Abstract: An illuminated advertising board comprises a bracket (12), a light directing unit (16) and an elongate light unit (14). The light directing unit (16) comprises a translucent layer having first and second opposed faces, and a reflective layer provided at or adjacent the first face of the translucent layer for reflecting light towards the translucent layer. Light is introduced into the translucent layer such that the light directing unit (16) emits light from the second face of the translucent layer. A waterproof seal is provided for preventing ingress of moisture between the translucent layer and the reflective layer. The waterproof seal may take the form of waterproof double-sided adhesive tape situated between the translucent layer and the reflective layer. A protective transparent film may be adhered to the second face of the translucent layer in such a manner as to be readily removable from the translucent layer. The elongate light unit (14) comprises an elongate housing and an elongate printed circuit board (PCB) bearing a plurality of light emitting diodes (LEDs) spaced along the length of the PCB. The elongate housing has an elongate chamber extending along the length of the housing and a wall extending along the length of the housing and adjacent the elongate chamber. The PCB is mounted in the elongate chamber. The wall transmits light and the LEDs are orientated so that light from the LEDs passes out of the elongate chamber through the wall. The bracket has first and second adjacent slots (20, 22). The first slot (20) receives the elongate light unit (14) and an edge of the light directing unit (16). The second slot (22) receives a translucent advertising sheet (18). Light from the LEDs is emitted from the second outer face of the translucent layer in a diffuse and even manner and serves to backlight the translucent advertising sheet (18).
SM, TR, OAPI (BF, BI, CF, CI, CM, GA, GN, GQ),
GW, KM, ML, NE, SN, TD, TG).

Published:

-with international search report (Art. 21(3))

Declarations under Rule 4.17:

— of inventorship (Rule 4.17(iv))
The invention relates to illuminated advertising boards. In addition, the invention relates to a light directing unit for an illuminated advertising board and to an elongate light unit for an illuminated advertising board. Further, the invention relates to an assembly comprising an elongate light unit together with a light directing unit.

The illuminated advertising boards of the current invention may be used, for example, on the sides of vehicles such as buses. However, the illuminated advertising boards of the current invention may also be applied to any other surface capable of bearing an advertising board.

Illuminated advertising boards suitable for mounting on the sides of buses are known. One such known board consists of a reflective layer and a translucent layer. The reflective layer is fixed directly to the side of the bus, for example by adhering the reflective layer to the side of the bus. The translucent layer is mounted on the side of the bus, over the reflective layer, for example by using a mounting bracket. In the known illuminating advertising board, a groove is formed in an edge of the translucent layer and the groove receives a plurality of light emitting diodes (LEDs). The groove is then filled with a waterproof resin which protects the LEDs from moisture and dirt. The LEDs are orientated to direct light into the translucent layer. The translucent layer and the reflective backing layer act together so that light from the LEDs is emitted from the front surface of the translucent layer. The light is emitted in a diffuse and even manner across the front surface of the translucent layer. In use, a translucent sheet bearing an advertising design is mounted in front of the translucent layer and the advertising sheet is backlit by the light omitted from the front surface of the translucent layer.

In accordance with a first aspect of the current invention, there is provided a light directing unit for an illuminated advertising board. The light directing unit comprises: a translucent layer having first and second opposed faces; a reflective layer provided at or adjacent the first face of the translucent layer for reflecting light towards the translucent layer; wherein light may be introduced into the translucent layer such that the light directing unit emits light from the second face of the translucent layer; and a
waterproof seal for preventing ingress of moisture between the translucent layer and the reflective layer.

It has been found that the entry of water or dirt between the translucent layer and the reflective layer of known illuminated advertising boards diminishes the evenness of the backlight illumination. The provision of the waterproof seal is advantageous as it helps to prevent ingress of moisture or dirt between the translucent layer and the reflective layer. According the light emitted from the second face of the translucent layer of the invention is diffuse and even.

In accordance with the second aspect of the current invention, there is provided a light directing unit for an illuminated advertising board. The light directing unit comprises: a translucent layer having first and second opposed faces; a reflective layer provided at or adjacent to the first face of the translucent layer for reflecting light towards the translucent layer; wherein light may be introduced into the translucent layer such that the light directing unit emits light from the second face of the translucent layer; and a protective layer at or adjacent to the second face of the translucent layer, the protective layer transmitting light emitted from the second face of the translucent layer and being removable from the light directing unit.

