

### [54] VEHICLE SCREEN

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[51] Int. Cl. .... **E06b 9/00, E06b 9/52**

[58] Field of Search ..... **160/354, 105, 104, DIG. 2,  
160/DIG. 3**

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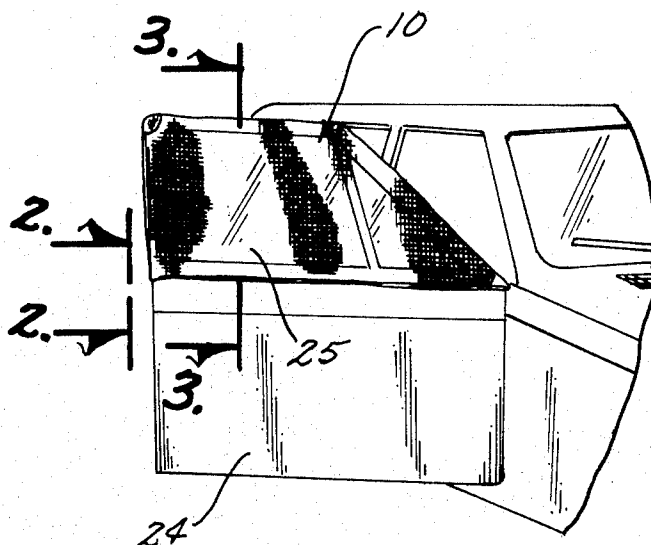
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### [57]

### ABSTRACT

A screen device for vehicle windows comprising a screen material which is secured to the vehicle so that the screen material is positioned at the outside surface of the window. One form of the invention comprises a metal screen material having a flexible attachment means secured thereto which extends around the upper, forward and rearward portions of the vehicle door. The attachment means includes a draw string which is secured to the vehicle door to securely draw the device adjacent the window. The attachment means may also include a flexible magnet means at the lower edge thereof which holds the lower end of the device on the exterior surface of the vehicle door below the window. A second form of the invention relates to a flexible sleeve or boot comprised of netting material which extends over both sides of the upper end of the vehicle door to provide a screen on both sides of the window. A third form of the invention is disclosed which is similar to the second form except that the flexible netting material is positioned only at the outside surface of the window. A fourth form of the invention pertains to a flexible netting material having a magnetic attachment means extending around the border thereof to facilitate the attachment of the device to the exterior surface of a station wagon at the rear side window area. A fifth form of the invention is also disclosed and is similar to the fourth form with a magnet means being employed thereon for aiding in attaching the screen to the vehicle. A sixth form of the invention is disclosed which is adapted to be mounted at the rear window area of a station wagon.

