

[54] **FRESNEL LENS MOUNTING**

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[58] Field of Search **350/211, 235-241, 350/243-252**

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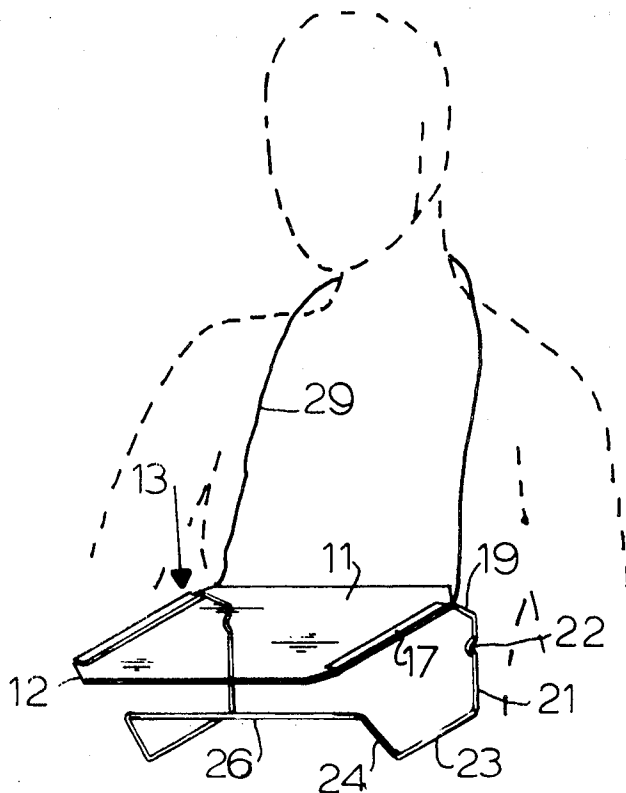
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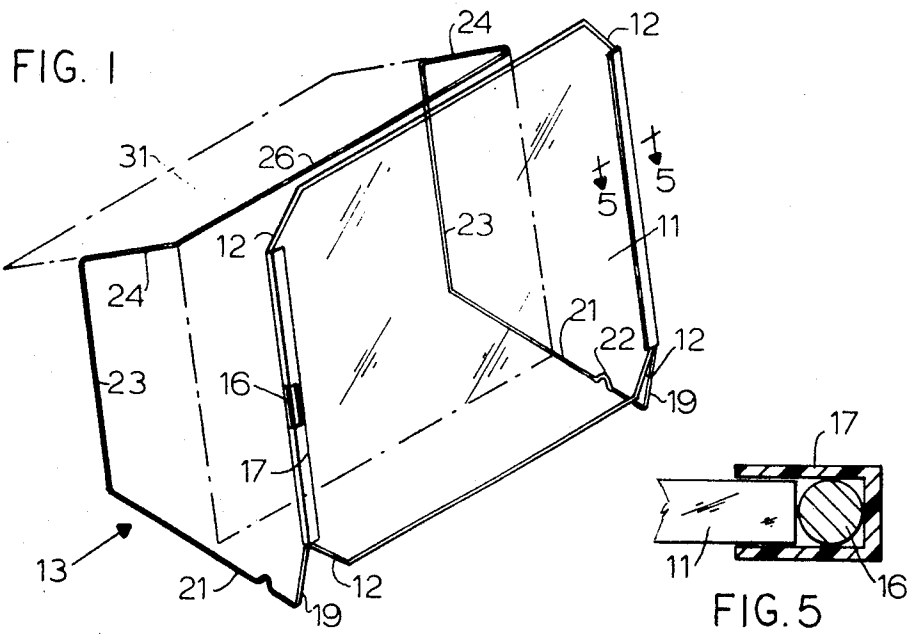
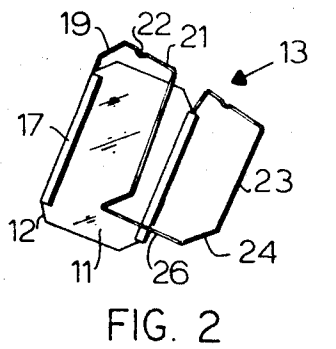
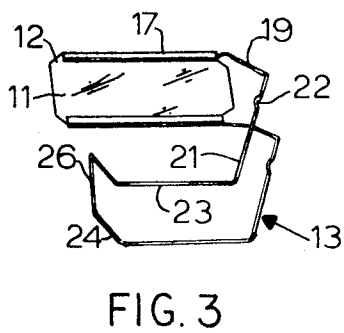
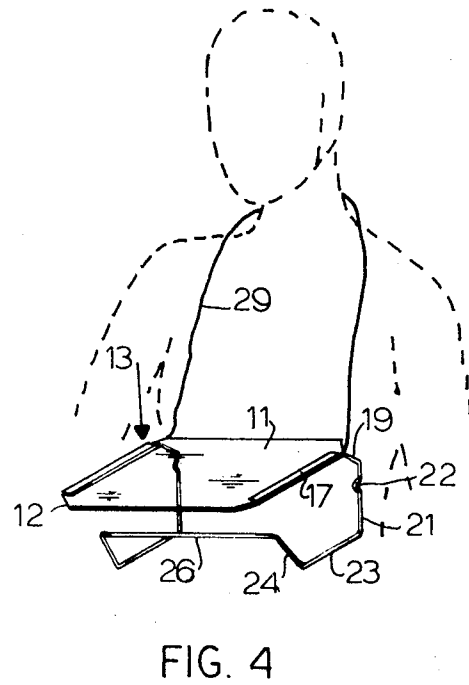
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ABSTRACT