In known illuminated advertising boards, the translucent sheet bearing the advertising design often lies closely adjacent to the underlying translucent layer. In addition, the translucent advertising sheet is often mounted adjacent to the translucent layer by a sliding movement into a bracket or some other mounting system. During the mounting of the translucent advertising sheet over the translucent layer, it is common for particles of dirt to scratch the outer surface of the translucent layer, and this diminishes the evenness of the backlight illumination. In accordance with this second aspect of the current invention, the translucent layer is protected by the protective layer, such that any scratches which occur on mounting of the advertising sheet are made on the protective layer. The protective layer is designed to be readily removable from the light directing unit. Hence, when the protective layer becomes sufficiently scratched to interfere with the backlight illumination, then the protected layer can be simply removed from the light directing unit. In this way, the
protective layer acts as a sacrificial layer. A replacement protective layer may be fitted adjacent the second face of the translucent layer if desired.

In accordance with a third aspect of the invention, there is provided an elongate light unit for an illuminated advertising board, comprising an elongate housing and an elongate printed circuit board (PCB) bearing a plurality of light emitting diodes (LEDs) spaced along the length of the PCB, the elongate housing having an elongate chamber extending along the length of the housing and a wall extending along the length of the housing and adjacent the elongate chamber, the PCB being mounted in the elongate chamber, wherein the wall transmits light and the LEDs are orientated so that light from the LEDs passes out of the elongate chamber through the wall.

As indicated above, in a known illuminated advertising board, the LEDs are embedded in a resin within a groove in the edge of a translucent layer. However, it has been found that cracks tend to form in the resin and that this allows moisture into the groove which ultimately impairs the function of the LEDs. In accordance with the third aspect of the invention, the LEDs are housed within a chamber of a housing and this protects the LEDs from moisture and dirt. Light from the LEDs is transmitted across the wall out of the chamber and can be directed into a translucent layer of a light directing unit.

According to a fourth aspect of the invention, there is provided an assembly comprising a light directing unit according to either the first or second aspect of the invention and an elongate light unit according to the third aspect of the invention, wherein the light directing unit has an edge that lies adjacent the light transmitting wall of the elongate light unit so that light from the LEDs passes into the translucent layer of the light directing unit.

According to a fifth aspect of the invention, there is provided an illuminated advertising board comprising an assembly according to the fourth aspect of the invention and a bracket for mounting the illuminated advertising board against a
surface, the bracket having first and second adjacent slots, the elongate light unit and the edge of the light directing unit being received in the first slot, the second slot being adapted for holding an advertising sheet adjacent the second face of the translucent layer for backlight illumination of the advertising sheet.

The following is a more detailed description of embodiments of the invention, by way of example, reference being made to the following schematic drawings in which:

Figure 1 is a cross-sectional representation of part of an illuminated advertising board;

Figure 2 is a perspective view, partially in cross-section, showing part of a light directing unit of the illuminating advertising board of Figure 1;

Figure 3 is an exploded view showing the component parts of the light directing unit of Figure 2;

Figure 4 is a plan view showing a plurality of light directing units suitable for using in illuminated advertising boards for affixing to the side of a bus;

Figure 5 shows, in cross-section, an elongate light unit of the illuminated advertising board of Figure 1 together with the light directing unit of Figure 2;

Figure 6 shows the elongate light unit and the light directing unit of Figure 5; and

Figure 7 is a cross-sectional representation showing parts of a second embodiment of an illuminated advertising board.

Looking first at Figure 1, the illuminated advertising board 10 comprises a bracket 12, an elongate light unit 14 and a light directing unit 16. Figure 1 also shows a translucent sheet 18 which bears an advertising design. The illuminated advertising board 10 serves both to mount and to provide backlight illumination to the advertising
sheet 18. For the current purposes, the advertising sheet 18 is not considered to be part of the illuminating advertising board 10.

Still referring to Figure 1, the bracket 12 defines a first inner slot 20 and a second outer slot 22 which lies adjacent the first inner slot 20. The bracket 12 also defines a mounting slot 24 which is used to mount the bracket 12, and thereby the illuminated advertising board 10, to any suitable surface to which it is desired to mount the advertising board 10. For example, the illuminated advertising board 10 may be mounted to the side of a vehicle, such as a bus.

