May 16, 1950 R. KAYSEN 2,507,909

ADVERTISING DISPLAY

Filed Aug. 6, 1946 2 Sheets-Sheet 1

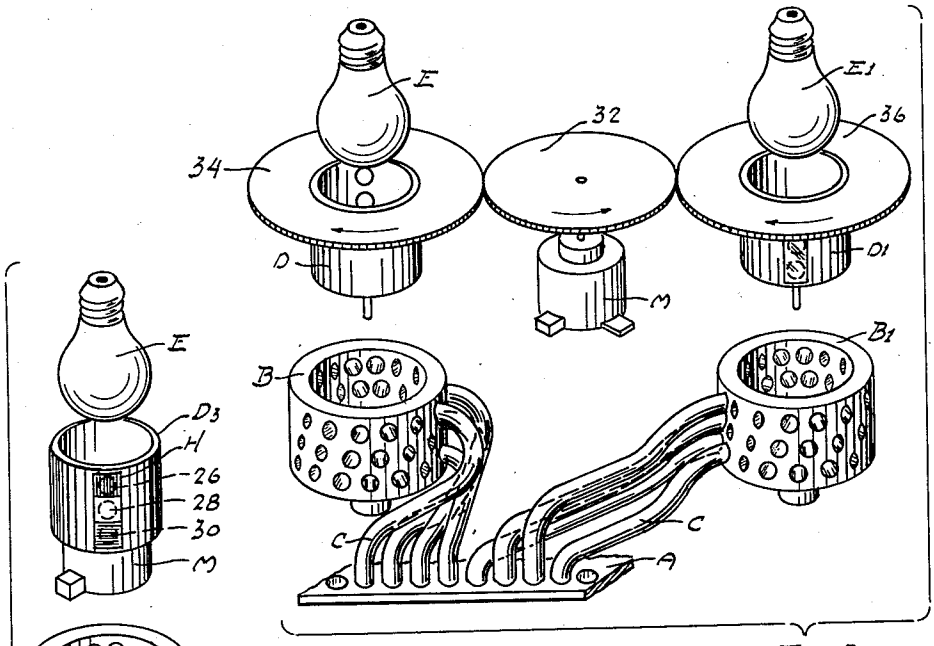


Fig. 3

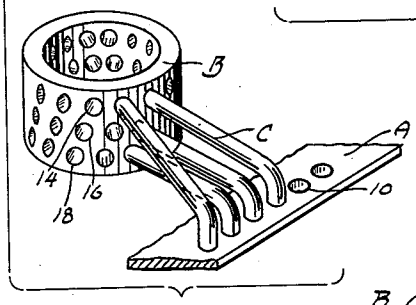


Fig. 2

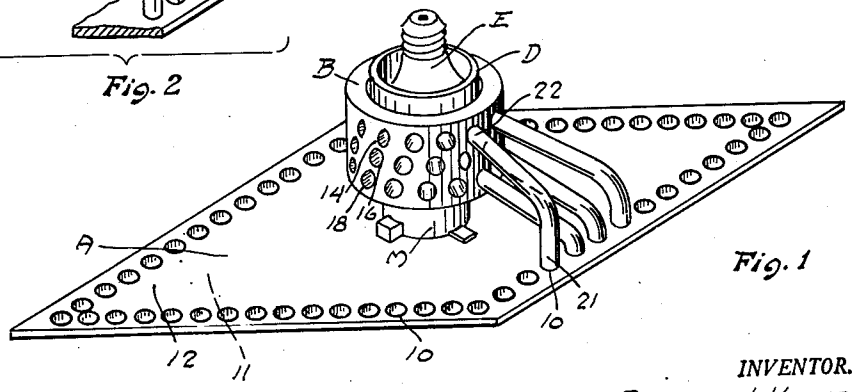


Fig. 1

INVENTOR.
Raymond Kaysen

BY
Harry Langsam
Attorney

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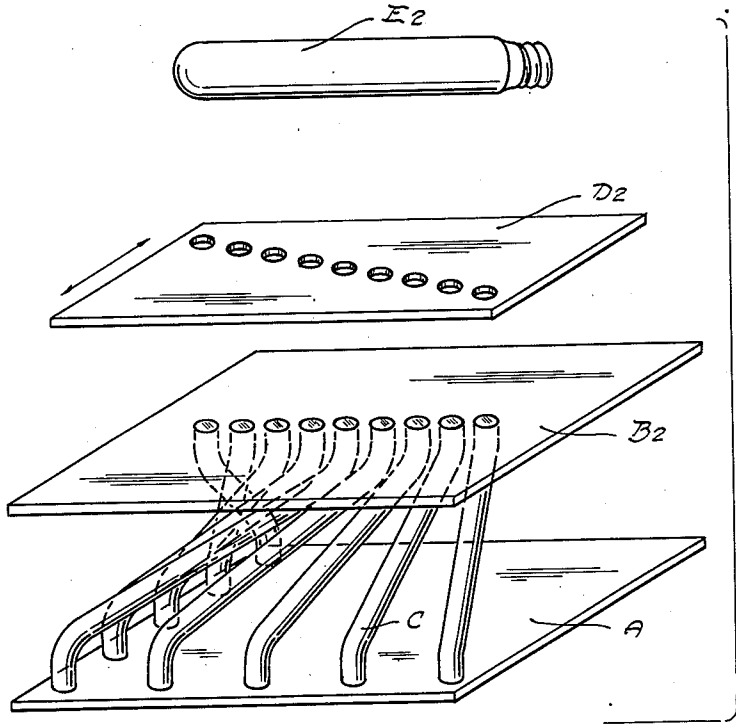


Fig. 4

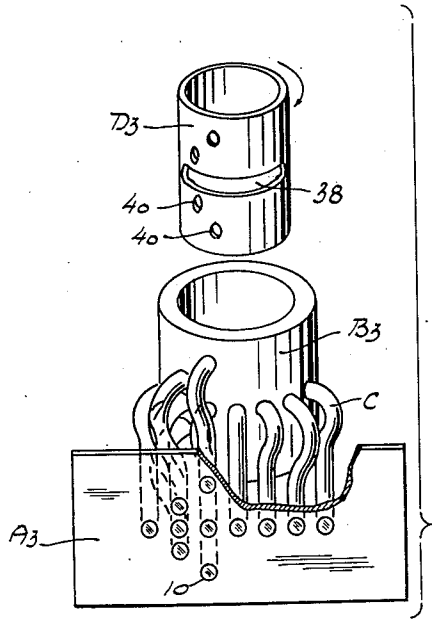


Fig. 5

INVENTOR.
Raymond Kaysen.
BY
Harry Langsam
Attorney

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ADVERTISING DISPLAY

Raymond Kaysen, Philadelphia, Pa.

Application August 6, 1946, Serial No. 688,759

6 Claims. (Cl. 40—130.5)

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My invention relates to an ornamental or advertising display wherein the primary purpose of the invention is to provide a sparkling attractive sign or display.

Heretofore, displays have employed light of alternating colors and lights that appear to move, but the mechanisms that were used to produce these effects, especially in combination, were expensive to manufacture and to operate.

An object of my invention is to provide an animated display sign or signal employing varicolored lights which will be inexpensive to manufacture and operate.

A particular object of my invention is to provide an animated theatre marquee, wherein the lights will glow or twinkle in various colors at different times.

Another object of my invention is to provide an attractive display, sign, or marquee which will provide color changes and animation effects.

Other objects of my invention are to provide an improved device of the character described which is easily and economically produced, and which is highly efficient and reliable in operation.

With the above and related objects in view, my invention consists in the details of construction and combination of parts, as will be more fully understood from the following description, when read in conjunction with the accompanying drawing in which:

