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G. H. EVANS

2,177,641

ILLUMINATED SIGN

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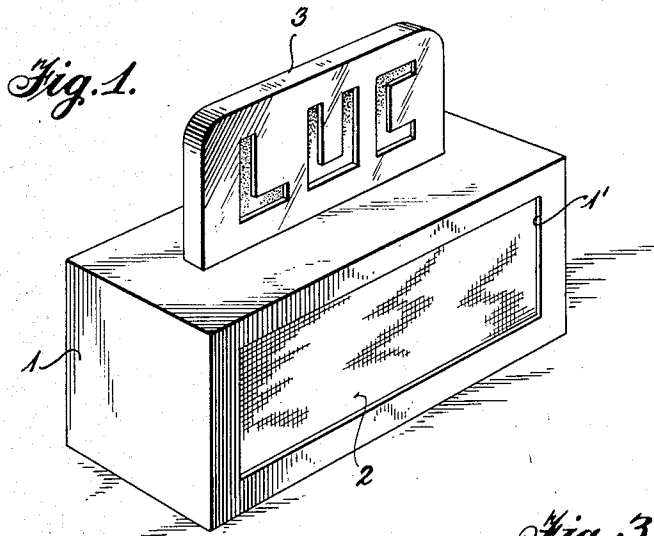


Fig. 2.

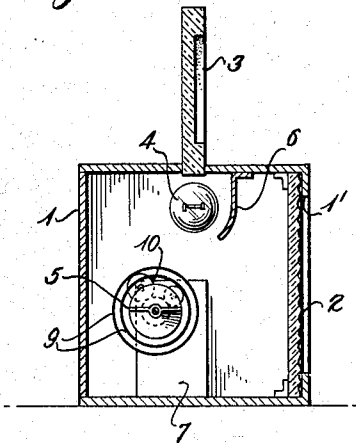


Fig. 3.

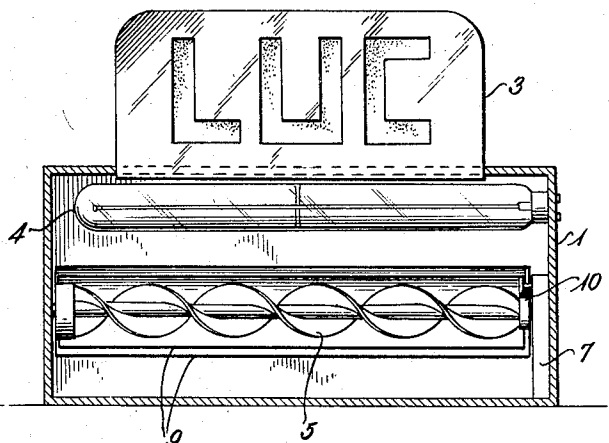


Fig. 5.

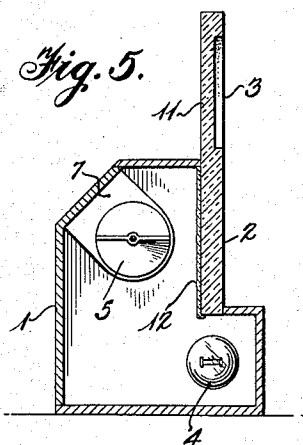
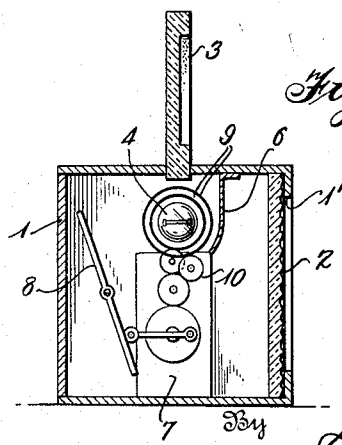


Fig. 4.



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UNITED STATES PATENT OFFICE

2,177,641

ILLUMINATED SIGN

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28 Claims. (Cl. 40—130)

The present invention relates to an advertising sign and more particularly to a device of this character which incorporates the movement of an illuminated design to increase the attractiveness thereof.

It is a well recognized fact in the advertising field that displays which incorporate some type of motion have greater value than a motionless sign. In view of this fact, many types of signs have been designed to include movable parts, so as to break the monotony of a still life sign. This motion has been exhibited in many ways and has included the movement of physical elements and/or the movement of light images or the like. While a few of these signs have proven reasonably successful on a commercial scale, the majority of them have been too expensive to manufacture and operate, too cumbersome to handle, and required the attention of an expert for occasional repair and replacement.

