

DEVICE FOR FORMING AFTERGLOWING SIGNALLING SURFACES

It is known to provide, in buildings, vehicles, ships, and airplanes, luminescent signals that indicate the direction of escape routes in case of danger. For this purpose luminescent strips are provided, e.g., in airplanes, on the edge of the center aisle, and they are held on a supporting profile and are covered by a transparent covering profile. In buildings or on ships, the luminescent strips can also be provided as a complement or as an alternative on walls. The material of the strip contains, to achieve luminescent properties, zinc sulfide. The covering profile consists of transparent polyvinyl chloride, while the supporting profile is made of an aluminum alloy. This device has the disadvantage that it has a relatively large structural height because of the supporting profile and thus projects beyond the usually used floor covering.

Another disadvantage consists in that the period of luminescence of the luminescent strip is limited and the covering profile made of polyvinyl chloride becomes scratched relatively quickly by being walked on, causing loss of light.

The object of the invention consists in making a device of the above-mentioned type so that, with low height and matching to the height of the floor covering, it has a long period of luminescence, and damages by being walked on are to be largely avoided.

According to the invention, the object is achieved by the characterizing features of claim 1. Advantageous configurations of the invention are described in the dependent claims.

The invention is described in further detail below based on the example of the devices shown diagrammatically in the drawings. There are shown in:

5 Figure 1, a design of the device according to the invention in a perspective view,

Figure 2, another design of the device according to the invention seen from the side in an exploded view,

Figure 3, another design of the device according to the invention in cross section,

10 Figure 4, the profile that holds down the device according to figure 3 in side view,

Figures 5 to 7, various embodiments of the profile on which the device according to figure 3 is seated, each in side view,

15 Figures 8 and 9, each a device that can be used for active lighted path systems, in perspective views,

Figure 10, another embodiment of the device according to figure 8 and 9 in cross section,

Figure 11, another device according to the invention in a perspective view,

20 Figure 12, a device intended for wall mounting in a perspective view.

Device 1 consists of a seating profile 2 that is U-shaped in cross section and in which there is placed, between edge flanges 3, 4, a strip 5 made of a luminescent material. The luminescent material contains, e.g., doped crystalline alkaline earth aluminate and a transparent
25 bonding agent. Instead of alkaline earth aluminate, a doped zinc sulfide can also be used. The bonding agent can be a curable system or be made of a thermoplastic. Seating profile 2 can consist, e.g., of

polycarbonate. Above strip 5 is placed a silicate layer 8 that is conveyed over front surfaces 9 of edge flanges 3, 4 to prevent penetration of moisture into seating profile 2.

5 Strip 5 consists of two layers 10, 11 of the luminescent material that are attached to one another. On the underside of layer 11 there is a reflecting layer 7 that can be made, e.g., by a white varnish layer. Reflecting layer 7 and thus strip 5 are attached by an adhesive layer 14 to bottom 15 of seating profile 2. Adhesive layer 14 can consist of a curable resin.

10 On underside 13 of seating profile 2 is an adhesive strip 12 that is covered with a removable protective foil. To mount device 1 it is necessary only to peel off the protective foil from adhesive strip 12, which then attaches device 1 securely but detachably to the floor.

15 Figure 2 shows a device 16 in which seating profile 2 has recesses 17 in which reflecting layer 7, attached to strip 5 made of luminescent material, is anchored. Underside 13 of seating profile 2 has, as in device 1, an adhesive layer 14 by which device 16 can be attached to the floor.

20 To cover strip 5 and seating profile 2, a hold-down profile 20 is provided that has two clamping flanges 18 placed on the side. On each clamping flange 18 there is a projection 19 that can be engaged in a recess 21 of seating profile 2. A lip 22 is molded in each case onto the lateral edge sections of seating profile 20, and it is used, when installing device 16, for placement on the floor covering, such as carpet or the
25 like, adjacent to device 16. With a suitable design of the floor covering it is also possible, in making hold-down profile 20, to dispense with lips 22. Hold-down profile 20 consists of a transparent, cured and

preferably coated plastic that guarantees the luminescence of device 16 even if it is constantly tread upon. E.g., polycarbonate or polysulfone can be used as the plastic.

