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Goudie et al.

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[54] **APPARATUS FOR ALIGNING IMAGE WITH BLIND SPOT OF EYE**

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Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 275,041, July 25, 1972, abandoned.

[52] **U.S. Cl.** ..... **272/8 R,** 46/1 F, 273/183 B, 273/183 E, 273/190 A, 273/DIG. 17, 351/37

[51] **Int. Cl.** **A63j 5/00**

[58] **Field of Search** ..... 272/8 R; 35/19 B; 128/2 T, 128/76.5; 351/7, 22, 23, 30, 37, 126, 128, 142, 156, 39; 273/183 B, 183 E, 190 A, DIG. 17; 46/1 F

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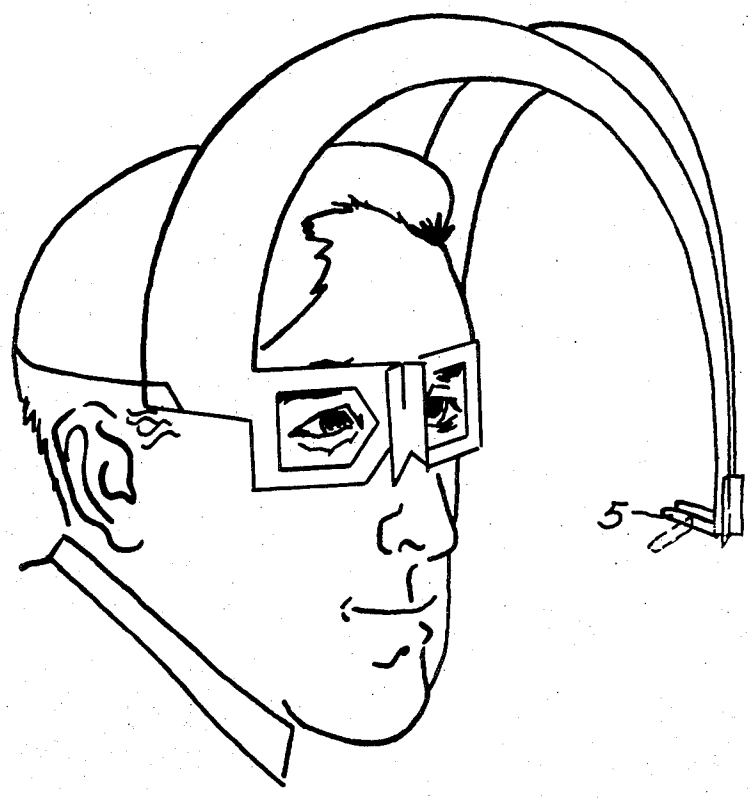
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[57] **ABSTRACT**

Apparatus in the nature of a toy is disclosed as comprising an assembly to be disposed upon the user's head for critically disposing a tab-like member in front of the user's eyes. In operation, the user, with a first eye closed, aligns with the second open eye the tab on a distant object; next, with the second eye closed, the user focuses his first eye on the tab-like member, whereby the distant object appears to vanish in that because of the critical positioning of the tab with respect to the user's eyes, the image of the distant object falls upon the optic nerve of the first eye.