9 Claims, 19 Drawing Figures



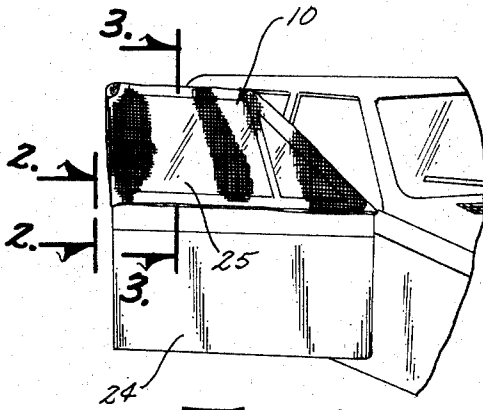


Fig. 1

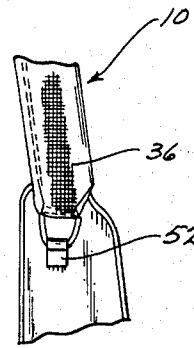


Fig. 2

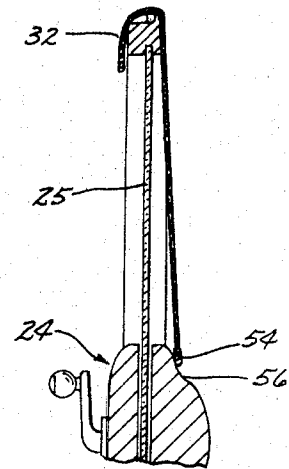


Fig. 3

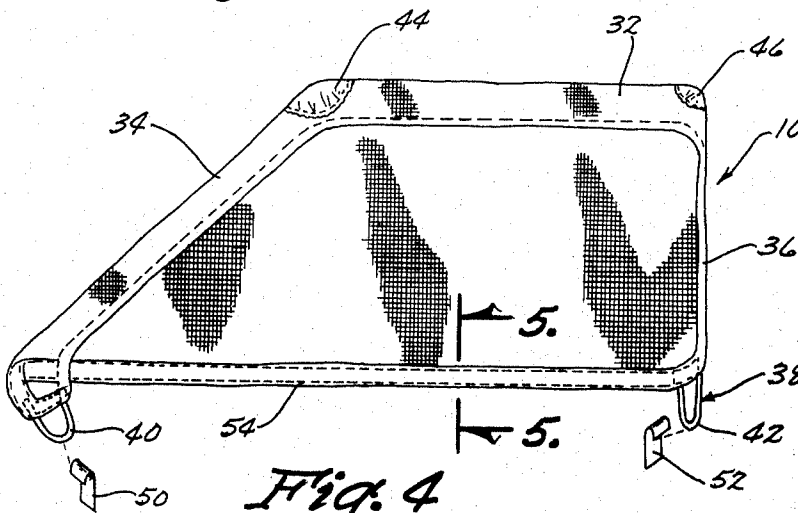


Fig. 4

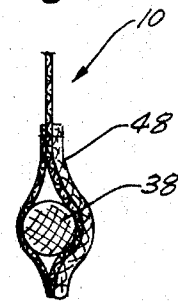


Fig. 5

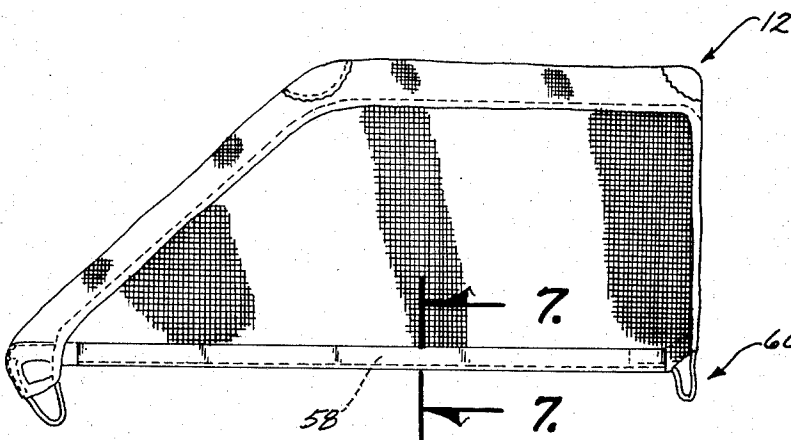


