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(54) **A WINDOW ASSEMBLY**

(57) Disclosed is a window assembly (1) comprising a window frame (2) arranged to be fixed to a building surface and a window sash (3) comprising a window pane (4), wherein the window sash (3) being mounted in the window frame (2) by means of a pivotal joint (5) enabling that the window sash (3) may pivot in relation to the window frame (2). The window assembly (1) further comprises window locking means (6) arranged at a top side

(7) of the window assembly (1) to lock the window sash (3) in relation to the window frame (2) in a closed position and a locking handle (8) arranged on the window sash (3) to operate the locking means (6). The window assembly (1) is characterized in that the locking handle (8) is provided with light emitting means (9) arranged to illuminate at least a part of the window assembly (1).

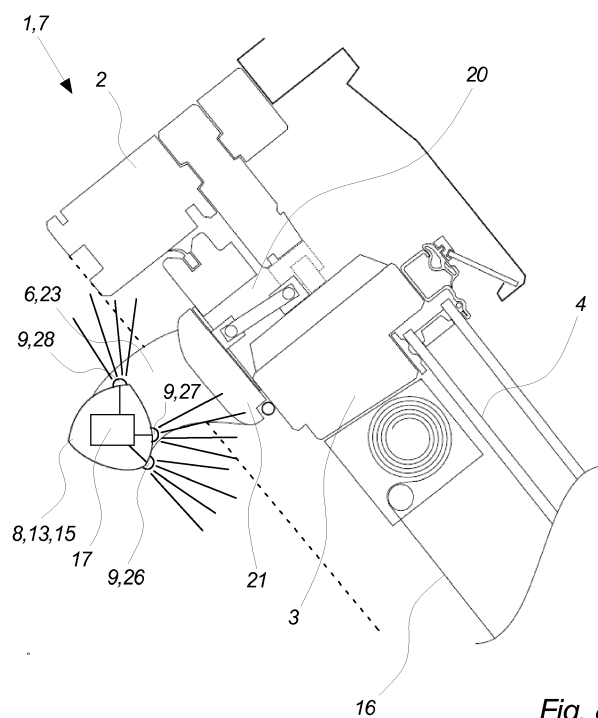


Fig. 8

Description

Field of the invention

[0001] The invention relates to a window assembly comprising a window frame arranged to be fixed to a building surface and a window sash comprising a window pane, wherein the window sash is mounted in the window frame by means of a pivotal joint enabling that the window sash may pivot in relation to the window frame.

Background of the invention

[0002] Window assemblies such as skylights or roof windows are typically arranged to provide a good lighting effect in daylight. But when it gets dark lighting has to be provided from other light source that may not be as optimally located.

[0003] Thus, from DE 202009013130 it is known to mount a lamp transverse in front of a roof window so it may aid in providing a more optimal lighting effect both during the daytime and at night. But the lamp itself will at least partly block the view out of the window and it will at least partly block natural light pouring in through the window.

[0004] It is therefore an object of the present invention to provide for a cost-efficient technique of providing lighting at a window assembly.

The invention

[0005] The invention provides for a window assembly comprising a window frame arranged to be fixed to a building surface and a window sash comprising a window pane, wherein the window sash being mounted in the window frame by means of a pivotal joint enabling that the window sash may pivot in relation to the window frame. The window assembly further comprises window locking means arranged at a top side of the window assembly to lock the window sash in relation to the window frame in a closed position and a locking handle arranged on the window sash to operate the locking means. The window assembly is characterized in that the locking handle is provided with light emitting means arranged to illuminate at least a part of the window assembly.

[0006] Arranging the light emitting means in or on the locking handle at the top side of the window assembly is advantageous in that the light emitting means hereby will not block the view in and out of the window. Furthermore, arranging the light emitting means to illuminate the window assembly is advantageous in that it provides indirect lighting over a larger area and allows to perceive the window architecture.

[0007] It should be emphasised that the term "window sash" is to be understood as any kind of pivotal or tilting window part (in relation to the fixed window frame) that includes at least a part of the window pane of the window assembly.

[0008] Furthermore, in this context the term "window locking means" should be understood as any kind of window lock suited for locking the window sash at least in a closed position in relation to the window frame - i.e. any kind of mutually engaging geometry, snap, latch, sliding bolt or other or any combination thereof.

