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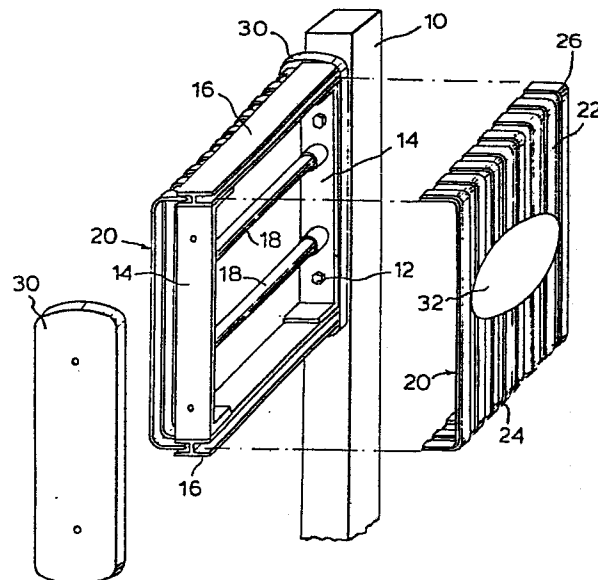
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(54) **Improvements in display signs.**

(57) A display sign of novel appearance is described in which the display plates (20) are formed of a profiled and rolled sheet material. In addition to the enhancement in appearance, the construction employs plates (20) having significant structural rigidity with the result that the framework (14, 16) supporting the plates (20) and the internal lights (18) need not itself be substantial. Cut-outs (32) are formed in the sheets (20) and mouldings of acrylic material (not shown) are mounted in these cut-outs (32), the mouldings being in a contrasting colour. If the edges of the mouldings remain translucent then a particularly attractive halo effect is obtained around the logo or lettering when back lit.



IMPROVEMENTS IN DISPLAY SIGNS

The present invention relates to display signs, in particular to illuminated display signs.

5 It is known to construct illuminated display signs by securing a plate to a rigid frame supporting a light source so as to form a box. The whole of the plate may act as a display to be viewed either under natural day light or through the back lighting provided.

10 A disadvantage of such a construction is the need for the provision of a substantial frame to mount the display plate. When such displays are fixed to a pole, as is frequently the practice, for example, in the motor trade, the frame must be particularly rigid and capable of withstanding severe weather conditions.

15 It has previously been proposed in GB-A-1,530,371 to form a light weight box construction on which to mount the display plate by profiling and bending a sheet material. Such a construction can only be used to produce a box sign intended to be viewed from one  
20 direction, as opposed to a pole mounted double sided box sign.

The present invention is predicated upon the realisation that the profiled sheet material disclosed in British Pat. Spec. No. 1,530,371 is visually appealing and can  
25 be employed as the display plate instead of merely acting as a means for supporting such a display plate.

Thus, in accordance with the present invention, an illuminated sign comprises a display plate in the form of a profiled sheet which is curved to form a rigid  
30 structural element and has at least one cut-out, transparent or translucent portion shaped in accordance with the desired legend or logo to be displayed.

Because the display plate is rigid in itself, it no longer requires a rigid frame to support it, thereby enabling a display box to be made of light construction while providing a dramatic visual effect.

- 5 Preferably, the profiled sheet material is anodised aluminium, having a highly reflective anodisation coating.

When the sheet is made of aluminium or metal, it is preferred to form the sign by cutting away the material  
10 in accordance with the desired legend or logo to be displayed.

Conveniently, there may be mounted in the cut-out portions lettering or a logo which is arranged to project outwards through the cut-out portions to stand  
15 proud of the surface of the profiled sheet.

A particularly attractive display is obtained when the lettering or logo is coloured only on the parts parallel to the general plane of the profiled sheet while the upstanding portions of the lettering are left uncoloured  
20 and translucent. When such a display sign is internally lit, a halo effect is obtained around each individual letter.

Because of the rigidity inherent in the shape of a profiled and curved sheet, the sheet may be  
25 alternatively made of a plastics material.

When the sheet material is of plastics, the profiling and the legend or logo may be formed by vacuum moulding a sheet of acrylic material. It is desirable to paint the acrylic material so that the background should be  
30 opaque when internally lit while the legend remains translucent. Such a construction may be similar to that of the aluminium construction previously described.

- When forming a double sided display, it is possible to secure two such structural elements to one another to form a box which is sufficiently rigid in itself to require little framework for support. In such a case the
- 5 framework may be relatively simply constructed for the purpose of supporting the internal light sources and may be formed with double channelled extrusions at its upper and lower edges into which the profiled sheets may be slotted and secured.
- 10 The invention will now be described further, by way of example, with reference to the accompanying drawing which is an exploded perspective view of a box sign in accordance with the present invention.

In Figure 1, a box sign is shown mounted on a pole 10 by

15 means of nuts and bolts 12. The box sign includes a frame comprising uprights 14 and two horizontal sides 16 in the form of H cross-section extrusions. The frame in itself does not have any substantial structural rigidity and serves merely to support two fluorescent tubes 18

20 and to mount the front and rear display plates 20 which assure the structural rigidity of the assembled box sign.