The first inner slot 20 receives both the elongate light unit 14 and the light directing unit 16. The second outer slot 22 is adapted for receiving the advertising sheet 18 so that the advertising sheet 18 lies outwardly of, adjacent to and parallel to the light directing unit 16.

It will be appreciated that Figure 1 only shows one edge of the illuminated advertising board 10. A second bracket, identical to the bracket 12 shown in Figure 1, may be provided at an opposite edge of the illuminated advertising board 10. In this case, the second bracket would be positioned so that the first inner slot of the second bracket also receives the light directing unit 16 and the second outer slot of the second bracket also receives the advertising sheet 18. In this manner, by using two brackets 12, the components of the illuminated advertising board 10 can be securely mounted to a surface.

The following is a more detailed description of the light directing unit 16 and reference will be made to Figures 2 and 3.

The light directing unit 16 has an outer side 26 and an inner side 28. Starting from the outer side 26 and moving to the inner side 28, the light directing unit 16 includes a protective layer 30, a translucent layer 32 and a reflective layer 34.

The translucent layer 32 has a first inner face 36 and a second outer face 38. The translucent layer 32 is translucent in a direction from the first inner face 36 to the second outer face 38. For example, the translucent layer 32 may be formed from a
transparent plastics material and may be made translucent by roughening the second outer face 38. This may be achieved, for example, by blasting of the second outer face 38. A suitable material for the translucent layer 32 is Shinkolite™ PX. Shinkolite™ PX is an acrylic resin sheet manufactured by Mitsubishi Rayon Co. Ltd. The second outer face 38 of the Shinkolite™ PX is roughened to make the layer 32 translucent.

The reflective layer 34 may be any suitable reflective sheet material. The reflective layer 34 is orientated so as to reflect light towards the first inner face 36 of the translucent layer 32. One suitable material for the reflective layer 34 is the film marketed under the number E6SR188 by Toray Industries, Inc.

The protective layer 30 may be any transparent or translucent sheet material capable of protecting the second outer face 38 of the translucent layer 32. One suitable material is PVC film having a layer of adhesive applied to one side. The adhesive bonds the protective layer 30 to the second outer face 38 of the translucent layer 32. The adhesive is of a known type which allows the protective layer 30 to be peeled away from the translucent layer 32. Preferably, the adhesive is of such a type that no substantial amount of adhesive is left on the second outer face 38 of the translucent layer 32 when the protective layer 30 is peeled away from the translucent layer 32.

It will be noted that in this embodiment, there is no direct adhesion between the translucent layer 32 and the reflective layer 34.

As best seen in Figures 2 and 3, the translucent layer 32 has a perimeter edge 40 which extends all around the translucent layer 32.

The translucent layer 32 is bonded to the reflective layer 34 by a waterproof seal consisting of clear, double-sided adhesive tape 42. The double-sided adhesive tape 42 is waterproof. One suitable type of double-sided adhesive tape is tape number 9473 available from 3M Corporation. As best seen in Figure 3, the double-sided adhesive tape 42 extends all around the translucent layer 32 adjacent to the perimeter edge 40 of the translucent layer 32. The double-sided adhesive tape 42
lies between the translucent layer 32 and the reflective layer 34 with one side of the double-sided adhesive tape 42 being adhered to the translucent layer 32 and the other side of the double-sided adhesive tape 42 being adhered to the reflective layer 34.

As best seen in Figure 2, an enclosed space 44 is formed between the translucent layer 32 and the reflective layer 34. The enclosed space 44 is bounded by the double-sided adhesive tape 42. The double-sided adhesive tape 42 acts as a waterproof seal which prevents ingress of moisture and/or dirt into the enclosed space 44. As will be appreciated, due to the flexible nature of the reflective layer 34, the distance between the translucent layer 32 and the reflective layer 34 is not constant and there may be contact between the translucent layer 32 and the reflective layer 34.

As best seen in Figure 2, the light directing unit 16 is also provided with an additional waterproof seal. The additional waterproof seal takes the form of a waterproof adhesive edging tape 46. The adhesive edging tape 46 is clear (transparent). A suitable adhesive edging tape 46 is tape 8560 available from 3M Corporation. The adhesive edging tape 46 is adhesive on one side only.

