United States Patent [19]

Chichester, Jr.

[11] **3,905,141**

[45] **Sept. 16, 1975**

[54] **LIGHT FIXTURE WITH LUMINOUS SIGNS**

[76] Inventor: **Sidnor Tebbs Chichester, Jr.**, 2529-A P St., N.W., Washington, D.C. 20007

[22] Filed: **Jan. 21, 1974**

[21] Appl. No.: **434,928**

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 275,342, July 26, 1972, abandoned.

[52] **U.S. Cl.** ..... **40/125 F;** 40/106.1; 40/133 R; 85/1 F

[51] **Int. Cl.**[2] **G09F 07/18**

[58] **Field of Search** ..... 40/156, 152, 135, 132 D, 40/125 F, 205, 206, 209, 133 B, 133 R, 125 K, 106.1; 211/89, 51, 54; 85/1 F

[56] **References Cited**

UNITED STATES PATENTS

1,103,812	7/1914	Murdock	40/133 B
1,397,330	11/1921	Ringham et al.	40/205
1,462,925	7/1923	Wilburger	85/1 F UX
2,302,560	11/1942	Latona	40/156
2,512,023	6/1950	Johnson	40/156 X
2,874,498	2/1959	Butkevich	40/152
3,274,721	9/1966	Dreyer	40/152
3,340,638	9/1967	Bergh et al.	40/152
3,340,640	9/1967	Savage	40/209
3,605,303	9/1971	Reichow	40/132 D

FOREIGN PATENTS OR APPLICATIONS

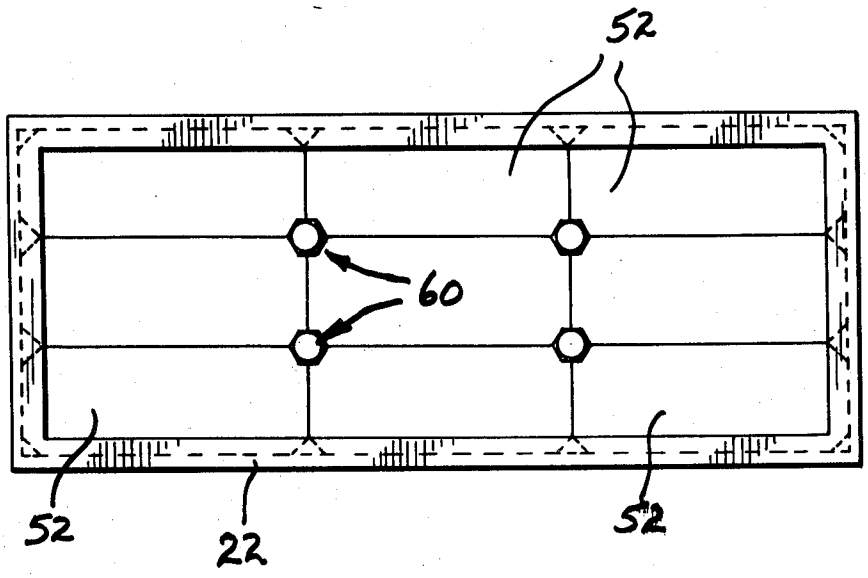
367,072	2/1932	United Kingdom	40/156

Primary Examiner—Robert W. Michell
Assistant Examiner—John F. Pitrelli
Attorney, Agent, or Firm—Donald D. Jeffery

[57] **ABSTRACT**

A light fixture comprising a generally open frame assembly formed of a plurality of interconnected, angled frame members. A plurality of sign panel assemblies of translucent plastic material are removably mounted in said frame assembly at the sides thereof, with each of the panel assemblies comprising a pair of translucent plastic panels which are in one form of the invention firmly bonded to each other. At least one of the panels is engraved to provide luminous visual indication at the exterior of said fixture. The panel assemblies are removably retained in the frame assembly to facilitate removal and replacement with panel assemblies of a different color or informational content. In accordance with a second form of the invention, the plastic panels are not bonded and are removably connected in the frame assembly by means of a resilient clamp.