12 Claims, 5 Drawing Figures



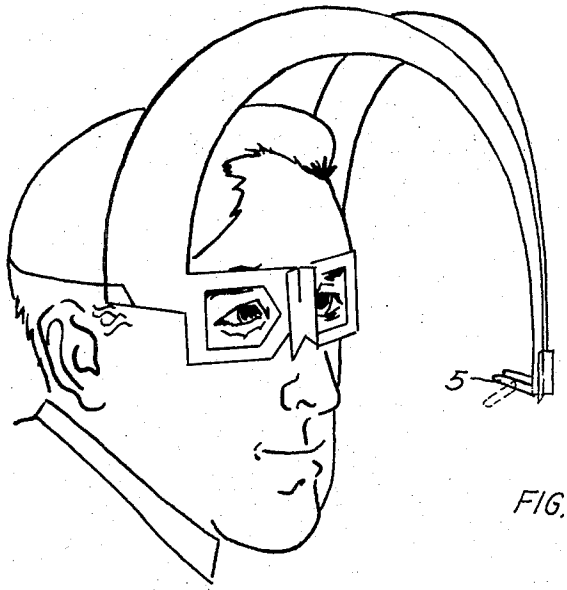


FIG 1

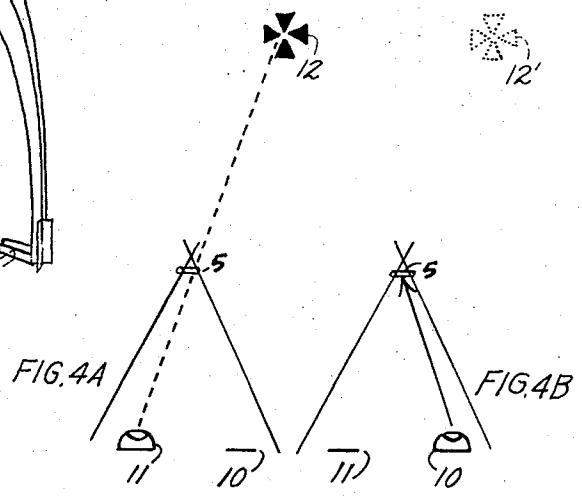


FIG.4A FIG.4B

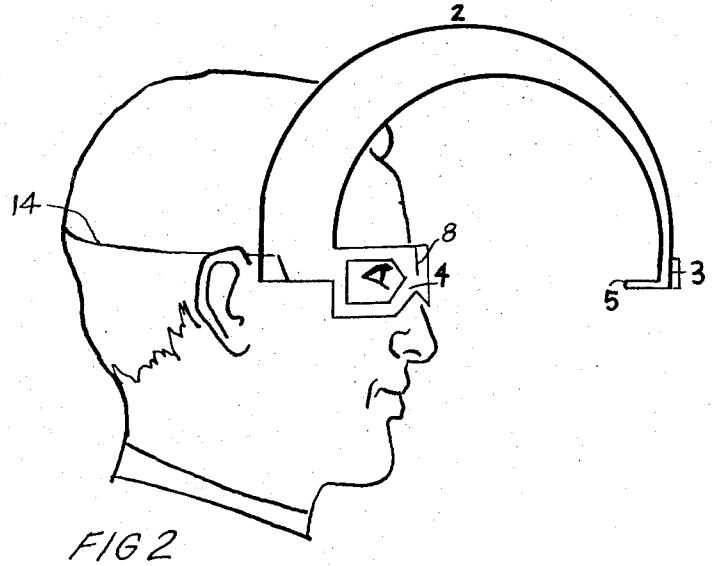


FIG 2

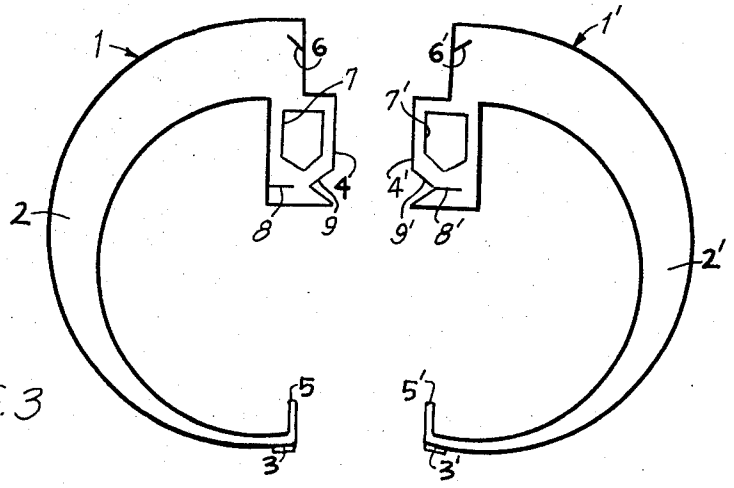


FIG. 3

APPARATUS FOR ALIGNING IMAGE WITH BLIND SPOT OF EYE

CROSS REFERENCE TO RELATED APPLICATIONS

The present application is a continuation-in-part of prior U.S. application Ser. No. 275,041, filed July 25, 1972, now abandoned.