[0009] Also, in this context the term "light emitting means" should be understood as any kind of light emitter suited for illuminating at least a part of a window assembly - i.e. any kind of lamp, spot, light emitting diode, incandescent bulb, halogen or other or any combination thereof or any kind of light emitter comprising light guiding means enabling that the light source (i.e. the source generating the light) can be separated from the actual location where the light is emitted.

[0010] It should also be noticed that any orientation reference made throughout this application - such as top, bottom, up, down, side etc. - is made in relation to the window assembly when mounted as intended in a building surface (typically a wall or a roof) - i.e. when the window assembly is mounted with is normal and intended orientation and is in use as a window in a building surface.

[0011] In an aspect of the invention, the light emitting means is arranged on an outside surface of the locking handle.

[0012] Placing the light emitting means on an outside surface of the locking handle is advantageous in that the light emitting means hereby is easily accessible during assembly, maintenance and repair.

[0013] In an aspect of the invention, the light emitting means is arranged inside the locking handle.

[0014] Placing the light emitting means inside the locking handle is advantageous in that the light emitting means hereby is better protected during use.

[0015] In an aspect of the invention, the locking handle is provided with light apertures allowing light from the light emitting means to be emitted out of the locking handle.

[0016] Providing the locking handle with light apertures is a simple and inexpensive way of allowing light to be emitted out of the locking handle

[0017] In an aspect of the invention, at least a part of the locking handle is formed in a transparent material allowing light from the light emitting means to be emitted out of the locking handle.

[0018] Forming parts of the locking handle in a transparent material is a simple and inexpensive way of allowing light to be emitted out of the locking handle while at the same time protecting the light emitting means.

[0019] In an aspect of the invention, the light emitting means is arranged to only emit light in the direction of the window pane and the window frame.

[0020] Arranging the light emitting means so that they only emit light inwards in a direction of the window pane and the window frame is advantageous in that the light emitting means hereby will not blind a viewer and the light emitted from the window assembly will be indirect reflecting light that is more pleasing to the viewer.

[0021] In an aspect of the invention, the window assembly comprises focusing means arranged to focus light emitted from the light emitting means.

[0022] Providing focusing means to focus light emitted from the light emitting means is advantageous in that the emitted light hereby can be focused on specific areas of the window assembly having a desired reflective surface, the emitted light can be arranged to for a specific pattern or other.

[0023] In this context, the term "focusing means" should be understood as any kind of focussing device suited for focusing light emitted from light emitting means - i.e. any kind of lens, light deflector, light diffuser, light converging device or other or any combination thereof.

[0024] In an aspect of the invention, the locking handle comprises a transverse bar extending more than half the width of the window sash and wherein the light emitting means is positioned in an/or on the transverse bar.

[0025] Forming the locking handle as a transverse bar extending more than half the width of the window sash is advantageous in that the handle hereby is easy to reach and grab from all sides and it enables that the light emitting device more easily may illuminate more or all of the window assembly.

[0026] In an aspect of the invention, the light emitting means is arranged to emit light of a first intensity in a direction of a bottom side of the window assembly and of a second intensity in a direction of the top side of the window assembly and wherein the first intensity is higher than the second intensity.

[0027] Forming the light emitting means so that they are able to emit light of different intensities at different areas of the window assembly is advantageous in that it hereby is possible to e.g. form a more even lighting effect by e.g. emitting light at a higher intensity at parts of the window assembly far from the light emitting means and emit light of a lesser intensity at parts of the window assembly closer to the light emitting means.

[0028] In an aspect of the invention, the light emitting means is arranged to extend over a majority of the width of the locking handle.

[0029] Spreading the light emitting means over most of the width of the locking handle is advantageous in that the light emitting device hereby better may illuminate more or all of the window assembly.

[0030] In an aspect of the invention, at least a part of the light emitting means of the locking handle is arranged on an outer part of the locking handle extending outside the outer contour of the window frame and the window sash.

[0031] Forming the light emitting means on an outer part of the locking handle is advantageous in that it hereby is possible for the light emitting means to distribute the emitted light more evenly on the window assembly.

[0032] In an aspect of the invention, the locking handle is releasably connected to the window sash.

[0033] Releasably connecting the locking handle to the window sash is advantageous in that the locking handle

hereby easily can be exchanged in case of repair or maintenance of the light emitting means or in case of retrofitting of light emitting means.

