high intensity of glare may momentarily blind users on the road.

A factory installed sun visor is typically an opaque panel hinged from the top, thereby allowing the user to flip it downward to block the direct rays of the sun as it skirts the horizon. Because it is opaque, it cannot subdue glare alone without blotting out the surroundings resulting in the very limited view for the user that is conducive to safe driving.

The invention is typically used to support a panel housing anti glare device/s that is typically embodied in a visor that may be used in most vehicles. The invention allows the panel to be inclined with respect to the visor so that it gives a fixed variable angle of inclination to suit the users exact requirements. This inclination is important, to enable the anti-glare

device to be angled, so as to effectively excludes annoying reflection of the user and car interior and exterior.

It is therefore an object of the present invention to house an anti glare device/s that is able to focus on and reduce glare so as to achieve the desired balance between glare reduction and visibility of the surroundings.

In addition the back of the panel housing the anti-glare device/s houses an opaque steel panel that can be extended towards the rear vision mirror effectively blocking the direct sun's rays coming from under the rear vision mirror.

SUMMARY OF THE INVENTION

Throughout this document, unless otherwise indicated to the contrary, the phrase "comprising", "consisting of", and the like, are to be construed as inclusive and not exhaustive.

In accordance with a first aspect of the invention there is a glare subduing apparatus comprising:

a base panel having one or more polarized anti-glare panels:

at least one polarized anti-glare panel moveably connected to the base panel by a permanent magnet.

where at least one polarized anti-glare panel may be moved relative to the base panel such that the effects of glare are blocked or when viewed through a pair of polarized sunglasses (supplied by others) the overlapping area markedly reduces the intensity of glare relative to the effect of the glare viewed through a pair of polarized sunglasses.

Preferably, the blocking portion may be the anti-glare device.

Preferably, the polarized anti-glare panel that is the primary component of the anti-glare device is made from polarized material and the viewing portion a pair of polarized sunglasses (supplied by others)

To the shorter end of the metal hook is attached one leaf of the basic barrel hinge using a liquid adhesive. To the other leaf of the basic barrel hinge is attached to a base panel containing an anti glare device.

The hinge as described in the previous paragraphs is incorporated as part of the invention that has a level of rigidity to it by impregnating the swivel pin in the barrel of the hinge with liquid adhesive that prevents rotation of the anti glare device except when rotation is directed by the user. In addition a permanent magnet is used that is located on the leaf of the hinge attached to the anti glare device with one edge of the permanent magnet resting on the curve part of the metal hook. The magnetic force from the magnet prevents the movement of the hinge that can only be rotated when the rotation is directed by the user.

Preferably, the glare subduing apparatus is mounted onto the factory installed visor available in most vehicles. The method of mounting may take the form of loop-and-hook attachment, hooks alone or other securing mechanisms as would be known to the person skilled in the art.

Preferably, the position of the base panel relative to the position of a user may be adjusted. The preferred method of implementing such a feature include:

a hinge about which the base panel may rotate, in a vertical plane to which is attached the anti-glare panel.

The inclination of the base panel and hence the attached anti-glare panel is required to eliminate from the anti-glare panel most of the reflection coming from the vehicle interior and the user.

In accordance with a second aspect of the invention there is a method for reducing glare comprising the steps of:

determine the location of the glare while using a polarized spectacles (not included in the invention); AND

moving the anti-glare panel on the base panel to a location so that the glare is positioned and isolated in the bottom half of the anti-glare panel. View the over lapping area between the polarized spectacles and the anti-glare panel that is also polarized and rotate the anti-glare panel until the intensity of the glare, due to cross-polarization, is reduced to the user's requirement. In this way the surrounding proximity around the location of the glare comes under the polarized spectacles that has only one tint and therefore gives a clearer view unaffected by the glare.

In addition, at the back of the base panel is located an opaque steel panel that can be extended towards the vehicle's rear vision mirror to block the direct sun's rays coming from under the rear vision mirror

BRIEF DESCRIPTION OF THE DRAWINGS

The following invention will be described with reference to the following drawings of which:

Fig. 1 shows a perspective view of the preferred embodiment of the invention.

Fig. 2 shows the exploded view of the hook attachment, ferromagnetic base panel, semi polygonal anti-glare panel, hinge and rectangular magnet.

Fig. 3 shows a cross section of the invention with a plan view of the polarized anti-glare panel (semi polygon).

Fig. 4 shows the back of the base panel showing the extendable steel panel, including exploded view.

