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angle (θ) of the main body is defined by a first axis (A1), normal to a plane in which the power track extends, and the main optical axis. The controller is configured to control a first luminous flux of the first light (L1) emitted by the first LED light source and a second luminous flux of the second light (L2) emitted by the second LED light source in dependence of the tilt angle (θ).

TRACK LIGHTING SYSTEM

TECHNICAL FIELD

The present disclosure relates generally to lighting devices. Specifically, it relates to a track lighting system.

5 BACKGROUND

A trend in field of lighting is track lighting in which lighting devices, such as spotlights, are fitted in and mechanically and electrically connected to a power track. Track lighting systems often allow variable positioning of the lighting devices along the track. Traditionally, track lighting systems have been used in retail settings. However, recently,
10 track lighting products have been developed targeting applications other than retail, such as home and office settings.

SUMMARY

There is a need for more versatile track lighting systems meeting the different
15 lighting requirements of the new application areas for track lighting.

This and other objects are achieved by providing a track lighting system as defined by the independent claim. Preferred embodiments are defined in the dependent claims.

Hence, the present disclosure provides a track lighting system. The track
20 lighting system comprises a power track and a lighting device. The lighting device comprises a main body, a support, and a controller. The main body comprises a first LED light source. A first end surface of the main body comprises a first light exit window for conveying, along a first main optical axis, first light emitted by the first LED light source. The main body further comprises a second LED light source and a first side surface. The first side surface
25 extends from the first end surface a second end surface. The second end surface is opposite to the first end surface. The first side surface comprises a second light exit window for conveying second light emitted by the second LED light source. The support comprises a connector configured to connect electrically and mechanically the lighting device to the power track. The support comprises a hinge member, connected to the main body. The main

body is pivotable relative to the support. A tilt angle of the main body is defined by a first axis, normal to a plane in which the power track extends, and the main optical axis. The controller is configured to control a first luminous flux of the first light emitted by the first LED light source and a second luminous flux of the second light emitted by the second LED light source in dependence of the tilt angle.

The power track of the track lighting system may be configured to be arranged in, or on, a surface, such as a ceiling or a wall. The plane in which the power track extends may coincide with such a surface.

The first light exit window is arranged to convey the first light generally in a direction along the main optical axis. The second light exit window may be arranged to convey the second light generally along a second optical axis. The second optical axis may intersect the main optical axis at an angle between 80 and 100 degrees. For example, the second optical axis may be perpendicular to the main optical axis.

The connector may allow a variable positioning of the lighting device relative to the power track.

The hinge member may for example be implemented as a hinge, a joint, a pivot, a flexible joint, a bending element, or the like. The hinge member may provide that the main body is pivotable, or tiltable, about the hinge member. The main body may be pivotable/tiltable relative to the power track or the plane in which the power track extends. The hinge member may have a (first) rotational axis about which the main body may pivot (or tilt). The rotational axis of the hinge member may be parallel to the plane in which the power track extends.

The hinge member may be connected to (or at) a surface of the main body. For example, the hinge member may be connected at the second end surface, the first side surface, or at a second side surface extending from the first end surface to the second end surface at a second side opposite to the first side surface. Furthermore, the hinge member may be connected at a corner of the main body, such as a corner between the first side surface and the second end surface.

The tilt angle is defined relative to a first axis. The first axis is normal, or perpendicular, to a plane in which the power track extends. At a zero-degree tilt angle, the main optical axis is parallel with the first axis. Thus, when arranged at a zero-degree tilt angle, the lighting device is arranged to emit light (perpendicularly) away from the plane in which the power track extends.

The tilt angle may be defined such that, for positive values of the tilt angle, the second light exit window is directed away from the plane in which the power track extends, and for negative values of the tilt angle, the second light exit window is directed towards the plane in which the power track extends.

5 The controller is configured to control the first luminous flux of the first light, i.e. the light emitted by the first LED light source, based on the tilt angle. The controller is further configured to control the second luminous flux of the second light, i.e. the light emitted by the second LED light source, based on the tilt angle. Thus, the first and/or second luminous flux may be adjusted by varying the tilt angle, e.g. by a user of the track lighting
10 system.

According to some embodiments, the controller may be configured to vary a first ratio ($Rat1$) of the first luminous flux ($LF1$) and the second luminous flux ($LF2$) in dependence of the tilt angle, wherein $Rat1 = LF1/LF2$.

15 The relation (ratio) of the first light and the second light may therefore be adjusted by varying the tilt angle.

As mentioned, the support comprises a connector configured to connect electrically and mechanically the lighting device to the power track. The power track may be an elongated power track having an elongation axis, wherein the lighting device may be movable along the elongation axis of the elongated power track, so as to allow a variable
20 positioning of the lighting device relative to the power track.

According to some embodiments, the controller may be configured to vary the first ratio in dependence of the tilt angle such that the first ratio decreases as the tilt angle increases.

25 According to some embodiments, the controller may be configured to control the first LED light source to emit light at 20% or less of a first maximum luminous flux of the first LED light source, in response to the tilt angle being above a first threshold.