1 Claim, 8 Drawing Figures



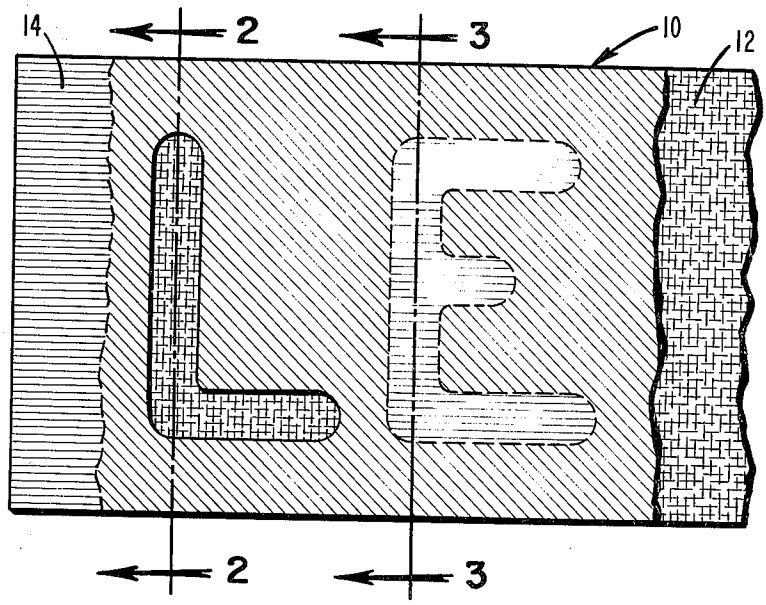


FIG. 1

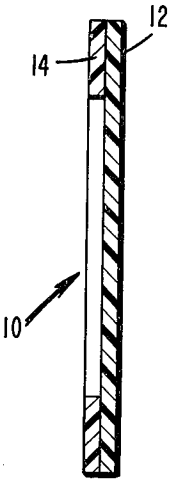


FIG. 2

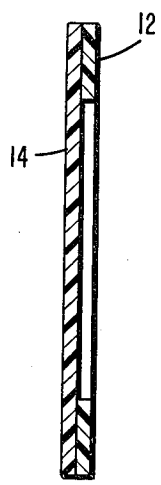


FIG. 3

FIG. 4

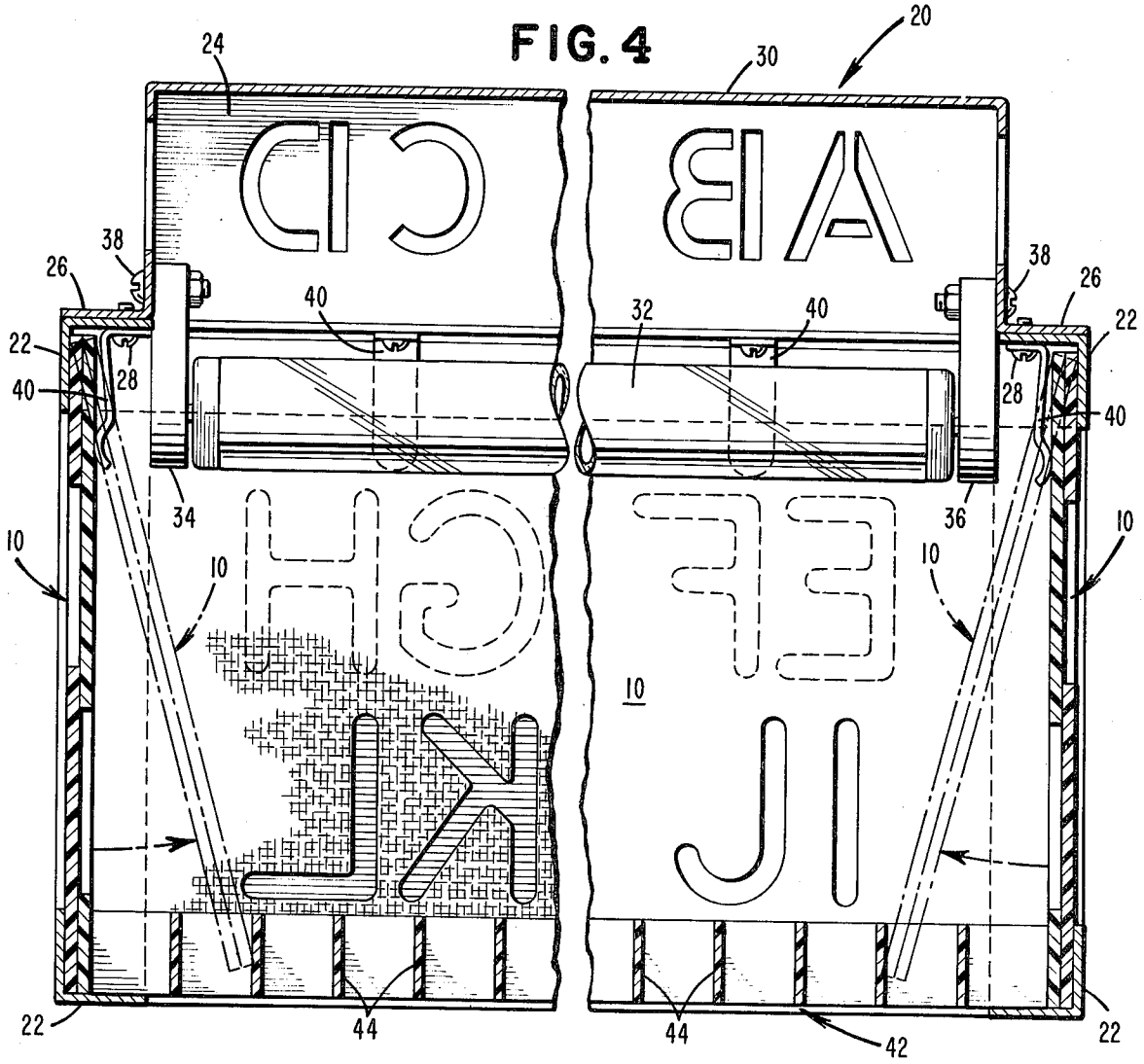


FIG. 5

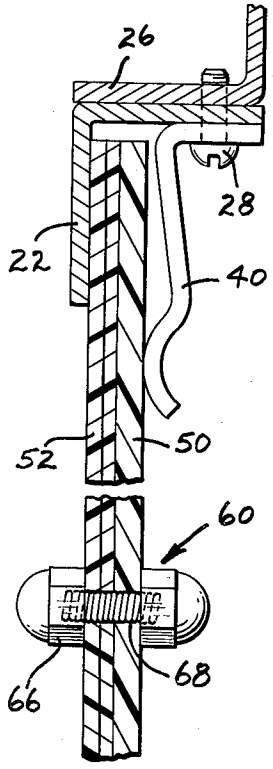


FIG. 6

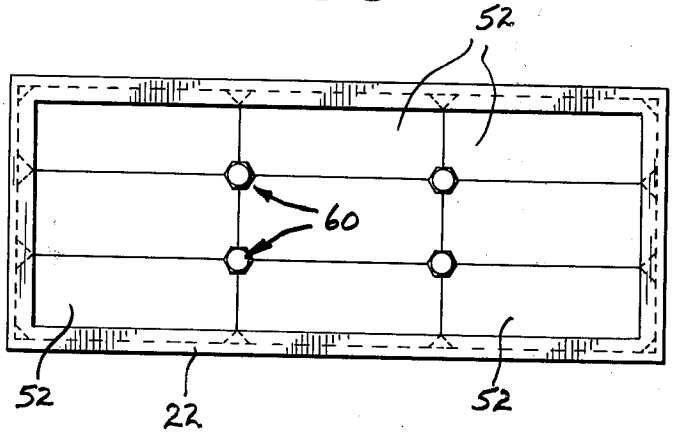


FIG. 7

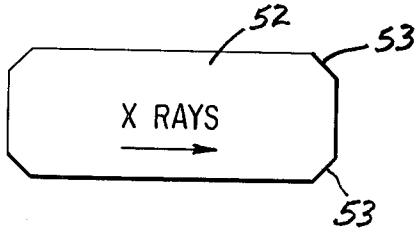
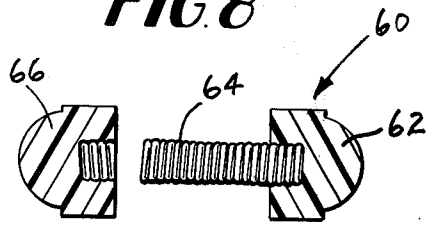


FIG. 8



LIGHT FIXTURE WITH LUMINOUS SIGNS

CROSS-REFERENCE TO RELATED APPLICATION

The present application is a continuation-in-part of my earlier application Ser. No. **275,342,** filed July **26, 1972** now abandoned, and bearing the same title.