DETAILED DESCRIPTION OF THE INVENTION

It is to be understood that reference to directions and positions (upper, lower, forward, backward, top, bottom etc.) are to be understood in the general context of the typical operational orientation of the invention as shown in Fig. 1 In particular, reference to vertical and horizontal are to be understood as reference to approximate orientation and not exact vertical or horizontal directions.

Fig. 1 shows the preferred embodiment of the invention comprising a glare subduing apparatus assembly 15 and a magnetic slider assembly 1. The magnetic slider assembly 1 is also presented in greater detail in Fig. 3. The assembly 20 comprises a semi polygonal polarized anti-glare panel 10 and the ferromagnetic base panel 6. The semi polygonal polarized anti-glare panel is made from a transparent polarized material. The semi polygonal polarized anti-glare panel 10 is rotatable about a moveable magnetic stand 8. The polarized anti-glare panel 10 is semi polygonal and is magnetically attached to the ferromagnetic base panel 6

allowing rotatable and lateral movement confined to a fixed path constrained by 2 plastic strips 7a and 7b.

The magnetic slider assembly 1 consists of a hinge 4, two ferromagnetic hooks and a rectangular magnet 5. The vertical leaf of the hinge is attached to the ferromagnetic base panel 6. The rigidity of the hinge is made stiff due to impregnating the swivel pin in the barrel of the hinge with liquid adhesive and/or the use of a rectangular magnet 5 sliding between the curvature of the hook 2 and the vertical leaf of the hinge 4 thus enabling the ferromagnetic base panel 6 to rotate downwards or upwards. The movement of the rectangular magnet 5 provides resistance to rotation due to magnetic forces as it slides between the curvature of the hook 2 and the vertical leaf of the hinge 6 as shown in Fig. 3. To facilitate sliding and markedly reduce friction and wear, the inner surface of the vertical leaf of the hinge 4 that comes into contact with the rectangular magnet 5 is lined with friction reducing material 11 as shown in Fig 2. In addition, also in Fig 2, the rectangular magnet 5 is lined with friction reducing material 12 so that friction between the rectangular magnet 5 and the curve portion of the hook 2 is drastically reduced thus facilitating the sliding effect when the ferromagnetic base panel 6 is swivelled downwards or upwards.

Two rectangular strips 7a and 7b are attached to the ferromagnetic base panel 6 to restrict the sliding movement of the magnetic disc 8 that is attached to the ferromagnetic strip 9 that is attached to the semi polygonal polarized anti-glare panel 10 to move only in a horizontal direction. The surface of the ferromagnetic base panel 6 bounded by 2 rectangular strips 7a and 7b are lined with friction reducing material 13 to reduce friction and facilitate sliding.

As shown in Fig. 1 and Fig. 3 the horizontal leaf of the hinge 4 is attached to the hook 2 that is firmly secured around the factory installed car sun visor with hook 3. The hook portion of hook 2 and hook 3 is wrapped around the top and bottom edge the factory installed sun visor and drawn together tightly manually during installation and secured with an adhesive material between the overlapping portions of hook 2 and hook 3 thus

providing a permanent attachment device. The hooks 2 and 3 are made of mild steel.

In accordance with the preferred embodiment the semi polygon polarized anti-glare panel 10 polarized and is chosen to eliminate 98% – 100% of ultraviolet radiation of the sun. This type of radiation is targeted due to their contribution to various eye diseases as previously described.

The steps of operation in accordance with the preferred embodiment are highlighted as follows:

The invention is mounted onto a factory installed visor of a vehicle using hooks 2 and 3. The combination of the ferromagnetic base panel 6 and the factory installed car sun visor enables the user to tilt the assembly 1 to an inclination that suits the user Fig. 3. The invention requires the user to position the inclination of the ferromagnetic base panel 6 so that the source of glare is within the bottom portion of the polarized anti-glare panel 10 so that the source of glare is contained and subdued. This effectively achieves a balance between reducing the impact of glare and maintaining good visibility of the surroundings. A glare of relatively medium intensity may be sufficiently reduced by a medium tint provided for by a pair of polarized pair of spectacles, while a higher intensity glare may require a darker tint or close to opaque tint. The rotation of the polarized anti-glare panel 10 relative to a pair of polarized spectacles (not included in the invention – to be supplied by others) worn by the user produces a cross-polarization effect that is capable of producing a seamless varying intensity of tint from a medium tint to a very much darker tint.

In addition Fig. 4 shows that back side of the base panel 6 that contains a steel panel 16 to which is attached 2 magnetic discs 15a and 15b that is secured magnetically between 2 plastic strips 14a and 14b that is lined with a friction reducing material 17. This arrangement allows the steel panel 16 to slide laterally.