For example, the controller may be configured to control the first LED light source to emit light at 10% or less of the first maximum luminous flux in response to the tilt angle being above the first threshold.

30 The controller may for example be configured to turn off the first LED light source in response to the tilt angle being above the first threshold.

At a 90 degree tilt angle, the main optical axis is parallel to the plane in which the power track extends. In the range 0 to 90 degrees, the larger the tilt angle, the more the main optical axis is directed away from the first axis (which is perpendicular to the plain in

which the power track extends). By lowering the luminous flux then the tilt angle is above the first threshold, unwanted glare from the first light exit window may be prevented.

According to some embodiments, the first threshold may be in a range from 40 to 70 degrees. More specifically, the first threshold may be in a range from 45 to 65 degrees.

5 The controller may, additionally or alternatively, be configured to control the second LED light source to emit light at 40% or less of a second maximum luminous flux of the second LED light source in response to the tilt angle being below a second threshold.

 For example, the controller may be configured to control the second LED light source to emit light at 20% or less, of the second maximum luminous flux in response to the
10 tilt angle being below the second threshold.

 More specifically, the controller may be configured to control the second LED light source to emit light at 10% or less of the second maximum luminous flux in response to the tilt angle being below the second threshold.

 The controller may for example be configured to turn off the second LED light
15 source in response to the tilt angle being below the second threshold.

 By lowering the second luminous flux below the second threshold, unwanted glare from the second light exit window may be prevented.

 According to some embodiments, the second threshold may be in a range from 0 to 35 degrees. For example, the second threshold may be in a range from 2 to 25 degrees.

20 At a 90-degree angle, the second light exit window may be arranged to emit (or convey) second light generally in the direction of the first axis. At a zero-degree angle, the second light exit window may be arranged to emit second light generally parallel with the plane in which the power track extends. At a -90-degree angle, the second light exit window may be arranged to emit light generally towards the plane in which the power track extends.

25 According to some embodiments, the first threshold may be higher than the second threshold.

 According to some embodiments, the controller may further be configured to turn off the first LED light source and the second LED light source in response to the tilt angle being below a turn off tilt angle.

30 The turn off tilt angle may define a position in which the second light exit window is substantially parallel with, and directed towards, the plane in which the power track extends. For example, the turn off tilt angle may be -80 degrees or lower, such as -85 degrees or lower, -88 degrees or lower, or -90 degrees.

The controller may further be configured to turn off the first LED light source in response to the tilt angle being above a second turn-off tilt angle. For example, the second turn-off tilt angle may be 80 degrees or higher. The second turn-off tilt angle may be 85 degrees or higher, such as 88 degrees or higher, or 90 degrees.

5 According to some embodiments, the track lighting system may further comprise a tilt angle sensitive device. The tilt angle sensitive device (or means for determining the tilt angle) may provide an output signal which is dependent on the tilt angle. The tilt angle sensitive device may be in communication with the controller.

10 The controller may be further configured to obtain the tilt angle (parameter) based on an output from the tilt angle sensitive device. For example, the controller may be configured to receive the tilt angle from the tilt angle sensitive device. Additionally or alternatively, the controller may be configured to determine or calculate the tilt angle based on the output of the tilt angle sensitive device.

15 For example, the tilt angle sensitive device may be a tilt angle sensitive sensor, such as a tilt sensor, and orientation sensor, or an accelerometer. Alternatively, the tilt angle sensitive device may comprise other means for determining the tilt angle. For example, the tilt angle sensitive device may comprise means for determining a position of a first portion of the hinge element, connected to the support, relative to a second portion of the hinge element, connected to the main body.

20 According to some embodiments, the support may further comprise a rotation element having a rotation axis normal to the plane in which the power track extends, such that the main body is rotatable about the rotation axis.

25 According to some embodiments, the controller may further be configured to control the first luminous flux and the second luminous flux in dependence of a rotation angle of the lighting device about the rotation axis.

 The track lighting system may further comprise a rotation angle sensitive device. The rotation angle sensitive device (or means for determining the rotation angle) may provide an output signal which is dependent on the rotation angle. The rotation angle sensitive device may be in communication with the controller.

30 The controller may obtain the rotation angle based on an output from the rotation angle sensitive device. For example, the controller may be configured to receive the rotation angle from the tilt angle sensitive device. Additionally or alternatively, the controller may be configured to determine or calculate the rotation angle based on the output of the rotation angle sensitive device.

According to some embodiments, the first LED light source may comprise at least one LED and a collimator. The collimator may be configured to collimate the first light. The first light emitted by the lighting device may have a first full width at half max (FWHM1).

5 The second light exit window may comprise diffusing elements configured to diffuse the second light. The second light emitted by the lighting device may have a second full width at half max (FWHM2).

The second full width at half max (FWHM2) may be larger than the first full width at half max (FWHM1), i.e., $FWHM2 > FWHM1$.

10 For example, FWHM1 may be lower than or equal to 45 degrees. More specifically, FWHM1 may be lower than or equal to 25 degrees, such as lower than or equal to 15 degrees, or lower than or equal to 7 degrees.