[0034] In this context, the term "releasably connected" should be understood as the locking handle being connected to the window sash by means of any kind of releasable connectors such as any kind of snap fitting, screws, bolts or other or any combination thereof.

[0035] In an aspect of the invention, the window assembly comprises a window pane screening device and wherein the window assembly comprises control means arranged to control the light emitting means in response to a state of the window pane screening device.

[0036] Controlling the light emitting means in response to a state of the window pane screening device is advantageous in that the light emitting means hereby can be controlled to operate in different modes (e.g. different intensity, different color, on or off, or other) in dependency of whether the screening device is screening or not.

[0037] It should be noted that the term "window pane screening device" in this context should be interpreted as any kind of screen suited for screening the window pane of a window assembly, i.e. any kind of curtain, drape, blind, shade, shutter or other or any combination thereof.

[0038] It should also be noted that the term "state of the window pane screening device" in this context should be interpreted as whether the screening device is in a state where it is screening the window pane or not - e.g. if the blinds are rolled up or down.

[0039] In an aspect, the light emitting means is arranged to emit light both above and below the locking handle.

[0040] Providing first light emitting means arranged to emit light above the locking handle and second light emitting means arranged to emit light below the locking handle is advantageous in that it provides for a more even distribution of the light.

[0041] In an aspect of the invention, the window assembly comprises a light guide for guiding light from a light source to the light emitting means.

[0042] The light source will typically produce heat and the light source requires a power supply. Thus, it is advantageous if the light source can be removed from the locking handle and light then could be transferred to the handle by means of light guides. Furthermore, the use of light guides provides more design options regarding the light emitting means and the locking handle.

[0043] In an aspect of the invention, the window sash comprises a ventilation opening arranged at the top side of the window sash, wherein the window assembly comprises a ventilation opening covering device for manually opening or closing the ventilation opening and wherein the locking handle is connected to the ventilation opening covering device.

[0044] Forming the locking handle so that it both locks the sash in relation to the frame, it holds at least parts of the light emitting means and it is used for controlling the

state of the ventilation opening covering device (i.e. if the ventilation is open or closed) is advantageous in that this provides for a compact and simple window assembly design.

[0045] In an aspect of the invention, the locking handle comprises a power source for powering the light emitting means.

[0046] The sash is movable in relation to the frame and the locking handle is movable in relation to the sash. Thus, it would be difficult to power the light emitting means by means of an external power source and it is therefore advantageous to arrange the power source in or on the locking handle to ensure little wiring and simple design.

[0047] In an aspect, the light emitting means comprises a plurality of light-emitting diodes.

[0048] Compared to other light sources, light-emitting diodes have great reliability and very long life, and they also display a favorable relationship between, on the one hand, light yield and, on the other hand, weight, space requirements and price. Since these advantages are very desirable in a window assembly, among other things because of the limited space in or on the locking means, the use of light-emitting diodes is especially advantageous.

[0049] In an aspect of the invention, the locking handle comprises a control switch configured to control the light emitting means. Hereby the light and the window can be operated from one location.

[0050] In an aspect of the invention, the light emitting means are arranged to emit light substantially in the direction of window pane and window frame.

[0051] Arranging the light emitting means to emit light substantially in the direction of window pane and window frame is advantageous in that essential parts of the window assembly hereby is illuminated to enable or at least simplify operation and maintenance of the window assembly and to allow a viewer to perceive the window architecture.

Figures

[0052] The invention will be described in the following with reference to the figures in which

- fig. 1 illustrates a window assembly, as seen in perspective,
- fig. 2 illustrates a top side of a window assembly, as seen in perspective,
- fig. 3 also illustrates a top side of a window assembly, as seen in perspective,
- fig. 4 illustrates a cross section through window locking means mounted on a window sash, as seen in perspective,

fig. 5 illustrates a cross section through window locking means, as seen in perspective,

fig. 6 illustrates a first embodiment of window locking means, as seen in perspective,

fig. 7 illustrates a second embodiment of window locking means, as seen in perspective,

fig. 8 illustrates a cross section through a window assembly comprising a window pane screening device, as seen from the side,

fig. 9 illustrates a cross section through window locking means comprising a first embodiment of light emitting means, as seen from the side,

fig. 10 illustrates a cross section through window locking means comprising a second embodiment of light emitting means, as seen from the side,

fig. 11 illustrates window locking means comprising light apertures, as seen in perspective,

fig. 12 illustrates window locking means comprising transparent material, as seen in perspective, and

fig. 13 illustrates window locking means comprising light guides, as seen in perspective.

fig. 14 show a photo of the illumination provided by the locking handle.

