Aug. 30, 1955 W. A. SPIELMANN ET AL 2,716,298

ILLUMINATED DIRECTORY

Filed Sept. 15, 1951

Fig. 1

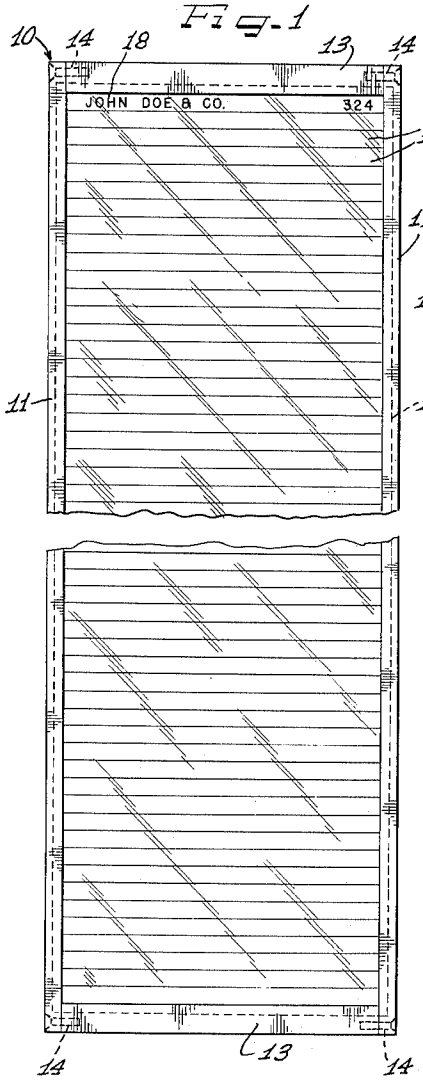


Fig. 2

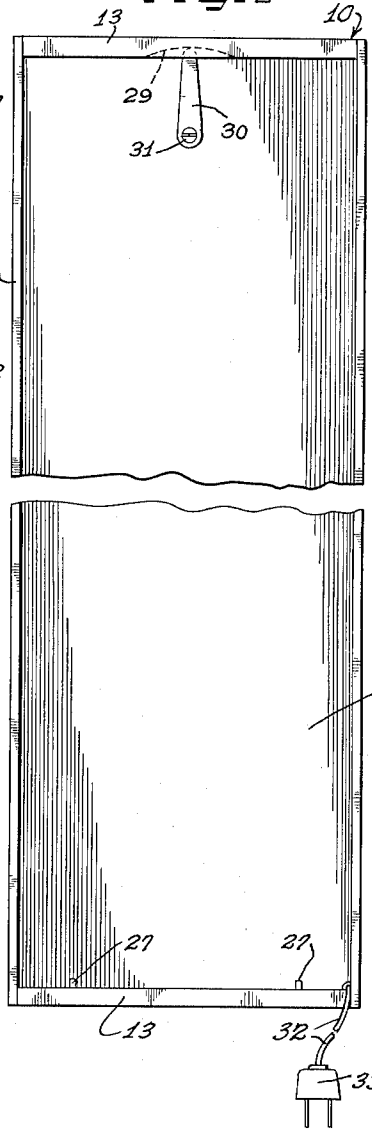


Fig. 3

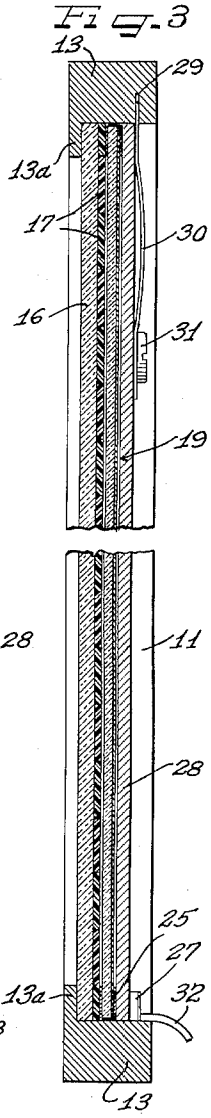


Fig. 4

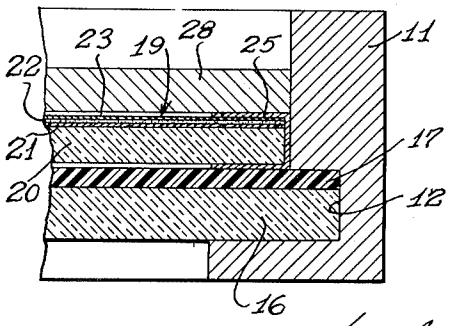
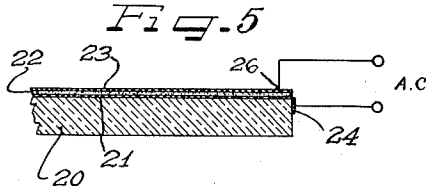