It should be appreciated by the person skilled in the art that the invention is not restricted to the embodiment described above. Variations and modifications to the invention may be incorporated to create new embodiments. Such variations and modification include the following:

- The polarized anti-glare panel 10 may be tinted to a different level (lighter or darker).
- The polarized anti-glare panel 10 may be a semi polygon of any number of sides or semi circular.
- The rectangular strips 7a and 7b may be made of aluminium or any other non ferromagnetic material
- The polarized anti-glare panel may be replaced by tinted rectangular panel that could be polarized or not polarized.
- Polytetrafluoroethylene woven tape may be used as the friction reducing material 11, 12 and 13.
- Hooks 2 and 3 may be replaced by other attachment devices such hook-and-loop systems sold under the trademark Velcro.
- The described embodiment may be improvised to account for a plurality of glare locations by attaching additional polarized anti-glare panels 10
- The pair of polarized spectacles (supplied by others) may be replaced by a rectangular polarized panel fixed permanently to the bottom edge of the ferromagnetic base panel 6.
- A ferromagnetic panel with two (2) magnetic discs may be added to the back of the ferromagnetic panel 6 so that it is able to travel laterally, constrained by 2 strips, similar to 7a and 7b. This panel will be able to move laterally towards the rear vision mirror of a vehicle to prevent direct sunlight coming through from under the bottom edge of the rear vision mirror.

CLAIMS

1. A glare subduing apparatus comprising of:

   A base panel having a blocking portion;

   At least one polarized anti-glare panel movably connected to the base panel

   where, at least one polarized anti-glare panel may be moved relative to the base panel such that the effect of glare is subdued when viewed through a pair of polarized spectacles (not included in invention - supplied by others).
2. A glare prevention apparatus according to claim 1, where the viewing portion is a pair of polarized spectacles (not included in invention – supplied by others).
3. A glare subduing apparatus according to claim 1 or 2 where the blocking portion is a polarized anti-glare panel.
4. A glare subduing apparatus according to any preceding claim, where the viewing portion is tinted to provide a basic level of shielding against environmental light.
5. A glare subduing apparatus according to any preceding claim, where the blocking portion is made of a polarized anti-glare panel and the viewing portion is made of polarizing material of the opposite polarity in the form of a polarized spectacle, such that by rotating the blocking portion relative to the polarized spectacles creates a cross-polarization effect in the overlapping area through which the amount of light passing through can be controlled.
6. A glare subduing apparatus according to the preceding claim, where the blocking portion consisting of a polarized anti-glare panel is polygonal of any number of sides or circular.
7. A glare subduing apparatus according to any preceding claim, where it can be mounted onto a standard car sun visor available in most vehicles.
8. A glare subduing apparatus where the method of mounting takes the form of hooks or a hook-and-loop arrangement

9. A glare subduing apparatus according to any preceding claim, where the position of the base panel relative to the position of the user may be adjusted.
10. A glare subduing apparatus where the rotation of the base panel is controlled by the rigidity of the hinge that is achieved by impregnating the swivel of the hinge with liquid adhesive and/or a magnet acting between the lower leaf of the hinge and the curve of the ferromagnetic hook adjacent to it, giving the hinge a level of rigidity that prevents the rotating of the base panel except when the rotation is directed by the user.
11. A glare subduing apparatus according to any preceding claim, that allows the user using a pair of polarized spectacles (supplied by others) to rotate the base panel containing the anti-glare apparatus so that the desired intensity of tint is available to the user.
12. A glare subduing apparatus that does not have a gap between it and the bottom edge of the car sun visor to which it is fastened, so as to prevent the passage of direct or reflected sun light.
13. Method of subduing glare according to preceding claims comprising the steps of:

    user puts on a pair of polarized spectacles then determine the location of glare; and

    adjust the inclination of the car sun visor and the inclination of the polarized anti-glare panel so that encompasses the glare, then adjust the car sun visor so that glare is located at approximately the bottom part of the (semi polygonal) polarized anti-glare panel. Rotate the (semi polygonal) polarized anti-glare panel so that the desired high intensity of tint (to subdue the glare) is achieved. This has the effect of containing the glare and yet leaving the rest of the surrounding under the influence of the medium tinted polarized spectacles only, for optimum clarity of the surrounding.

    In addition, the current invention incorporates a slideable opaque steel panel that can be extended towards the rear vision mirror of the vehicle effectively blocking the direct sun’s rays coming form the bottom of the rear vision mirror.