BACKGROUND OF THE INVENTION

The present invention relates as indicated to a light fixture with luminous signs, and more particularly to a light fixture in which one or more signs of a laminated translucent material are removably positioned at the sides or ends of the fixture as desired in order to provide the desired effect.

The use of laminated plastic materials in the making of signs, plaques and panels for purposes of advertising, information indication, etc., is well known in the art. The use of such laminates is occasionally in combination with an electro-luminescent material, and the engraving of one or more of the laminate layers is also well known in the art for the purpose of sharply defining the printing on the sign.

Although engraving as above noted is known in the art, the engraved material normally comprises at least one opaque layer or lamination for the purpose of producing a sharp contrast in the sign. Rather surprisingly, it has not occurred to those skilled in the art, at least insofar as applicant is aware, that two layers of translucent material can be combined and integrally bonded, and thereafter engraved through one of the layers, or in spaced regions in the other of said layers, to provide a novel luminous lighting effect.

SUMMARY OF THE INVENTION

In accordance with the present invention, a primary object is to provide a sign fixture in which one or more sides of the fixture comprise a laminate consisting of integrally bonded translucent panels at least one of which is engraved to provide a novel luminous effect. In accordance with the present invention, the other translucent panel may be engraved in areas spaced from the engraving in the first so as to provide an additional color effect, and the colors of the translucent panels can be selected so as to provide yet a third overall color effect in the regions thereof containing no engraving.

A further object of the present invention is to provide such a laminate in combination with a light fixture in which the laminated translucent material can be releasably positioned in the fixture in the ends or sides, or any combination of these positions, thereby to provide a sign in which directional information can if desired be achieved on all four sides of the fixture. The structure thus provided is particularly well adapted for use in hospitals, airports or other such facilities and can be mounted on or suspended from the ceiling of corridors to identify areas of the facility by color and words and to direct people to such areas. In this manner, the fixture in accordance with the present invention combines the functions of the normal ceiling mounted light fixture and directional signs or other indicating means, which are currently most commonly mounted on the corridor walls.

Yet another object of the present invention is to provide a translucent sign assembly in which the bonded translucent panels are removably connected by means of a resilient clamp to a single transparent panel,

thereby facilitating the removal and replacement of the outer panels.

A still further object of the present invention is to provide a sign fixture of the type described which can be manufactured at relatively little cost, and simply and easily installed in place. The fixtures can be supplied without the laminated translucent panels being engraved, with the engraving of the panels accomplished at the site, depending upon the location of the fixture and the type of information to be placed on the sign.

BRIEF DESCRIPTION OF THE APPLICATION DRAWINGS

In the annexed drawings:

FIG. **1** is a fragmentary side elevational view of the laminated translucent plastic sign panels, with engraving being shown on both sides of the laminate;

FIG. **2** is a sectional view taken on line **2—2** of FIG. **1**;

FIG. **3** is a sectional view taken on line **3—3** of FIG. **1**;

FIG. **4** is a vertical cross-sectional view through a light fixture having removably mounted therein the sign panels in accordance with the present invention;

FIG. **5** is a vertical sectional view of a section of FIG. **4,** showing a further aspect of the invention in which the bonded panels are resiliently clamped to the transparent backing panel;

FIG. **6** is a side elevational view taken from the left end of FIG. **4** and showing only the frame and panels, the latter being resiliently clamped by the clamp shown in FIG. **5**;

FIG. **7** is a front elevational view of translucent outer bonded panels illustrated in FIGS. **5** and **6**; and

FIG. **8** is an exploded view of the resilient clamp illustrated in FIGS. **5** and **6.**

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now in more detail to the drawings, wherein like parts are indicated by like reference numerals, and initially to the form of the invention illustrated in FIGS. **1–4,** there is illustrated in FIGS. **1–3** a sign panel generally indicated at **10** comprised of sheets or panels **12** and **14** of translucent plastic materials. Any suitable material can be employed, including thermoplastic materials of the class of acrylic resins or materials, and their polymers and co-polymers, such as methyl methacrylate, or may be made of polyvinyl or vinyl resins and their polymers or co-polymers. The sheets **12** and **14** can be laminated by thermal bonding of the materials, or by suitable adhesive, or both, so as to provide an integral laminate construction.