 For example, FWHM2 may be greater than or equal to 70 degrees. More specifically, FWHM2 may be greater than or equal to 80 degrees, such as greater than or
15 equal to 90 degrees, or greater than or equal to 100 degrees.

The lighting device may provide collimated, direct, first light along the main optical axis from the first light exit window. The lighting device may also provide diffuse, indirect, second light from the second light exit window. The direction and the intensity of the first (direct) light and the second (diffuse) light may be adjusted by varying the tilt angle.

20 According to some embodiments, the second LED light source may comprise at least one LED and a light guide arranged to receive light from the at least one LED.

In embodiments, the second light exit window may be at least partly comprised in the light guide.

 According to some embodiments, the first light exit window may have a first
25 surface area. The second light exit window may have a second surface area. The second surface area may be at least twice, or three times, as large as the first surface area. Alternatively, or additionally, a first maximum brightness of the first light exit window may be at least twice, or three times, as high as a second maximum brightness of the second light exit window.

30 The first side surface may extend at an angle of 80 to 100 degrees from the first end surface and/or the second end surface. The first side surface may extend perpendicularly from the first end surface and/or the second end surface.

 According to some embodiments, the main body of the lighting device may have a rectangular cuboid shape.

For example, the main body may have a length (L), a width (W) and a height (H). The length (L) may be greater than or equal to two times the width, i.e., $L \geq 2W$, or three times the width (W), i.e., $L \geq 3W$. The length (L) may be greater than or equal to two times the height, i.e., $L \geq 2H$, or three times the height (H), i.e., $L \geq 3H$.

5 In embodiments, the track may have a track length (TL) and a track width (TW). The track length (TL) may be greater than or equal to 10 times the track width (TW), i.e., $TL \geq 10TW$. A ratio of the main body width (W) to the track width (TW) may be in a range from 0.5 to 1.5, i.e. $0.5 < W/TW < 1.5$. Specifically, the ratio of the main body width (W) to the track width (TW) may be in a range from 0.8 to 1.2, i.e., $0.8 < W/TW < 1.2$.

10 According to some embodiments, the main body of the lighting device may have a second side surface, opposite to the first side surface. The second side surface may be non-light emitting. In such embodiments, the second side surface does not comprise a light exit window or at least does not emit light.

According to some embodiments, the lighting device may be a first lighting
15 device, and the system may further comprise a second lighting device. The second lighting device may be electrically and mechanically connectable to the first lighting device such that the first and second lighting device may be controllable as a single lighting device. The second lighting device may have a same architecture as the first lighting device. Alternatively, the second lighting device may have a different architecture than the first
20 lighting device.

The first lighting device and the second lighting device may be configured to provide the appearance of a single lighting device in an electrically and mechanically connected state.

For example, the first light-exit window of a lighting device may extend to an
25 edge of the first end surface of the main body. In a mechanically connected state between the (first) lighting device and another (second) lighting device, the first light-exit windows of the respective lighting devices may be arranged at a sufficiently short distance to provide the appearance of a single light-exit window.

Similarly, the second light-exit window of a lighting device may extend to an
30 edge of the first side surface of the main body. In a mechanically connected state between the first lighting device and the second lighting device, the second light-exit windows of the respective lighting devices may be arranged at a sufficiently short distance to provide the appearance of a single light-exit window.

In an electrically connected state, the controllers of the first and second lighting devices may control the respective first LED light sources as a single LED light source. Similarly, the controllers of the first and second lighting devices may control the respective second LED light sources as a single LED light source.

5 Any embodiment described herein may be combinable with other embodiments also described herein, and the present disclosure relates to all combinations of features.

10 In examples, the controller may be commissioned in a first tilted position characterizing a first tilt angle, wherein the first tilted position is the main body normal to the plane in which the power track extends, wherein the first tilt angle is zero (i.e. a predefined reference tilt angle of zero when the main body is normal to the plane in which the power track extends).

15 According to some embodiments, the first LED light source and the second LED light source may be different. More specifically, in embodiments, the first LED light source may comprise a first plurality of Light Emitting Diodes (LEDs) and the second LED light source may comprise a second plurality of Light Emitting Diodes (LEDs), wherein the first plurality of Light Emitting Diodes are different from the second plurality of Light Emitting Diodes. For example, the first plurality of Light Emitting Diodes may comprise a first luminescent material arranged for establishing a first color temperature (e.g. warm white color, e.g. via warm white LEDs) and the second plurality of Light Emitting Diodes may comprise a second luminescent material arranged for establishing a second color temperature (e.g. cool white color, e.g. via cool white LEDs), wherein the first color temperature is different from the second color temperature. For example, the first plurality of Light Emitting Diodes may consist of a first number of LEDs, and the second plurality of Light Emitting Diodes may consist of a second number of LEDs, wherein the first number and the second number are different. For example, the second number is at least a factor 2, preferably at least a factor 4, larger than the first number. For example, the first plurality of Light Emitting Diodes may comprise a first type, and the second plurality of Light Emitting Diodes may comprise a second type, which is different from the first plurality of Light Emitting Diodes. For example, the first plurality of Light Emitting Diodes may be conventional LEDs, while the second plurality of Light Emitting Diodes may be LED filaments.