As seen in Figure 2, the adhesive edging tape 46 extends lengthwise along the edge of the light directing unit 16. The adhesive edging tape 46 is folded so that one side edge of the adhesive edging tape 46 is adhered to the protective layer 30 and the other side edge of the adhesive edging tape 46 is adhered to the reflective layer 34. The adhesive edging tape 46 also adheres to the perimeter edge 40 of the translucent layer 32. Similarly, the adhesive edging tape 46 adheres to perimeter edges of the reflective layer 34 and the protective layer 30. The adhesive edging tape 46 helps to hold together the different layers 30, 32, 34 of the light directing unit 16. In addition, the adhesive edging tape 46 helps to prevent ingress of dirt and moisture between the protective layer 30, the translucent layer 32, and the reflective layer 34 of the light directing unit 16.

Figure 4 shows how a plurality of light directing units 16 may be arranged, side by side, when it is desired to provide a particularly large illuminated advertising board
10. In Figure 4, reference numeral 48 denotes a first elongate illuminated advertising board suitable for fixing to one side of a bus and numeral 50 denotes a second elongate illuminated advertising board suitable for fixing to another side of a bus. Appropriate choice of the number of light directing units 16, and of the shapes of the individual light directing units 16, allows an illuminated advertising board of any desired shape and size to be produced.

The elongate light unit 14 of the illuminated advertising board 10 is shown in cross-section in Figure 5 and in longitudinal section in Figure 6. Referring to these figures, the elongate light unit 14 includes an elongate housing 52 and an elongate printed circuit board (PCB) 54.

In this embodiment, the elongate housing 52 is formed by extrusion from a transparent plastics material.

Looking at Figure 5, the elongate housing 52 has two parallel side walls 56, 58 which are connected at respective edges of the side walls 56, 58 by an end wall 60. In addition, an intermediate wall 62 connects the two side walls 56, 58. The intermediate wall 62 is parallel to the end wall 60. Accordingly, the two side walls 56, 58, the end wall 60 and the intermediate walls 62 together define an enclosed chamber 64 which lies between the two side walls 56, 58 and between the end wall 60 and the intermediate wall 62.

This enclosed chamber 64 receives the PCB 54 in a manner described below. In addition, as seen in Figure 5, the two side walls 56, 58 together with the intermediate wall 62 define a groove 66 which has an outwardly facing opening 68.

Referring now to both Figures 2 and 5, the light directing unit 16 has an edge 70 and the groove 66 is sized so as to allow the groove 66 to receive the edge 70 of the light directing unit 16, as shown in Figure 5.

Again referring to Figure 5, each one of the two side walls 56, 58 of the housing 52 is provided with a respective slot 72, 74 so that the two slots 72, 74 face one another and open into the enclosed chamber 64. As seen in Figure 5, each slot 72, 74
receives a respective edge of the PCB 54 and this serves to mount the PCB 54 within the enclosed chamber 64 of the housing 52. When the PCB 54 is mounted in the enclosed chamber 64 in this manner, the LED's 76 are orientated so as to direct light towards the intermediate wall 62.

Turning now to Figure 6, each end of the extruded elongate housing 52 is closed with a respective sealing plug 78, 80. Each sealing plug 78, 80 is provided with a respective through passage 82, 84 through which wires may be passed for the purposes of supplying power to the PCB 54.

Referring back to Figure 1, the operation of the illuminated advertising board 10 will now be explained.

The elongate light unit 14 lies within the first inner slot 20 of the bracket 12 so that the outwardly facing opening 68 faces towards the opening of the first inner slot 20. The edge 70 of the light directing unit 16 is received within the groove 66 of the elongate light unit 14, as described above. In this way, when the LED's 76 are operated, the light emitted by the LED's 76 passes through the intermediate wall 62 (which is transparent) and, referring to Figure 2, passes also through the clear adhesive edge tape 46, so that the light passes into the translucent layer 32 at the perimeter edge 40 of the translucent layer 32. Light which has passed into the translucent layer 32 is reflected internally within the translucent layer 32. In addition, any light which passes out of the first inner face 36 of the translucent layer 32 is reflected by the reflective layer 34 back into the translucent layer 32. In this way, substantially all of the light passed into the translucent layer 32 is emitted from the translucent layer 32 at the second outer face 38. The translucent nature of the translucent layer 32 results in light being emitted diffusely and evenly over the whole of the second outer face 38 of the translucent layer 32. This diffuse, even illumination is ideal for backlight illumination of the advertising sheet 18 which is positioned in the second outer slot 22 in front of the second outer face 38.

