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(54) Title: ILLUMINATED CANOPY SYSTEM

(57) Abstract

A rear illuminated fascia apparatus for mounting on a surface is disclosed. The apparatus has a support structure comprising support brackets, top and bottom edge frame members, and corner members which tension and hold in place a flexible, translucent sheet material. Metal halide lights are used to illuminate the sheet material. A light dispersion member is positioned between the lights and the sheet material to uniformly distribute and disperse the light through the sheet material. Access members in the apparatus and access openings in the light dispersion member allow convenient changes of the lights.

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ILLUMINATED CANOPY SYSTEM

Technical Field

The present invention relates to lighted canopy and wall systems, particularly for gasoline service stations and other business establishments. The fascias of the canopies have transparent displays which are illuminated from the rear for visibility and aesthetics. Similarly, back-lit lightboxes are mounted on the buildings.

Background of The Invention

Businesses with outdoor service areas, such as gasoline service stations, are taking steps today to improve the facilities and areas around them. The companies want to keep their places of business attractive for customers, keep the appearances on par with other businesses, and also make the facilities better illuminated and safer in non-daylight hours.

Service stations in particular today are improving the areas around their buildings and gasoline pumps by providing increased lighting and more aesthetic and efficient structures. In particular, illuminated and aesthetic protective canopies are being installed over the gasoline pumps. Many of these canopies have signs, lights, or lighted faces along their fascias. In addition, wall mounted signs are also being installed on the buildings or surrounding structures. Many of these signs are also lighted for increased visibility.

Where the canopy fascias and wall signs are illuminated, one of the difficulties has been to create

a uniform light distribution on the outer (visible) surfaces. Typically, fluorescent bulbs (used internally) or spotlights (externally) are used and these types of illumination provide uneven or nonuniform light distribution. Also, the fluorescent lights which are often 6, 8 or 10 feet in length are difficult to change when they burn out. Changing burned out lights in conventional illuminated canopy and fascia systems is an expensive and time-consuming task, often requiring a boom truck or extension ladder. Moreover, it is often necessary to dismantle a portion of the canopy or fascia apparatus in order to change the lights.

Another difficulty with known canopy fascia systems as well as wall-mounted signs, concerns the quality and integrity of the sign panels. Weather conditions and changes in temperature sometimes create ripples and waves in the sign panels reducing their effectiveness and attractiveness. The durability of some types of sign panels has not been sufficient.

Another problem with known illuminated canopy and fascia systems, as well as wall-mounted signs, concerns the corner intersections between adjacent surfaces. Some systems have had difficulty creating a uniform light pattern at these corners. Creating a smooth wrinkle-free surface at the corners and a clean edge is also a problem with some systems.

It is an object of the present invention to provide illuminated canopy and wall-mounted systems, particularly for service stations, which are improvements over known systems. It is another object of the present invention to provide illuminated canopy and wall-mounted systems which distribute the light

uniformly on and through the display faces of the systems.

It is also an object of the invention to provide illuminated canopy and wall-mounted systems in which the light sources are easy to change and maintain. It is still another object of the invention to provide illuminated canopy and wall-mounted systems which are more energy efficient than known systems today, have improved lighting and have reduced cost for use and maintenance. An additional object of the invention is to provide illuminated canopy and wall-mounted systems which have improved illumination and aesthetics at the corners of adjacent panels.

These and other objects, features and advantages of the invention will become apparent from the following description of the invention and appended claims, when viewed in accordance with the attached drawings.

Summary of The Invention

The present invention provides improved illuminated canopy and wall-mounted systems for business establishments, such as service stations. The systems can be installed over existing fascias on the canopy and/or on wall surfaces of the building. A "light box" is provided having supporting brackets connected to a rear panel member or wall surface. A decorated flexible sheet member is stretched across the face of each of the lightboxes and held in place by extrusions which tension the sheet material. A plurality of lights (preferably metal halide lights) are provided in the light boxes. A light dispersion film is placed over the light sources

in order to distribute the light uniformly on the face of the sign panel. Trim caps are provided on the top and bottom of the lighting apparatus to form an enclosed structure and make it weatherproof where necessary.