Fig. 1 is a perspective view of an ornamental display sign showing an embodiment of my invention.

Fig. 2 is an exploded view of my invention as shown in Fig. 1.

Fig. 3 is an exploded view of a plurality of light producing units operated together.

Fig. 4 is an embodiment of my invention wherein the light control member is flat instead of being cylindrical.

Fig. 5 is an embodiment of my invention which produces the effect of a directional arrow in a predetermined direction.

Referring in detail to the drawings wherein similar reference characters refer to similar parts, I show an advertising sign comprising a flat rectangular display member, generally designated as A, having a plurality of openings 10, along its border, and the remainder 11 of the front is of a size to carry an advertising sign or a plurality of letters or figures to which it is desired to attract attention.

Conveniently mounted upon the rear surface 12 of the display or adjacent thereto is one end of a hollow cylindrical member, generally designated as B, which serves as a tube anchor. The cylindrical member B has a plurality of apertures 14, 16 and 18 in its walls. These wall apertures may be circular, polygonal, elliptical or any other shape necessary for the purpose of placing the desired number of apertures within the avialable space.

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Rods or tubes made of certain plastics, especially the methyl methacrylate thermoplastics, are capable of conducting light along their lengths with but little attenuation. In addition, these rods possess a high degree of internal reflection, and they are reasonably opaque to light travelling in directions transverse to their lengths. Accordingly, these plastic rods or tubes can be bent at almost any desired angle or curve and light introduced at one end travels throughout its length and emerges from the other end with little loss. In addition, the material lends itself readily to machining, bending, and forming operations.