Fig. 5



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United States Patent Office 2,716,298 Patented Aug. 30, 1955

2,716,298

ILLUMINATED DIRECTORY

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Application September 15, 1951, Serial No. 246,732

6 Claims. (Cl. 40—132)

This invention relates generally to illuminated directory panels and more particularly to a novel building directory having identification strips with appropriate contrasting markings or characters clamped between a transparent face panel and an electro-luminescent capacitor whereby the strips will be silhouetted against a luminous background to improve the visibility of the identification markings or characters.

According to the general features of the present invention, a directory panel is provided with a rectangular frame including grooved side rails and end rails removably fixed thereto and extending therebetween. A transparent face panel extends across the frame and is received in the grooves of the side rails. The end rails are positioned to retain the transparent panel in assembly with the frame. A selected plurality of identification strips are disposed on the panel and extend across the frame. The strips are constructed to provide contrasting opaque and light transmitting areas forming markings or characters. A luminescent condenser panel forming an electro-luminescent capacitor and coextensive in area with the transparent panel is resiliently clamped into assembly adjacent the strips by resilient clamping means carried on the frame so as to silhouette the characters of the strips against a uniform luminous background.

It is an object of the present invention to provide an improved illuminated directory which is particularly compact and by means of which a uniformly luminous background may be provided to silhouette characters or markings formed on a selected plurality of replaceable strips.

Another object of the present invention is to provide an illuminated directory having improved light source means associated therewith to provide a luminous background for indicia strips having markings formed thereon.

Yet another object of the present invention is to provide an illuminated building directory having improved visibility characteristics and which is particularly economical in operation.

Many other advantages, features and additional objects of the present invention will become manifest to those versed in the art upon making reference to the detailed description which follows and the accompanying sheet of drawings in which a preferred structural embodiment of an illuminated directory incorporating the principles of the present invention is shown by way of illustrative example.

On the drawings:

Figure 1 is a broken front elevational view of a building directory provided in accordance with the principles of the present invention.

Figure 2 is a broken rear elevational view of a building directory provided in accordance with the principles of the present invention;

Figure 3 is a broken somewhat diagrammatic cross-sectional view of the building directory shown in Figures 1 and 2;

Figure 4 is an enlarged fragmentary cross-sectional view, somewhat diagrammatic, showing additional details of construction of the building directory according to the present invention; and

Figure 5 is a diagrammatic view of a portion of an electro-luminescent capacitor provided in accordance with the principles of the present invention.

As shown on the drawings:

An illuminated directory is indicated generally by the reference numeral **10** and comprises a substantially rectangular frame including a pair of oppositely disposed side rails **11** which are of generally L-shaped configuration and which are provided with a longitudinal groove **12** extending from end to end thereof. The frame further includes a pair of oppositely disposed end rails **13** which are removably fixed to the side rails **11** by a plurality of fasteners **14**. The end rails **13** are also generally L-shaped, thereby to provide a shelf **13***a* seating a transparent panel **16** which extends across the frame and into the grooves **12** of the side rails **11**.

A plurality of strips **17** are provided to form indicia means for the illuminated directory **10**. In this illustrative embodiment, each of the strips **17** are translucent and have opaque characters **18** formed thereon facing the transparent panel **16**. The strips **17** extend across the frame and are substantially coextensive in width with the transparent panel **16** and are arranged to have their end portions extend into the grooves **12** of the side rail **11**.

Adjacent the strips **17** is provided an electro-luminescent capacitor indicated generally by the reference numeral **19**. The capacitor **19** comprises a pane **20** of electrically non-conductive translucent material such as glass which is coated on one face with a layer of electrically conductive material, for example, a thin coating of tin may be employed which is sufficiently thin to be translucent. The translucent layer of electrically conductive material is shown in greatly enlarged form in the drawings and is identified by the reference numeral **21**.

A coating of a suitable luminescent material is spread uniformly over the conducting surface formed by the layer **21** so as to form a dielectric layer for the capacitor, for example, a film of phosphor suspended in a suitable solid is indicated at **22**. The surface of the luminescent dielectric film **22** is further coated with a thin layer of a metallic electrically conductive material such as vaporized aluminum, foil, or a flashed metallic coating, the film of conductive material being indicated at **23**.