Hinged access doors or removable panels are provided in the bottom of each of the structures adjacent the lights. The access members allow replacement of the lights either manually or with a conventional tool. Also, for this purpose, an opening can be provided in the light dispersion film or the film can be selectively detachable.

A curved clear plastic member is provided under the dispersion film for support. The support also has an opening in it to allow changing of the lights where necessary. Self-drilling screws are used to attach various parts together which allow a less expensive and faster method for assembly.

An improved corner assembly for the lightbox structures is also provided. Spring metal tensioning members are used to hold the flexible front film in place under tension, and yet do not block the light from reaching the corners.

Brief Description of The Drawings

FIGURE 1 illustrates the present inventive illuminated canopy and fascia system in use at a service station;

FIGURE 2 is a cross-sectional view of the canopy and fascia system as shown in claim 1 when taken in the direction of arrows 2-2 of Figure 1;

FIGURE 3 is a perspective view of the interior of the fascia lightbox apparatus illustrating various features of the invention;

FIGURE 4 is a cross-sectional view illustrating the inventive corner assembly of the present invention;

FIGURE 5 is a cross-sectional view showing the access door for light source removal, and is taken in the direction of arrows 5-5 of Figure 3;

FIGURE 6 illustrates an alternate access door embodiment;

FIGURE 7 illustrates in partial cross section the present inventive illuminated wall-mounted system;

FIGURE 8 is a cross-sectional view of the invention of Figure 7, taken along lines 8-8 and in the direction of the arrows; and

FIGURE 9 is a cross-sectional view of the invention of Figure 7, taken along lines 9-9 and in the direction of the arrows, and showing adjacent light/dispersion systems and accompanying ballast.

Best Mode(s) for Carrying Out The Invention

Figures 1-5 illustrate the features and advantages of the present inventive illuminated canopy and fascia system. The present invention is particularly suitable for use at gasoline service stations as shown generally by the reference numeral 10 in Figure 1. As shown, the service station has one or

more islands 12 with a number of gasoline pumps 14 positioned on it and the entire area is covered with a canopy 16. A service facility or structure 18 is also provided under the canopies. The canopy covers the area where the vehicles 20 are parked to purchase gasoline. The canopy protects the customers and vehicles from the weather elements and also provides a safe, well-illuminated area for use at night.

Typically, a number of lights 21 are provided on the underside of the canopy 16 which project light downwardly for the customer's benefit. Not only does this allow the customer to use the facilities of the service station in a better manner, but also illuminates the entire service station and plaza area creating a pleasant and safe haven for motorists in nighttime hours. The lighting also allows the service station to be seen by motorists at a considerable distance.

The canopy 16 has fascia areas around its perimeter which are approximately 1-3 feet in height and can be 10-20 feet or more in width. These fascia areas are indicated by the numerals 22, 24, 26 and 28 in Figure 1. Typically, only the fascia areas which are exposed to passing motorists and are visible from a distance are illuminated. The illumination allows the name of the service station to be highlighted and also can provide reference to some of the services and facilities of the station. Typically, at least two and in most cases three fascia areas of the canopies are illuminated. (The side of the canopy which faces away from the road is usually not illuminated.)

The present invention is not limited to canopy and fascia systems, however. It is understood that the

present invention could also be used for rear illumination light box structures 190 which can be installed on the walls or surfaces 23 of the building 18 and provide the same highlighted and illuminated names and information that are provided on the canopy fascias described above. In fact, some service stations include an illuminated light box structure on the faces of its buildings over the entrances that are counterparts to the illuminated fascia light box systems on the canopies over the gasoline pumps. One embodiment of the invention designed for use on a wall or other vertical surface is designated by the reference numeral 190 and is discussed infra with reference to Figures 7-9.

The interior structure and configuration of the inventive light box structure is shown in Figures 2-5. The present invention is particularly adapted to be used on existing vertical or fascia structures, such as a wooden fascia board 30 as shown in Figure 2. In the light box structure 32, a plurality of support brackets or tubes 34 are provided which are bolted or otherwise secured to the existing fascia 30. The support brackets 34 can be steel tubing and can be secured to the fascia system by a plurality of bolts 35 or any other conventional means.

