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(54) **A SIGNBOARD FOR DISPLAYING A PICTOGRAM**

(57) A signboard (100) for displaying a pictogram (122) is provided, including a display (120) comprising the pictogram; a supporting terminal (110) configured to mount the display to the supporting terminal, wherein the supporting terminal comprises a means for providing electrical power (112); and wherein the display comprises a means for receiving electrical power (128), which is configured to correspond electrically and mechanically to the means for providing electrical power of the supporting terminal to receive electrical power from the supporting terminal.

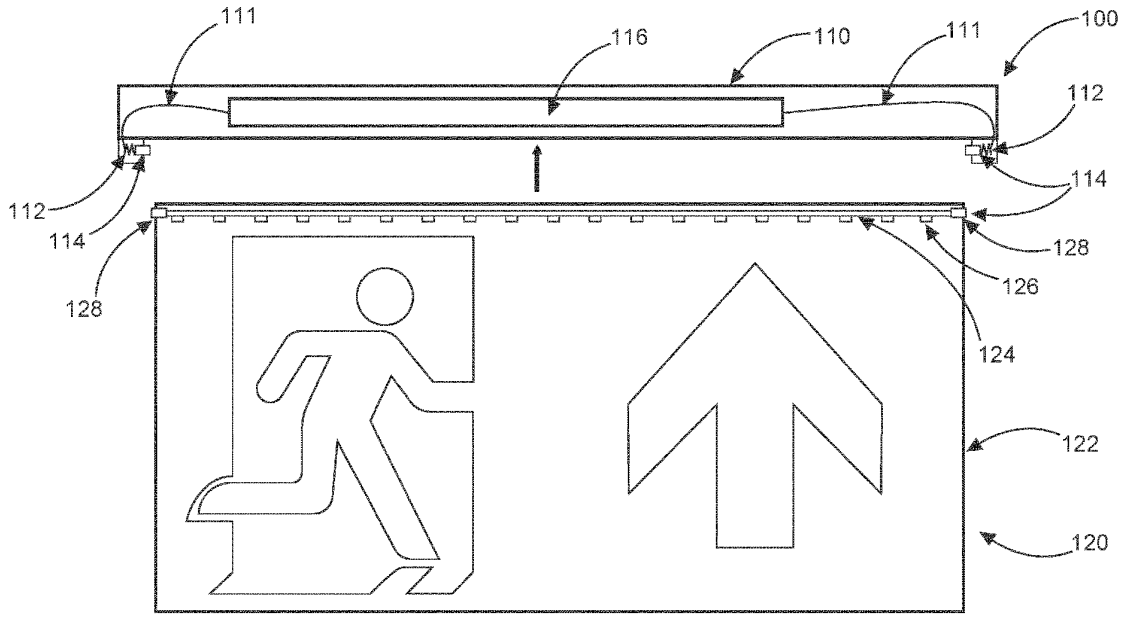


Fig. 1

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## Description

Background of the invention

**[0001]** A typical pictogram, e.g. for emergency lighting, comprises a plurality of separate components, which have to be assembled carefully during manufacturing to provide a functional system, particularly in respect to the needed illumination multiple interactions need to be fulfilled, such as mechanical connection and optical performances. Thus, the manufacturing of such a product can be complex and needs corresponding effort in respect to validation.

Detailed description of the invention

**[0002]** Such a pictogram, particularly for emergency lighting, typically exhibit a complex optical system for backlighting purposes: an LED-strip is configured to illuminate the pictogram from the back by means of a light guide made of special raw materials, as for instance: Polymethylmethacrylat (PMMA) or Polycarbonat (PC) and a surface structure needs to be applied to both surfaces of the light guide to decouple and radiate the light directionally. For effective optical system based on such a light guide plate a distance between the LED-strip and the light guide needs to be accurately adjusted. In addition, a contact between the light guide and the pictogram has to be as good as possible, to avoid loses of the light provided by the LED-strip.

**[0003]** Aspects of the present invention are related to a signboard for displaying a pictogram and a use of a signboard with subject matter as described in the independent claims.

Advantageous modifications of the invention are stated in the dependent claims. All combinations of at least two of the features disclosed in the description, the claims, and the figures fall within the scope of the invention. In order to avoid repetition, features disclosed in accordance with the method shall also apply and be claimable in accordance with mentioned systems.

**[0004]** To achieve these and other advantages and in accordance with the purpose of the invention, as embodied and broadly described herein, there is provided a signboard for displaying a pictogram, including a display comprising the pictogram, and a supporting terminal configured to mount the display to the supporting terminal, wherein the supporting terminal comprises a means for providing electrical power. In addition, the display of the signboard includes a means for receiving electrical power, which is configured to correspond electrically and mechanically to the means for providing electrical power of the supporting terminal to receive electrical power from the supporting terminal.

