

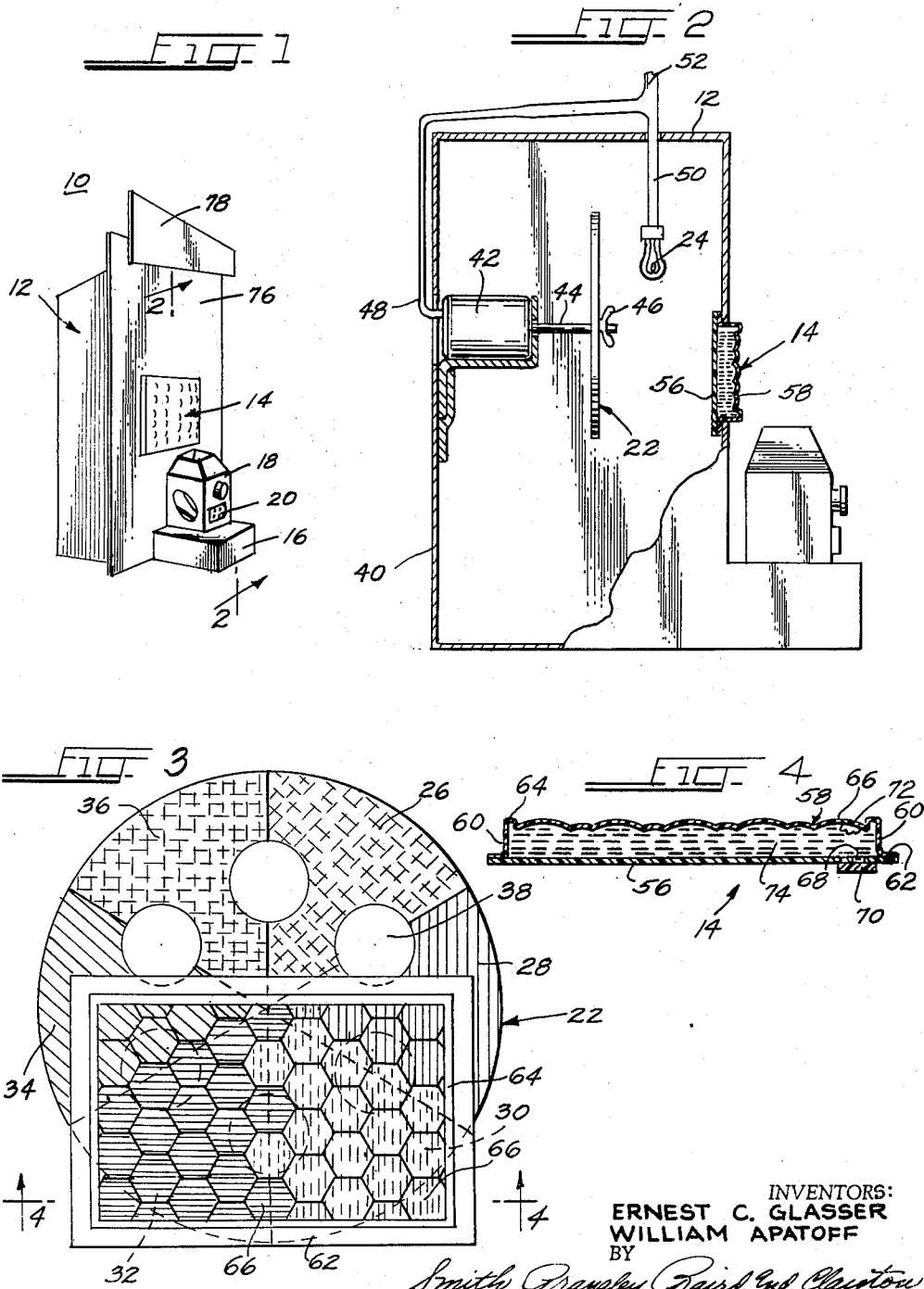
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DISPLAY DEVICE

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1

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DISPLAY DEVICE

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This invention relates to display devices and particularly to animated and illuminated displays and parts thereof.