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to teaching and/or amusement devices and more particularly to devices for producing an optical illusion.

2. Description of the Prior Art

The existence of a blind spot within the human eye has been recognized and various experiments have been suggested to demonstrate that images projected onto the optic pipilla, where the nerve fibers pass through the posterior wall of the eyeball to connect with the retina, will not be sensed. As a result, the image so projected will seem to disappear to the viewer. Illustratively, this phenomena can be domonstrated by placing a cross within a darkened field on a page and spacing a white circle within the field a distance from the cross. First, the page is disposed approximately one foot from the viewer's eye and with one eye closed, the other eye is directed onto the cross. By varying the distance of the page from the eye, the white disc will be made to disappear in that it is projected onto the optic pipilla of the cornea, commonly known as the blind spot of the eye. In a similar fashion, other objects, either white, black or colored disposed within the disc, that are not larger than the disc, will disappear.

SUMMARY OF THE INVENTION

It is therefore an object of this invention to provide apparatus in the nature of a toy or teaching device for demonstrating the above-described visual phenomena.

It is a further object of this invention to provide a novelty, amusement device that can be inexpensively made of relatively few parts from an inexpensive material such as card stock.

These and other objects are met in accordance with the teachings of this invention by providing apparatus to be disposed upon a viewer's head for suspending a tab-like member substantially at eye level in front of the viewer's eyes, whereby the viewer first aligns the tab member with a distant object with a first eye, the second eye being closed. Then, with the second eye open and the first eye closed, the viewer focuses the second eye upon the tab-like member, whereby the image of the distant object is thereby directed onto the blind spot of the second eye and seems to disappear. The size and spacing of th tab-like member from the viewer's eyes is selected so that viewer may readily focus upon the tab member and the angle of vision subtended gy the tab member, which is dependent upon the aforementioned spacing and size of the tab-like member, corresponds to the size of the optic pipilla of the user's eyeball.

In an illustrative embodiment of this invention, the apparatus comprises first and second arc-like members, each joined at one end to form the tab-like member. The other ends of the arc-like members are interconnected so as to fasten the apparatus upon the face of the viewer. In one embodiment, each arc-like member has a second end portion including an eyepiece and an interconnecting tab whereby the two arc-like members may be interconnected to form a set of openings through which the viewer may observe the tab-like member. Aditionally, a fastener, such as a string, is disposed about the user's head to be secured to each of the arc-like members to thereby secure the apparatus upon the user's head with the tab-like member disposed centrally of the viewer's eye.

DESCRIPTION OF THE DRAWINGS

These and other objects and advantages of the present invention will become more apparent by referring to the following detailed description and accompanying drawings, in which:

FIG. **1** is a perspective view showing the manner in which the apparatus of this invention is worn by the viewer;

FIG. **2** is a side elevation view of the apparatus shown in FIG. **1**;

FIG. **3** is a plan view of the two, unassembled arc-like members of the apparatus of this invention; and

FIGS. **4***a* and **4***b* are schematic-type views illustrating the process by which the viewer focuses first the one eye and then the other eye onto a tab member, to make a distant object seem to disappear.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