The support brackets 34 are curved U-shaped structures and support elongated fascia frame extrusions 42 at their outer ends 38 and 40. The frame extrusions 42 provide the upper and lower edges of the illuminated fascia apparatus and are represented by reference numerals 44 and 46, respectively. The frame extrusions 42 are made from extruded aluminum in the shape shown in Figures 2, 3 and 5 and are attached to the ends 38 and 40 of the support bracket 34 by one or more self-

drilling screws 48. The self-drilling screws eliminate drilling of either the frame extrusion or the support bracket at the field site. The extrusion 42 has a recess or channel 50 in which the ends 38 and 40 of the support bracket are positioned. Once the frame extrusions are positioned over a pair of support brackets, the support brackets are positioned in the channels 50 and secured in place with screws 48. The support brackets 34 in turn are secured to the fascia panel 30 and a solid secure unitary structure is formed on the fascia.

Stretched over the front of the light box structure 32 and held in place by the frame extrusions 42, is a translucent, flexible film panel 52. The panel 52 provides the illuminated facing of the fascias 22, 24, etc. of the canopy 16 of Figure 1. The sign panel 52 preferably is a durable, flexible, translucent material, such as Panaflex 940 from the 3M Company. That material consists of a polyester scrim embedded between two layers of vinyl.

The names and letters 54 (Figure 1) are preferably applied to the sign panel 52 and comprise a translucent pressure sensitive film. The preferred material in this regard is Scotchcal Series 3630 from the 3M Company. If desired, another protective layer of transparent film can be positioned over the names and numbers 54 for increased protection of the graphics. A graphics protection film provided by 3M under the Scotchcal trade name could be utilized for this purpose.

The flexible sign panel 52 is stretched over the frame extrusions 42 and held in place as shown in Figures 2 and 5 by a tensioner angle extrusion 56. The

extrusion 56 is made from extruded aluminum material, extends along the length of the frame extrusion, and is held in place with a plurality of self-drilling screws 58. As shown, the flexible film 52 is wrapped around the angle extrusion 56 so that it is held tightly in place under tension when the screws 58 are installed in place.

The flexible film 52 is also held tightly in place under tension at the shorter ends of the light box. These ends are illustrated by the reference numerals 60, 62 and 64 in Figure 1; end 62 is shown in detail in Figure 4. In this regard, the ends of all of adjacent light box structures 32 are tensioned and held in place at the shorter edges in the same manner. Thus, references to light box 32 on one side of the fascia for canopy 16 would apply similarly to the light box structures on the other fascias of the canopy.

The preferred corner structure in accordance with the present invention includes a bent metal support member 70. The corner 72 of the support member protrudes into and forms the corner 62 of the light box structure. The support member 70 is attached at one end 74 to flange 76 on the frame extrusion 42 (see Figure 2). The second end 78 of the support member 70 is also attached to the flange 76 of the frame extrusion 42. The angle of the support member 70 allows light from the light source, as described below, to reach the corners 62 and still provides a strong solid support for the sign panel 52 at the corner.

Bracket 80 is also attached to the end of the support member 70. Bracket 80 is adapted to hold a tensioning screw 82 and a second tensioning bracket 84.

The end 86 of the flexible sign panel 52 in turn is wrapped around a elongated member 88 and secured by a self-drilling screw 90 to the bracket 84. In this manner, when the end 86 of the film 52 is held in place by brackets 88 and 84, the bolt 82 can then be tightened which pulls the film 52 tightly in place in the corner 62.

A shield 92 is secured to the fascia structure 30 and extends outwardly at an angle. The shield is positioned between adjacent lightboxes on a canopy and prevents light from one lightbox from entering an adjacent lightbox. The shield 92 preferably is made from a thin sheet of reflective aluminum material, or is coated with a reflective material.

The light source for the illuminated canopy and fascia system is shown in Figures 2 and 3. A plurality of metal halide lights (or lamps) 100 are positioned along the fascia panel 30. The lights 100 are screwed into conventional light sockets 102 which are connected to the fascia panel 30 by brackets 104.