Fig. 6

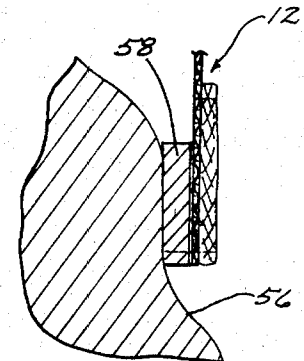
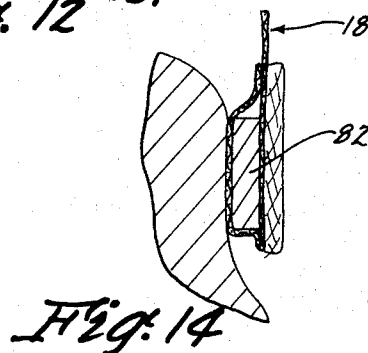
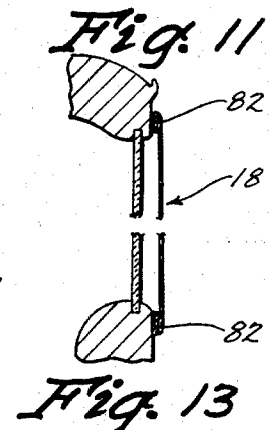
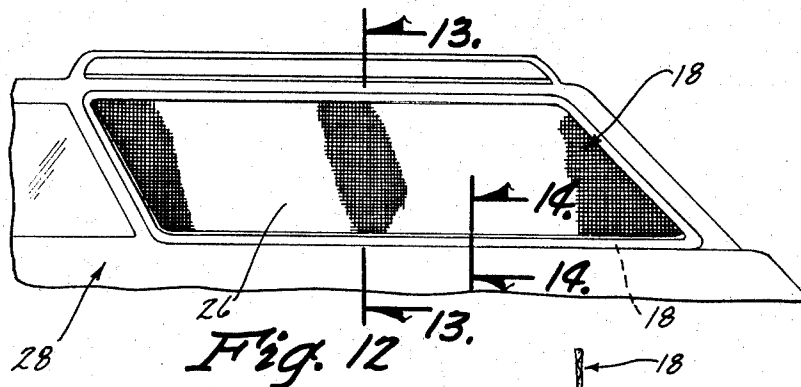
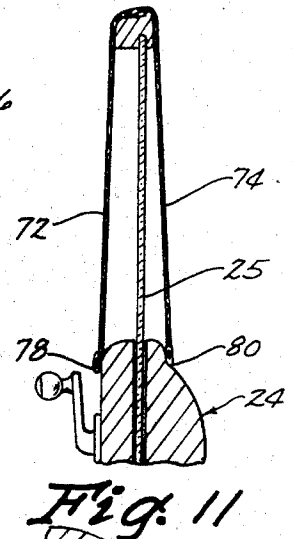
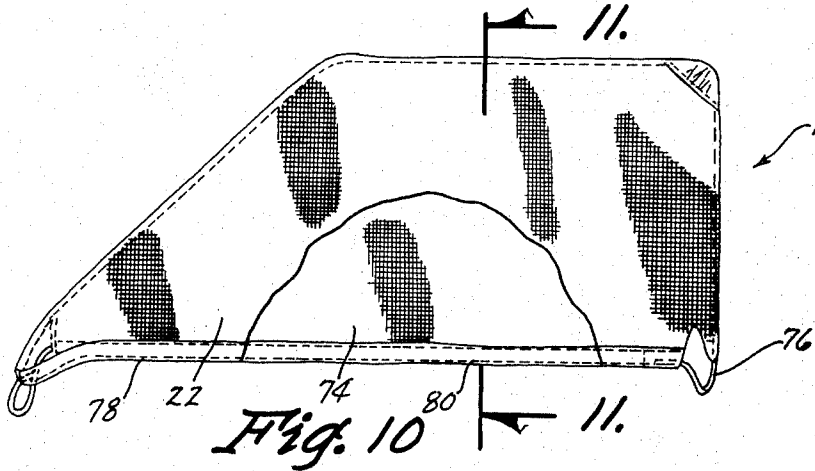
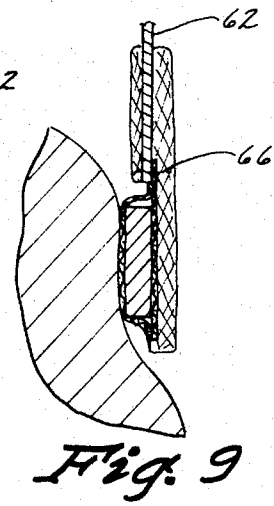
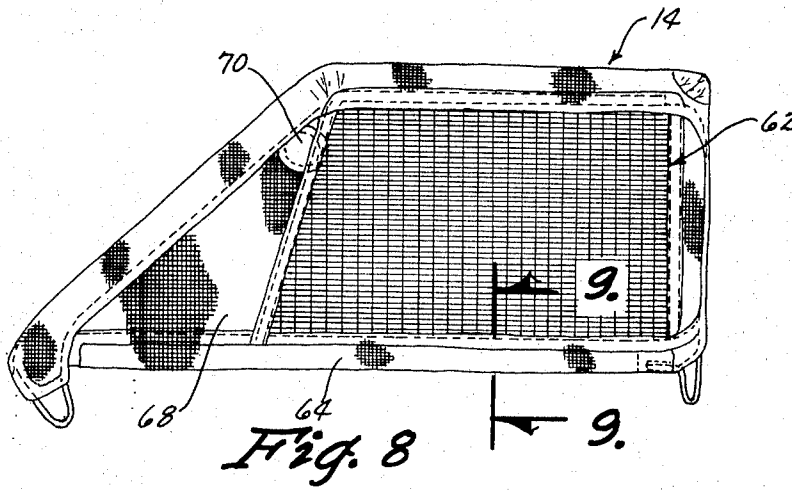