Each of the front and rear display plates 20 is formed of a profiled sheet of anodised aluminium, the profiling

25 being such that the material is formed with parallel corrugations 22 which may be of triangular or preferably trapezium shaped section. After profiling, the sheet is rolled at its bottom edge 24 and its upper edge 26. The combination of profiling and curving by rolling is to

30 enable the sheet to withstand distortion in any plane. The front and back display plates are assembled onto the frame by slotting the upper and lower edges of the sheets into the channels defined by the H cross-section extrusions and securing the panels to the extrusions by

35 any convenient fasteners such as rivets or screws.

To enhance the appearance, two end plates 30 are provided one at each end of the frame and these are secured, for example by means of self-tapping screws, onto the uprights 14 of the frame.

- 5 To form the display legend or logo, cut outs are formed in the aluminium sheet 20 such as the oval cut out 32 shown in the drawing. Light from the fluorescent tubes 18 escapes through the cut outs to display the logo or legend by night.
- 10 Though not shown, an acrylic moulding may be inserted through the cut-out portion. The acrylic moulding has sides protruding through the cut-out and a front face of the same shape as the cut out painted in a colour, such as blue or red, contrasting with the anodised aluminium.
- 15 Thus by day, the lettering or the logo may stand out sharply against the background of the aluminium sheet. By night, the illumination of the logo or the lettering of the legend by the internal lights results in light escaping from the sides of the moulding to form a halo
- 20 effect enhanced by the anodised aluminium and surrounding the backlit lettering in the contrasting colour. It is believed that this provides a particularly striking and attractive appearance.

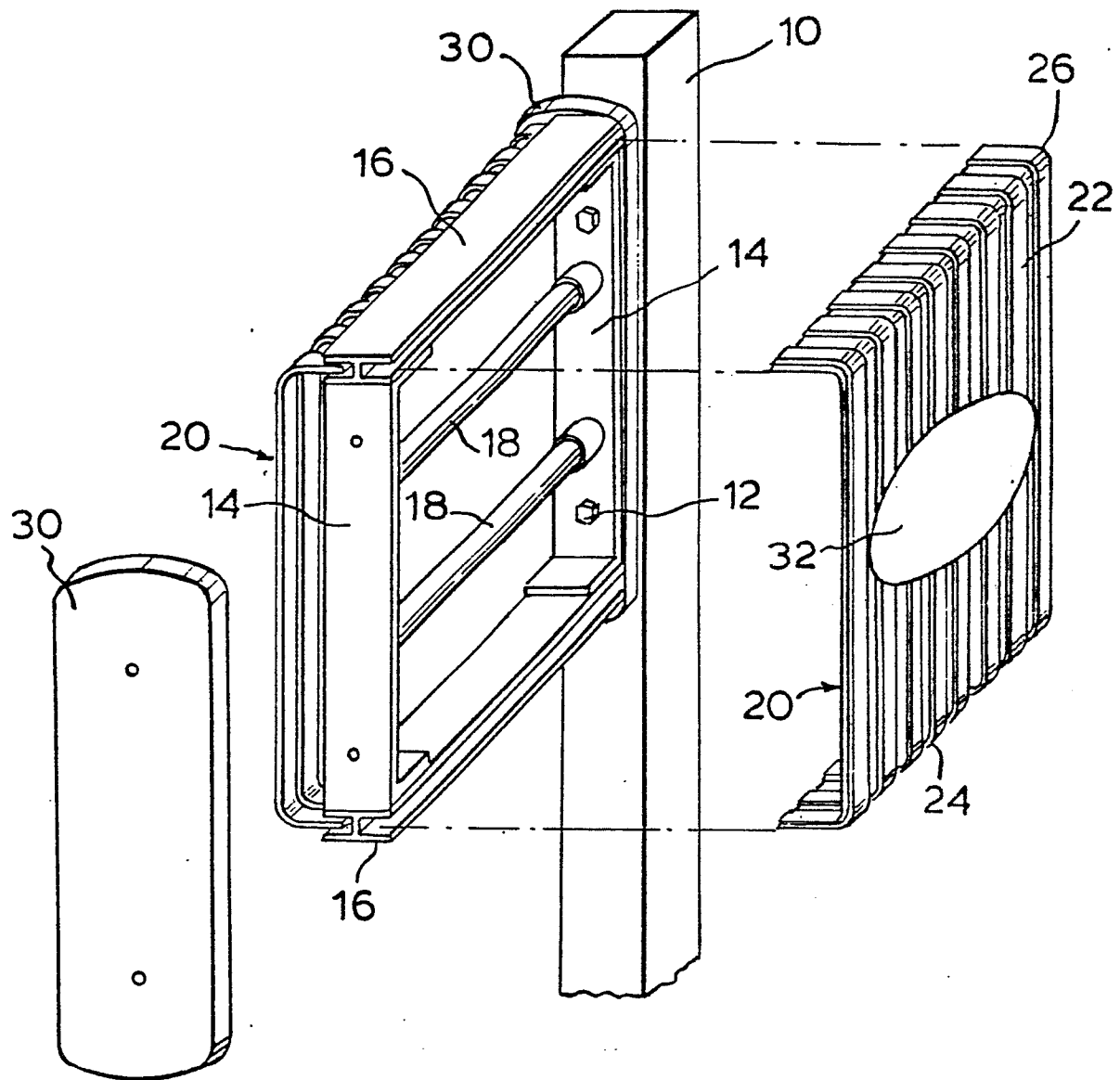
Where the cut-out is a letter such as an "O" which  
25 requires a complete ring to be cut-out, the plastics moulding may conveniently be used as a means for supporting the cut-out centre of the letter. Thus, in the case of the letter O the moulding would not be annular but the centre of the O would remain and the  
30 cut-out circle from the aluminium sheet would be adhered to the central portion of the letter to give the appearance of a continuous sheet with an annulus cut-out.

