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ILLUMINATED SIGN FOR REMOVABLE LETTERS

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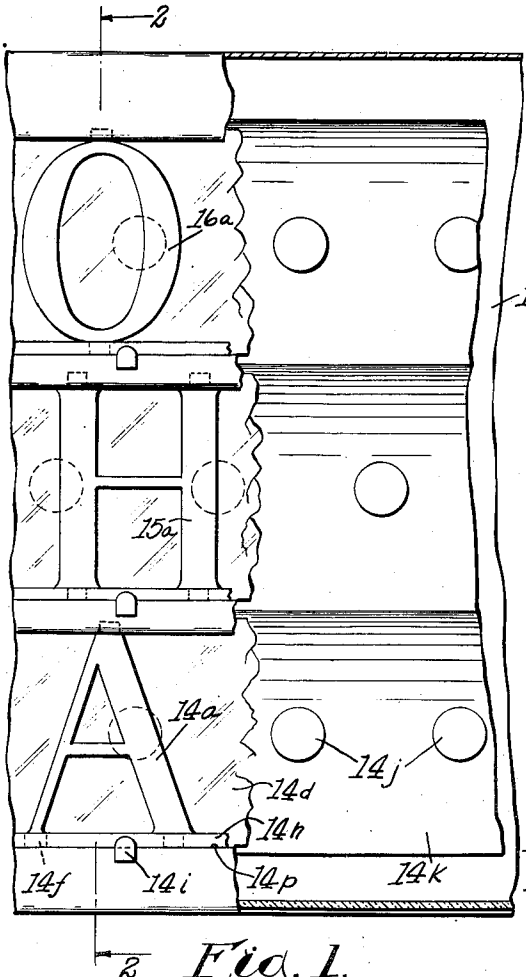


Fig. 1.

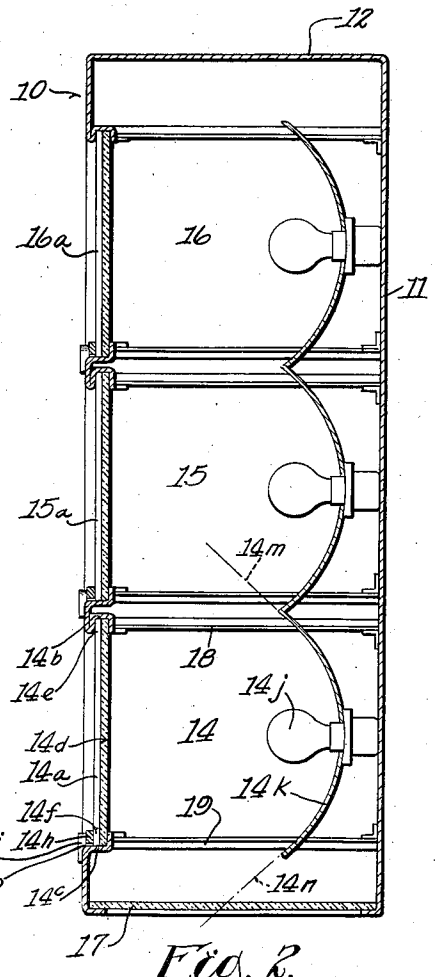


Fig. 2.

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ILLUMINATED SIGN FOR REMOVABLE LETTERS

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5 Claims. (Cl. 40—132)

This invention relates to an illuminated sign and more particularly to a sign in which the displayed legends can be conveniently changed from time to time by removing and replacing individual letters.

An object of the invention is to provide a sign including a frame for the display of a plurality of lines of advertising material one above the other, in an improved form, and especially for adequate illumination of the displayed legends at a reduced operating cost.

The invention consists of the construction and combination of parts as herein illustrated, described and claimed, and in such modifications of the structure illustrated and described as may be equivalent to the claims.

Throughout the specification the same reference characters have been used to indicate the same parts, and in the drawing:

Figure 1 is a partial front view, partly in section of a sign incorporating the invention.

Figure 2 is a transverse vertical section taken approximately along the line 2—2 of Fig. 1.