The metal halide lights are preferably high intensity discharge (HID) lights. These are more efficient and provide more lumens per watt of energy than regular light bulbs. Preferably, metal halide lamps of 150-175 watts are utilized for the illuminated canopy and fascia system. With lights of this intensity, the lamps 100 can be provided every five to nine feet along the length of the fascia, and preferably every 8 feet. The spacing of the lights provides for better energy consumption and light output. Not only do the metal halide HID lights 100 provide a more efficient light source for a canopy and fascia system, but the

individual light bulbs are easier to service and replace, as explained below.

It is also possible in accordance with the present invention to use light sources other than metal halide lamps to provide the necessary illumination. Such light sources could be conventional incandescent lamps, mercury vapor lamps, other HID lamps, although a point light source is necessary. Metal halide lights are preferred due to their color temperature properties.

In order to reduce operation and replacement costs, the sizes of the light sources should be kept as small as possible. In this regard, a balance might need to be made between the spacing and size of the light sources which would provide the desired illumination intensity and distribution, and which also would minimize operating and replacement costs.

One or more ballasts 110 are provided for the metal halide lights. The size and number of ballasts will depend on the sizes and number of light sources utilized and the illumination intensity desired on the sign panel 52. The ballasts are of a conventional type and do not need further explanation or description here. A ballast can be provided on the opposite side of the fascia panel 30 from the lights 100 if there is sufficient space (as shown in Figure 2), or the ballast can be positioned internally along an inside edge of the light box (as shown by phantom lines 110' in Figure 2). Conventional wiring 111 is used to connect the lights to the ballasts and the ballasts in turn to a plug or power source (not shown).

If necessary to minimize shadows and provide better light distribution on the face of the film 52, the angle or positioning of the lights 100 relative to the fascia 30 can be changed or adjusted as desired. For example, the lights 100 could be set at horizontal or vertical angles relative to the fascia to eliminate shadows caused by support brackets, ballasts or other internal structures.

A pair of elongated aluminum trim caps are provided to enclose the interior of the light box apparatus. The trim caps comprise an upper panel member 114 and a lower panel member 116. The caps can be attached to the ends of the fascia panel 30 when needed as well as to a flange 118 on the fascia extrusions 42. The connection of the top and bottom trim caps 114 and 116 to the fascia panel and frame extrusions 42 can be with any conventional means, such as self-drilling screws 120.

A light dispersion panel 130 is provided around each of the metal halide light sources 100. Panel 130 distributes the light uniformly on the inside surface of the sign panel 52. Preferably, the light dispersion panel 130 is the Varilume patterned film product produced by TIR Systems Ltd. in British Columbia, Canada. The Varilume film product has a plurality of openings on the face of the film, the openings being sized and arranged in a certain pattern designed for allowing differing amounts of light to pass through the film at different areas.

Another method for diffusing illumination from light sources and spreading it evenly over a surface is shown and described in U.S. Patent No. 4,267,489.

The light dispersion panels 130 are formed as curved structures around each of the light sources 100 and positioned between the light sources and the flexible front panel 52. To keep the film 130 in position and prevent it from sagging and thus changing the light dispersion pattern, a curved support member 132 is provided. The support member 132 can be made of any conventional clear plastic material which satisfies the functions and purposes of the present invention, but preferably is a clear polycarbonate material approximately .030 inches in thickness.

Both the film 130 and support members 132 are connected to the fascia panel 30 by elongated rigid strip members 133, 134 and 136. The elongated edges of the film and support members are bent (e.g. by an angle break) to provide a flat portion adjacent the strip members. Self-drilling screws 120 are positioned through the film, support members and strip members and used to secure the film and support members to the fascia. The strip members should have a low profile to eliminate shadows or light blockages which might affect the light distribution on the sign panel.

In order to increase the evenness and intensity of the light distribution on the front panel 52, a specular reflective surface 31 is provided on the fascia 30 behind the light sources 100. The surface 31 could be coated with a highly reflective paint (such as white), or a type of mirrored specular reflector could be provided (such as bright aluminum reflector film). Also, in order to minimize shadows caused by the light sockets 102, a curved half-moon portion 33 of the fascia immediately behind the light sockets is left uncovered by the specular reflective surface. Similarly, curved

surfaces 35 are provided in the ends of the reflective surface to provide a more uniform light dispersion pattern on the front panel.