As above noted, an important aspect of the present invention is the provision of a laminate comprised only of a pair of translucent sheets of plastic material. Either the sheet **12** or sheet **14,** or both, can be engraved, with FIGS. **1–3** showing the engraving through both of the sheets at spaced intervals. The letter "L" is shown engraved through the sheet **14,** and the letter "E" is shown engraved through the sheet **12.** When viewed at the front of the sign, or looking in the direction of FIG. **1,** the effect achieved by engraving either the sheet **14** or the sheet **12** is of course significantly different. The letter "L" is highly luminous, with the outline of the letter being highlighted against the color of the sheet **12.** By way of contrast, the letter "E" is noticed primarily

by virtue of its form, with the color of the letter comprising essentially the color of the sheet **14.**

By employing translucent plastic materials of the type above mentioned, vivid color combinations or keys can be provided. For example, where the backing sheet **12** is white and the front sheet **14** blue the engraving of the sheet **14** is entirely through the blue and to the white, thereby to produce glowing white letters surrounded by a luminous blue background. The visual impact is particularly effective. It will further be noted that colors can be selected from the sheets **12** and **14** so as to provide increased overall color impact. For example, where yellow and blue are used as the colors, the laminate in certain regions will appear green. In FIGS. **1–4,** the sheet **14** has been lined for blue, and the sheet **12** has been lined for yellow, and the unique color effect provided by the laminated sheets will be apparent.

Referring to FIG. **4,** there is shown therein a sign fixture in which are mounted a number of panels **10.** The fixture is generally indicated at **20** and comprises a frame constructed of angle members **22** of sheet metal or the like, the individual lengths of which are selected and secured so as to form a frame assembly of the desired dimension. The frame may be square or rectangular, and is commonly supplied in specified increments, for example, 1′ by 1′, 1′ by 2′, 1′ by 4′, 2′ by 2′, 2′ by 4′, etc.

Secured to the frame **22** in the form shown is a top section **24** which is provided at its bottom with a peripheral flange **26** which overlies the top of the frame **22** and is secured thereto by fasteners commonly designated at **28,** although it will be understood that the flange could alternatively be secured to the frame by spot welding. The top section **24** is also preferably of sheet metal, and can if desired be pierced as illustrated to form letters in the side walls thereof. The top wall **30** of the section **24** is adapted to contact the ceiling, and is preferably provided with a plurality of openings (not shown) through which fasteners or the like may extend for mounting the fixture on the ceiling. The fixture may of course be suspended from rather than directly mounted on the ceiling. Knockout openings (not shown) for electrical purposes can be provided in the top wall **30.**

Mounted within the top section **24** is a fluorescent tube **32** the opposite ends of which are electrically connected to sockets **34** and **36** which are mounted on the top section **24** by nut and bolt assemblies commonly designated at **38.** Although not shown, it will be understood that the sockets **34** and **36** are suitably energized for operating the fluorescent tube **32,** with the ballast (not shown) being received in the section **24.** It will also be understood that an incandescent lamp could be used in lieu of the fluorescent tube, and that the illumination source, regardless of type, may be arranged within the light fixture in the most satisfactory orientation. It will also be apparent that where area illumination is high, the illumination of the fixture will be particularly effective in competing with peripheral or area light.

A plurality of spaced retaining clips **40** are carried by the frame **22** and are adapted to engage and retain the top portions of the sign panels **10** within the fixture as shown in FIG. **4.** The free ends of the clips **40** are preferably resilient, whereby the panels **10** can be withdrawn from their mounted position, as shown in dash lines in FIG. **4.**

It should be noted that rather than extending over the frame as shown, the flange **26** could extend under and support the frame, and be spot welded thereto. In such alternative construction, the flange **26** could be crimped at spaced intervals to form downwardly extending tabs for retaining the top portions of the panel assemblies, thereby eliminating the need for the separate clips illustrated.