The frame of the sign includes a box-like structure generally denoted by the numeral 10 which provides a rear wall 11 and a top wall 12. In its vertical extension the frame provides for several units, such as 14, 15, 16 extended lengthwise of the frame and disposed one above the other, each of the units provided for display of a horizontal row of letters, some of the letters of each of the rows being shown at 14*a*, 15*a*, and 16*a*. Each of the units comprises similar means for holding and illuminating the associated letters, which will therefore be described in detail only for the unit 14.

The unit 14 provides at the front a channeled frame member extended lengthwise of the frame at the upper front portion of the unit as at 14*b*, and a ledge, such as 14*c*, similarly extended at the front bottom portion of the unit, the channel and ledge operating to retain a glass plate 14*d* against which the letters 14*a* are retained. Each of the letters provides top lugs such as 14*e* and bottom lugs such as 14*f*, the top lugs being received directly in the upper channel 14*b* and the lower lugs being received behind a removable bar or strip 14*h* which is retained in position by lugs such as 14*i* fixed with the frame 10 and spaced at suitable intervals along the front of the ledge 14*c*. When the strip 14*h* is moved upwardly to disengage the lugs 14*i* the strip may be removed, and the letters 14*a* may then be removed by drawing the bottom portion outwardly and moving the letter downwardly sufficiently to disengage the channel 14*b*. The letters may be interchangeably replaced for changing the exposed legend by reversing the process.

For the illumination of the letters 14*a* there is provided, behind the glass plate 14*d*, a row of electric light bulbs such as 14*j*. There is also provided a reflector 14*k*. The reflector extending throughout the longitudinal length of the unit 14, and is of such form and disposition as to intercept the light rays which otherwise would travel rearwardly, and to reflect such rays forward, as well as upward and downward to some extent, within a path approximately defined by the extension of the dotted lines 14*m*, 14*n*, whereby a portion of the light from the bulbs 14*j* which would otherwise travel toward the rear of the frame is deflected, in part to illuminate the letter 14*a* from the rear, and in part to similarly illuminate similar letters such as 15*a* of an adjacent unit 15, and in part, for the bottom unit 14, so that light may shine downwardly through a glass plate 17 for downward illumination. It will be understood, of course, that the letters and the bottom glass plate 17 are further illuminated by the light received directly from the bulbs 14*j*.

The spacing of the bulbs 14*j* to the rear of the plate 14 and the longitudinal spacing of the bulbs one from the other, taken together with the position and form of the reflector 14*k* is such as to provide a maximum of illumination for the letters 14*a* with a minimum expenditure of light and current. In practice it has been found that the rearward spacing of the bulbs 14*j*, the horizontal spacing thereof, and the forward position of the reflector 14*k*, as herein shown, is of such importance that the current required for proper illumination of the sign letters may be reduced as much as 50%, as compared with previous sign letter illumination.

It will be noted that the units providing the different reflectors 14*k* are vertically spaced, the reflectors having closely adjacent horizontal edges and standing considerably to the rear of the front glass transparencies 14*d*. Also the trough-like reflector surfaces substantially coincide with the surface of a cylinder having its axis materially behind the transparency and the light bulbs 14*j* are considerably to the rear of such axis and relatively closely adjacent to the reflectors. These various features contribute to providing a maximum of illumination with a minimum of current, as pointed out in the paragraph preceding and, in addition, effect a substantially uniform intensity of illumination as visible from in front of the sign, without localized intensity

such as might otherwise be caused, for example, by the use of spaced light bulbs as the source of the illumination, or by the use of curved reflector surfaces.

The channels and ledges such as *14b*, *14c* are maintained in proper position in the frame by the means of braces such as **18**, **19**, but these are of narrow extent longitudinally and of such spacing as not to interfere with the distribution of the illumination.

It will be understood that frame members such as *14c* and *14b* extend from end to end of the box or casing **10** and are suitably secured to the end portions of the casing. The spaced members **18** and **19** are secured to the members such as *14c*, *14b* by any suitable means. Where the members such as *14b* are intermediate between two units such as **14** and **15**, the same member provides a ledge for the letters retained in front of the upper unit, and a channel for the letters retained adjacent the lower unit, as shown by the combined ledge and channel member between the lower unit **14** and the adjacent unit **15**.