Point of sale displays can be effective in gaining and holding the attention of prospective purchasers of goods associated therewith. The effectiveness of such displays is enhanced if the display is animated, i.e., has moving parts or at least presents the illusion of movement. The display value can also be increased by effective lighting of the display and even additional value is obtained if the lighting is colored and is associated with the moving part of the display. Difficulty has been encountered in the past in combining all of these desirable features into a single display which is effective and yet is not so prohibitive in cost as to preclude wide use thereof.

Accordingly, it is an important object of the present invention to provide an improved display of the type set forth and more particularly an improved animated and illuminated display.

Another object of the invention is to provide an improved display of the type set forth in which an illusion of movement is obtained although there are no exterior moving parts which can be handled and damaged by salesmen or customers.

Yet another object of the invention is to provide an improved illuminated display in which the light effect appears to be moving continuously and dramatically whereby more effectively to attract the attention of potential buyers.

Still another object of the invention is to provide an illuminated and animated display of the type set forth in which the illumination is colored and the presentation of the colored illumination continually changes in an eye catching and pleasing manner whereby to increase the effectiveness of the associated display.

Yet another object of the invention is to provide in a display of the type set forth a lens system together with a moving source of color which gives the illusion of rapidly and dramatically changing the color continually at any given point of the lighted portion of the display whereby to give added attraction to the display.

A further object of the invention is to provide an improved lens member for use in displays of the type set forth, the lens member being effective to give the illusion of rapidly changing lighted facets.

A still further object of the invention is to provide an improved display device and an improved lens member for use therein which are relatively inexpensive to fabricate and which can be easily and inexpensively combined in an effective display.

These and other objects and advantages of the invention will be better understood from the following description when taken in conjunction with the accompanying drawing. In the drawing wherein like reference numerals have been utilized to designate like parts throughout:

Figure 1 is a perspective view of a typical display incorporating the improvements of the present invention

2

made in accordance with and embodying the principles thereof;

Figure 2 is an enlarged view in vertical section through the display of Figure 1 substantially as seen in the direction of the arrows along the line 2—2 thereof;

Figure 3 is a diagrammatic view showing the relationship of the color wheel and the lens and further illustrating the startling and unusual display effect achieved thereby; and

Figure 4 is a view in section through the lens forming a part of the display substantially as seen in the direction of the arrows along the line 4—4 of Figure 3.

Referring now to the drawing and particularly to Figure 1 thereof, there is shown a display generally designated by the numeral 10 made in accordance with and embodying the principles of the present invention. The display 10 includes in general a housing 12 on the front of which is mounted a lens 14 which may be for example positioned above a display shelf 16 on which is mounted the article 18 which the display is designed to sell. The article 18 illustrated is a movie camera of the type having a photoelectric eye 20 which automatically is operative to set the lens of the camera. Preferably the lens 14 has a shape and a configuration like some particular feature of the article 18 which it is desired to emphasize. In Figure 1 the lens 14 has been illustrated as being shaped and having a configuration to emphasize the photoelectric eye 20 of the camera 18. To this end the lens 14 has the particular configuration, which will be described more particularly hereafter, so that lens 14 appears as an enlarged replica of this feature. It is to be understood that the general outline and the surface appearance of the outer wall of the lens 14 will vary depending upon the feature of the article 18 which it is desired to emphasize in the overall display.

It is the lens 14 which gives the illusion of animation to the display 10. It is also the lens 14 which provides illumination and changing colors further to attract attention to the display 10. Referring now to Figure 2 of the drawings the manner in which the lens 14 has color and light applied thereto will be described. There is provided within the housing 12 a color wheel generally designated by the numeral 22 which is provided with a light source 24 in front thereof. Color wheel 22 has been shown as being circular in shape and divided into six sectors of equal angular extent. Each of the sectors is given a different color. Referring to Figure 3 of the drawings it will be seen that there has been provided an orange sector 26, a red sector 28, a violet sector 30, a blue sector 32, a green sector 34, and a yellow sector 36. Each of the sectors 26 through 36 is of equal angular extent, namely 60°, and is colored a bright hue of the various colors named. There is provided at the meeting lines between adjacent sectors white or uncolored areas 38, one of the white areas 38 being provided between each pair of sectors 26 through 36. Preferably the areas 38 are circular and have a diameter which is of substantially the same order of magnitude as the light source 24 which may be an ordinary light bulb.