Fig. 7

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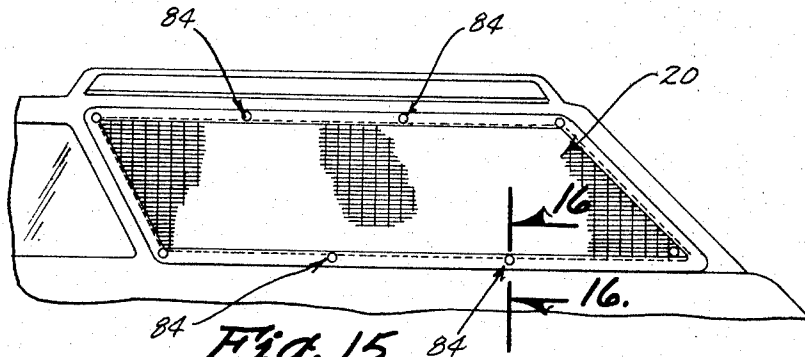


Fig. 15

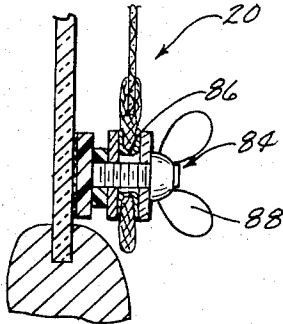


Fig. 16

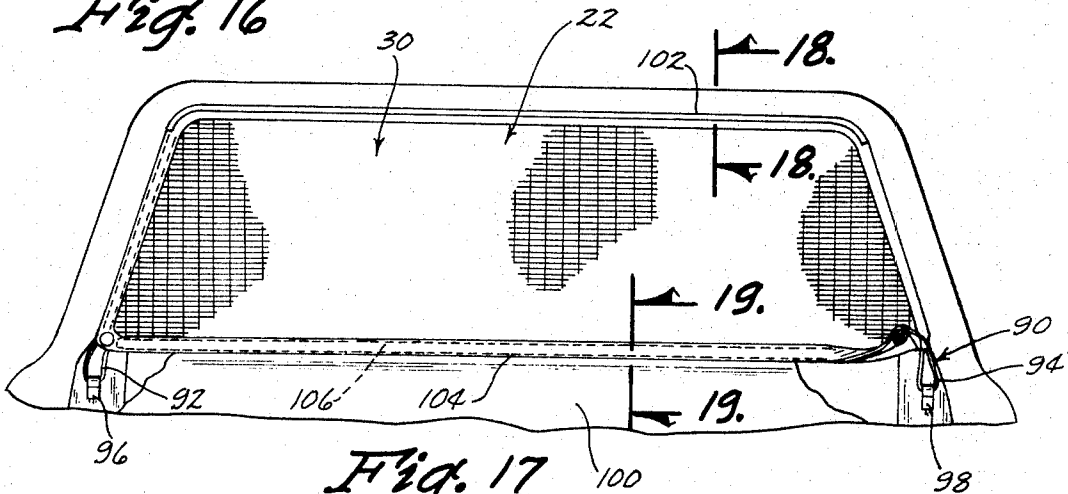


Fig. 17

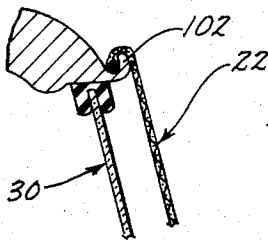


Fig. 18

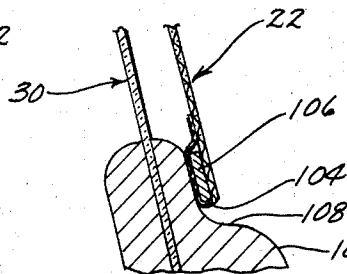


Fig. 19

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## VEHICLE SCREEN

Metal screens have been used on vehicle windows at the inside surface thereof to screen the rays of the sun. These metal screens are not easily attached to the vehicle and do not prevent internal heat build-up in the vehicle since the screens are positioned on the inside surface of the window and do not prevent the rays of the sun from entering the vehicle. Once the rays have passed through the window, the internal heat build-up cannot be prevented. When the metal screens are not being used, glare is present even with tinted windows. Additionally, the operation of the vehicle with an open window permits bugs to enter the vehicle as well as road dirt, etc. Still further, the wind entering the open window and the noise accompanying the same is extremely irritating.

Therefore, it is a principal object of this invention to provide a screen for vehicle windows.

A further object of this invention is to provide a vehicle screen which is easily stored.