Detailed description

[0053] Fig. 1 illustrates a window assembly 1, as seen in perspective, fig. 2 illustrates a top side 7 of a window assembly 1, as seen in perspective and fig. 3 also illustrates a top side 7 of a window assembly 1, as seen in perspective.

[0054] In this embodiment, the window assembly 1 is a center-pivot roof window - i.e. a window designed to be mounted in the inclined roof surface of a building and where the window sash 3 is connected to the window frame 2 through a pivot joint 5 arranged substantially around the center of the vertical extend of the window sash 3 and the window frame 2 to enable that the window may be opened as illustrated in fig. 1. However, in another embodiment the window assembly 1 could be arranged to be mounted in another surface of a building - such as a wall - and/or the pivot joint 5, connecting the window sash 3 and the window frame 2, could be arranged differently on the window sash 3 and/or the window frame 2.

[0055] In this embodiment, the locking handle 8 is parallel to the pivot axis of the pivot joint 5.

[0056] In this embodiment, the window assembly 1 comprises window locking means 6 arranged at a top

side 7 of the window assembly 1 - i.e. in this embodiment the window locking means 6 provided to lock the position of the window sash 3 in relation to the window frame 2 in a closed position (i.e. a position where passage through the window is blocked) is arranged along the top edge of the window assembly 1.

[0057] In this embodiment, the window locking means 6 comprises a locking handle 8 arranged so that it is easy to reach and handle by a user, so that a user may easily operate the window locking means 6 to open or close the window sash 3 in relation to the window frame 2. In this embodiment the locking handle 8 is formed as a transverse bar 13 extending more than 90% of the width WS of the window sash 3 but in another embodiment the locking handle 8 would only extend 80%, 70%, 60% or even less of the width WS of the sash 2 and/or the window locking means 6 could comprise more than one locking handle 8 and/or the locking handle(s) could be formed differently than a transverse bar 13 - such as knobs, pins, straps, longitudinally arranged bars or pins or other or any combination thereof.

[0058] Fig. 4 illustrates a cross section through window locking means 6 mounted on a window sash 3, as seen in perspective and fig. 5 illustrates a cross section through window locking means 6, as seen in perspective.

[0059] In this embodiment, the window locking means 6 is formed with a locking handle 8 connected to a locking mechanism 24 which is mounted on the top edge of the window sash 3. When the locking handle 8 is in the position disclosed in fig. 4 and 5 the window is in a closed state in that the two locking pins 25 on the locking mechanism 24 is raised to engage a corresponding locking striker plate (not shown) on the window frame (not shown in fig. 4 or 5) and thereby lock the window sash 3 against movement in relation to the window frame 2. However, when the locking handle 8 is pulled (and tilted) it will pull the locking mechanism 24 so that two locking pins will be lowered out of engagement with the corresponding locking striker plate (not shown) and the window sash 3 can now pivot in relation to the window frame 2 as disclosed in fig. 1. However, it is obvious to the skilled person that the window locking means 6 can be formed in numerous other ways.

[0060] Fig. 6 illustrates a first embodiment of window locking means 6, as seen in perspective and fig. 7 illustrates a second embodiment of window locking means 6, as seen in perspective.

[0061] In the embodiment disclosed in fig. 6 the locking handle 8 is connected to a ventilation opening covering device 21 arranged to optionally cover a ventilation opening (not shown) as will be discussed in relation with fig. 8. Thus, in this embodiment the locking handle 8 is used to operate the locking mechanism 24 and to operate a ventilation opening covering device 21.

[0062] In the embodiment disclosed in fig. 7 the locking handle 8 is arranged to be connected directly to the window sash 3 in that the locking handle 8 is not arranged to operate a ventilation opening covering device 21.

[0063] Fig. 8 illustrates a cross section through a window assembly 1 comprising a window pane screening device 16, as seen from the side.