With regard to the drawings, and in particular to FIG. **3**, there is shown the unassembled, first and second arc-like members **1** and **1'**, to be assembled and disposed upon the head of a viewer as shown in FIG. **1**. In particular, each of the arc-like members **1** includes a curved portion **2** for suspending from a first end thereof, a tab-like member **5**. At the other end of the arc-like member **1**, thbre is provided a piece **4**, extending substantially normal to the suspending portion **2**. A slot **7** is formed in the piece **4** whereby one-half of a pair of goggles as illustrated in FIGS. **1** and **2** is formed. Further, the pieces **4** and **4'** include slots **8** and **8'** which are inserted within each other to form a pair of goggles extending across the face and eyes of the viewer. Notches **9** and **9'** are formed, respectively, within the pieces **4** and **4'**, as seen in FIG. **3**.

To finish assembling the apparatus of this invention, slits **3** and **3'** are formed in the end portions of the arc-like members **1** and **1'**, whereby these end portions may be connected together. Next, a string **14** or other suitable fastener, is connected into slits **6** and **6'** of the arc-like members **1** and **1'**, whereby the assembled apparatus may be slipped over the viewer's head. As seen in FIGS. **1** and **2**, thh notches **9** and **9'** abut the nose of the viewer, wherby the slots **7** and **7'** are aligned with the viewer's eyes and the tabs **5** and **5'** are disposed at eye level and centrally of thb eyes of the viewer. As seen in FIG. **1**, one or both of the tabs may be adjusted depending upon the preference of the viewer by bending it outward whereby a greater area of the tab is disposed to intercept the line of view of the viewer. The significance of this feature will be more fully explained later in detail.

In an illustrative embodiment of this invention, the arc-like members **1** and **1'** may be made of a relatively inexpensive material such as card stock, and because of

the relatively simple construction, may be readily mass produced.

The method of using the apparatus of this invention is explained with regard to FIGS. 4*a* and 4*b*. First, the viewer closes his first eye indicated by numeral **10**, and by either moving his head or adjusting the alignment of eye **11**, disposes the tab-like member **5** so as to cover a distant object **12**. For example, the viewer could choose an object such as a light switch disposed upon a nearby wall and would align the tab-like member **5** so as to block the view by the second eye of the light switch. With regard to FIG. 4*b*, the viewer, with his second eye closed, focuses his first eye onto the tab-like member **5**. Due to the placement of the tab member, the distant object is aligned with the optic pipilla of the first eye and seems to disappear. It is noted that the sequence of views could have begun with the first eye.

Due to differences in anatomy of the viewer's head or eyes, the tab-like members **5** may be bent from the straight position to a skewed position as shown in dotted line in FIG. **1**. In the skewed position, as indicated by a dotted line, a greater area of the tab member is disposed to intercept the line of sight of the viewer to make objects of varying size to seem to disappear as explained above. Thus, for larger objects, the tab-like member **5** will be bent to be nearly substantially perpendicular to the line of sight. Further, if the viewer had difficulty perceiving this visual phenomena, it will be helpful to dispose the tab-like member **5** as nearly perpendicular to the line of sight as possible. In one illustrative embodiment, an indicia such as a star or arrow may be placed on the inside surface of the tab-like members **5** to assist the viewer to focus his eyes upon the tab-like member **5**. Though only a single tab-like member **5** would be necessary, two tab-like members **5** and **5'** are incorporated into an illustrated embodiment of this invention, to permit the user to begin the sequence of use with either eye, depending upon his own preferences.

Based upon experiments with a variety of viewers, the arc-like members **1** and **1'** are configured and so dimensioned so as to place the tab-like members **5** and **5'** at a distance in the order of 7 to 12 and preferably 8 to 9 inches from the eyes of the viewer. The minimum distance is controlled by the ability of the viewer to clearly focus upon the tab-like member **5**, whereas the maximum distance is practically controlled by the size of the tab member **5** required to cover the distant object and the comfort and practicality of placing a larger apparatus upon the viewer's head.