5 Figure 3 shows another device 25 that consists of a seating profile 2 to receive a strip 5 and a hold-down profile 20. On underside 13 of seating profile 2 there are profiled flanges 24 whose bottom surfaces can be fastened to the floor by adhesive compounds. Hold-down profile 20 has clamping flanges 18 that are elastic and have bent end sections that can each be engaged in a recess 23 of seating profile 2. This achieves a
10 secure but detachable connection between hold-down profile 20 and seating profile 2.

Figure 4 shows hold-down profile 20 of device 25 in a diagrammatic side view. Figures 5 to 7 represent various seating profiles 2 that are matched, because of varying structural heights, to the
15 respectively varying height of floor coverings.

Figure 8 shows a device 26 that represents a modification of device 25. Hold-down profile 20 is made like that of device 25 and has side lips 22 that engage over the lateral floor covering. Seating profile 2 has a flat underside 13. On top side 31 there is a recess 32 to receive
20 a strip 5 made of a luminescent material. Another channel-like recess 33 is made under the plane of recess 32. This recess 33 makes it possible to be able to retrofit device 26 to make it an active lighted path system. For this purpose, light-emitting diodes are placed in a row in recess 33 and supplied with current if needed. Strip 5 made of
25 luminescent material is removed in this case and replaced with a strip 5 made of transparent material. But it is also possible to use a strip 5 made of a material that is transparent as well as luminescent. In this

case, device 26 can be used as a passive luminescent system or as an active illuminating lighted path system. Seating profile 2 can consist of plastic such as polycarbonate or, e.g., for use in ships, of an aluminum alloy.

5 Figure 9 shows a device 27 that is a modification of device 26. Seating profile 2 corresponds to that of device 26. But hold-down profile 20 has no side lips but has clamping flanges 18 going around its edge side.

10 Figure 10 shows a device 28 that is intended for wall mounting. Seating profile 2 and strip 5 are made as in device 26. But a hold-down profile is not present. This device 28 can be used to make passively luminescent signal surfaces and for making actively illuminating lighted path systems.

15 Figure 11 shows a device 29 for making luminescent signal surfaces on a wall. Seating profile 2 is generally U-shaped in cross section and has, on bottom surface 34 of recess 32, raised parts 35 on which strip 5 made of luminescent material lies. Strip 5 is held by projections 38, 39 that are made on the top end sections of lateral holding clips 36, 37. Strip 5 is thus attached to seating profile 2 by a
20 kind of clip connection without it needing any other fastening means. If necessary, easy removal of strip 5 from seating profile 2 is thus possible.

25 Device 30 of figure 12 can be used for making luminescent signal surfaces and for making an actively illuminating lighted path system and is intended for wall mounting, e.g., on ships, in which the illumination of passages and the like is done with skylight. To increase the light reception of strip 5 made of luminescent material, strips 5 are oriented

at an oblique angle to the wall. On the top end section of seating profile 2 there is a holding clip 40 with a groove 42 into which strip 5 is pushed. Lower holding clip 41 is bent on its exposed end section toward upper holding clip 40 and has a flange 43 against which strip 5 lies. On the exposed end section of holding clip 41 there is a projection 44 made so that strip 5 is clamped securely between projection 44 and flange 43. This way strip 5 can be connected to seating profile 2 also by a kind of clip connection. Behind strip 5 is a recess 33 in which cables and light-emitting diodes can be placed to make an actively illuminating
10 lighted path system.