One of the features of the invention is that the lights 100 can be easily and quickly replaced when they burn out. For this purpose, a hinged access door 150 is provided in the bottom 116 of the fascia, and a curved opening or cutout 152 is provided in the light dispersion panel 130 and in the curved backing member 132. These are shown in Figures 3-5.

An access door 150 and opening 152 are provided in axial alignment with each of the metal halide lights 100 (as shown in Figure 3). The access door 150 is connected by hinges 154 so it can be opened to position 150' (shown in phantom in Figure 5). The hinge plates 158 pivotably attached to the door 150 are attached to trim cap member 116 and door 150 by pop rivets 160. Preferably, a conventional biasing spring 156 is provided in the hinges 154 so that the door 150 will automatically return to its closed position after the light bulb has been replaced. In this manner, the light bulb can be replaced from the ground with an elongated pole device which can be inserted manually up through the door 150 and the door will return to its closed position after the pole and light bulb are removed.

Pole type light bulb replacement devices with spring biased fingers and the like which are used to grip a light bulb so it can be unscrewed and removed are conventionally known and available. Of course, other types of light bulb removing devices and configurations of access openings through the fascia structure can be

utilized in accordance with the scope of the present invention.

A sleeve 155 is positioned in the opening 152 to facilitate replacement of the light bulb without damaging the film 130 and support members 132. The sleeve 155 preferably is a U-shaped member made of aluminum and is connected to the fascia 30 by screws or other conventional fasteners. The sleeve 155 also prevents formation of a shadow pattern on the front panel caused by the edges of the opening 152.

Although a cutout 152 access opening is preferably provided in the panel 130 and backing member 132 for removal and replacement of the lights 100, it is also possible in the alternative to have the bottom edges of the panel 130 and backing member 132 be removably attached to the fascia 30. In this manner, when a light 100 needed replacement, access through door 150 and detachment of panel 130 and backing member 132 from the fascia could also be easily and conveniently made.

A cutout opening 157 is preferably provided in the panel 130 and backing member 132 above the light source for temperature control or relief. This opening 157 may not be necessary in all cases, and depends on the intensity of the light source and the power provided.

Figure 6 shows an alternate embodiment of an access door 250. In this embodiment, the door 250 is pivoted around pivot pins or hinges 254 and opens in the opposite direction to door 150 shown in Figure 5.

Preferably, door 250 is biased by spring 256 to its closed position.

Wall-mounted lightboxes 190 in accordance with the present invention are shown in Figures 1 and 7-9. These structures contain many of the basic concepts and features of the invention as described above, but is modified for mounting on the walls or other surfaces 23 of the building 18. The lightbox 190 includes an exterior housing 192 and a light/dispersion film system 194. Typically, the light/dispersion film system is first installed in place on the building and then the housing 192 is installed in place covering and enclosing the light/dispersion film system.

The light/dispersion film system 194 includes one or more metal halide lights (or lamps) 100 of the type and nature described above with reference to Figures 1-5. The lights 100 are installed in conventional sockets 102 which are affixed to the building surface 23 and powered by a conventional ballast 113. The ballast is positioned between two adjacent light/dispersion systems and placed within a cover member 115 (see Figures 8 and 9).

The lights 100 are positioned behind light dispersion film 130 and covered support member 132. The film 130 and support member 132 are separately connected to the building surface 23 at their upper ends by elongated strip members 133 and 134. The edges of the film and support members are bent in the configurations shown for this purpose. Fasteners, such as self-drilling screws 120, are used to connect the strip members to the building surface.

The lower edges of the film 130 and support members 132 are connected together and secured to the building by strip member 136. Alternately, the lower edges of the film and support member can be connected together by an L-shaped bracket (not shown) which is adapted to fit in a channel in a corresponding bracket attached to the building in much the same manner as the angled bracket 230 fits in the channel 288 of bracket 234 as discussed below and shown in Figure 8. In this manner, the lower edges of the film and support member could be selectively disconnected from the building when it was desired to change the light 100.