In view of this condition, it is the object of the present invention to provide an advertising display sign that is extremely attractive, may be constructed and operated at a low cost, may be readily handled and adjusted by any reasonably intelligent person and will produce the maximum effect with the minimum of parts and labor involved. In addition, the present invention contemplates a sign that includes the use of light and motion in view of the fact that these two features have proven the most successful in attracting the attention of the potential buyer.

According to the preferred embodiment of the present invention, the advertising sign may comprise a housing having an opening in the front wall thereof, a panel or screen located in said opening, and an edge-glow plate having indicia or designs etched or otherwise marked thereon supported by the housing. It is also contemplated that the edge-glow plate and screen may be formed from a single sheet. The edge-glow plate may be made of glass, moulded plastic, or any other suitable material. A movable reflector and driving means therefor are located within the housing. A source of light is also mounted therein so as to cast light rays upwardly through the edge of the etched edge-glow plate on the top of the housing and also on to the reflector so that the light rays may be redirected through the screen in the front of the housing.

While it is preferable to employ a screen to produce unique optical effects, it is not necessary, as the reflector may be solely relied upon to provide suitable optical effects. It is preferred that the reflector member extend substantially the whole width of the screen through which it directs its rays and that the source of light extend substantially the full width of the reflector member and of the etched glass plate. This arrangement provides a maximum light efficiency

and prevents the formation of dull or dead spots due to a space between a plurality of light sources.

Additional effects may be secured by the inclusion of filters of various types in association with the light source or with the movable reflector so as to effect a change in color values, as well as light values. The screen in the front of the housing may be formed in any shape that it is desired to use. For instance, the screen may have one or more surfaces formed with prisms, lenses, or other formations which will break up the light rays and produce a scintillating or sparkling effect. While any type of reflector may be incorporated with this sign, it has been found that a reflector comprising a spiral formation or twisted strip of metal foil has proven most successful in producing the desired effect. Suitable reflectors and screens are more fully disclosed in copending application Ser. No. 216,361.

The invention, both as to its organization and method of operation, together with additional objects and advantages thereof, will best be understood from the following description of the specific embodiments when read in connection with the accompanying drawing, wherein like reference characters indicate like parts throughout:

Fig. 1 is a view in perspective of a sign embodying the principles of the present invention;

Fig. 2 is a view in cross section taken along a vertical plane extending from the front to the rear of the sign;

Fig. 3 is a view in cross section taken along a longitudinally vertical plane;

Fig. 4 is a view in cross section similar to Fig. 2 and showing a modification of the present invention; and

Fig. 5 is a similar view in cross section showing an additional modification of the present invention wherein a single plate comprises an edge-glow plate and a screen.

Referring now to the drawing, Fig. 1 discloses an advertising sign comprising a housing 1 having an opening 1' located in the front wall thereof. A screen or panel 2 may be mounted in said opening 1' and an edge-glow plate 3 vertically supported in the top thereof. The edge-glow plate 3 may be sand blasted or etched in any suitable manner to present a design or other advertising media in relief thereon. While this plate is shown as being supported by the housing, it may readily be understood that it can be suspended from the housing or associated therewith in a suitable manner. The screen 2 is shown as having a plurality of furrows extending in two directions thereacross to form a prismatic surface thereon. Other forms of screens may be used, however, such as one having a lenticulated surface or a mottled surface according to the effect it is desired to produce.

A light source 4 is supported within the housing 1 immediately adjacent the inner edge of the etched edge-glow plate 3. This light source 4 extends along the full length of said plate, as indicated at Fig. 3. A movable reflector 5 is located adjacent the light source 4 and in position to reflect light therefrom through the screen 2. It is to be noted that the light source 4 also extends substantially the full length of the reflector 5. In addition, the reflector 5 extends substantially the full length of the screen 2. Consequently, the illumination is evenly spread completely across the plate 3 and the screen 2 thereby preventing any dead spots in the sign. By providing a light source of substantially the same length as the reflecting member, the maximum efficiency is obtained and an evenly brilliant reflection is produced throughout the length of the reflector.

By the above described arrangement the light source is adapted to operate in a double capacity. It is arranged so as to efficiently illuminate the two portions of the sign which are spaced from each other. In other words, the light, being located adjacent the edge of the etched edge-glow plate 3, travels edgewise therethrough to illuminate the markings etched therein. Likewise, the light rays travel in another direction to illuminate the reflecting member 5 which in turn directs these rays out through the screen 2.

Though many different light producing means may be used, it has been found that a long filament incandescent bulb is the most suitable in view of its low initial cost, low cost of operation, and ready replacement because of its ease of substitution for an old bulb in the sign, and to its ready purchase, due to its wide distribution. A light guard 6 may be positioned around the front of the bulb to prevent light rays from traveling directly to and through the screen 2 and/or the opening 1', the inner surface of said guard comprising a reflector to cast additional light on to the movable reflector 5.