A further object of this invention is to provide a vehicle screen which prevents the rays of the sun from entering the vehicle thereby reducing internal heat build-up.

A further object of this invention is to provide a vehicle screen which is easily attached to the vehicle.

A further object of this invention is to provide a vehicle screen which reduces glare.

A further object of this invention is to provide a vehicle screen which is positioned on the exterior surface of the vehicle.

A further object of this invention is to provide a vehicle screen which permits the vehicle window to be raised or lowered without interfering with the screen.

A further object of this invention is to provide a vehicle screen which prevents bugs or insects from entering an open window of the vehicle.

A further object of this invention is to provide a vehicle screen comprised of flexible nylon netting material.

A further object of this invention is to provide a vehicle screen which does not impair the driver's vision.

A further object of this invention is to provide a vehicle screen which may be mounted on the vehicle without tools.

A further object of this invention is to provide a vehicle screen which is economical of manufacture, durable in use and refined in appearance.

These and other objects will be apparent to those skilled in the art.

This invention consists in the construction, arrangements and combination of the various parts of the device, whereby the objects contemplated are attained as hereinafter more fully set forth, specifically pointed out in the claims, and illustrated in the accompanying drawings in which:

FIG. 1 is a partial perspective view of a vehicle having one form of the screen mounted on the vehicle door.

FIG. 2 is an enlarged sectional view as seen along lines 2-2 of FIG. 1.

FIG. 3 is an enlarged sectional view as seen along lines 3-3 of FIG. 1.

FIG. 4 is an inside elevational view of the device of FIG. 1.

FIG. 5 is an enlarged sectional view as seen along lines 5-5 of FIG. 4.

FIG. 6 is a view similar to FIG. 4 except that a second embodiment is illustrated.

FIG. 7 is an enlarged sectional view as seen along lines 7-7 of FIG. 6.

FIG. 8 is a view similar to FIG. 4 and 6 except that a third modified form of the device is illustrated.

FIG. 9 is an enlarged sectional view as seen along lines 9-9 of FIG. 8.

FIG. 10 is an inside elevational view of a fourth form of the invention with portions thereof cut away to more fully illustrate the invention.

FIG. 11 is a sectional view as seen along lines 11-11 of FIG. 10.

FIG. 12 is a partial side view of a station wagon illustrating still another modified form of the device mounted at the rear side window thereof.

FIG. 13 is a fragmentary sectional view as seen along lines 13-13 of FIG. 12.

FIG. 14 is an enlarged sectional view seen along lines 14-14 of FIG. 12.

FIG. 15 is a partial side view of a station wagon having a screen device secured to the rear side window.

FIG. 16 is an enlarged sectional view seen along lines 16-16 illustrating an attachment means for the screen of FIG. 15.

FIG. 17 is a partial rear view of a station wagon having a screen device mounted thereon with portions thereof cut away to more fully illustrate the invention.

FIG. 18 is an enlarged sectional view seen along lines 18-18 of FIG. 17; and

FIG. 19 is an enlarged sectional view seen along lines 19-19 of FIG. 17.

In FIGS. 1-5, the numeral 10 designates the main embodiment of the screen device of this invention while the numeral 12 designates a modified form of the device in FIGS. 6-7. In FIGS. 8-9, a third form of the invention is designated with the reference numeral 14. The numeral 16 refers generally to a fourth form of the invention in FIGS. 10-11 with the numeral 18 in FIGS. 12-14 identifying a fifth form of the invention. FIGS. 15-16 illustrate a modified form of the invention of FIGS. 12-14 and is designated by the reference numeral 20. A still further modified form of the invention is seen in FIGS. 17-19 and is designated by the reference numeral 22.

The devices 10, 12, 14 and 16 are designed to fit over a vehicle door 24 while the devices 18 and 20 are designed to be positioned adjacent the exterior surface of a rear side window 26 of a station wagon 28. Device 20 is also adapted to be secured to the rear side window of a station wagon while the device 22 is adapted to be secured to the rear window 30 of a station wagon.