In aspects, the invention further provides an improved track lighting device, which at least alleviates the problems and disadvantages mentioned above. Hence, the invention provides a track lighting device comprising a main body, a support, and a

controller; wherein the main body comprises a first LED light source and a first end surface comprising a first light exit window for conveying along a main optical axis (OA1) first light emitted by the first LED light source; wherein the main body comprises a second LED light source and a first side surface which extends from the first end surface to a second end surface opposite the first end surface, wherein the first side surface comprises a second light exit window for conveying second light emitted by the second LED light source; wherein the support comprises a connector configured to connect the track lighting device electrically and mechanically to a power track of a track lighting system; wherein the support comprises a hinge member connected to the main body such that the main body is pivotable relative to the support, wherein a tilt angle (θ) of the main body is defined by a first axis (A1), normal to a plane in which said power track of the track lighting system extends, and the main optical axis; wherein the controller is configured to control a first luminous flux of the first light (L1) emitted by the first LED light source and a second luminous flux of the second light (L2) emitted by the second LED light source in dependence of the tilt angle (θ). The embodiments and advantages associated with the track lighting system according to the invention mutatis mutandis apply to the track lighting device according to the invention.

BRIEF DESCRIPTION OF DRAWINGS

Exemplifying embodiments will now be described in more detail, with reference to the following appended drawings:

Fig. 1 is a schematic illustration of a track lighting system in accordance with some embodiments;

Fig. 2 is a side view illustration of a track lighting system in accordance with some embodiments;

Fig. 3 is a bottom view illustration of a track lighting system in accordance with some embodiments; and

Fig. 4 is an illustration of a track lighting system in accordance with some embodiments.

As illustrated in the figures, the sizes of the elements and regions may be exaggerated for illustrative purposes and, thus, are provided to illustrate the general structures of the embodiments. Like reference numerals refer to like elements throughout.

DETAILED DESCRIPTION

Exemplifying embodiments will now be described more fully hereinafter with reference to the accompanying drawings in which currently preferred embodiments are shown. The invention may, however, be embodied in many different forms and should not be construed as limited to the embodiments set forth herein; rather, these embodiments are provided for thoroughness and completeness, and fully convey the scope of the invention to the skilled person.

With reference to Figures 1 and 2, a track lighting system 100 in accordance with some embodiments will be described. Figure 1 provides a perspective view of the track lighting system 100, and Figure 2 provides a side view of the track lighting system 100.

The track lighting system 100 comprises a power track 110 which, in Figure 1, is arranged in a ceiling 150. The track lighting system 100 further comprises a lighting device 120.

The lighting device 120 has a main body 126, which is supported in the power track 110 via a support 122. The support 122 comprises a connector 148 mechanically and electrically connecting the main body 126 to the power track 110.

In the illustrated embodiment, the main body 126 of the lighting device 120 has the shape of a rectangular cuboid, having a first end surface 132, a second (opposite) end surface 130, a first side surface 134 extending between the first and second end surfaces 132, 130, and a second side surface 136 opposite to the first side surface 134.

The first end surface 132 comprises a first light exit window 140 configured to convey first light L1 (illustrated in Figure 2) emitted by a first LED light source 144 along a main optical axis OA1. The first LED light source 144 may comprise at least one light-emitting diode (LED) and a collimator configured to collimate the first light.

The first side surface 134 comprises a second light exit window 138 configured to convey second light L2 emitted by a second LED light source 146. The second light L2 may be emitted along a second optical axis OA2. The second light exit window 138 may comprise diffusing elements configured to diffuse the second light L2.

In the illustrated example, the second side surface 136 does not emit light.

The support 122 further comprises a hinge member 124 connected to the main body 126. Specifically, the hinge member 124 is connected to the second end surface 130. The hinge member may have a rotational axis RA1. The main body 126 may pivot about the hinge member 124, e.g. about the rotational axis RA1, in relation to the track 110 and the ceiling 150. Specifically, the main body 126 may be tilted with regard to a first axis A1, perpendicular to a plane in which the power track 110 extends. In the illustrated embodiment,

the plane corresponds to the ceiling 150. A tilt angle θ is defined between the main optical axis OA1 and the first axis A1.

The track lighting system 100 further comprises a controller 128. The controller 128 is configured to control the first LED light source 144 and the second LED light source 146. Specifically, the controller 128 is configured to control a first luminous flux of the first light L1, and a second luminous flux L2 of the second light L2, in dependence of the tilt angle θ . For example, the controller 128 may control a ratio of the first luminous flux and the second luminous flux in dependence of the tilt angle θ . Thus, the direction and intensity of the first light L1 and the second light L2 may be adjusted by varying the tilt angle θ .

The track lighting system 100 may further comprise a tilt angle sensitive device 142. The tilt angle sensitive device 142 may provide an output signal indicative of the tilt angle θ . The controller 128 may obtain, receive, or determine the tilt angle θ based on the output of the tilt angle sensitive device 142.

With additional reference to Figure 3, further aspects of the track light lighting system, in accordance with some embodiments, will be described. Figure 3 provides a bottom view of the track lighting system 100.