A plurality of plastic rods, generally designated as C, composed of the material having the properties described above each has one of its sets of ends 21 extending within the openings 10 in the border of the display, and the other ends 22 extending within the radial openings in the fixed anchor member B, hence light rays originating within the interior of the anchor member B may be transmitted to the front of the display member A through the rods C.

A hollow and rotatable light control cylinder, generally designated as D, is adapted to be rotated within and adjacent the inner wall of the anchor member B. The light control cylinder D is made preferably of a material which is substantially opaque to light as is also the anchor B. The light control cylinder is provided with a plurality of openings 26, 28 and 30 which may be positioned to register with the holes 14, 16, 18 in member B in any particular sequence. In addition, the holes in the rotatable cylinder D may be provided with color filters H so as to modify the light passing through them in any desired color scheme.

A light source, generally designated as E, is located at the center of the rotatable light control D, the light source being preferably an electric incandescent or fluorescent lamp.

A rotating device M, such as a small synchronous motor, is employed to rotate the cylinder D. To coordinate the members hereinbefore described individually, reference is made to the exploded view in Fig. 2 wherein a light source E is positioned within the rotatable light control

cylinder D, which cylinder has in this illustration the three openings 26, 28, and 30, covered by color filters. Whenever any of these openings are in register with the holes in the fixed member B, the light emitted by the central source E travels through the holes and color filters H into the end 22 of the rod C and reappears as colored light on the end 20 on the face of the display.

A wide variety of effects may be produced with the above elements. The rods' ends on the display may be made to glow in sequence so as to give the effect of light in motion. An arrangement which can be used to produce the effect of a single spot of light moving about the periphery of the display A is shown in Figs. 1 and 2. Here the light control cylinder possesses the three openings 26, 28, and 30 and the diagonally successive holes 14, 16, 18 in the fixed member B are optically connected respectively with successive holes in the display A. Accordingly, as the light control cylinder rotates, the openings 26, 28, and 30 register successively with the openings 14, 16, and 18 in anchor B, and the light emitted by the source E emerges in sequence from the rod ends 21 along the border of the display A. By arranging the holes in member B and D in vertical rows of three (not shown) and connecting holes in any vertical row to successive holes 10 along the border, the effect obtained at the face of the display will be a group of three lights appearing to move along the display. By connecting one circular row of the holes in member B to the display face in an opposite sequence to the connections made from another circular row of holes in the member B to the display face, the series of lights appearing on the face of the display will apparently move in opposite directions simultaneously. If the various light control cylinder apertures which register successively with any one aperture in the fixed member B are covered with filters of different colors, such as red, white and blue, the display end of the rod which extends into that aperture in the fixed member B, will glow or twinkle successively in red, white, and blue. This latter effect is one that cannot be achieved with any apparatus presently being used.

The number of effects and combinations possible with my invention depend only upon the number and arrangement of light conductors, apertures, and color filters, and as such are capable of an almost infinite variety.

A number of mechanical systems which may be employed with my invention are illustrated. In Fig. 3, I show a multiple display being actuated by a single motor M. This modification finds application in installations where a large display is required, or where the light conductors would otherwise have to be of unreasonable length. The motor M rotates the light control cylinders D and D1 simultaneously, and each unit illuminates a portion of the entire display.

The motor M has a spur gear 32 thereon which is in mesh with gear 34, which is attached to the light control rotor D; the second light control rotor D1 also has a gear 36 which is in mesh with the motor gear 32 so that rotation of one motor controls a plurality of light control rotors D, D1.

Another modification of my invention is illustrated in Fig. 5, wherein an arrow points and apparently moves in a definite direction. A display, generally designated as A3, has a plurality of openings 10 therein which openings are arranged to depict an arrow. The rod C has one

end within the opening 10 of the display and the other end in the anchor B3.

A light control rotor, generally designated as D3, is provided with an elongated aperture 38 as well as smaller apertures 40 which form the head of the arrow.

When the member D is rotated in a clockwise direction as indicated on the drawing, the arrow illumination commences at the tail end of the display and moves rapidly to the arrow head. If the cycle of illumination occurs at a sufficient rate of speed, the arrow appears to be in motion, thus increasing its power of suggestion.

Up to this point, I have shown the light control members B and D as cylinders for convenience. They may, however, be constructed as a flat member, generally designated as D2, as shown in Fig. 4, wherein the anchor member B2 which supports the ends of the tubes C is stationary while the movable member D2, provided with color filters as desired, is reciprocally movable across the member B2. In this arrangement, the illumination of the display panel A would be possessed of an apparently reciprocating or oscillatory motion. It is apparent from the description that dancing figures or scenes may be portrayed across the front of the display by causing the member D to move with a reciprocating or oscillatory motion.