The screen device 10 of FIGS. 1-5 is comprised of a flexible netting material such as nylon or the like and has a shape generally corresponding to the upper portion of the vehicle door to which it is to be affixed. Device 10 includes folded-over portions 32, 34 and 36 at its upper, forward and rearward ends which are adapted to extend around the upper, upper-forward and upper-rearward portions of the vehicle door. Screen device 10 has a drawstring means 38 sewn into its border or periphery area as seen in the drawings and having exposed loop portions 40 and 42 at the lower-forward and lower-rearward ends thereof. Device 10 also has reinforced areas 44 and 46 provided thereon adapted to prevent the edges of the vehicle door from wearing through the material. As seen in FIG. 5, the lower end of screen device 10 is provided with a reinforcing strip 48 which is sewn thereto to provide additional durability to the device. The screen device 10 is positioned over the vehicle door 24 as seen in FIGS. 1, 2 and 3. The exposed loop portions 40 and 42 of the draw string means 38 are pulled outwardly with respect to the device and are secured to the hook members 50 and 52 which are secured to the forward and rearward portions of the vehicle door below the window. The attachment of the exposed loops 40 and 42 to the hook members 50 and 52 respectively tightens the device around the upper portion of the door and causes the lower end portion 54 to be drawn tightly against the exterior surface 56 of the vehicle door to prevent the device from flapping or chattering as the vehicle is driven along the highway.

Device 12 is substantially identical to device 10, the primary difference being that an elongated flexible rubberized magnet means 58 is secured to the lower end of the device 12 to maintain the same closely adjacent the exterior surface 56 of the vehicle. The draw string means 60 is provided on the device 12 for the same purpose as the draw string means 38 in device 10 but does not extend across the bottom end thereof since the magnet means 58 maintains the lower end of the device 12 in engagement with the vehicle exterior surface 56.

Device 14 is substantially identical to the device 12 except that a metallic screen insert 62 is employed which corresponds in shape to the vertically movable window found in the front doors of the vehicle. The material 62 is preferably of the type such as marketed under the names "Koolshade" and "Sun-screen" and are designed to prevent the sun's rays from passing therethrough while permitting the occupants of the vehicle to look horizontally outwardly therethrough without substantial visual obstruction. The configuration of the lower end of the device 14 is such that the magnet means 64 may affix itself to the exterior surface of the vehicle where the surface is vertical as seen in FIG. 9 or horizontal as is found in some vehicles immediately below the window area. A fold line 66 is created by stitching the various components of the lower end of the screen device as seen in FIG. 9. Device 14 is provided with a screen portion 68 which is positioned forwardly of the metallic screen insert 62 and which generally corresponds in shape to the vehicle vent window found in the front doors of most vehicles. Portion 68 is provided with a reinforcing patch 70 which is adapted to prevent the upper end of the vent window from penetrating or wearing through the material upon operation of the vent window. The flexible portion 68 permits the vent window of the vehicle to be opened since the vent window can deflect the material outwardly from the vehicle door.

Device 16 which is illustrated in FIGS. 10 and 11 is generally similar to the device 10 except that it has been formed so as to define a sheath-like member adapted to be extended or positioned over the upper portion of the door to provide screen portions 72 and 74 which are positioned inwardly and outwardly of the window 25. Device 16 is provided with draw string means 76 which extends around the border or periphery thereof which are designed to be secured to hook members such as hook members 50 and 52 to maintain the same in position as the devices 10 and 12 are maintained in position. The attachment of the draw string means 76 to the hook members 50 and 52 causes the lower ends 78 and 80 thereof to be tightly drawn against the interior and exterior surfaces of the door 24 to prevent the device from flapping or chattering in the wind and to prevent bugs from entering the vehicle. The device 16 serves the same purpose as the devices 10, 12 and 14 except that glare from the sun is further reduced by providing the flexible netting material at both sides of the window. The double screen effect also reduces the amount of draft and wind entering the vehicle while the vehicle is being operated with the window 25 in a lowered position.

Device 18 is designed to provide a screen for the rear side window of a station wagon and corresponds in shape to the configuration of the vehicle rear side window. Screen device 18 is provided with a flexible rubberized magnet means 82 which is secured to the periphery thereof to facilitate the attachment of the device to the vehicle. The device 18 is slightly larger than the window 26 which it covers so that the magnet means 82 can be brought into contact with the metal surface of the vehicle extending around the window 26.

The screen device 20 is substantially identical to the screen device 18 except that the rubberized magnet means is not utilized in the device 20. A plurality of fastener elements 84 are secured to the vehicle window by any suitable adhesive and extend outwardly therefrom in a spaced apart relationship as seen in FIG. 15. The screen device 20 is provided with a plurality of reinforced openings 86 formed therein which are adapted to be received on the fastener elements 84. The device 20 may be easily installed on the vehicle by means of the fastener elements 84 and may be quickly removed therefrom by simply removing the nuts 88 on the fastener elements 84. The fastener elements 84 rigidly maintain the device on the vehicle when a magnet means is not utilized for the same purpose.