Claims

1. Device for making luminescent signal surfaces, characterized by a seating profile (2) that is open on one side and in whose recess a strip (5) made of a luminescent material is inserted, a strip that is covered by a protective layer when seating profile (2) is placed on floor surfaces.
2. Device according to claim 1, wherein the protective layer is made as a silicate layer (8).
3. Device according to claim 1, wherein a reflecting layer (7) is placed on underside (6) of strip (5) made of luminescent material.
4. Device according to claim 3, wherein reflecting layer (7) consists of a bright, preferably white, varnish layer.
5. Device according to claim 4, wherein reflecting layer (7) is attached to bottom (15) of seating profile (2) by an adhesive layer (14).
6. Device according to claim 5, wherein adhesive layer (14) consists of a curable resin.
7. Device according to claim 1, wherein seating profile (2) is made as an extruded profile of polycarbonate or the like or is an aluminum alloy.
8. Device according to claim 1, wherein the luminescent material of strip (5) contains doped crystalline alkaline earth aluminate and a transparent bonding agent.
9. Device according to claim 1, wherein the luminescent material of strip (5) contains doped zinc sulfide and a transparent bonding agent.
10. Device according to claim 8 or 9, wherein a curable system or a thermoplastic is used as transparent bonding agent.



11. Device according to claim 1, wherein silicate layer (8) is conveyed over front surfaces (9) of edge flanges (3, 4) of seating profile (2).

5 12. Device according to claim 1 and 8, wherein strip (5) consists of two layers (10, 11) of luminescent material that are attached to one another.

13. Device according to claim 1, wherein an adhesive strip (12) is placed on underside (13) of seating profile (2).

10 14. Device according to claim 13, wherein adhesive strip (12) is covered with a removable protective foil.

15. Device according to claim 3, wherein reflecting layer (7) contains a fluorescent material and organic pigments.

16. Device according to claim 1, wherein seating profile (2) has a generally U-shaped cross section to receive strip (5).

15 17. Device according to claim 1, wherein seating profile (2) is covered, as a protective layer, by a hold-down profile (20) made of cured and coated plastic.

18. Device according to claim 17, wherein hold-down profile (20) consists of polycarbonate or polysulfone.

20 19. Device according to claim 17, wherein lips (22) are molded onto the lateral edge sections of hold-down profile (20).

20. Device according to claim 1, wherein profiled flanges (24) are molded onto underside (13) of seating profile (2).

25 21. Device according to claim 17, wherein clamping flanges (18) with projections (19) are molded onto hold-down profile (20) and the projections can be inserted into recesses (21) of seating profile (2).



22. Device according to claims 1 to 21, wherein a recess (33) for receiving cables and light-emitting diodes is made in seating profile (2).

23. Device according to claim 16, wherein the U-shaped section is made as recess (32) whose bottom surfaces (34) have raised parts (35) and wherein seating profile (2) has on each edge a holding clip (36, 37) with projections (38, 39) facing each other, and strip (5) made of luminescent material is placed between them and raised parts (35).

24. Device according to claim 22, wherein a holding clip (40) with a groove (42) is molded onto the one edge side of seating profile (2) and another holding clip (41) bent toward holding clip (40) is molded onto the other edge side, wherein a flange (43) is placed on holding clip (41) and a projection (44) is placed on the exposed end section of holding clip (41) parallel to flange (43) and wherein a strip (5) is held between flange (43) and projection (44) and is pushed into groove (42).

ABSTRACT

The invention concerns a device for forming afterglowing signalling surfaces and comprises a profiled accommodating part (2) which is open on one side and into the recess of which a strip (5) of afterglowing material is introduced. The strip (5) is covered with a protective layer when the profiled accommodating part (2) is disposed on floor areas. The profiled accommodating part (2) can be designed such that a recess (33) for accommodating cables and LEDs is formed behind the strip (5).