Thus, there has been shown an apparatus that permits a distant object to be projected in the field of the blind area, where the optic nerve center, i.e., optic pipilla, enters the eye, that is of relatively simple construction and capable of being manufactured from relatively inexpensive materials.

Numerous changes may be made in the above-described apparatus and different embodiments of the invention may be made without departing from the spirit thereof; therefore, it is intended that all matter contained in the foregoing description and the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

What is claimed is:

1. Apparatus to be disposed upon the head of a viewer for facilitating the alignment of an image of a distant object with respect to the blind spot of the viewer's eye whereby the distant object seems to disappear, said apparatus comprising:

support means for mounting said apparatus on the head of the viewer, in alignment with the viewer's eyes said support means including a member adapted to be disposed across the face of the viewer, said member having first and second slots therein to be aligned with the eyes of the viewer;

an opaque tab member to be aligned in the line of sight of each of the viewer's eyes; and

suspending means for suspending said tab member centrally of and spaced from the eyes of the viewer a distance such that the distant object may be aligned with the blind spot of one of the viewer's eyes, said suspending means disposed remotely of the viewer's lines of sight upon said member.

2. Apparatus as claimed in claim **1**, wherein said suspending means disposes said tab member substantially at the eye level of the viewer.

3. Apparatus as claimed in claim **1**, wherein said suspending means comprises at least one arcuate-shaped member and is connected to said support means to be substantially removed from the line of the sight of the viewer.

4. Apparatus as claimed in claim **1**, wherein said support means includes a strap to be disposed about the head of the viewer whereby said apparatus is disposed upon the head of the viewer.

5. Apparatus as claimed in claim **1**, wherein said tab member is adjustably disposed from said suspending means with respect to the line of sight of the viewer.

6. Apparatus to be disposed upon the head of a viewer for facilitating the alignment of images of a distant object with respect to the blind spot of a viewer's eye, said apparatus comprising:

first and second arc-shaped members, each having first and second end portions;

said first end portions being adapted to be connected together and at least one of said end portions having a tab member;

each of said second end portions including an eye piece having a slot to be aligned with the eye of the viewer and being connectable to the eye piece of the other arc-like member;

said eye pieces being adapted to be disposed upon the face of the viewer; and

a strap secured to each of said second portions adapted to be disposed about the viewer's head for disposing said eye pieces upon the viewer's face and for orienting said arc-shaped members forward of the viewer's face in a position spaced from, in front of and substantially central of the viewer's eyes.

7. Apparatus as claimed in claim **6**, wherein each of said second portions include a notch therein to be disposed over the bridge of the viewer's nose to align said tab member with respect to the viewer's eyes.

8. Apparatus as claimed in claim **6**, wherein said first and second end portions of each of said arc-shaped members include slits therein to permit said first and second end portions to be interconnected with each other.

9. Apparatus as claimed in claim **6**, wherein said arc-like members disposed said tab member a distance of not less than seven inches and not greater than twelve inches from said eye pieces.

10. Apparatus to be disposed upon the head of a viewer for facilitating the alignment of an image of a distant object with respect to the blind spot of the viewer's eye whereby the distant object seems to disappear, said apparatus comprising:

support means for mounting said apparatus on the head of the viewer, in alignment with the viewer's eyes;

an opaque tab member to be aligned in the line of sight of each of the viewer's eyes; and

suspending means comprising two arcuate members disposed remotely of the viewer's lines of sight upon said tab member, each of said arcuate members having an end portion adapted to be connected together for suspending said tab member centrally of, spaced from and in front of the eyes of the viewer a distance such that the distant object may be aligned with the blind spot of one of the viewer's eyes.

11. Apparatus as claimed in claim **10,** wherein said support means includes first and second eye pieces, said first and second arcuate members being formed integrally with said first and second eye pieces and at least one of said arcuate members being formed integrally with said tab member.

12. Apparatus as claimed in claim **10,** wherein an indicium is placed upon said tab member to assist in aligning the distant object therewith.

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