The structure of the ledge *14c* is such that any water collecting against the front face of the glass plate *14d*, as from rain etc. cannot enter the interior of the frame **10** but passes outwardly through the space *14p* underneath the strip *14h*.

What is claimed is:

1. An illuminating frame for a plurality of vertically spaced horizontal rows of individually removable sign letters, including a plurality of vertically spaced units respectively for the different rows, each of said units comprising a front portion providing vertically spaced upper and lower horizontal grooves, a vertical backing sheet of transparent material retained by said grooves at the rear thereof, said upper and lower grooves each providing space at the front of the backing sheet for removably receiving an upper and lower portion of horizontally spaced letters in various horizontal positions thereof, the front portion of each of the lower grooves being removably fixed in position whereby for each row of letters the letters retained by said grooves may be removable frontwardly upon removal of said front groove portion, individual reflectors for each of said units spaced rearwardly of the transparent sheet, and a horizontal row of illuminating bulbs spaced in front of each of the reflectors, the reflectors each being curved on a horizontal axis and positioned sufficiently to the rear of the illuminated sheets to effect reflection both to the letters of the associated unit and to the letters of an adjacent unit, said frame being interiorly open to permit such reflection.

2. An illuminating frame for a plurality of vertically spaced horizontal rows of individually removable sign letters, including for each row a frame portion providing at the front thereof vertically spaced horizontally extended upper and lower groove portions respectively for retaining upper and lower letter portions in various horizontal positions of the letter within the groove, the front portion of each of said lower grooves comprising a removable letter retaining strip or bar, said frame providing upwardly extended lug or retainer portions behind which said strip or bar may be vertically displaced for removal, whereby letters within the grooves may be removed frontwardly.

3. An illuminating frame for a plurality of vertically spaced horizontal rows of individually removable sign letters, including for each row a frame portion providing at the front thereof vertically spaced horizontally extended upper and lower groove portions respectively for retaining upper and lower letter portions in various horizontal positions of the letter within the groove, the front portion of each of the lower grooves being removably fixed in position whereby letters within the grooves may be removable frontwardly upon removal of said front groove portion, said frame providing for each row of letters a horizontally extended reflector curved on a horizontal axis and spaced rearwardly of the letters within the grooves sufficiently to reflect some of the light from a source in front of the reflector to the row of letters associated therewith and some to an adjacent row.

4. In an illuminated sign including a frame and transparent closing means for the front thereof, the combination of supporting means for retaining a plurality of sign letters in horizontally and vertically spaced relationship adjacently outside said transparent front closing means, a plurality of reflector units extended in parallel relationship rearwardly of said transparent front closing means and together providing a substantially continuous reflector surface at a substantial spacing behind said transparent front closing means, said reflector units individually comprising curved troughs opening forwardly in the direction of said transparent front closing means and forming portions substantially corresponding to the surface of a horizontal cylinder having its axis materially to the rear of said transparent front closing means, and a plurality of illuminating bulbs adjacent each of said troughs and spaced apart in the direction of the trough extension, said bulbs being between the reflector trough and the transparent front closing means.

5. In an illuminated sign including a frame and transparent closing means for the front thereof, the combination of supporting means for retaining a plurality of sign letters in horizontally and vertically spaced relationship adjacently outside said transparent front closing means, a plurality of reflector units extended in parallel relationship rearwardly of said transparent front closing means and together providing a substantially continuous reflector surface at a substantial spacing behind said transparent front closing means, said reflector units individually comprising curved troughs opening forwardly in the direction of said transparent front closing means, and forming portions each substantially corresponding to the surface of a cylinder having its axis materially to the rear of said transparent front closing means, and a plurality of illuminating bulbs in front of each of said reflector troughs and spaced apart in the direction of the trough extension, said bulbs being closely adjacent to the reflector trough and relatively rearwardly remote from the transparent front closing means.

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