Means is provided to move the color wheel 22, rotating movement being imparted thereto in the form shown in the drawing, but it is to be understood that other forms of movement such as rocking, oscillating and the like can be applied thereto. To this end the rear wall 40 of the housing 12 has mounted thereon a small electrical motor 42 having an output shaft 44 extending outwardly therefrom. The end of shaft 44 is received through an opening in the color wheel 22 and the color wheel 22 is held in position thereon by a wing nut 46. Suitable electrical connections through line 48 are provided for the motor 42 and similar electrical connections are provided for the light bulb 24 through a

line 50. Lines 48 and 50 are joined in a common cord 52 which is provided with the usual plug that can be inserted into any suitable power receptacle.

Referring now particularly to Figures 2 and 4 of the drawings, the construction of the lens 14 will be described in detail. Preferably the lens 14 has the outer walls thereof formed of a suitable transparent plastic material, a preferred form of plastic material being the acrylic plastics. Any suitable thickness of the plastic material may be utilized as for example 30 gauge. The lens 14 includes a rear wall 56 which is formed substantially flat. Bounded to the rear wall 56 is a forward wall generally designated by the numeral 58 which may be formed in any suitable manner such as by vacuum forming. The forward wall 58 has a rearwardly extending flange 60 formed therearound and extending rearwardly to the wall 56. Flange 60 in turn has formed thereon an outwardly directed flange 62 which lies against the rear wall 56 and is suitably adhered thereto to provide a fluid tight connection between the rear wall 56 and the front wall 58.

The front wall 58 has a front flange 64 which is substantially flat and extends around the periphery of the wall 58, the flange 64 lying in a plane substantially parallel to the rear wall 56. The major portion of the front wall 58 is formed of a plurality of hexagonal portions 66. The hexagonal portions 66 completely fill the area bounded by the front flange 64. It also will be seen that the hexagonal portions 66 are curved outwardly away from the rear wall 56 and are formed as sections of a sphere. The radius of curvature of the spherical sections 66 is chosen to give the desired display effect as will be described more fully hereinafter.

The volume bounded by the walls 56 and 58 is filled with a suitable light transmitting fluid. To facilitate filling, an aperture 68 is provided in the rear wall 56 and is closed by a suitable plastic member 70 after filling of the interior of the lens 14. Preferably the volume between the members 56 and 58 is not completely filled whereby to leave a small air pocket 72 that will accommodate expansion of the fluid medium 74 upon heating and cooling thereof. In general any suitable light transmitting fluid 74 may be utilized. In one preferred example of the invention, the fluid 74 is distilled water. If it is contemplated that the lens 14 will be subjected to conditions which would freeze water, the water may be provided with an anti-freeze such as alcohol or glycerol or alternately some other suitable filling medium such as mineral oil may be utilized.

Referring now specifically to Figure 3 of the drawings, the manner in which the color wheel 22 and the lens 14 cooperate to provide an illuminated and animated display will be described in detail. In one preferred form of the invention the diameter of the color wheel 22 is 10 inches. The lens 14 is mounted so that the flange 60 extends outwardly through an opening in the front wall 76 of the housing 12 so as to present a surface which is approximately $7\frac{1}{4}$ inches by 5 inches. Of the portion of the front wall 58 extending beyond the housing wall 76, an area approximately $6\frac{1}{2}$ inches by $4\frac{1}{4}$ inches is made up of the curved hexagonal portions 66. The length of the flange 60 perpendicular to the rear wall 56 may be for example $\frac{1}{2}$ inch. The sections 66 have a radius of curvature of one inch and each side of the hexagon forming the portion 66 is approximately $\frac{7}{16}$ inch long. When the parts are thus dimensioned, the color wheel 22 is positioned three to four inches away from the rear wall 56 of the lens 14 and may be rotated at a speed of for example 60 r.p.m.