The fact that the PCB 54 is enclosed in the enclosed chamber 64 means that the PCB 54 is protected from moisture and dirt and this helps to prolong the life of the
PCB 54. The transparent nature of the intermediate wall 62 allows the light from the LED's 76 to pass out of the housing 52 into the light directing unit 16.

The waterproof double-sided adhesive tape 42 prevents ingress of moisture and/or dirt into the enclosed space 44 between the translucent layer 32 and the reflective layer 34. This is very important for the purpose of maintaining a diffuse, even illumination from the second outer face 38 of the translucent layer 32. In practice, it has been found that if any moisture should enter between the translucent layer 32 and the reflective layer 34, the moisture tends to form droplets which bridge the translucent layer 32 and the reflective layer 34 and this, in turn, leads to a patchy emission of light at the second outer face 38 of the translucent layer 32.

Referring to Figure 1, the translucent advertising sheet 18 is slotted into the bracket 12 by sliding the advertising sheet 18 into the second outer slot 22. In practice, the advertising sheet 18 can lie quite closely to, and even contact, the light directing unit 16. Any dirt on the rear side of the advertising sheet 18 will tend to scratch the light directing unit 16 during insertion of the advertising sheet 18 into the second outer slot 22 of the bracket 12. As the outer layer of the light directing unit 16 is the protective layer 30, it is this protected layer 30 which suffers scratches in this manner. When, after prolonged use, the protective layer 30 has undergone a significant amount of scratching, the protective layer 30 can simply be peeled away from the translucent layer 32 and, if desired, replaced by a new protective layer 30. In order to change the protective layer 30, the waterproof adhesive edge tape 46 is first peeled away from the protective layer 30. In this way, the useful life of the light directing unit 16 can be increased significantly.

It will be appreciated that the embodiment of the invention described above may be modified.

Firstly, the housing 52 of the elongate light unit 14 need not be as described above. In the embodiment described above, the housing 52 is extruded from a transparent plastics material. However, this need not be the case. The housing 52 should provide an enclosed chamber 64 for housing the PCB 54 and, preferably, a groove 66 for receiving an edge 70 of the light directing unit 16. The wall 62 between the
enclosed chamber 64 and the light directing unit 16 needs to transmit light and so it must be either transparent or translucent. Any housing which meets these requirements may be used. The housing need not be a unitary formation and may consist of two or more separate pieces.

The double-sided adhesive tape 42 provided between the translucent layer 32 and the reflective layer 34 may be replaced by any means suitable for providing a waterproof seal between the translucent layer 32 and the reflective layer 34.

The waterproof adhesive edge tape 46 can be omitted.

Figure 7 shows parts of a second embodiment of an illuminated advertising board. The second embodiment has a light directing unit (not shown in Figure 7) which is identical to the light directing unit 16 of the first embodiment described above and shown in Figures 2 and 3. Similarly, the second embodiment has an elongate light unit (not shown in Figure 7) which is identical to the elongate light unit 14 of the first embodiment described above and shown in Figures 5 and 6. The second embodiment has a bracket which is identical in configuration to the bracket 12 of the first embodiment described above and shown in Figure 1 but is larger than the bracket 12 of the first embodiment. The light directing unit, the elongate light unit and the bracket of the second embodiment will not be described in detail and these components will be referred to with the same reference numerals as for the corresponding components of the first embodiment, but with the suffix "a".