The bottom of the fixture comprises a louvered panel generally indicated at **42** which is of well-known commercial construction referred to commonly in the art as an "egg crate louver." The louver effect is provided by a series of spaced plastic or sheet metal members **44** which are secured together to provide a bottom for the fixture but which at the same time permit light transmission downwardly through the fixture. In this regard, it will be noted that the fixture in accordance with the present invention comprises both a primary light source and means for mounting the sign panels, thereby providing a dual function.

The louver **42** is supported by the frame **22** at the bottom thereof, and can be placed in or removed from the fixture simply by tilting the louver to permit the same to pass through the opening at the bottom of the frame defined by the spaced angles. When the louver **42** is properly positioned within the fixture, the sides and ends thereof are positioned closely adjacent the bottoms of the sign panels, thereby serving to retain the same in their mounted position.

In lieu of the louver **42,** a plastic lens or panel can be provided, of single or double thickness, and of the same material as above described for the panel assemblies **10.** The material can be opaque or translucent, and where double thickness translucent material is used the same may be engraved as above described for decorative or esthetic effect.

In the light fixture illustrated in FIG. **4,** a sign panel **10** is provided at each side and end of the fixture, and retained in the above described manner. When the fixture is attached to or suspended from the ceiling at the point of intersection of two corridors, it will be seen that a single fixture can service each of the connecting corridors thereby providing directional assistance or other useful information to properly orient the viewer. The invention is particularly useful in hospitals and public facilities such as airports and the like to readily identify the areas of the facility and permits informational signs to be removed from the side walls of corridors where they are much less noticeable.

As above described, the use of a pair of translucent plastic panels permits the desired color effect to be achieved. For example, in one department or area the colors could be preselected so as to readily identify that particular area, while in another area different colors could be selected. A significnat advantage of the present invention is the ease with which the sign panels can be positioned in or removed from the fixture thereby enhancing the flexibility of the system. Where less than all four sides are needed to convey information, non-engraved panel assemblies can be employed. It will also be understood that where the fixture need not serve as a primary light source or a down light, the light source will in such event serve to illuminate the sign or signs only.

It is of significant importance in the FIGS. 1–3 form of the invention that the panels be laminated before the engraving process. Bonding is thereby effected along the entire contact surface, with the subsequent engraving process simply removing one of the bonded layers. Although the thickness of the panels is not critical, highly satisfactory results have been obtained where each panel is one-sixteenth inch thick and of the material above mentioned.

Referring now to the form of the invention illustrated in FIGS. 5–8, in this form the bonded translucent panels 52 and transparent panel 50 are removably mounted in the frame assembly so as to permit removal and replacement of the outer bonded panels to change the visual display. In FIG. 5, a portion of the frame assembly shown in FIG. 4 is illustrated, and the same reference numerals have accordingly been applied.

Panel 50 in the FIG. 5 form of the invention comprises a transparent backing panel and is similar in dimension to panel 12 in the FIGS. 1–3 form of the invention, extending substantially the full vertical dimension of the frame 22. Clips 40 resiliently engage the adjacent face of the transparent panel 50 for resiliently biasing the same against the adjacently disposed peripheral surface of the frame assembly 22.

As can be seen in FIG. 6, there are actually nine separate outer bonded panels 52, and such reference character is commonly used with respect to each of the panels. The bonded panels 52 are preferably engraved after laminating for the reason previously discussed in order to achieve the desired visual effects. Although the panels 52 have been indicated by a single reference numeral, it will be understood that two, preferably one-sixteenth inch thick, sheets are employed, as shown in FIG. 4, with the outermost sheet only being engraved through, as fully described above in connection with the FIGS. 1–4 form of the invention.

Each bonded panel 52 is shaped as shown in FIG. 7, with the panel being beveled at each corner as shown at 53. Each such bonded panel may bear indicia or directional information, as shown on the panel in FIG. 7. Alternatively, certain of the panels may be left entirely blank so as to achieve a predetermined visual effect.

It will be seen that when the panels are arranged in the manner illustrated in FIG. 6, the adjacently disposed corners of four adjacent panels define a generally rectangular opening, and a resilient clamp assembly generally and commonly indicated at 60 extends through the backing panel 50 in the area thereof where the corners of the panels adjoin, as clearly shown in FIG. 6. Each clamp assembly 60 resiliently clamps the adjacently disposed bonded panels 52 to the backing panel 50 thereby removably mounting the outer panels 52 in the frame assembly.