**[0005]** The signboard can be used for a plurality of signage products and by the means to mount the display to the supporting terminal the display can be easily released and the signboard can be mounted within a building in a quick and easy way.

**[0006]** Advantageously the display of the signboard includes a plurality of functionalities, which are integrated into two parts, the display and the supporting terminal, resulting in a simplified construction, which is easy to mount and/or to dismount. The release and mounting of this signboard for displaying a pictogram will be easier and the construction of the signboard is simplified. A time to assemble the signboard can be reduced, because of the simplified construction. By the means for providing the electrical power to the display and the means for receiving the electrical power of the display, which are corresponding to each other, a wiring between the supporting terminal and the display can be avoided. Such a signboard can be used for emergency lighting.

**[0007]** According to another aspect, the display comprises a means for mounting the display to the supporting terminal, which is configured to mechanically couple to the supporting terminal.

For coupling the display to the supporting device a plurality of technical solutions can be adapted, based e.g. on spring-loaded mechanism and/or permanent magnets. For instance, a plug, mechanically coupled to the display, and a corresponding notch at the supporting terminal can be proposed to mount the display to the supporting terminal.

**[0008]** According to an aspect, the means for providing electrical power of the supporting terminal corresponds to the means for mounting the display, to provide electrical power and to mount the display to the supporting terminal.

Combining the means for mounting and respectively the means for providing receiving the electrical power simplifies the construction and results in a more simple design for the signboard. Using other words, the means for mounting the display can be configured as a means for receiving the electrical power and the supporting terminal can be configured to include a corresponding means for mechanically coupling the display to the supporting terminal and for providing electrical power to the display. For instance, the supporting terminal can include a spring-loaded electrical contact within a notch and the display can include a plug, which is configured to fit into the notch for mechanically coupling. In addition, the plug can be electrically conducting and electrically coupled to a light source of the display and the plug can be configured to electrically couple the plug to the spring-loaded electrical contact of the supporting terminal to receive electrical power. Thus, the plug of the display and the notch of the supporting terminal can be configured to mechanically and electrically couple the display to the supporting terminal.

**[0009]** According to an aspect, the means for providing electrical power is configured to interact with the means for mounting the display to couple the display to the supporting terminal detachable.

In particular, at least one of two plugs of the display can be spring-loaded to provide a means for mounting the

display, which is detachable. Advantageously, an end-user of the signboard can easily exchange the pictogram, if the display is mechanically and electrically coupled to the support terminal in a way to be detachable.

**[0010]** According to an aspect, the display comprises a light source for illumination of the display area.

Advantageously an optical performance of the signboard to illuminate the display can be achieved in a simple way, if the light source, as for instance an LED strip, is integrated to the display of the signboard.

**[0011]** According to an aspect, the light source is mounted within a slot of the display and fixed to the display by a snap-in feature.

Mounting the light source within a slot simplifies the overall construction of the signboard, as for instance an LED strip being an example for a light source, can be embedded within the display to provide an optimal position of the light source in respect to the pictogram of the display.

**[0012]** According to an aspect, the light source comprises an LED strip.

Such an LED strip integrated into the display, as for instance within a slot formed within the display, which is provided by the display, can be mechanically and electrically coupled to the supporting terminal, as described above, wherein the LED strip is electrically coupled to the supporting terminal via the means for electrically coupling of the display to the supporting terminal as described above. Advantageously this integrated light source does not have a need to be readjusted in respect to optical criteria after mounting the light source. The light source can be mounted to the display by gluing and/or a snap in feature of the display, which is configured to fix the light source, as for instance an LED strip, at a fixed position within the slot. The LED strip can comprise a metal backbone made from aluminium to increase the stiffness and provide electrical contacts made of copper.

**[0013]** According to an aspect, the display comprises a light guide for illumination of the pictogram.

The light guide can be configured to guide the light, which is provided by the light source of the display to the backside of the pictogram. The light guide can include guiding structures to direct the light from the light source illuminating an edge of the display to a backside of the pictogram and/or the light guide can include scattering particles, as for instance transparent microspheres with slightly different refraction index, to illuminate the backside of the pictogram. The light guide itself can form a base structure of the display and be made of a transparent Polymethylmethacrylat (PMMA) material, which is dedicated to edge LED lighting.

**[0014]** According to an aspect, the light source is configured to interact with the light guide to illuminate the pictogram.

**[0015]** According to an aspect, the pictogram is printed to the display.

The pictogram can be directly printed to a base structure of the display, which for instance can be the light guide, as described above, on both sides of the base structure. Advantageously, the pictogram, which can be printed to the display, particularly that directly to the surfaces of the base structure, can easily fulfil uniformity requirements between green and white colours of the pictogram. In addition, the printing inherently includes the mounting of the pictogram to the base structure and/or the light guide and by this improve the manufacturability of the signboard.