[0064] In this embodiment, the light emitting means 9 is arranged on a part 15 of the locking handle 8 and this part 15 is extending outside the outer contour of the window frame 2 and the window sash 3 to enable that the light emitting means 9 mounted on the locking handle 8 can better distribute the emitted light over the window frame 2 and/or the window sash 3 and/or other.

[0065] I.e. in this embodiment the window assembly 1 comprises control means 17 arranged inside the locking handle 8 but in another embodiment the control means 17 could be arranged outside the locking handle 8, on the sash 3, on the frame 2 or anywhere else on the window assembly 1 or even outside the window assembly 1. The control means 17 can be arranged with the ventilation opening covering device 21.

[0066] In this embodiment, the window locking means 6 is provided with three rows 26, 27, 28 of light emitting means 9 but in another embodiment the window locking means 6 could be provided with another number of rows of light emitting means 9 - such as one, two, four, five or even more - or the light emitting means 9 would not be arranged in exact rows.

[0067] In this embodiment, the window assembly 1 comprises a window pane screening device 16 in the form of an ordinary fully manually operated blind but in another embodiment the operation of the screening device 16 could be at least partially automated and/or the screening device 16 could also or instead be curtains, shutters or other.

[0068] In this embodiment the control means 17 is arranged to control the light emitting means 9 in response to a state of the window pane screening device 16 - i.e. in this embodiment the light emitting means 9 directed to the screening device 16 can only be turned on when a sensor (not shown) is sensing that the screening device 16 is at least partly screening the window pane, so that the light is only turned on when the screening device 16 can be used as a reflector for the light emitting means 9. However, in another embodiment the control means 17 could also or instead be arranged to control the intensity of all or different parts of the light emitting means 9, to control the color of all or different parts of the light emitting means 9 and/or to control the on/off state of at least some of the light emitting means 9 in response to a state of the window pane screening device 16. And/or in another embodiment the control means 17 could be arranged to control the light emitting means 9 in response to other inputs from the window assembly 1 or other outside the window assembly 1 - such as in response to a daylight level, in response to the position of the sash 3 in relation to the frame 2, in response to the time or date or other.

[0069] In this embodiment the light emitting means 9 comprises a bottom row 26 of the light emitting means 9 is arranged to emit light in a direction of a bottom side 14 of the window assembly 1 and middle row 27 of the light

emitting means 9 is arranged to emit light in a direction of the top side 7 of the window assembly 1 and in this embodiment the bottom row 26 of the light emitting means 9 is arranged to emit light of a higher intensity than the light emitting means 9 arranged in the middle row 27 to generate a more even lighting effect on the screening device 16. But in another embodiment rows 26, 27 could be arranged to emit light of a substantially equal intensity or more light could be emitted at the top side 7 of the window assembly 1.

[0070] In this embodiment, the light emitting means 9 also comprises a top row 28 of the light emitting means 9 arranged to emit light in a direction of the top side 7 of the window assembly above the locking handle 8. Thus, in this embodiment the light emitting means 9 is arranged to emit light on the window assembly 1 both above and below the locking handle 8 but in another embodiment the light emitting means 9 would be arranged to only emit light on the window assembly 1 above or below the locking handle 8.

[0071] Also in another embodiment, the light emitting means 9 could also or instead be arranged to emit light away from the window assembly 1 e.g. onto a neighboring wall, into the room, onto the floor or ceiling or other.

[0072] In this embodiment, the light emitting means 9 is formed as light emitting diodes (LED) extending out of the surface of the locking handle 8 but in another embodiment the light emitting means 9 could also or instead comprise fluorescent lamps, strip lights, organic light-emitting diode (OLED), image or light projectors or other.

[0073] In this embodiment, the window sash 3 comprises a ventilation opening 20 arranged at the top side 7 of the window assembly and the window assembly 1 is therefore provided with a ventilation opening covering device 21 for manually opening or closing the passage through ventilation opening 20. In this embodiment, the locking handle 8 is connected to the ventilation opening covering device 21 so that the locking handle 8 is used for opening the window and for opening the ventilation opening covering device 21 but in another embodiment the window and the ventilation opening 20 would be controlled separately. Also, the ventilation opening could be provided by a duct in the frame 2.

[0074] Generally, the light emitting means 9 may comprise cooling means. This may be provided by a heat sink and/or air flow apertures allowing hot air to be vented. The locking handle 8 comprising the light emitting means 9 may be at least partly from a metal such as aluminum. Hereby the locking handle 8 material itself may provide a heat sink effect.