While the movable reflector 5 may comprise any shape or form desired, it has been found that the most pleasing effect and maximum efficiency is obtained through the use of a spiral or twisted member such as shown more clearly in Fig. 3. This member may be mounted upon a shaft which may be driven by a small motor 7. As disclosed in copending application Ser. No. 216,361, this movable reflector may have perfectly smooth reflecting surfaces, or the surfaces may be broken up as by corrugating, indenting, wrinkling or crinkling, or otherwise deforming so as to provide a plurality of individual surfaces which will divide the light reflecting therefrom into a plurality of individual units lying in different planes.

The combination of this type of reflector with a suitable screen 2 will produce a very pleasing light pattern or design upon said screen which will take the form of stars, bubbles, or other light effects according to the type of screen used. Furthermore this light pattern is caused to move across the screen 2 by the rotation of the spiral reflector 5. This movement produces a sparkling or scintillating effect which is very pleasing and has great attracting power. The combination of the light motion on the screen 2 and the illumination of the etched design or indicia in the edge-glow plate 3 produces a sign that is altogether pleasing and extremely attractive. In addition to this successful embodiment from the advertising point of view, it is to be noted that the

present invention is very simple in its construction with a minimum number of parts which may be readily adjusted or replaced, even by a novice. If a less expensive construction is desired, the screen 2 may be omitted and the reflector 5 may be solely relied upon to produce suitable light effects which will be directed through the opening 1'.

A modification of the sign is shown in Fig. 4. This modified sign is substantially identical with the above described sign except that a different type of reflector is used which incorporates a different type of motion. In place of the rotatable reflector 5 as above described, a flat reflector 8 is substituted therefor. This flat reflector 8 is connected with the motor 7 by any suitable means so that it is oscillated with respect to and in optical relation with the screen 2. The reflector 8 may have either a smooth or deformed surface as noted above with respect to the rotatable reflector 5 and as more completely disclosed in copending application Ser. No. 216,361.

In addition to the above described signs, it has been found that a very compact sign presenting a most unique effect may be made by forming the edge-glow plate 3 and screen 2 from the same piece of material as shown in Fig. 5. This sign may comprise a comparatively small housing 1 of an L shape. A lamp 4 is mounted in the base of the housing 1, a movable reflector 5 is mounted in the upper portion thereof, and a motor 7 is located therein for driving the reflector. This housing 1 is provided with an opening across the upper recessed front wall thereof, and a plate 11 is mounted therein so that one edge lies adjacent the lamp 4. The outer portion of the plate 11 may be etched or the like so as to form an edge-glow plate 3'. The inner portion of the plate 11 may fit in the opening in the housing 1 and form a screen 2'.

This screen portion 2' of the plate 11 may have smooth surfaces or may have optical formations thereon or therein. If desired an auxiliary screen 12 may be located adjacent said screen portion 2'. This auxiliary screen 12 may comprise a plate having optical formations thereon or a sheet of colored filtering material or both. For the purposes of illustration, an auxiliary screen 12 of filtering material is mounted adjacent the rear surface of the screen portion 2' of the plate 11. It has been found that very desirable effects may be obtained by tinting the light patterns cast through the screen 2'. For instance, a most desirable effect is obtained by the use of a blue filter as an auxiliary screen 12, thereby tinting the light patterns cast through the screen 2' a blue color.

Although it is not necessary, it is sometimes desirable to have changing color effects, as well as light patterns, and this may be readily accomplished by suitable means, as shown in Figs. 2 and 4. In Fig. 2 a pair of color filters 9 are shown surrounding the reflector 5. These color filters may be mounted in any convenient manner and rotated by a suitable means such as a train of gears or friction discs 10 which are connected with the motor 7. By having these filters colored in a plurality of shades or colors, a constantly changing color effect may be obtained which for all practical purposes never exactly duplicates itself, in view of the fact that the same two portions of the color filters are very infrequently in alignment with each other. This is particularly true when friction discs are

used in the train 10 due to a certain amount of slippage.

The light directed toward the rotatable reflector will be filtered so as to produce a color change on the reflector and be further filtered upon being reflected therefrom to the screen 2. This type of filtering means will not color the etched markings on the plate 3 which is not always desired. Although two color filters are shown in both instances, it is readily understood that a single filter may be used if it is not desired to obtain a constantly changing color value which does not duplicate itself. In other words, the single filter would provide a color change which passes through a series of complete cycles according to the manner in which the filter is colored.