A wire frame supports a plastic fresnel lens mounted thereon. The frame is bent in a plurality of stretches, enabling the lens to be supported on a table or other surface in different positions so that the work may be viewed from various angles for reading, handicraft, and other purposes. By suspending the frame by a cord from the neck, the lens may be used to magnify work held in the lap, etc.

7 Claims, 5 Drawing Figures





FRESNEL LENS MOUNTING

This invention relates to a new and improved fresnel lens mounting. More particularly, the invention relates to a wire frame on which a large fresnel lens is supported.

A principal object of the invention is to provide a versatile mounting for such a lens enabling the lens to be used to view reading matter or work in a variety of positions for the convenience of the user. The fresnel lens is large in size, light in weight, relatively inexpensive, and provides an excellent magnifying means for many purposes. It is formed of a light-weight plastic material with a smooth, flat viewing surface nearest the eyes of the user and an under-surface formed with prismatic grooves nearest the work being observed. The lens magnifies when viewed from the smooth surface, as well understood in this art.

The frame used with the lens of the present invention is especially bent rigid wire having stretches which support the lens on a table or other surface in several stable positions. A means is also provided to hang the frame from a cord around the neck of the user.

Thus, the lens mounting supports the lens for convenient use in reading newspapers, books, drawings, etc., as well as for use when doing handicraft (such as sewing, weaving, stringing beads, rug hooking, soldering, wood carvings, manicuring, etc.)

One of the principal uses of the invention is by handicapped and elderly persons or those with Parkinson's disease and others whose hands tend to tremor and whose eyesight is weak. The lens enables the user to magnify the work while leaving both hands free and thus the tremor of the hands is not unduly detrimental as contrasted with what would be the case if the hands were not supported on a table or other surface.

Another feature of the invention is that it protects the eyes from foreign matter which may fly off from the work.

Other objects of the present invention will become apparent upon reading the following specification and referring to the accompanying drawings in which similar characters of reference represent corresponding parts in each of the several views.

FIG. 1 is a perspective view showing the device in one position (which is useful for reading newspapers).

FIG. 2 is a view showing the lens in a different position, particularly useful in reading books supported on a table.

FIG. 3 is a view similar to FIG. 2 showing the lens in still another position for use with the hands holding the work resting on a table.

FIG. 4 is a view showing the lens supported by a cord around the neck so that the hands may rest in the lap of the user while performing handicraft or so that a book held in the lap may be read without hand tremor making reading difficult.

FIG. 5 is an enlarged fragmentary sectional view showing a means of attachment of the lens and frame taken substantially along line 5—5 of FIG. 1.

Lens 11 of the present invention is of the well known fresnel type made of plastic. The surface nearest the observer is smooth and flat while the opposite surface is formed with prismatic grooves which provide a magnifying effect. In the form shown in the accompanying drawings, lens 11 is square and the corners 12 are bevelled. The bevelling of the corners may be omitted, especially in the smaller sizes of lens. Rectangular and

other shapes of lenses may be used. Frame 13 formed of bent wire is attached to the lens. The frame 13 is symmetric around the center line. Thus only one side of the frame need be described. Side 16 is co-extensive in length with the height of lens 11 and is attached to the side thereof. A suitable means of attachment is a channel 17 or plastic Side 16 fits in the bottom of the channel and the edge of lens 11 fits against side 16. A suitable plastic cement or other adhesive secures the lens, wire and channel in place. It will be understood that other attachment means may be substituted. Below the corner 12 there is an oblique offset 19 where, in the position of FIG. 1, the side of the frame slants rearwardly downwardly. The oblique offset 19 may be omitted and the side 16 may continue straight to its juncture with the first or bottom leg 21. A 90° bend or kink 22 may be formed in leg 21 a slight distance rearward of offset 19 to support a book when the lens is used in the position of FIG. 2. At the rearward end of leg 21 is a second leg 23 which is at an angle such that it is parallel to side 16. At the end of leg 23 is an upwardly-forwardly bent third leg 24 in the position shown in FIG. 1 which is relatively short. The forward ends of third leg 23 on either side are joined by the center or connecting bar 26.