A particular design or picture may be impressed upon the sign or display panel by having a plurality of vertically and horizontally aligned openings and by masking certain apertures on the light member D and/or changing the color filters on the remaining apertures which are to be used. This makes it a relatively simple matter to change the display when desired.

Varied color effects may be obtained and sparkling attractive effects may be craeted for marquees or other displays in black and white or in varied natural color effects.

It should be apparent that a synchronous motor such as is used in electric clocks may be used for the motor M.

It is to be noted that the quantity of light transmitted through any plastic rod C is proportional to the total amount of light falling on its end surface at the source of the light.

Although my invention has been described in considerable detail, such description is intended as being illustrative rather than limiting since the invention may be various embodied, and the scope of the invention is to be determined as claimed.

I claim as my invention:

1. An ornamental display comprising a display panel having a front face, a plurality of light conductors of high internal reflection having terminal ends disposed in alined groups in predetermined order and facing outwardly at said front face, a source of light with which the other terminal ends of the light conductors are disposed in facing relation in predetermined order, and means for controlling the delivery of light from said source to said other terminal ends including a screen movable with respect to said other terminal ends, said screen having a plurality of light apertures for successive register with said other terminal ends and opaque portions for register with said other terminal ends, and driving members for positively moving said screen, whereby a controlled travelling movement of light is displayed at said alined groups of ends.

2. An ornamental display comprising a display panel having a front face, a plurality of light conductors of high internal reflection having

their outer terminal ends disposed in alined groups in predetermined order and facing outwardly at said front face, a source of light, a mounting member surrounding said source and in which the other terminal ends of the light conductors are disposed in rows and in a plurality of tiers in facing relation to said light source in predetermined order, and means for controlling the delivery of light from said source to said other terminal ends including a cylindrical screen movable with respect to said other terminal ends, said screen having tiers of light apertures with opaque portions therebetween, and driving members for positively moving said screen, whereby a controlled travelling movement of light is displayed at said alined groups of ends.

3. An ornamental display comprising a display panel having a front face, a plurality of light conductors of high internal reflection having their outer terminal ends disposed in alined groups in predetermined order and facing outwardly at said front face, a source of light, a mounting member surrounding said source and in which the other terminal ends of the light conductors are disposed in predetermined order in rows and in a plurality of tiers in facing relation to said source, and means for controlling the delivery of light from said source to said other terminal ends including a cylindrical screen interposed between said mounting member and said source and rotatable with respect to said other terminal ends, said screen having tiers of light apertures with opaque portions therebetween, and driving members for positively moving said screen, whereby a controlled travelling movement of light is displayed at said alined groups of ends.

4. An ornamental display comprising a display panel having a front face, a plurality of light conductors of high internal reflection having their outer terminal ends disposed in predetermined order alined groups and facing outwardly at said display panel, a plurality of sources of light to which the other terminal ends of the light conductors extend in predetermined order in rows and in a plurality of tiers and are disposed in facing relation thereto, and means for controlling the delivery of light from said sources to said other terminal ends including screens for each of said light sources movable with respect to said other terminal ends, said screens having tiers of light apertures with opaque portions therebetween, and driving members for positively moving said screens in timed relation to each other whereby a controlled travelling movement of light is displayed at said alined groups of ends.

5. An ornamental display comprising a display panel having a front face, a plurality of light conductors of high internal reflection having their outer terminal ends disposed in alined groups in predetermined order and facing outwardly at said front face, a plurality of sources of light, the other terminal ends of the light conductors extending to and being disposed in predetermined order in facing relation in rows and in tiers to said light sources, and means for controlling the delivery of light from said sources to said other terminal ends including a plurality of screens one for each light source movable with respect to said other terminal ends, said screens having tiers of light apertures with opaque portions therebetween, driving members for each of said screens, and a common motor for simultaneously operating said driving members, whereby a controlled travelling movement of light is displayed at said alined groups of ends.

6. An ornamental display comprising a display panel having a front face, a plurality of light conductors of high internal reflection having their outer terminal ends disposed in alined groups in predetermined order and facing outwardly at said front face, a plurality of sources of light, mounting means for the other terminal ends of the light conductors for disposing said ends in facing relation in predetermined order in rows and in tiers to said light sources, and means for controlling the delivery of light from said source to said other terminal ends including a cylindrical screen for each of said light sources interposed between said mounting means and said light sources and movable with respect to said other terminal ends, said screens having tiers of light apertures with opaque portions therebetween, driving members for each of said screens, and a common motor for simultaneously operating said driving members whereby a controlled travelling movement of light is displayed at said alined groups of ends.

RAYMOND KAYSEN.

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