Another method of providing a color change is shown in Fig. 4 wherein the color filters are mounted so as to surround the light source 4. By surrounding the light source with these color filters, the rays cast up through the plate 3 are filtered as well as the rays directed to the movable reflector 5. By color filtering the rays emanating from the light source, a color change is produced in the illumination of the plate 3 as well as a color change of the entire pattern or design produced on the screen 2.

It is to be noted that throughout the modifications as hereinbefore described, the essence of the invention lies in a means for producing two different and separate light effects in a sign through the use of but a single light source. In addition, a movement of at least one of the light effects is contemplated through the use of a movable reflector or filters or both. Furthermore, by the incorporation of filters the color values as well as the light values may be changed.

Many different effects may be produced by the use of different types of reflectors in combination with various types of screens. In constructing a sign according to the present invention, the type of reflector and/or type of screen to be incorporated therein may be chosen according to the subject matter to be advertised, the location of the sign with respect to its surroundings, and the location of the sign with respect to the observers.

Although certain specific embodiments of the present invention have been shown and described, many modifications thereof are possible, and the present disclosure should be considered only in an illustrative sense. For instance, in the modification shown in Fig. 5, the plate 11 may comprise two sections fitted edge to edge, one of said sections forming a screen 2' and the other of said sections forming an edge-glow plate 3'. The present invention, therefore, is not to be restricted except insofar as is necessitated by the prior art and the scope of the appended claims.

I claim:

1. An illuminated sign comprising a housing, an edge-glow plate supported by said housing and in communication with the interior thereof, an opening along a side wall of said housing, a reflector behind said opening and adapted to reflect light rays therethrough, and a single light source disposed to project light rays into the edge of said plate and to said reflector.

2. An illuminated sign comprising a housing, an edge-glow plate supported by said housing and in communication with the interior thereof, an opening along a side wall of said housing, a screen in said opening, a reflector behind said screen and adapted to reflect light rays there- through, and a single light source disposed to

project light rays into the edge of said plate and to said reflector.

3. An illuminated sign comprising a housing, an edge-glow plate supported by said housing and in communication with the interior thereof, an opening along a side wall of said housing, a screen in said opening, a movable reflector behind said screen and adapted to reflect light rays therethrough, and a single light source disposed to project light rays into the edge of said plate and to said reflector.

4. An illuminated sign comprising a housing, an edge-glow plate supported by said housing and in communication with the interior thereof, an opening along a side wall of said housing, a screen in said opening, a rotatable reflector behind said screen and adapted to reflect light rays therethrough, and a single light source disposed to project light rays into the edge of said plate and to said reflector.

5. An illuminated sign comprising a housing, an edge-glow plate supported by said housing and in communication with the interior thereof, an opening along a side wall of said housing, a screen in said opening, a movable reflector behind said screen and adapted to reflect light rays therethrough, said reflector comprising a relatively flat sheet having an uneven surface whereby to break up the light rays, and a single light source disposed to project light rays into the edge of said plate and to said reflector.

6. An illuminated sign comprising a housing, an edge-glow plate supported by said housing and in communication with the interior thereof, an opening along a side wall of said housing, a screen in said opening, a rotatable reflector behind said screen and adapted to reflect light rays therethrough, said reflector comprising a spiral strip of reflecting material, and a single light source disposed to project light rays into the edge of said plate and to said reflector.

7. An illuminated sign comprising a housing, an edge-glow plate supported by said housing and in communication with the interior thereof, an opening along a side wall of said housing, a screen in said opening, said screen having optically effective formations on one surface, a reflector behind said screen and adapted to reflect light rays therethrough, and a single light source disposed to project light rays into the edge of said plate and to said reflector.

8. An illuminated sign comprising a housing, an edge-glow plate supported by said housing and in communication with the interior thereof, an opening along a side wall of said housing, a screen in said opening, said screen having prismatic formations on one surface, a reflector behind said screen and adapted to reflect light rays therethrough, and a single light source disposed to project light rays into the edge of said plate and to said reflector.

9. An illuminated sign comprising a housing, an edge-glow plate supported by said housing and in communication with the interior thereof, an opening along a side wall of said housing, a screen in said opening, said screen having lenticular formations on one surface, a reflector behind said screen and adapted to reflect light rays therethrough, and a single light source disposed to project light rays into the edge of said plate and to said reflector.

10. An illuminated sign comprising a housing, an edge-glow plate supported by said housing and in communication with the interior thereof, an opening along a side wall of said housing, a

screen in said opening, said screen comprising a sheet of hammered glass, a reflector behind said screen and adapted to reflect light rays therethrough, and a single light source disposed to project light rays into the edge of said plate and to said reflector.