## CLAIMS

1. An illuminated sign comprising a profiled sheet which is curved to form a rigid structural element, characterised in that the profiled sheet constitutes the display plate (20) of the sign and has at least one cut-out (32), transparent or translucent portion shaped in accordance with the desired legend or logo to be displayed.
2. An illuminated sign as claimed in Claim 1, wherein the profiled sheet (20) is made of anodised aluminium, having a highly reflective anodisation coating.
3. An illuminated sign as claimed in Claim 2, wherein cut-outs (32) are formed in the aluminium sheet material in accordance with the legend or logo to be displayed.
4. An illuminated sign as claimed in Claim 3, wherein there is mounted in the cut-out portions lettering or a logo which is arranged to project outwards through the cut-out portions to stand proud of the surface of the profiled sheet.
5. An illuminated sign as claimed in Claim 4, wherein the lettering or logo is coloured only on the parts parallel to the general plane of the profiled sheet while the upstanding portions of the lettering are left uncoloured and translucent.
6. An illuminated sign as claimed in Claim 1, wherein the profiled sheet (20) is made of a plastics material.
7. An illuminated sign as claimed in Claim 6, wherein the profiling and the legend or logo are formed by vacuum moulding a sheet of acrylic material.

8. An illuminated sign as claimed in Claim 7, wherein the background to the legend or logo is painted so as to be opaque when the sign is internally lit, at least the outline of the legend or logo remaining unpainted and translucent.
- 5
9. An illuminated sign as claimed in any preceding claim, wherein two display elements are secured to one another to form a double sided display sign.

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European Patent  
Office

## EUROPEAN SEARCH REPORT

0106574

Application number

EP 83 30 5624

| DOCUMENTS CONSIDERED TO BE RELEVANT                                                                                                                                                                                     |                                                                               |                                                                                                                                                                                                                                                                              |                                                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|
| Category                                                                                                                                                                                                                | Citation of document with indication, where appropriate, of relevant passages | Relevant to claim                                                                                                                                                                                                                                                            | CLASSIFICATION OF THE APPLICATION (Int. Cl. 3) |
| A                                                                                                                                                                                                                       | DK-B- 133 211 (COLORLUX A/S)<br>* Figure 1 *                                  | 1,2                                                                                                                                                                                                                                                                          | G 09 F 13/06                                   |
| A                                                                                                                                                                                                                       | ---<br>US-A-2 560 117 (R.W. MALLARY)<br>* Claims 1-4 *                        | 1,6-18                                                                                                                                                                                                                                                                       |                                                |
| A                                                                                                                                                                                                                       | ---<br>US-A-3 096 596 (E.E. MAGNUSON<br>et al.)<br>* Claims 1-3 *             | 2, 6-18                                                                                                                                                                                                                                                                      |                                                |
| A                                                                                                                                                                                                                       | ---<br>US-A-3 235 989 (J.R. BROOKS)<br>* Column 3, lines 34-56 *              | 2                                                                                                                                                                                                                                                                            |                                                |
|                                                                                                                                                                                                                         | -----                                                                         |                                                                                                                                                                                                                                                                              |                                                |
|                                                                                                                                                                                                                         |                                                                               |                                                                                                                                                                                                                                                                              | TECHNICAL FIELDS<br>SEARCHED (Int. Cl. 3)      |
|                                                                                                                                                                                                                         |                                                                               |                                                                                                                                                                                                                                                                              | G 09 F 13/00                                   |
| The present search report has been drawn up for all claims                                                                                                                                                              |                                                                               |                                                                                                                                                                                                                                                                              |                                                |
| Place of search<br>BERLIN                                                                                                                                                                                               |                                                                               | Date of completion of the search<br>05-12-1983                                                                                                                                                                                                                               | Examiner<br>BOTTERILL K.J.                     |
| <b>CATEGORY OF CITED DOCUMENTS</b>                                                                                                                                                                                      |                                                                               |                                                                                                                                                                                                                                                                              |                                                |
| X : particularly relevant if taken alone<br>Y : particularly relevant if combined with another document of the same category<br>A : technological background<br>O : non-written disclosure<br>P : intermediate document |                                                                               | T : theory or principle underlying the invention<br>E : earlier patent document, but published on, or after the filing date<br>D : document cited in the application<br>L : document cited for other reasons<br>& : member of the same patent family, corresponding document |                                                |