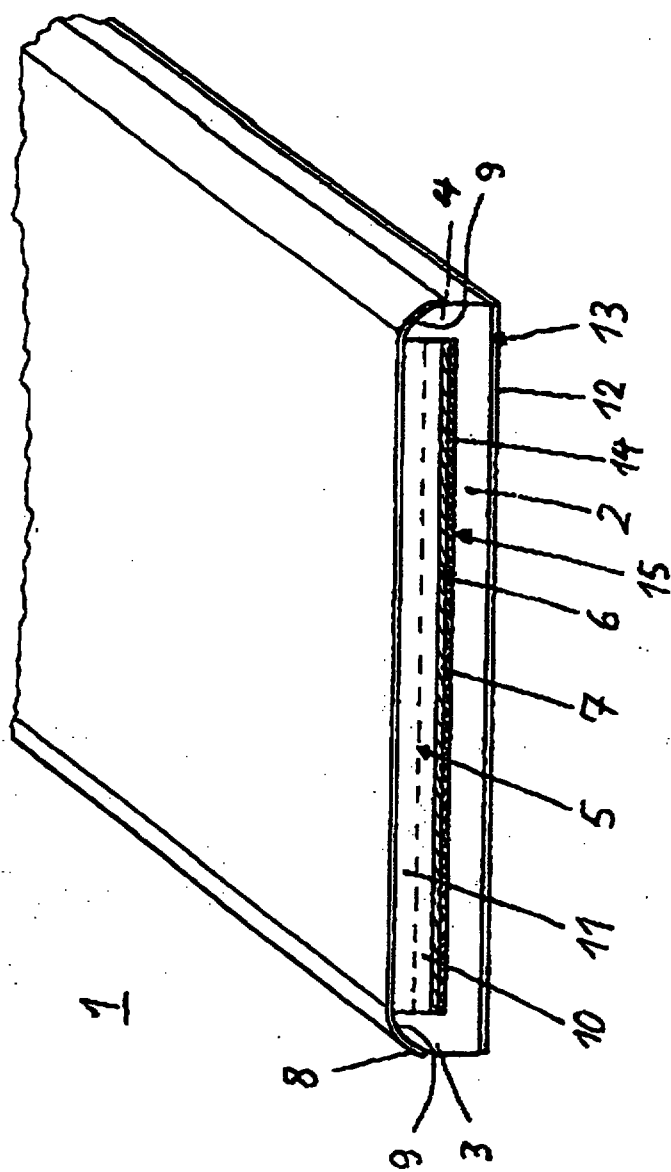


Fig.1

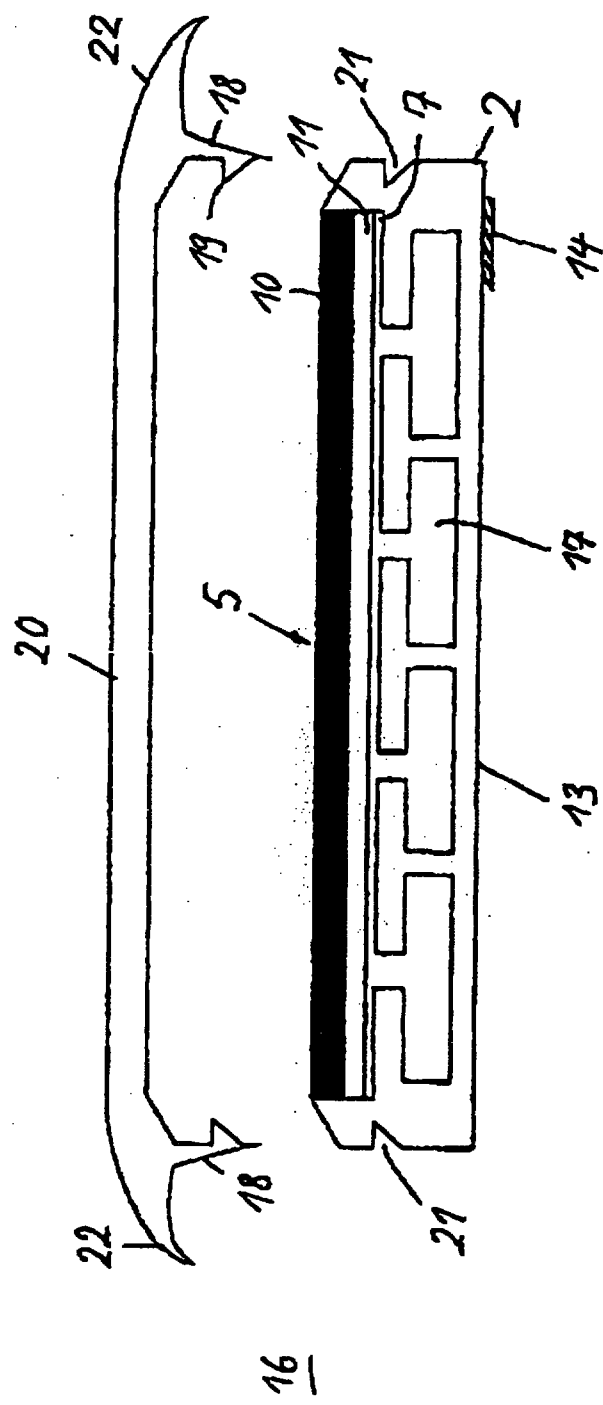


Fig.2

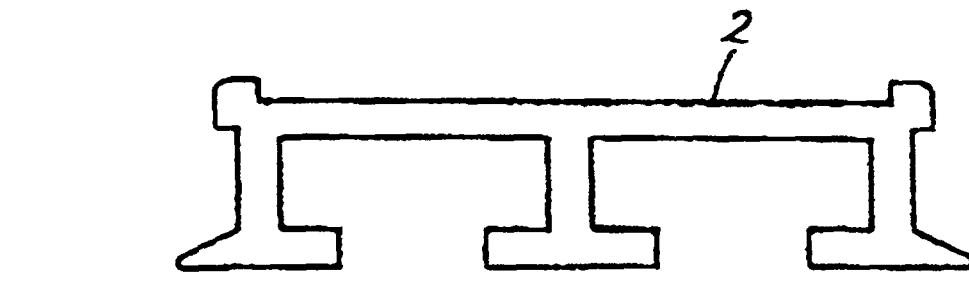