**[0016]** According to an aspect, the pictogram is printed to the light guide.

**[0017]** According to an aspect, the supporting terminal comprises a power supply, which is electrically connected to the means for providing electrical power to provide electrical power to the display, wherein the light source is electrical connected to the means for receiving electrical power.

The power supply can be electrically coupled to a main power supply and configured to provide voltages and currents suitable for the operation of the light source of the display.

**[0018]** A use of the signboard, as described above, for emergency lighting within a building is proposed.

Using such a signboard for emergency lighting can be easy and cheap solution.

Brief description of the drawings

**[0019]** The accompanying drawing, which is included to provide a further understanding of the invention and is incorporated in and constitute a part of this application, illustrate embodiments of the invention and together with the description serve to explain the principle of the invention. The drawing displays:

FIG. 1 a signboard for displaying a pictogram.

**[0020]** Figure 1 sketches schematically a signboard 100 for displaying a pictogram 122, including a display 120, with the pictogram 122, and a supporting terminal 110, which is configured to mount the display 120 to the supporting terminal 110, and wherein the supporting terminal 110 includes two means for providing electrical power 112 to the display 120. In addition, the display 120 of the signboard 100 includes means for receiving electrical power 128, which are configured to correspond electrically and mechanically to the means for providing electrical power 112 of the supporting terminal 110 to receive electrical power from the supporting terminal 110. The display 120 includes means for mounting the display 128 to the supporting terminal, which is configured to mechanically couple the supporting terminal 110 with the display 120. The means for providing electrical power 112 of the supporting terminal 110 correspond to the means for mounting the display 128, to provide electrical power and to mount the display 120 to the supporting terminal 110. The means for providing electrical power 112 of the supporting terminal 110 is configured to interact with the means for mounting the display 128 to couple

the display 120 to the supporting terminal 110 to be detachable. Particularly, this can be provided by a spring-loaded mechanism 112, 114 to couple the display 120 to the supporting terminal 110. The display 120 includes a light source 124, for illumination of the display area 122, particularly for illumination of the pictogram 122, wherein the light source 124 is built as an LED-strip 124, including a plurality of light emitting diodes (LED) 126.

**[0021]** The LED strip 124 can be mounted within a slot of the display and fixed to the display 120 mechanically and/or by gluing. The display 122 includes a light guide, which can build a base structure for the display 120, for illumination of the pictogram 122. The LED strip is placed and configured to interact with the light guide to illuminate the pictogram 122, which can be directly printed to one or both sides of the light guide, from the backside of each of the pictograms. The supporting terminal 110 includes a power supply 116, particularly coupled to the main power supply, which is electrically connected, for instance by wire 111, to the means for providing electrical power 112 to provide electrical power to the display 120, wherein the LED strip 124 is electrical connected to the means for receiving electrical power 128. The means for providing the electrical power 112 can include a spring-loaded contact 114.

## Claims

1. A signboard (100) for displaying a pictogram (122), comprising:

   a display (120) comprising the pictogram (122);
   a supporting terminal (110) configured to mount the display (120) to the supporting terminal (110), wherein the supporting terminal (110) comprises a means for providing electrical power (112);
   and wherein the display (120) comprises a means for receiving electrical power (128), which is configured to correspond electrically and mechanically to the means for providing electrical power (112) of the supporting terminal (110) to receive electrical power from the supporting terminal (110).

2. The signboard (100) according to claim 1, wherein the display (120) comprises a means for mounting the display (120) to the supporting terminal (110), which is configured to mechanically couple to the supporting terminal (110).

3. The signboard (100) according to claim 2, wherein the means for providing electrical power (112) of the supporting terminal (110) corresponds to the means for mounting the display, to provide electrical power and to mount the display (120) to the supporting terminal (110).

4. The signboard (100) according to claim 3, wherein the means for providing electrical power (112) is configured to interact with the means for mounting the display (128) to couple the display (120) to the supporting terminal (110) detachable.

5. The signboard (100) according to any of the preceding claims, wherein the display (120) comprises a light source (124) for illumination of the display area.

6. The signboard (100) according to claim 5, wherein the light source (124) is mounted within a slot of the display (120) and fixed to the display (120) by a snap in feature.

7. The signboard (100) according to claim 5 or 6, wherein the light source (124) comprises an LED strip (124).

8. The signboard (100) according to any of the preceding claims, wherein the display (120) comprises a light guide for illumination of the pictogram (122).

9. The signboard (100) according to any of the preceding claims, wherein the light source (124) is configured to interact with the light guide to illuminate the pictogram (122).

10. The signboard (100) according to any of the preceding claims, wherein the pictogram (122) is printed to the display (120).