In the illustrated example, the support 122 further comprises a rotational element 152. The rotational element 152 allows the main body 126 to rotate about a second rotational axis RA2 (illustrated in Figure 2). The second rotational axis RA2 may be parallel with, or coincide with, the first axis A1. In embodiments including the rotational element 152, the attitude of the main body 126 may have two degrees of freedom: pitch and roll as seen from the perspective of the first light exit window 140, or pitch and yaw as seen from the perspective of the second light exit window 138. The support 122 may provide a variable position of the lighting device 120 relative to the power track 110, providing a further (translational) degree of freedom.

As is illustrated in Figure 3, a rotation angle γ may be defined to describe the rotation of the main body 126. In Figure 3, the rotation angle γ is defined by a second axis A2 and a third axis A3. The second axis A2 is at least locally parallel with the track 110. The third axis A3 is defined relative to the main body 126. In the present example, the third axis A3 extends along a central line of the main body 126, parallel with the first and second side surfaces 134, 136, and parallel with the ceiling 150.

The controller 128 may be further configured to control the first luminous flux and the second luminous flux based on the rotation angle γ . The track lighting system 100

may further comprises a rotation angle sensitive device (not illustrated). The rotation angle sensitive device may provide an output indicative of the rotation angle γ to the controller 128.

With reference to Figure 4, a track lighting system 200 in accordance with some embodiments will be described.

5 Similarly to the track lighting system 100, described above with reference to the preceding figures, the track lighting system 200 of Figure 4 comprises a power track 110 arranged in a ceiling 150, and a (first) lighting device 120. The track lighting system 200 further comprises a second lighting device 220. The second lighting device 220 may be equivalent to the (first) lighting device 120 described with reference to the preceding figures.

10 The first lighting device 120 and the second lighting device 220 may be electrically and mechanically interconnectable. That is, the second lighting device 220 may be configured to be electrically and mechanically connectable to the first lighting device 120, and vice versa.

The first lighting device 120 and the second lighting device 220 may be
15 controllable as a single lighting device. The controller 128 of the first lighting device 120 (or the *first controller* 128) may be in communication with the (second) controller 228 of the second lighting device 220. The first and second controllers 128, 228 may control the luminous fluxes of their respective first and second LED light sources similarly to give the appearance of a single lighting device.

20 In Figure 4, the first light exit window 140, 240 of the first and second lighting devices 120, 220, each extend to an edge of the respective first end surfaces 132, 232. Specifically, the first light exit windows 140, 240 each extend at least to an edge E1 at which the first end surfaces 132, 232 meet. Thus, the first light exit windows 140, 240 may provide the appearance of forming a single first light exit window.

25 Likewise, the second light exit window 138, 238 of the first and second lighting devices 120, 220, each extend to the edge E1 of the respective first side surfaces 134, 234 at which the first side surfaces 134, 234 meet. Thus, the second light exit windows 138, 238 may provide the appearance of forming a single second light exit window.

The person skilled in the art realizes that the present invention by no means is
30 limited to the preferred embodiments described above. On the contrary, many modifications and variations are possible within the scope of the appended claims.

Although features and elements are described above in particular combinations, each feature or element can be used alone without the other features and elements or in various combinations with or without other features and elements.

Additionally, variations to the disclosed embodiments can be understood and effected by the skilled person in practicing the claimed invention, from a study of the drawings, the disclosure, and the appended claims. In the claims, the word "comprising" does not exclude other elements, and the indefinite article "a" or "an" does not exclude a plurality.

- 5 The mere fact that certain features are recited in mutually different dependent claims does not indicate that a combination of these features cannot be used to advantage.

CLAIMS:

1. A track lighting system (100) comprising a power track (110) and a lighting device (120), wherein:

the lighting device comprises a main body (126), a support (122), and a controller (128);

5 the main body comprises a first LED light source (144) and a first end surface (132) comprising a first light exit window (140) for conveying along a main optical axis (OA1) first light emitted by the first LED light source;

the main body comprises a second LED light source (146) and a first side surface (134) which extends from the first end surface to a second end surface (130) opposite
10 the first end surface, wherein the first side surface comprises a second light exit window (140) for conveying second light emitted by the second LED light source;

the support comprises a connector (148) configured to connect electrically and mechanically said lighting device to said power track;

the support comprises a hinge member (124), connected to the main body such
15 that the main body is pivotable relative to the support, wherein a tilt angle (θ) of the main body is defined by a first axis (A1), normal to a plane in which the power track extends, and the main optical axis;

wherein the controller is configured to control a first luminous flux of the first light (L1) emitted by the first LED light source and a second luminous flux of the second
20 light (L2) emitted by the second LED light source in dependence of the tilt angle (θ).

2. The track lighting system of claim 1, wherein the controller is configured to vary a first ratio, $Rat1$, of the first luminous flux, $LF1$, and the second luminous flux, $LF2$, in dependence of the tilt angle, wherein $Rat1 = LF1/LF2$.

3. The track lighting system of claim 2, wherein the controller is configured to vary the first ratio in dependence of the tilt angle such that the first ratio decreases as the tilt angle increases.