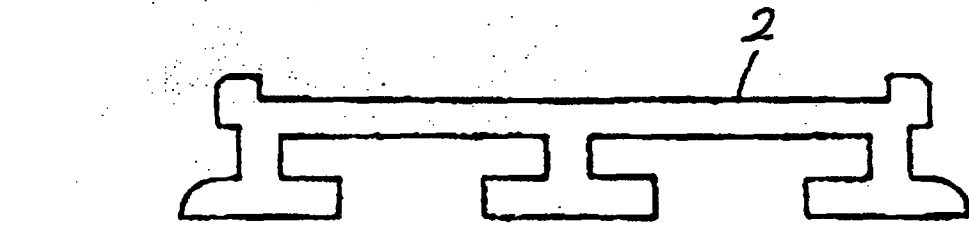
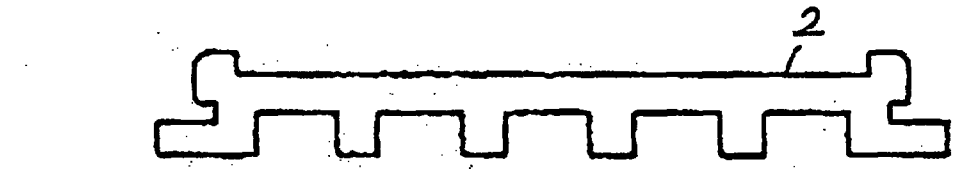
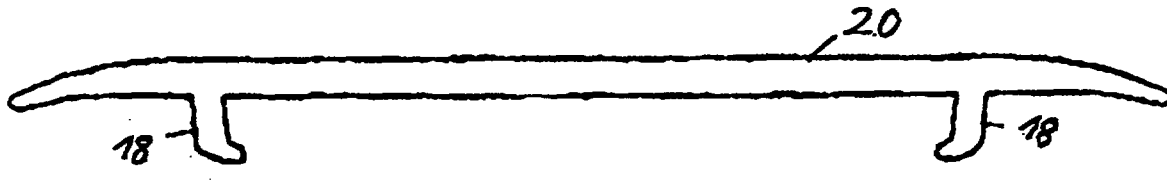
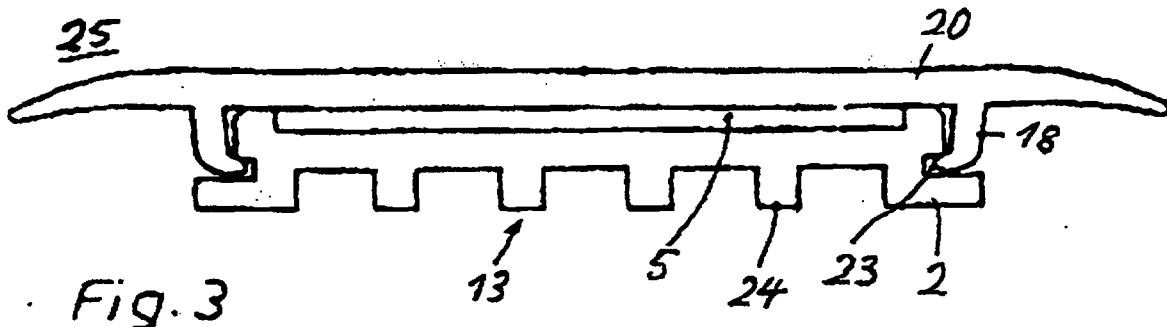