The resilient clamp 60 is shown in exploded view in FIG. 8 and comprises a head portion 62 formed with an internal, threaded bore which receives a section of a coil spring 64 which can be expanded longitudinally relative to the head section 62 of the clamp. A threaded nut 66 completes the assembly, and is internally threaded for connection to the free end of the spring 64. Since the connection of the spring 64 to the head 62 is preferably permanent, the connection may be bonded, and the section of the spring 64 which extends through the openings 68 therefor formed in the backing panel 50 may likewise be bonded to such backing panel so as to permanently carry the clamp assemblies on the backing panel.

In the use of the clamp assemblies 60, in the original installation of the outer translucent panels 52, the nut portions 66 of the clamp can be removed entirely from their threaded connection with the spring 64, and the appropriate bonded panels 52 inserted to provide the desired directional information. As clearly shown in FIG. 6, the outer edges of all panels except the centermost panel 52 extend behind the peripheral flange 22 of the frame assembly whereby the panels are maintained in the frame at their outer edges. After the panels 52 have been correctly positioned against the backing panel 50, the nut sections 66 of the clamps are threadedly secured on the springs 64 thereby retaining the panels 52 at their adjacently disposed edges as well as their outer edges through the frame assembly. It will further be seen that by positioning the clamp assemblies in the manner illustrated in FIG. 6, only four such assemblies are needed to satisfactorily accommodate nine individual outer panels.

When it is desired to change one or more of the outer panels 52, the resilient clamp or clamps 60 which resiliently retain the bonded panel desired to be removed are expanded thereby permitting such panel to be removed and a replacement panel installed. For example, assuming it is desired to remove the panel 52 which appears in the lower left hand corner of FIG. 6, the nut section 66 of the clamp assembly 60 which resiliently clamps the upper right hand corner of such panel is grasped and moved outwardly away from the frame assembly. Such outward expansion is possible due to the construction of the spring 64 and the anchoring of one end thereof in the backing panel 50. When the spring 64 has been expanded, the panel 52 can be manipulated so that the adjacent bevelled edge 53 can clear the clamp assembly 60 and the outer edges can clear the flanges of the frame assembly thereby freeing such panel from its former position contiguous the transparent backing panel 50. A replacement bonded panel 52 can then be installed while the spring 64 is expanded, with such replacement panel initially being inserted behind the frame flanges and beneath the clamp head 60, with the latter being thereafter released thereby contracting the spring 64 and causing the replacement panel 52 to be resiliently biased against the backing panel 50. It will thus be seen that some or all of the outer panels 52 can be replaced at random without in any way affecting the position of the backing panel 50 in the frame assembly, thereby greatly facilitating the updating of directional information conveyed by the signs by institutional personnel.

Although the above description relates to ceiling mounted fixtures, it will be understood that the unique features of the invention could also be adapted to wall mounted fixtures or to floor mounted stand or pedestal mounted installations, providing the same luminous effect.

I claim:

1. A sign fixture comprising a generally open frame assembly formed of a plurality of interconnected, angled frame members, a sign panel assembly of translucent plastic material mounted on at least one side or end of said frame assembly, said panel assembly comprising an inner backing panel having a plurality of openings therethrough, and a plurality of outer panels positioned in adjacent non-overlapping relationship

with each other; and means for removably connecting said outer panels to said backing panel so as to permit convenient replacement of one or more of said outer panels without affecting said inner backing panel, said removable connecting means comprising a clamp assembly having one end attached to said backing panel, a resilient expansible body portion extending through one of said openings in said backing member and outwardly beyond said outer panels, and a nut member removably attached to said body portion of said clamp assembly, wherein said resilient, expansible body portion comprises a spring and said nut member is internally threaded to removably receive the adjacent end of said spring, and wherein certain of the corners of said outer panels are bevelled, said nut member serving to permit manipulation of said spring without removing said nut member thereby to permit manipulation of said spring for removing one or more of said outer panels to be replaced while said clamp assembly remains intact.

* * * * *