4. The track lighting system of any of the preceding claims, wherein the controller is configured to:

control the first LED light source to emit light at 20% or less of a first maximum luminous flux of the first LED light source, in response to the tilt angle being
5 above a first threshold; and/or

control the second LED light source to emit light at 40% or less of a second maximum luminous flux of the second LED light source in response to the tilt angle being below a second threshold.

10 5. The track lighting system of claim 4, wherein the first threshold is higher than the second threshold.

6. The track lighting system of any of claims 4 or 5, wherein the first threshold is in a range from 40 degrees to 70 degrees.

15 7. The track lighting system of any of the preceding claims, further comprising a tilt angle sensitive device(140); wherein

the controller is further configured to obtain the tilt angle based on an output from the tilt angle sensitive device.

20 8. The track lighting system of any of the preceding claims, wherein the support further comprises a rotation element (152) having a rotation axis (RA2) normal to the plane in which the power track extends, such that the main body is rotatable about the rotation axis.

25 9. The track lighting system of claim 8, wherein the controller is further configured to control the first luminous flux and the second luminous flux in dependence of a rotation angle (γ) of the lighting device about the rotation axis.

10. The track lighting system of any of the preceding claims, wherein:

30 the first LED light source comprises at least one LED and a collimator configured to collimate the first light, wherein first light emitted by the lighting device has a first full width at half max, FWHM1;

the second light exit window comprises diffusing elements configured to diffuse the second light, wherein second light emitted by the lighting device has a second full width at half max, FWHM2, and

wherein $FWHM2 > FWHM1$.

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11. The track lighting system of any of the preceding claims, wherein the second LED light source comprises at least one LED and a light guide arranged to receive light from the at least one LED.

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12. The track lighting system of any of the preceding claims, wherein the first light-exit window has a first surface area, the second light exit window has a second surface area; and wherein at least one of the following applies:

(i) the second surface area is at least twice as large as the first surface area;

(ii) a first maximum brightness of the first light exit window is at least twice as

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high as a second maximum brightness of the second light exit window.

13. The track lighting system of any of the preceding claims, wherein the main body of the lighting device has a rectangular cuboid shape.

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14. The track lighting system of any of the preceding claims, wherein the main body of the lighting device has a second side surface (136), opposite to the first side surface, and wherein the second side surface does not emit light.

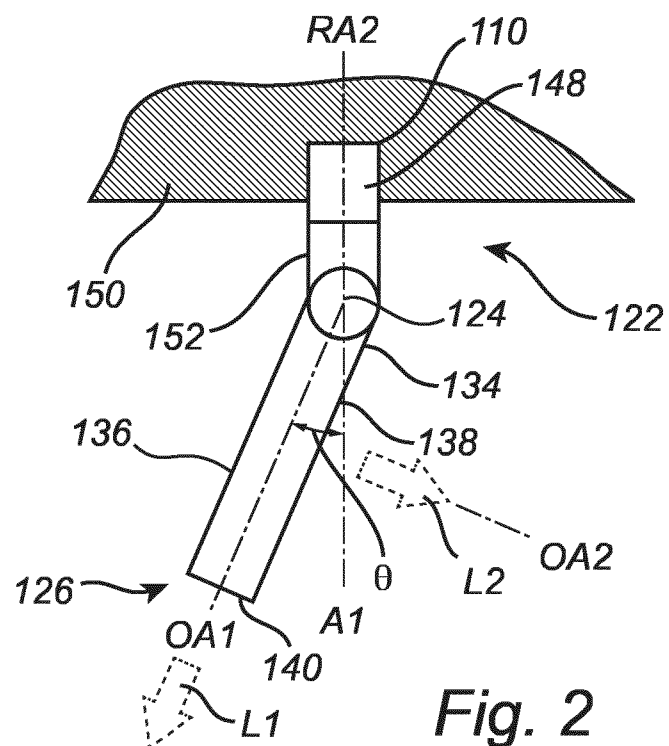
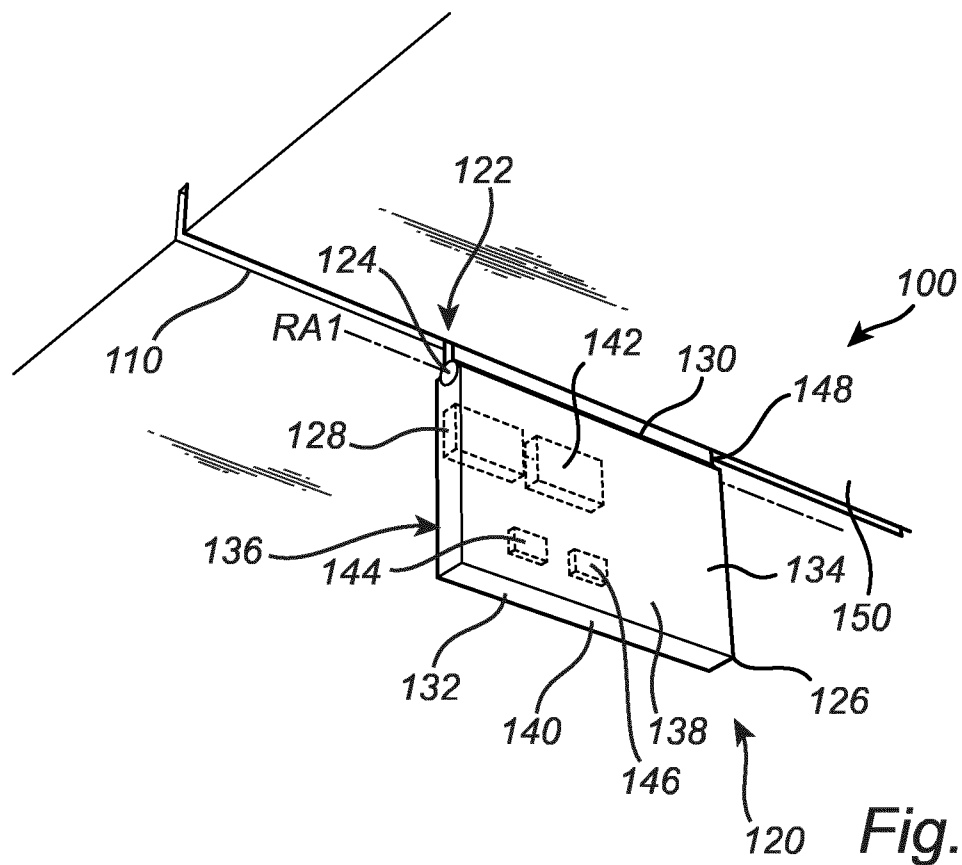
15. The track lighting system of any of the preceding claims, wherein:

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said lighting device (120) is a first lighting device; and

the system further comprises a second lighting device (220) electrically and mechanically connectable to said first lighting device, such that the first and second lighting device are controllable as a single lighting device.

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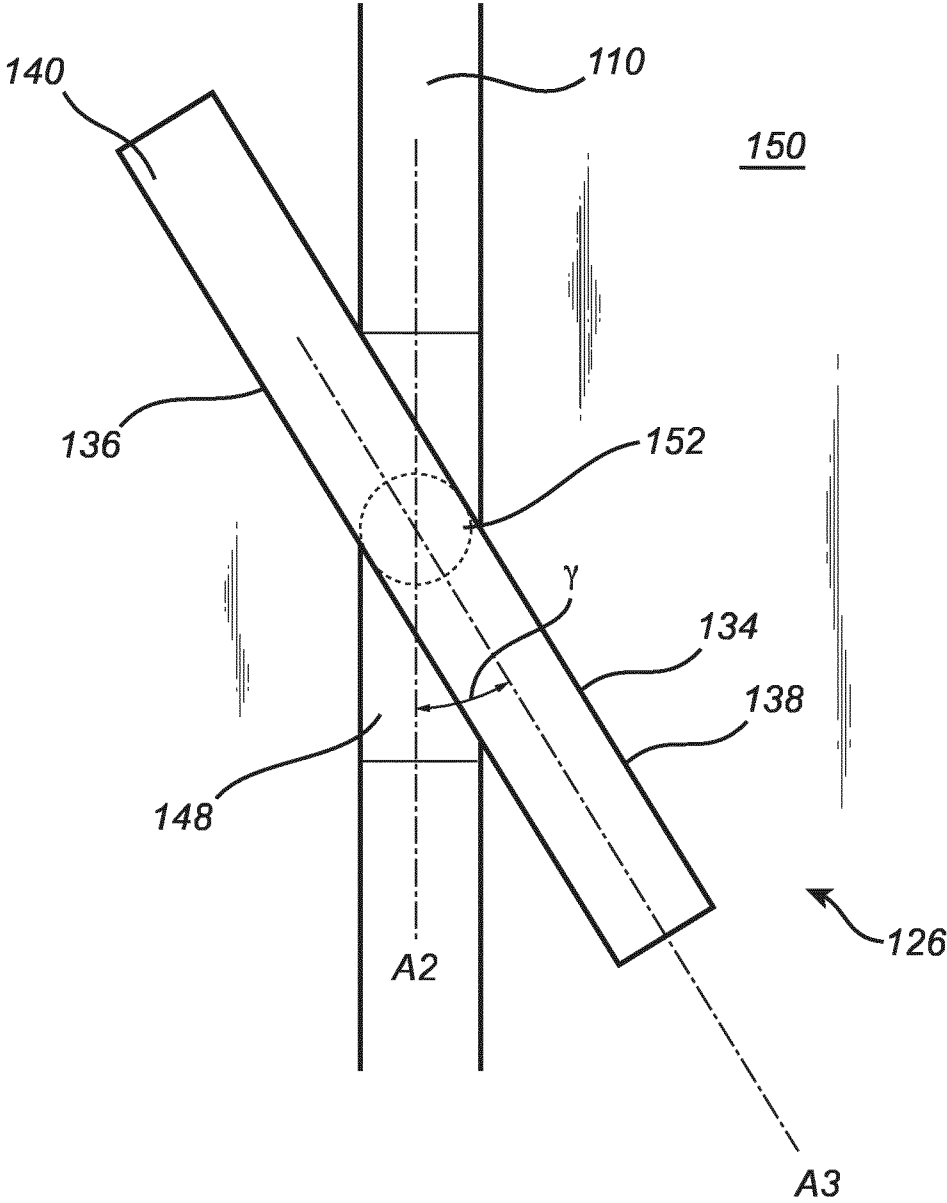