[0075] Fig. 9 illustrates a cross section through window locking means 6 comprising a first embodiment of light emitting means 9, as seen from the side.

[0076] In this embodiment, the light emitting means 9 is arranged inside the locking handle 8 inside the extruded locking handle profile. In this embodiment, the light emitting means 9 is a LED strip arranged inside the locking handle 8 and the LED's are arranged to emit light out

of the handle 8 through focusing means 12 in the form of a lens forming parts of the handle outer surface. In this embodiment, the focusing means 12 is arranged to focus the light emitted from the light emitting means 9 to direct light in a specific direction. However, in another embodiment the light emitting means 9 could be arranged to emit light out through a diffuser arranged to diffuse the light and spread the light, a pattern lens arranged to shape the light into a specific pattern or other. In one embodiment, the light emitting means 9 is arranged to only emit light in the direction of the window pane 4.

[0077] Generally, the light emitting means 9 can be arranged with reflector surfaces. The ventilation opening covering device 21 can also be arranged with a reflecting surface.

[0078] Reflecting arrangements and focusing arrangements and diffusing arrangements may distribute the illumination without substantial glare affecting the user. This may be achieved by reflecting, focusing and/or diffusing the illumination towards at least a part of the window assembly 1. This can also be achieved by reflecting and focusing the illumination towards the plane of the pane 4.

[0079] Fig. 10 illustrates a cross section through window locking means 6 comprising a second embodiment of light emitting means 9, as seen from the side.

[0080] In this embodiment, the light emitting means 9 is arranged on an outside surface of the locking handle 8 inside the locking handle profile. In this embodiment a power source 22 in the form of a battery is also arranged inside locking handle 8 but in another embodiment the power source 22 could be arranged outside the locking handle 8, elsewhere on the window locking means 6, elsewhere on the window assembly 1 or even external to the window assembly 1 and/or the power source 22 could also or instead comprise a solar cell, a fuel cell or other and/or the light emitting means 9 could be powered by the utility grid and the window assembly would then also comprise wiring to enable power supply from an external power source or means for wireless transfer of power. The power source 22 can also be arranged with the ventilation opening covering device 21. The power source may be wired from the frame 2 to the sash 3 across the pivot joint 5. Alternatively, the power source 22 may be wired by conductors or other electricity transfer between the sash 3 and frame 2 such that the electric connection is provided only when the sash 3 is closed and aligned with the frame 2 whereby the electricity transfer is connected.

[0081] Fig. 11 illustrates window locking means 6 comprising light apertures 10, as seen in perspective.

[0082] In this embodiment, the light emitting means 9 is arranged inside the locking handle 8 and the locking handle 8 is provided with light apertures 10 allowing light from the light emitting means 9 inside the handle 8 to be emitted out of the locking handle 8.

[0083] In this embodiment, the light emitting means 9 is arranged to extend over a majority of the width WL of

the locking handle 8 in that light emitting means 9 is distributed substantially over the entire width WL of the handle 8 but in another embodiment the light emitting means 9 would only be distributed over 80%, 70%, 50% or even less of the entire width WL of the handle 8.

[0084] Fig. 12 illustrates window locking means 6 comprising transparent material 11, as seen in perspective.

[0085] In this embodiment, at least a part of the locking handle 8 is formed in a transparent material 11 allowing light from the light emitting means 9 arranged inside the handle 8 to be emitted out of the locking handle 8.

[0086] Fig. 13 illustrates window locking means 6 comprising light guides 18, as seen in perspective.

[0087] In this embodiment, the window assembly 1 comprises light guides 18 enabling that the light source 19 may be placed elsewhere on the window locking means 6, elsewhere on the window assembly 1 or even external to the window assembly 1 and the light is then guided to the light emitting means 9 on the locking handle 8 by means of a light guide 18 which in this case is an optical fiber but in another embodiment could be an optical plate, an optical tube or other.

[0088] In an embodiment, the window assembly 1 may comprise the disclosed locking handle 8 with light emitting means 9 and an electric thrust chain actuator configured to open and close the sash 3 by means of a force transmitting connection between the chain and the locking handle 8.

[0089] Fig. 14 shows a photo of the illumination provided by the locking handle with a light source. The indirect illumination lights up the window area and the surrounding lining of the window installation. The light emitting means are incorporated in the locking handle and appear concealed so the architecture is not affected.