Fig. 8

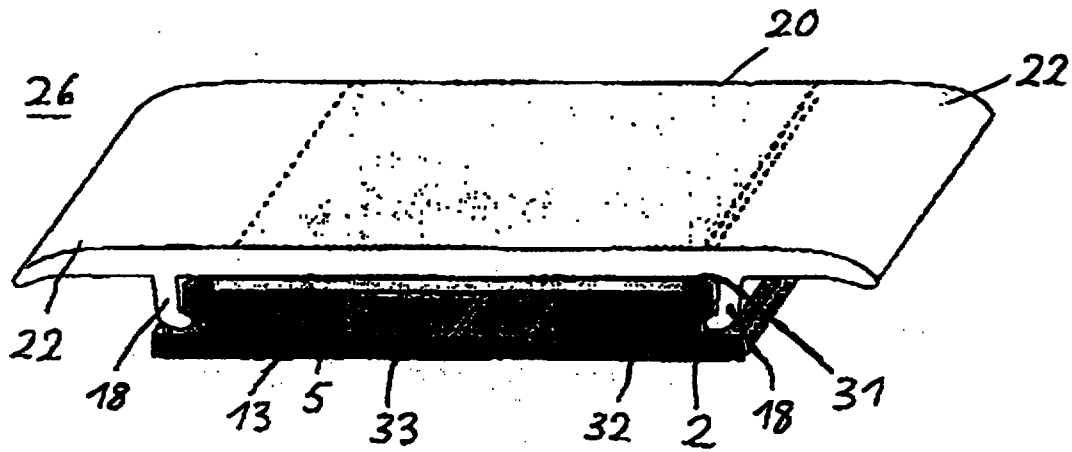


Fig. 9

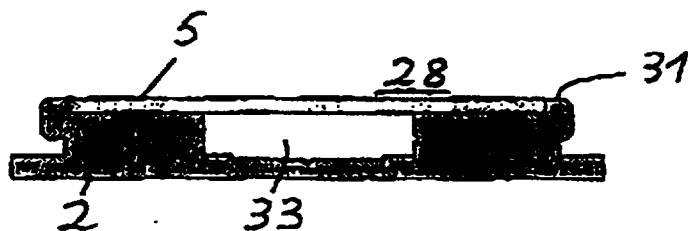
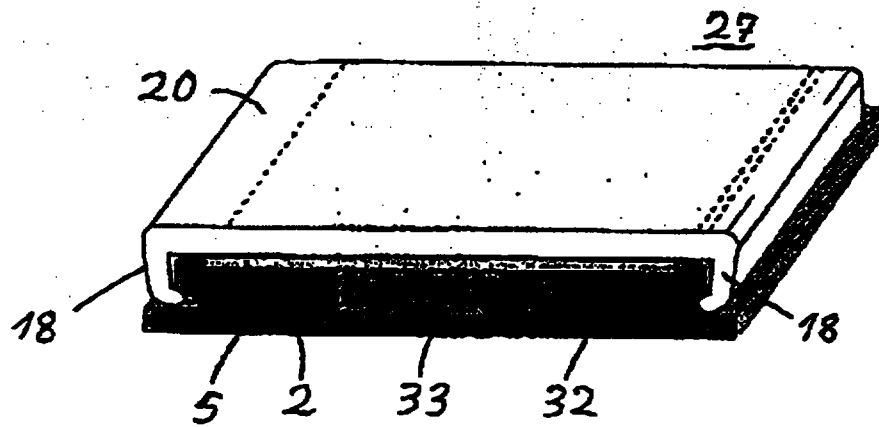