As the bracket 12a of the second embodiment is proportionally larger compared to the light directing unit 16a and the elongate light unit 14a of the second embodiment, the elongate light unit 14a does not fit snugly in the inner slot 20a of the bracket 12a. Hence, whereas in the first embodiment, the elongate light unit 14 fits snugly within the inner slot 20 of the bracket 12 and this serves to hold the elongate light unit 14 and the light directing unit 16 in the correct positions, in the second embodiment, the elongate light unit 14a is a loose fit within the inner slot 20a and would tend to be susceptible to undesirable movement within the inner slot 20a.
In order to ensure correct positioning of the elongate light unit 14a and the light
directing unit 16a, the bracket 12a is provided with a spring clip 90. As seen in Figure
7, the spring clip 90 is essentially S-shaped and has first, second and third parallel
wall sections 92, 94, 96. The first and second parallel wall sections 92, 94 are
connected at a first side of the spring clip 90 by a first end wall section 98. The
second and third parallel wall sections 94, 96 are connected at a second side of the
spring clip 90 by a second end wall section 100. Each of the first and second parallel
wall sections 92, 94 is provided with a respective bend 102, 104. The two bends 102,
104 extend towards one another, out of the planes of the respective parallel wall
sections 92, 94, so as to provide a narrowed region 106 between the first and
second parallel wall sections 92, 94.

The first and second parallel wall sections 92, 94 and the first end wall section 98 lie
closely within the inner slot 20a of the bracket 12a. The third parallel wall section 96
lies within the outer slot 22a of the bracket 12a. The size and springiness of the
spring clip 90 cause the spring clip 90 to be held tightly within the bracket 12a as
shown in Figure 7. The elongate light unit 14a is held firmly in the narrowed region
106 between the two bends 102, 104 and this ensures that the elongate light unit
14a and the light directing unit 16a are held in the correct positions for effective and
even illumination.

The spring clip 90 is particularly useful in situations where the elongate light unit 14a
and the light directing unit 16a are being retrofitted to a bracket 12a that is larger
than ideal.
Claims

1. A light directing unit for an illuminated advertising board, comprising: a translucent layer having first and second opposed faces; a reflective layer provided at or adjacent the first face of the translucent layer for reflecting light towards the translucent layer; wherein light may be introduced into the translucent layer such that the light directing unit emits light from the second face of the translucent layer; and a waterproof seal for preventing ingress of moisture between the translucent layer and the reflective layer.

2. A light directing unit according to claim 1, wherein the translucent layer has a perimeter edge extending all around the translucent layer, the waterproof seal extending all around the translucent layer at or adjacent the perimeter edge.

3. A light directing unit according to claim 1 or claim 2, wherein the translucent layer, the reflective layer and the waterproof seal together enclose an enclosed space between the translucent layer and the reflective layer, the waterproof seal preventing ingress of moisture into the enclosed space.

4. A light directing unit according to claim 3, wherein there is no adhesive between the translucent layer and the reflective layer in the enclosed space.

5. A light directing unit according to any preceding claim, wherein the waterproof seal bonds together the translucent layer and the reflective layer.

6. A light directing unit according to any preceding claim, wherein the waterproof seal is provided between the translucent layer and the reflective layer.

7. A light directing unit according to claim 6, wherein the waterproof seal comprises waterproof double-sided adhesive tape adhered to both the translucent layer and the reflective layer.

8. A light directing unit according to claim 7, wherein the waterproof double-sided adhesive tape is clear.

9. A light directing unit according to any preceding claim, including an additional seal consisting of waterproof adhesive tape, each one of the translucent layer and the reflective layer having a respective perimeter edge extending all around the corresponding layer, the perimeter edges lying mutually adjacent, the waterproof adhesive tape of the additional seal extending lengthwise along the mutually adjacent perimeter edges and being adhered to both of the perimeter edges.
10. A light directing unit according to claim 9, wherein the waterproof adhesive tape of the additional seal extends completely around the translucent layer and the reflective layer.

11. A light directing unit according to any preceding claim, including a protective layer adjacent to the second face of the translucent layer, the protective layer transmitting light emitted from the second face of the translucent layer and being removable from the light directing unit.

12. A light directing unit according to claim 11, when dependent on claim 9 or claim 10, wherein one side edge of the waterproof adhesive tape of the additional seal is adhered to the protective layer and another side edge of the waterproof adhesive tape of the additional seal is adhered to the reflective layer.

13. A light directing unit for an illuminated advertising board, comprising: a translucent layer having first and second opposed faces; a reflective layer provided at or adjacent the first face of the translucent layer for reflecting light towards the translucent layer; wherein light may be introduced into the translucent layer such that the light directing unit emits light from the second face of the translucent layer; and a protective layer at or adjacent to the second face of the translucent layer, the protective layer transmitting light emitted from the second face of the translucent layer and being removable from the light directing unit.