[0090] Usually after sun set the window becomes a dark area, whereas the present illumination can maintain the window area bright and reduce the feeling of darkness.

[0091] The invention has been exemplified above with reference to specific examples of window assembly 1, window locking means 6, light emitting means 9 and other. However, it should be understood that the invention is not limited to the particular examples described above but may be designed and altered in a multitude of varieties within the scope of the invention as specified in the claims.

[0092] List

1. Window assembly
2. Window frame
3. Window sash
4. Window pane
5. Pivotal joint
6. Window locking means
7. Top side of window assembly
8. Locking handle
9. Light emitting means
10. Light apertures

11. Transparent material
12. Focusing means
13. Transverse bar
14. Bottom side of window assembly
- 5 15. Outer part of locking handle
16. Window pane screening device
17. Control means
18. Light guide
19. Light source
- 10 20. Ventilation opening
21. Ventilation opening covering device
22. Power source
23. Connection device
24. Locking mechanism
- 15 25. Locking pin
26. Bottom row of light emitting means
27. Middle row of light emitting means
28. Top row of light emitting means
- WS. Width of window sash
- 20 WL. Width of locking handle

Claims

- 25 1. A window assembly (1) comprising
a window frame (2) arranged to be fixed to a building surface,
a window sash (3) comprising a window pane (4),
said window sash (3) being mounted in said window frame (2) by means of a
30 pivotal joint (5) enabling that said window sash (3) may pivot in relation to said window frame (2),
window locking means (6) arranged at a top side (7) of said window assembly (1) to lock said window sash (3) in relation to said window frame (2) in a closed position, and
a locking handle (8) arranged on said window sash (3) to operate said locking means (6),
35 **characterized in that**
said locking handle (8) is provided with light emitting means (9) arranged to illuminate at least a part of said window assembly (1).
- 40 2. A window assembly (1) according to claim 1, wherein said light emitting means (9) is arranged on an outside surface of said locking handle (8).
- 45 3. A window assembly (1) according to claim 1 or 2, wherein said light emitting means (9) is arranged inside said locking handle (8).
- 50 4. A window assembly (1) according to claim 3, wherein said locking handle (8) is provided with light apertures (10) allowing light from said light emitting means (9) to be emitted out of said locking handle (8).
- 55 5. A window assembly (1) according to claim 3 or 4, wherein at least a part of said locking handle (8) is

formed in a transparent material (11) allowing light from said light emitting means (9) to be emitted out of said locking handle (8).

6. A window assembly (1) according to any of the preceding claims, wherein said light emitting means (9) is arranged to only emit light in the direction of said window pane (4) and said window frame (2). 5
7. A window assembly (1) according to any of the preceding claims, wherein said window assembly (1) comprises focusing means (12) arranged to focus light emitted from said light emitting means (9). 10
8. A window assembly (1) according to any of the preceding claims, wherein said locking handle (8) comprises a transverse bar (13) extending more than half the width (WS) of said window sash (3) and wherein said light emitting means (9) is positioned in an/or on said transverse bar (13). 15
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9. A window assembly (1) according to any of the preceding claims, wherein said light emitting means (9) is arranged to emit light of a first intensity in a direction of a bottom side (14) of said window assembly (1) and of a second intensity in a direction of said top side (7) of said window assembly (1) and wherein said first intensity is higher than said second intensity. 25
30
10. A window assembly (1) according to any of the preceding claims, wherein said light emitting means (9) is arranged to extend over a majority of the width (WL) of said locking handle (8). 35
11. A window assembly (1) according to any of the preceding claims, wherein at least a part of said light emitting means (9) of said locking handle (8) is arranged on an outer part (15) of said locking handle (8) extending outside the outer contour of said window frame (2) and said window sash (3). 40
12. A window assembly (1) according to any of the preceding claims, wherein said locking handle (8) is releasably connected to said window sash (3). 45
13. A window assembly (1) according to any of the preceding claims, wherein said window assembly (1) comprises a window pane screening device (16) and wherein said window assembly (1) comprises control means (17) arranged to control said light emitting means (9) in response to a state of said window pane screening device (16). 50
14. A window assembly (1) according to any of the preceding claims, wherein said window assembly (1) comprises a light guide (18) for guiding light from a light source (19) to said light emitting means (9). 55

15. A window assembly (1) according to any of the preceding claims, wherein said window sash (3) comprises a ventilation opening (20) arranged at said top side (7) of said window sash (3), wherein said window assembly (1) comprises a ventilation opening covering device (21) for manually opening or closing said ventilation opening (20) and wherein said locking handle (8) is connected to said ventilation opening covering device (21).