The film 130, support member 132, and brackets 133, 134 and 136 are preferably about 5-6 feet in length and are mounted as a group on the building or other wall surface 23 as shown in the drawings. Preferably, for ease of installation on site at the building, the film 130, support member 132, brackets 133, 134, and 136, and light socket 102 are pre-mounted at the factory or off-site on a separate metal sheet or panel 200. Then, at the building site, the panel 200 with these items mounted on it is installed in place as a modular unit or system.

A specular reflector member 212 is preferably positioned on the surface 23 or panel 200 behind the lights 100 - in the same manner and for the same reasons as discussed earlier. Preferably the reflector member is highly specular and reflects a minimum of 90% of the light. The member 212 also preferably has a curved portion 33 ("half-moon" shaped) behind the upper part of the light, as well as curved portions 35 at each end of the reflector member, as discussed above, which are not reflective for better light dispersion.

Preferably, a cut-out opening 152 is provided in the lower portions of the light dispersion panel 130 and support member 132 for removal of the light (as described above), rather than providing selectively detachable bracket members. Sleeve members 155 are also provided in the cut-out opening for the purposes and reasons as described above.

The exterior housing 192 of the wall-mounted unit 190 is preferably assembled or a separate modular unit and then installed in place on the surface 23 after the light/dispersion film system 194 is affixed to the surface 23.

The housing 192 includes a pair of U-shaped support brackets 34 and a pair of elongated frame extrusion members 42 which are mounted to the outer ends 38 and 40 of the brackets 34. As in the fascia lightbox embodiment described above with reference to Figures 1-5, the frame extrusions 42 are made from extruded aluminum in the configuration shown and provide the upper and lower edges of the lightbox.

A translucent, flexible film panel 52 is stretched over the frame extrusions 42 and held in place by angle extrusion 56 and screws 58. The panel 52 provides the surface for advertising or informational messages desired by the business establishment.

Preferably, the support brackets 34, frame extrusions 42, film panel 52 and panel members 220 and 222 are assembled together as a separate modular unit (although they could be mounted and installed separately on the building surface 23 if desired). In order to install the modular housing 192 on the building or other

wall surface, corresponding sets of brackets are provided. Angled brackets 230 and 232 are mounted on the upper and lower portions of the support brackets 34. Clip bracket 234 and rest bracket 236 are mounted on the wall or building surface 23. When the modular housing 192 is installed, the brackets 230 are nested within channels 288 in clip brackets 234, and then the brackets 232 are positioned on rest bracket 236. Thereafter, brackets 232 and 236 are secured together by fasteners, such as self-drilling screws 240.

In order to complete the exterior housing structure for the lightbox 190, elongated panel member 242 is secured to the building surface and mates with the panel member 220. Conventional end caps or panels are provided made from aluminum sheet material or the like are provided on the two side ends of the lightbox (not shown).

On the lower surface of the lightbox 190, one or more elongated clear glass or plastic panels 250 are provided. The panels 250 are supported by panel member 222 and bracket 252 attached to the building and allows illumination from the light 100 to project downwardly from the lightbox 190 on the building or wall surface.

Also, in order to change the light 100, the panels 250 can be easily lifted or removed so that a hand or tool can be extended upwardly between the bracket 252 and panel member 222.

Although particular embodiments of the present invention have been illustrated in the accompanying drawings and described in the foregoing detailed description, it is to be understood that the present

invention is not to be limited to just the embodiments disclosed, but that they are capable of numerous rearrangements, modifications and substitutions without departing from the scope of the claims hereafter.

WHAT IS CLAIMED IS:

1. An internally illuminated sign comprising:

an elongated housing bounded by upper and lower elongated sides, said housing having a rear panel and an open front portion,

an elongated planar translucent panel covering said open front portion,

at least one point light source positioned adjacent said rear panel and located in said housing substantially centrally between said upper and lower elongated sides, and

a light dispersion sheet positioned between said point light source and said translucent panel for distributing light from said point light source uniformly over at least an elongated portion of said translucent panel and between said upper and lower elongated sides.

2. The internally illuminated sign of claim 1 wherein said housing further comprises a plurality of support brackets attached to said rear panel, a pair of elongated frame members attached to said support brackets and forming elongated edges on said elongated sides, and said translucent panel being mounted on said frame members and stretched therebetween.