Fig. 10

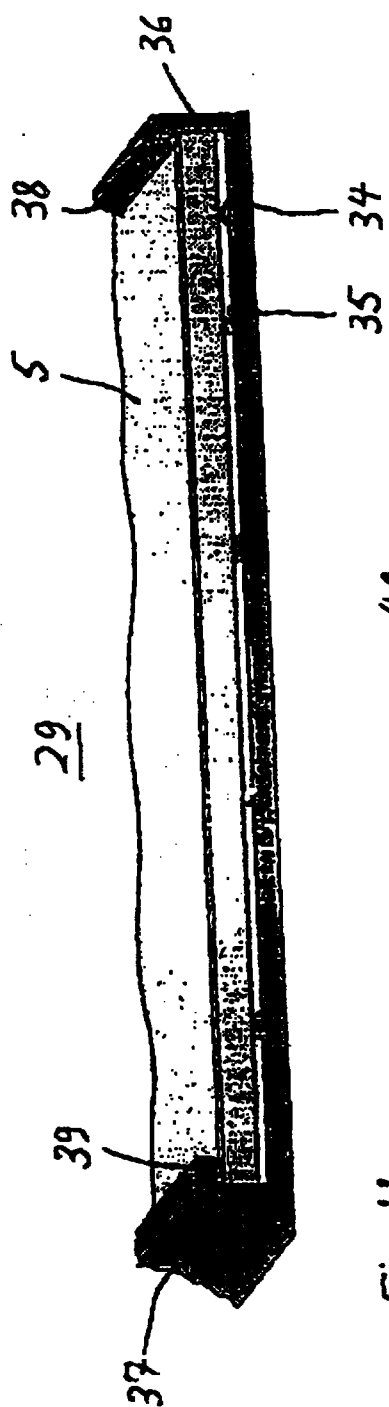


Fig. 11

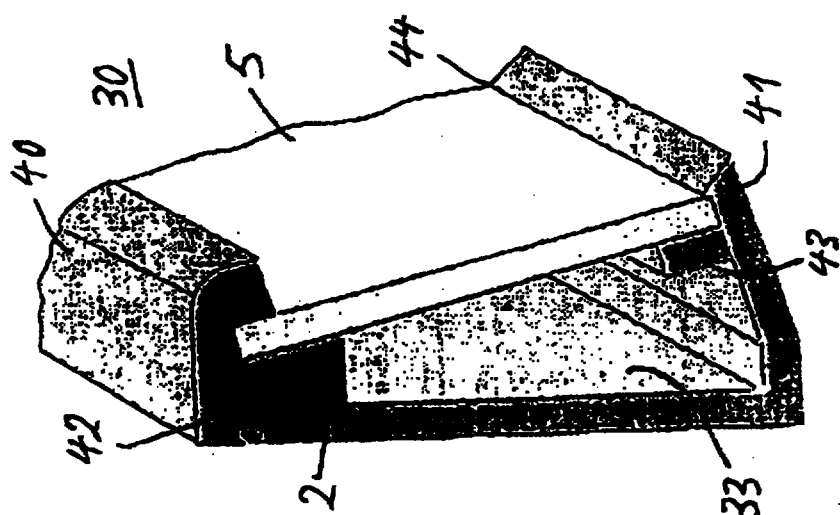


Fig. 12