The effect of the cooperation of the lens 14 and the color wheel 22 is diagrammatically illustrated in Figure 3 of the drawing. Each of the curved portions 66 acts as a magnifying lens element or facet and presents a colored appearance when light from the source 24 shines upon the color wheel 22 therebehind. Move-

ment of the color wheel 22 causes the color of each of the lens elements 66 to change rapidly, each element 66 at any one time having substantially only one color. As a result, the color of the facets 66 is continually changing. The change in the color appears to be instantaneous whereby to give a startling and attractive display effect. The unusual color change has been found to be most attractive whereby to draw attention rapidly and effectively to any material displayed upon the shelf 16.

Other advertising or informative material can be included on the front wall 76 and also upon a header 78 which may be also utilized to hide and conceal the electrical connections. It is to be understood that the external shape of the lens 14 may be of other forms than rectangular and in addition the rear and front walls 56 and 58 need not be substantially flat as shown. For example, the outline of the lens 14 as viewed in Figure 3 of the drawings could be square, triangular, octagonal, oval, circular, etc. Instead of being substantially flat, the walls 56 and 58 might also be cylindrical, spheroidal or otherwise curved. Each of the individual lens portions or facets 66 might also have a different shape. Instead of being hexagonal these elements might be square, triangular, oval, circular, etc. It is only necessary that each element 66 have a curved outer surface whereby to provide a lens effect.

Although one preferred embodiment of the invention has been described and illustrated in the drawing, it is to be understood that various changes and modifications can be made therein without departing from the spirit and scope of the invention. Accordingly, the invention is to be limited only as set forth in the following claims.

We claim:

1. A display device comprising a housing, a lens member mounted on said housing in position to be seen by a customer, said lens member being formed of two sheets of spaced apart plastic having the space therebetween substantially filled with a transparent light transmitting aqueous fluid, the outer wall of said lens member being formed of and completely filled by discrete facets with each facet being part-spherical in shape and having a hexagonal outline, an opaque flat color member having a plurality of contrasting colors thereon mounted within said housing, a motor mounted within said housing to move said color member, and a source of light mounted between said color member and said lens member to illuminate said color member, the movement of said color member providing the illusion of rapid shifting of colors across the facets to provide a pleasing display effect.

2. A display device comprising a housing, a lens mounted on said housing in position to be seen by a customer, said lens being formed of two sheets of spaced apart plastic having the space therebetween substantially filled with a transparent light transmitting fluid, the outer wall of said lens being formed in discrete facets with each facet having a curvature to provide a lens effect, an opaque color member having a plurality of contrasting colors thereon mounted within said housing, said color member having white areas formed thereon between areas of contrasting colors, a motor mounted within said housing to move said color member, and a source of light to illuminate said color member through said lens, said source of light being positioned between said color member and said lens and being positioned in alignment with the white areas on said color member and forwardly toward said lens with respect to a plane defined by the portions of said color member disposed closest to said lens.

3. A display device comprising a housing, a lens mounted on said housing in position to be seen by a customer, said lens being formed of two sheets of spaced apart translucent plastic joined around the edges thereof and having the space therebetween substantially filled

with a transparent light transmitting fluid, the outer wall of said lens being formed of and completely filled by discrete facets each part-spherical in shape, an opaque flat color member having a plurality of contrasting colors thereon and mounted within said housing, said color member having white areas formed thereon between areas of contrasting colors and being substantially larger than said lens with said lens positioned over only a portion of said color member, a motor mounted within said housing to move said color member, and a source of light mounted between said color member and said lens and positioned in alignment with the white areas of said color member whereby to illuminate said color member during the rotation thereof to provide the illusion of rapid shifting of colors across said lens facets.

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