Electrical connections are made with the capacitor **19** by affixing a contact strip **24** along one edge of the pane **20**, thereby to establish electrical contact with the film **21** and contact is also established with the film **23** at any convenient spot as for example, at **26**. To prevent short circuiting, a channel-shaped piece of insulation shown at **25** is provided along the edge portions of the pane **20** between the capacitor **19** and the side and end rails of the frame.

Retaining means are provided to hold the capacitor **19** in assembly with the directory structure, thereby to provide an arrangement which is somewhat laminar in character, the strips **17** being clamped against the transparent panel **16** by the capacitor **19**. In the preferred structural embodiment herein set forth by way of illustrative example only, the retaining means takes the form of a pair of spaced apart studs **27** which are affixed to one of the end rails **13** and which are arranged to retain a backing member **28** received in abutting assembly with the capacitor **19**.

The opposite end rail **13** is provided with an arcuate slot **29** seating a resilient spring arm **30** pivotally connected to the backing member **28** by means of a pivot pin **31**.

The backing member **28** is preferably substantially coextensive with the capacitor **19** so that an evenly distributed continuous biasing force will be imparted to the capacitor **19** by the spring arm **30**, thereby holding the strips **17** firmly and uniformly against the transparent panel **16** and facilitating the retention thereof in firm assembly within the directory structure.

Suitable electrical connections may be provided to establish an electrical field across the elements of the capacitor **19**, a conductor wire being indicated at **32** and having a plug **33** on the end thereof for connection to a suitable source of alternating current.

Upon energization of the capacitor **19**, the luminescent film **22** will be excited by the electric field and will emit light as long as the exciting field is maintained in accordance with the principles of electro-luminescence. There is thus provided a surface area of light behind the translucent strips **17** which effectively silhouettes the opaque characters **18** and which thereby improves the visibility characteristics thereof.

Although various minor structural variations might be suggested to those versed in the art, it should be understood that we wish to embody within the scope of this invention all such modifications as reasonably and properly come within the scope of our contribution to the art.

We claim as our invention:

1. In a directory panel, a rectangular frame, a transparent panel extending across the front of said frame, strips disposed on said panel, said strips having areas of contrasting light transmitting properties to form identification characters, a second panel member across the back of said frame and clamping said strips against the transparent panel, a translucent layer of electrically conductive material on one face of said second panel and facing said strips, said second panel further including a layer of luminescent material over said electrically conductive material, and a layer of electrically conductive material on said luminescent material, and means establishing an excitation field cross said layers of said second panel to electrically excite said luminescent material, thereby to silhouette said strips through said transparent panel against said second panel.

2. In a directory panel, a laminated panel unit comprising a pair of coextensive rectangular panels having a rectangular coextensive sheet of translucent material therebetween, one of said panels being transparent, opaque areas on said sheet of material, whereby identification characters are provided, said other panel comprising an electro-luminescent panel having a translucent coating of electrically conductive material, a coating of luminescent dielectric material, and a coating of an electrically conductive metal, and a frame mounting each of said panels and said sheet of material in aligned laminar assembly, whereby said sheet of material will be silhouetted through the transparent panel and against said electro-luminescent panel.

3. In a directory panel as defined in claim 2, said frame having a flange abutting against the margins of the transparent panel and having resilient clamping means abutting against the other panel to evenly distribute a continuous biasing force for clamping said sheet of material between said panels resiliently.

4. In a directory panel, a frame receiving a plurality of spaced strips providing a continuous directory panel face, each of said strips having areas of contrasting light transmitting properties forming identification characters, a luminescent condenser panel in said frame coextensive in area with said panel face and abutting against said strips, an electrical means energizing said luminescent condenser panel to silhouette the entire directory panel face provided by a uniformly diffused luminous background provided by said condenser panel.

5. In a directory panel as defined in claim 4, continuous bias exerting means between said condenser panel and said frame pressing said condenser panel with even pressure against said strips.

6. A directory panel comprising, a rectangular frame having grooved side rails and end rails removably fixed thereto and extending therebetween, a transparent pane extending across said face and into said grooves and being held therein by said end rails, a luminescent condenser panel in said frame substantially coextensive with said transparent pane to establish a uniformly diffused luminous backing surface, a plurality of strips clamped between said pane and said condenser panel and providing a continuous directory panel face visible through said pane against said backing surface, each of said strips having areas of contrasting light transmitting properties to form identification characters, and electrical means to electrically excite said luminescent condenser panel to silhouette said directory panel face through said transparent pane against said backing surface of said condenser panel.

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