3. The internally illuminated sign of claim 2 further comprising a pair of end frame members positioned at the ends of said elongated housing and attached to said elongated frame members, said translucent panel having two elongated side edges and two end edges, and said end frame members mounting and stretching the end edges of said translucent panel.

4. The internally illuminated sign of claim 1 wherein said light dispersion sheet has a curved configuration.

5. The internally illuminated sign of claim 1 wherein said light dispersion sheet has a plurality of openings, said openings being sized and arranged in a pre-specified pattern in order to allow differing amounts of light from said point light source to pass through said sheet at different areas and achieve said uniform distribution of light.

6. The internally illuminated sign of claim 1 wherein at least two point light sources are provided, said light sources being spaced uniformly along said rear panel, each said light source having a light dispersion sheet positioned between said light source and said translucent panel, whereby light from said at least two point light sources is distributed uniformly over the entire elongated translucent panel.

7. The internally illuminated sign of claim 1 further comprising access means in one of said elongated sides of said housing for replacing each of said point light sources.

8. The internally illuminated sign of claim 7 wherein said access means is positioned in said lower elongated side in order to provide access to said point light source from the ground.

9. The internally illuminated sign of claim 8 wherein said access means comprises a door.

10. The internally illuminated sign of claim 9 wherein said door is movable between an open position allowing access to said light sources and a closed position preventing access to said light sources, and further comprising biasing means for biasing said door to its closed position.

11. The internally illuminated sign of claim 8 wherein said access means comprises a removable translucent panel member.

12. The internally illuminated sign of claim 1 wherein said light dispersion sheet has a reflective surface on the side facing said point light source.

13. An internally illuminated lightbox comprising:

an elongated housing, said housing having an upper elongated panel member, a lower elongated panel member, a rear panel member, and an open front portion,

an elongated planar translucent sheet member covering said open front portion, said translucent sheet member having a length in its elongated direction and a width laterally to said elongated direction,

a plurality of point light sources in said housing, said light sources positioned uniformly in a spaced apart relationship on said rear panel member and substantially centrally between said upper elongated panel member and said lower elongated panel member, and

light dispersion sheet means positioned between each of said point light sources and said translucent sheet member,

whereby light from said point light sources is distributed uniformly over the entire width and length of said elongated translucent sheet member.

INTERNATIONAL SEARCH REPORT

In ational application No.
PCT/US93/12575

A. CLASSIFICATION OF SUBJECT MATTER

IPC(5) :F21S 1/00; F21V 13/00; G09F 13/04

US CL :362/223, 225, 242; 40/577

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 362/145, 151, 152, 223, 225, 240, 242-244, 246, 249, 330, 343, 355-357, 361, 362, 367, 370, 374, 812; 40/564, 577, 603, 604

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US, A, 5,006,966 (MIKALONIS) 09 April 1991, col. 3, lines 1-60.	1, 6-9, 11, 14.
Y	US, A, 3,296,431 (GREEN) 03 January 1967, col. 2-3, all lines.	1, 4, 6, 7, 12, 13.
Y	US, A, 3,064,121 (GREENE) 13 November 1962, col. 3, lines 15-45.	2, 3.
Y	US, A, 2,141,139 (HOWE et al) 20 December 1938, pg. 2, col.1, lines 42-64.	5
A,P	US, A, 5,188,453 (SUBISAK et al) 23 February 1993, col. 2, lines 57-62.	7-10.
A	US, A, 4,512,098 (READY et al) 23 April 1985, fig. 1.	2, 7, 8.

[X] Further documents are listed in the continuation of Box C. [ ] See patent family annex.

*	Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be part of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E"	earlier document published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O"	document referring to an oral disclosure, use, exhibition or other means		
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search	Date of mailing of the international search report
14 March 1994	03 MAY 1994
Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231	Authorized officer IRA LAZARUS
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INTERNATIONAL SEARCH REPORT

In ational application No.
PCT/US93/12575

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US, A, 2,588,545 (LAWRENCE) 11 March 1952, col. 3.	1, 6-9.
A	US, A, 2,559,991 (OWEN) 10 July 1951, col. 2, lines 57-68.	2, 3.