11. An illuminated sign comprising a housing, an edge-glow plate supported by said housing and in communication with the interior thereof, an opening along a side wall of said housing, a screen in said opening, a reflector behind said screen and adapted to reflect light rays therethrough, and a single light source extending the full length of said reflector and said edge-glow plate and disposed to project light rays into the edge of said plate and to said reflector.

12. An illuminated sign comprising a housing, an edge-glow plate supported by said housing and in communication with the interior thereof, an opening along a side wall of said housing, a screen in said opening, a reflector behind said screen and adapted to reflect light rays therethrough, a single light source disposed to project light rays into the edge of said plate and to said reflector, and means for preventing the passage of light rays directly to the screen from said light source.

13. An illuminated sign comprising a housing, an edge-glow plate supported by said housing and in communication with the interior thereof, an opening along a side wall of said housing, a screen in said opening, a reflector behind said screen and adapted to reflect light rays therethrough, a single light source disposed to project light rays into the edge of said plate and to said reflector, and means for color filtering the rays emanating from said light source.

14. An illuminated sign comprising a housing, an edge-glow plate supported by said housing and in communication with the interior thereof, an opening along a side wall of said housing, a screen in said opening, a reflector behind said screen and adapted to reflect light rays therethrough, a single light source disposed to project light rays into the edge of said plate and to said reflector, and means for color filtering the light rays to be cast through said screen.

15. In an illuminated sign, the combination of an edge-glow plate, a screen, a single light source for illuminating said edge-glow plate and said screen, and reflecting means for controlling the illumination of said screen.

16. In an illuminated sign, the combination of an edge-glow plate, a screen, a single light source for illuminating said edge-glow plate and said screen, reflecting means for controlling the illumination of said screen, and filtering means for coloring at least a portion of the light emitted by said sign.

17. In an illuminated sign, the combination of an edge-glow plate, a screen, and means for directly illuminating said edge-glow plate and indirectly illuminating said screen.

18. In an illuminated sign, the combination of an edge-glow plate and a screen lying in the same plane, and means for directly illuminating said edge-glow plate and indirectly illuminating said screen.

19. An illuminated sign having two display surfaces, a movable reflector, and a single light source for illuminating both display surfaces, one

of said surfaces being illuminated directly by said light source and the other of said surfaces being illuminated indirectly by means of said reflector.

20. An illuminated sign having two display surfaces, a rotatable reflector, and a single light source for illuminating both display surfaces, one of said surfaces being illuminated directly by said light source and the other of said surfaces being illuminated indirectly by means of said reflector.

21. In an illuminated sign, the combination of an edge-glow plate, a screen having optically effective formations on at least one side thereof, a single light source for illuminating said edge-glow plate and said screen, and reflecting means for controlling the illumination of said screen.

22. In an illuminated sign, the combination of an edge-glow plate, a screen having optically effective means on at least one side thereof, a single light source for illuminating said edge-glow plate and said screen, and movable reflecting means for controlling the illumination of said screen.

23. In an illuminated sign, the combination of an edge-glow plate, a screen having optically effective means on at least one side thereof, a single light source for illuminating said edge-glow plate and said screen, and rotatable reflecting means for controlling the illumination of said screen.

24. In an illuminated sign, the combination of an edge-glow plate, a screen having optically effective means on at least one side thereof, a single light source for illuminating said edge-glow plate and said screen, and movable reflecting means having plural reflecting surfaces for controlling the illumination of said screen.

25. In an illuminated sign, the combination of an edge-glow plate, a screen having optically effective means on at least one side thereof, a single light source for illuminating said edge-glow plate and said screen, and rotatable reflecting means having plural surfaces for controlling the illumination of said screen.

26. In an illuminated sign, the combination of an edge-glow plate, a screen having optically effective means on at least one side thereof, a single light source for illuminating said edge-glow plate and said screen, and a rotatable reflector comprising a strip of reflecting material twisted about its longitudinal axis for controlling the illumination of said screen.

27. In an illuminated sign, the combination of an edge-glow plate, a screen having optically effective means on at least one side thereof, a single light source for illuminating said edge-glow plate and said screen, and reflecting means for controlling the illumination of said screen, said screen, light source, and reflecting means, all being arranged in juxtaposition and of substantially equal length.

28. In an illuminated sign, the combination of an edge-glow plate, a screen having optically effective means on at least one side thereof, a single light source for illuminating said edge-glow plate and said screen, and reflecting means for controlling the illumination of said screen, said edge-glow plate, screen, light source, and reflecting means all being arranged in juxtaposition and of substantially equal length.

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