14. A light directing unit according to any one of claims 11 to 13, wherein the protective layer is transparent.

15. A light directing unit according to any one of claims 11 to 14, wherein the protective layer is adhered to the translucent layer.

16. A light directing unit according to any one of claims 11 to 15, wherein removal of the protective layer does not substantially affect the light transmitting properties of the translucent layer.

17. A light directing unit according to any one of claims 11 to 16, wherein the protective layer is a self-adhesive film.

18. A light directing unit according to any one of claims 11 to 17, wherein the protective layer can be peeled from the light directing unit.

19. An elongate light unit for an illuminated advertising board, comprising an elongate housing and an elongate printed circuit board (PCB) bearing a plurality of light
emitting diodes (LEDs) spaced along the length of the PCB, the elongate housing having an elongate chamber extending along the length of the housing and a wall extending along the length of the housing and adjacent the elongate chamber, the PCB being mounted in the elongate chamber, wherein the wall transmits light and the LEDs are orientated so that light from the LEDs passes out of the elongate chamber through the wall.

20. An elongate light unit according to claim 19, wherein the elongate housing defines an elongate groove extending along the length of the housing, the groove having an outwardly facing opening and being separated from the elongate chamber by the wall, and wherein light from the LEDs passes through the wall into the groove and towards the outwardly facing opening of the groove.

21. An elongate light unit according to claim 19 or claim 20, wherein, in cross-sectional planes, the elongate chamber is fully enclosed by the elongate housing.

22. An elongate light unit according to any one of claims 19 to 21, wherein the wall is transparent.

23. An elongate light unit according to claim 22, wherein the housing is transparent.

24. An elongate light unit according to any one of claims 19 to 23, wherein the elongate housing has a constant cross-sectional shape along the length of the housing.

25. An elongate light unit according to claim 24, wherein the elongate housing is an extrusion.

26. An elongate light unit according to claim 20, or any claim dependent on claim 20, wherein the elongate housing has two parallel side walls having respective parallel edges and an end wall bridging the parallel side walls at the parallel edges, the light transmitting wall also bridging the two parallel side walls, the chamber being enclosed between the two parallel side walls, the end wall and the light transmitting wall, the groove being defined by the two parallel side walls and the light transmitting wall.

27. An elongate light unit according to claim 26, wherein each side wall has a respective slot, the two slots being mutually parallel and facing one another across the chamber, the PCB having a first side edge received in one of the two slots and an opposite second side edge being received in another one of the two slots, whereby to position the PCB in the chamber.

28. An assembly comprising a light directing unit according to any one of claims 1 to 18 and an elongate light unit according to any one of claims 19 to 27, wherein the
light directing unit has an edge that lies adjacent the light transmitting wall of the elongate light unit so that light from the LEDs passes into the translucent layer of the light directing unit.

29. An assembly according to claim 28, wherein the elongate light unit is according to claim 20, and wherein the edge of the light directing unit lies within the groove.

30. An illuminated advertising board comprising an assembly according to claim 28 or claim 29 and a bracket for mounting the illuminated advertising board against a surface, the bracket having first and second adjacent slots, the elongate light unit and the edge of the light directing unit being received in the first slot, the second slot being adapted for holding an advertising sheet adjacent the second face of the translucent layer for backlight illumination of the advertising sheet.

31. An illuminated advertising board comprising a light directing unit according to any one of claims 1 to 12 and a bracket for mounting the illuminated advertising board against a surface, the waterproof seal being separate from the bracket.

32. A light directing unit substantially as hereinbefore described with reference to the appended figures.

33. An elongate light unit substantially as hereinbefore described with reference to the appended figures.

34. An illuminated advertising board substantially as hereinbefore described with reference to the appended figures.
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER

G09F13/16  G09F13/18  G09F13/04

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)

G09F  B02B

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)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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<td>US 2012/036750 A1 (RYUL LEE SANG [KR]) 16 February 2012 (2012-02-16)</td>
<td>1-7, 9, 10, 31, 32, 34</td>
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Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents:

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Date of the actual completion of the international search: 31 March 2015

Date of mailing of the international search report: 13/04/2015

Name and mailing address of the ISA:

European Patent Office, P.B. 5818 Patentlaan 2
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