11. The signboard (100) according to claim 8, wherein the pictogram (122) is printed to the light guide.

12. The signboard (100) according to any of the preceding claims, wherein the supporting terminal (110) comprises a power supply (116), which is electrically connected to the means for providing electrical power (112) to provide electrical power to the display (120), wherein the light source (124) is electrical connected to the means for receiving electrical power (128).

13. A use of the signboard (100), according to any of the preceding claims, for emergency lighting within a building.

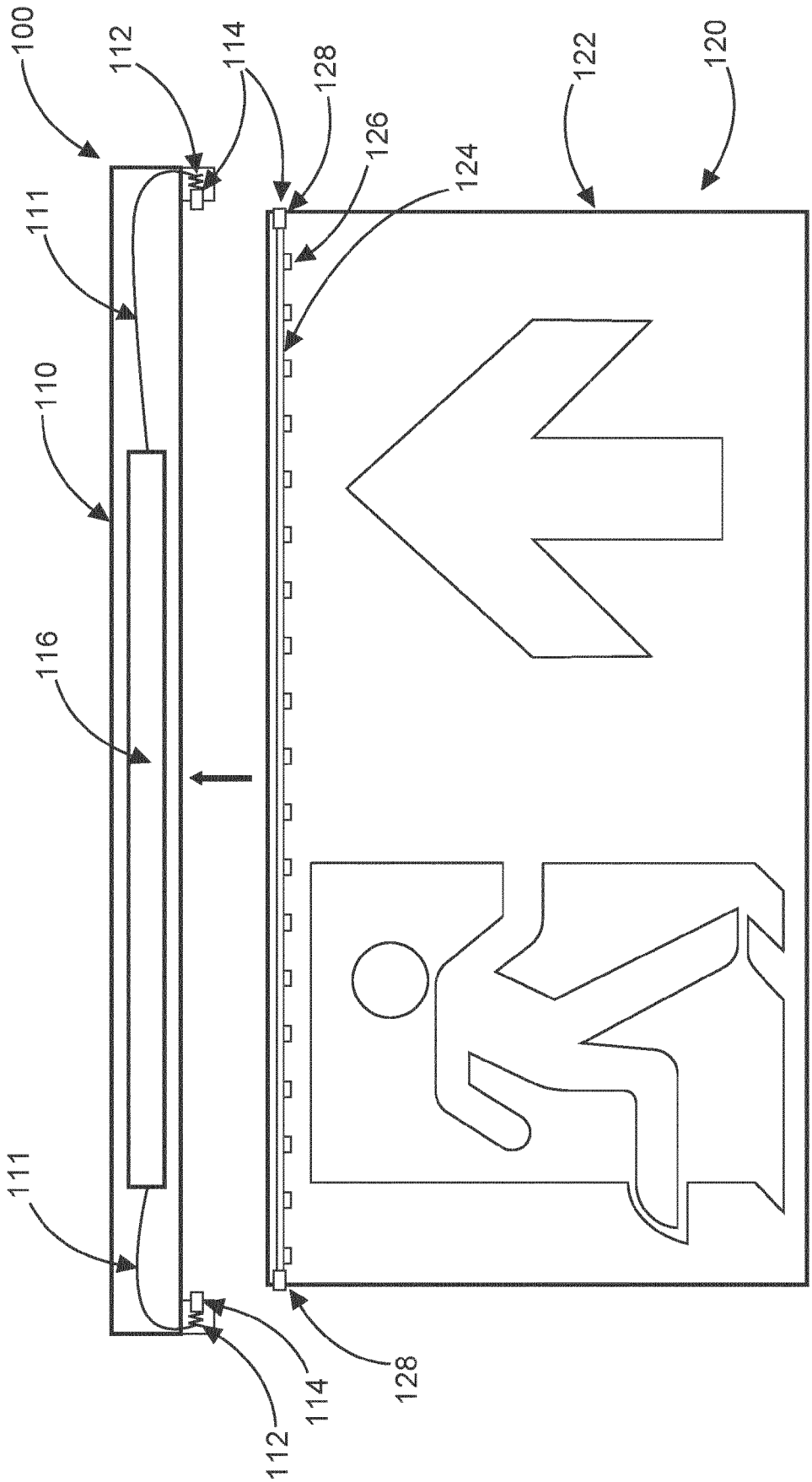


Fig. 1

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Application Number
EP 21 17 9170

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| Category | Citation of document with indication, where appropriate, of relevant passages | Relevant to claim | CLASSIFICATION OF THE APPLICATION (IPC) |
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The present search report has been drawn up for all claims

| Place of search | Date of completion of the search | Examiner |
|---|---|---|
| The Hague | 26 November 2021 | Zanna, Argini |

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