Screen device 22 is designed to be secured to the rear window 30 of a station wagon and includes a draw string means 90 which extends around the upper and opposite sides thereof terminating in exposed loop portions 92 and 94 adapted to be

secured to hook members 96 and 98 mounted on the vehicle. The hook members 96 and 98 are mounted on the vehicle in such a manner so that they are exposed only when the rear door 100 of the vehicle is opened. The upper end of the draw string means is received in the rain gutter 102 which extends around most rear windows of station wagons. The attachment of the loop portions 92 and 94 to the hook members 96 and 98 tightens the draw string means downwardly into the rain gutter 102 to securely maintain the device on the vehicle. The lower edge 104 of the device 22 is provided with an elongated flexible magnet means 106 adapted to magnetically affix itself to the exterior surface 108 of the vehicle below the window 30. The lower edge of the screen device 22 may be disengaged from the surface 108 and folded upwardly with respect thereto without disconnecting the loop portions 92 and 94 to facilitate the opening of the door 100 if desired.

Although the drawings illustrate that the devices 20 and 22 employ a metal screen material, it should be understood that flexible netting material may be substituted therefore.

In all of the embodiments disclosed herein, a screen device has been provided for a vehicle window which is positioned at the outside surface thereof. By positioning the screen at the outside surface of the window, a large majority of the sun's rays are prevented from entering the vehicle thereby preventing internal heat build-up in the vehicle. The screens of this invention permit the vehicle to be operated with the windows open since the screens reduce the amount of wind noise and also reduce the amount of air currents entering the vehicle through the open windows. Further, the screens prevent bugs from entering the interior of the vehicle due to the fact that the screens are in sealing engagement with the vehicle door around the window. The screen devices also reduce glare without interfering with the vision of the occupants of the vehicle. The screen devices of this invention do not obstruct the vision of the driver in any manner. The devices of this invention are easily attached to the vehicle and are easily removed therefrom due to the unique attachment means described herein, and such attachment may be accomplished without the use of tools. The devices, with the exception of the screens utilizing the metal screen material, may be easily folded and inserted into the glove compartment of the vehicle or beneath the vehicle seat when they are not being used. The screen devices utilizing the metal screen material may be rolled and stored during periods that they are not being used. The placement of the screens at the exterior surface of the window does not detract from the operation of the windows in any manner. Thus it can be seen that the devices accomplish at least all of their stated objectives.

We claim:

1. A screen device for a vehicle door having a vertically movable window mounted therein, said door having inside and outside surfaces, said door having front and rear door portions which are normally concealed when the door is in a closed position, comprising,

a screen material adapted to be positioned at the outside surface of said window, said screen material having a peripheral border area,

an elongated flexible means operatively secured to said peripheral border area for securing said screen material to said door,

and first and second attachment means secured to said front and rear door portions positioned below said window and being concealed when said door is closed,

said elongated flexible means having opposite ends for detachable connection to said first and second attachment means respectively.

2. The screen device of claim 1 wherein said screen material comprises a flexible netting portion.

3. The screen device of claim 1 wherein said screen material comprises a metal screen means, said peripheral border area being comprised of a flexible non-metallic material operatively secured to said metal screen means.

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4. The screen device of claim 3 wherein said peripheral border area at least partially extends around the upper portion of the door and around the front and rear door portions at the upper ends thereof.

5. The screen device of claim 4 wherein said elongated, flexible means comprises a draw string means.

6. The screen device of claim 5 wherein said draw string means has exposed loop portions at its opposite ends, said first and second attachment means comprising hook members for receiving said loop portions.

7. The screen device of claim 1 wherein said peripheral border area has a lower outer edge portion positioned at the

outside surface of the vehicle door below said window, and a magnet means secured to said lower outer edge portion for magnetically affixing said lower outer edge portion to said door.

8. The screen device of claim 1 wherein said door also has a vent window therein, said screen material comprising a metal screen portion positioned outwardly of said vertically movable window and a flexible netting material positioned outwardly of said vent window.

9. The screen device of claim 3 wherein said metal screen means is comprised of a Koolshade material.

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