A typical preferred use of the invention is shown in FIG. 1. The first legs 21 rest upon a table or other support so that the lens 11 is substantially upright but slants somewhat upwardly-rearwardly at about a 10° angle. A newspaper 31 may be folded to hang from center bar 26. It will further be apparent that in such position a book may be supported by bar 26. In this position the reading material is parallel with the lens and thus the viewer has an overall distortion-free view.

As shown in FIG. 2 the frame is positioned so that the lens 11 rests on its top edge and the frame 13 rests upon center bar 26 and third legs 24. In this position the hand can be placed on the table surface with the flat of the hands down firmly on the table top, leaving the fingers free for manipulation of sewing, weaving, beading, handicraft, rug hooking, soldering, wood carving, manicuring, etc. In this position the lower edge of a book may rest on the table and the upper edge rest on the bends 22.

In FIG. 3 the second stretches 23 are placed on the table or other supporting surface or lap of the user. The viewer looks down through the lens 11 and at the hands. A book or paper can be in flat position and be placed on the table.

As shown in FIG. 4, a cord 29 is tied to the corner where stretches 19 and 16 intersect and this cord passes around the neck of the user. The length of cord 29 is such that the lens 11 is supported so that with the hands resting in the lap or in any event below the lens 11, the lens 11 magnifies the work for the viewer. The length of the cord 29 can be adjusted to accommodate the work.

The dimensions of the various parts are subject to considerable variation and the angles between the stretches of wire 13 are also subject to variation. In a preferred form of the invention, it is assumed that the lens 11 has a width of 11 inches and a height of 11 inches. The side edge 16 is of a length 9 ¼ inches. The angle between side 16 and oblique offset 19 is preferably about 170°. Offset 19 has a length 2 ½ inches. The angle between offset 19 and first leg 21 is preferably about 90°; in other words, the angle between sides 16

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and the legs 21 is about 80°. A preferred length of leg 21 is about 5 ¾ inches with bend 22 located 1 inch behind offset 19. The angle between leg 21 and leg 23 is preferably about 120° and the length of second leg 23 is about 8 inches. The angle between leg 23 and leg 24 is preferably about 120° and the length of leg 24 is preferably 2 ½ inches. It will be understood that the arrangement is subject to considerable variation.

In a smaller form of the invention, the angles remain substantially the same. Assuming a lens 8 inches × 8 inches, side 16 is 8 ¼ inches, offset 19 is 2 inches, first leg 21 is 6 inches, second leg 23 is 6 inches and third leg 24 is 2 ½ inches.

What is claimed is:

1. A fresnel lens and mounting comprising a fresnel lens having at least two opposed straight lateral sides, a top side and a bottom side, a rigid unitary wire frame, said frame having on either side a frame side alongside one said straight lateral side of a length greater than the length of said lens straight lateral side, a first leg extending rearwardly of said lens at an angle of about 80° to said frame side, and below said bottom side of said lens, a second leg extending outwardly rearwardly relative to said first leg at an angle of about 120° and disposed behind said lens, and a third leg extending toward the back of said lens at an angle of about 120° relative to said second leg, a center bar for connecting the inner ends of said third legs together, said center bar being spaced apart from said lens and means on either side of said lens securing said straight sides and frame sides together so that said center bar, said third legs and said top side lie in a common plane.

2. A lens and mounting according to claim 1 which further comprises an oblique offset between the end of

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said frame side and said first leg.

3. A lens and mounting according to claim 1 in which the elements have lengths in approximately the following proportions:

lens height, width	11
frame side	9 ¾
oblique offset	2 ¼
first leg	5 ¾
second leg	8
third leg	2 ¼

4. A lens and mounting according to claim 1 in which the elements have lengths in approximately the following proportions:

lens height, width	8
frame side	8 ¼
oblique offset	2
first leg	6
second leg	6
third leg	2 ¼

5. A lens and mounting according to claim 2 in which said first leg is formed with a bend close to said oblique offset.

6. A lens and mounting according to claim 1 in which said securing means comprises a channel cross-section member, said frame side inside said channel, the margin of said straight side of said lens in said channel, and adhesive securing said channel to said margin.

7. A lens and mounting according to claim 2 which further comprises a cord attached at either end to said wire frame where said frame side and oblique offset intersect to suspend said frame from the neck with the lens substantially horizontal.

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