Fig. 3

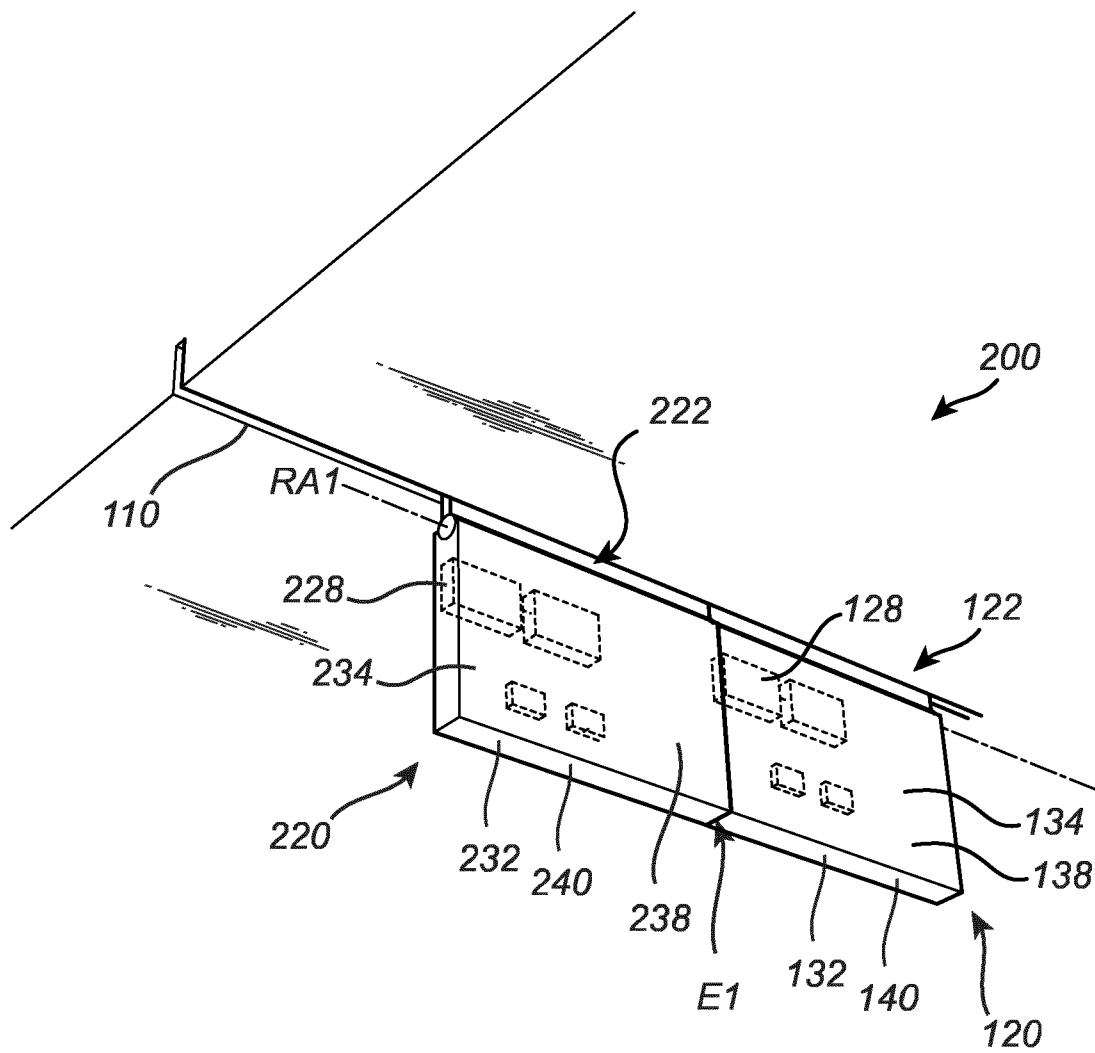


Fig. 4

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2024/076170

A. CLASSIFICATION OF SUBJECT MATTER INV. F21S8/06 F21V21/30 F21V21/35 ADD.		
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) F21S F21V F21Y 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		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2023/143998 A1 (SIGNIFY HOLDING BV [NL]) 3 August 2023 (2023-08-03) figures 1-5 -----	1 - 15
A	EP 0 587 882 B1 (APPLIC TECH ET DECORATIVES DE [FR]) 9 August 1995 (1995-08-09) figures 1,10,13 -----	1 - 15
A	DE 20 2016 004226 U1 (SENKEL HELMUT [DE]) 11 November 2016 (2016-11-11) figures 1,2,4-6,8,9 -----	1 - 15
☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.		
* Special categories of cited documents : "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance;; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance;; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search 15 November 2024		Date of mailing of the international search report 27/11/2024
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016		Authorized officer Kebemou, Augustin

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/EP2024/076170

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