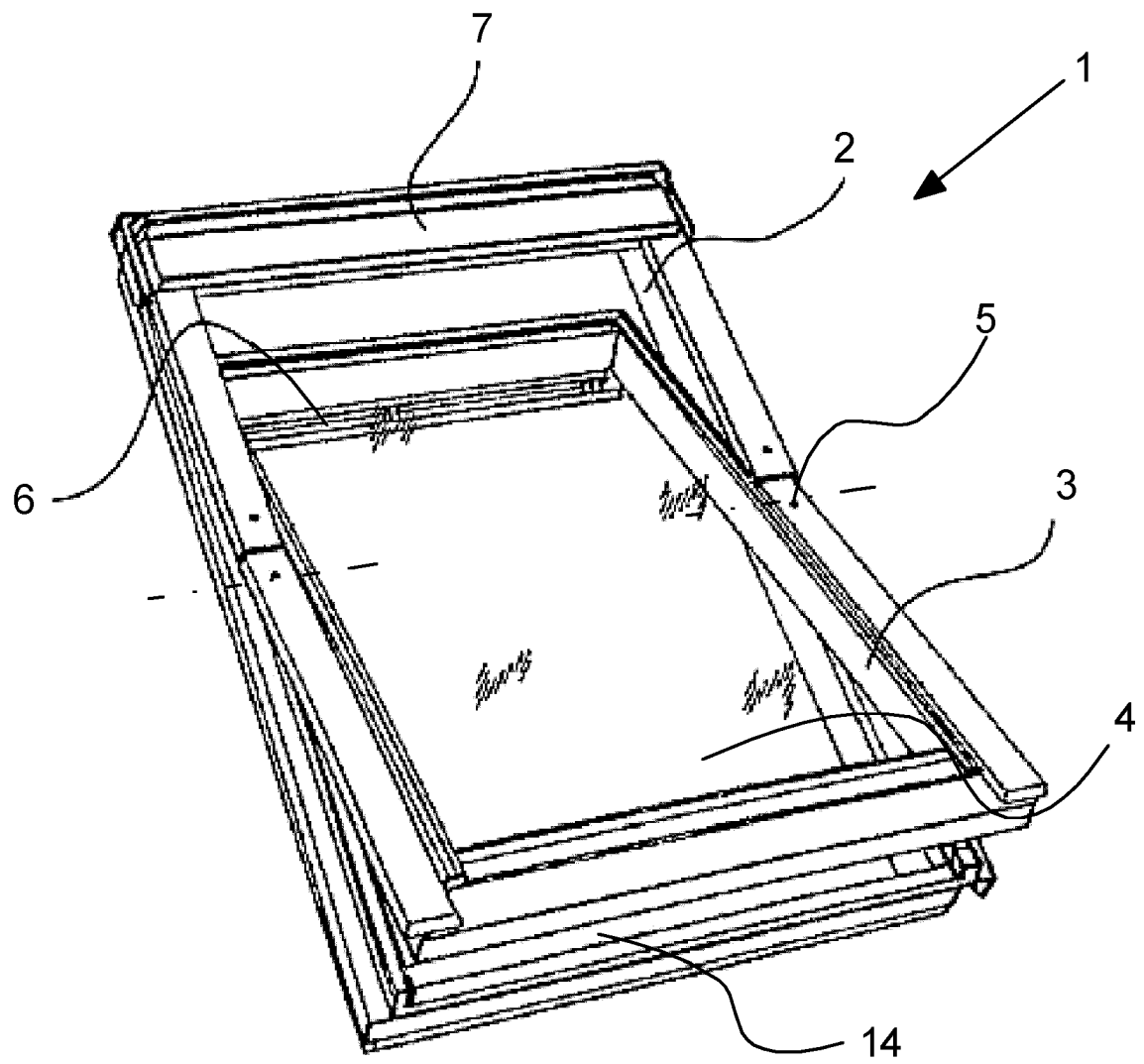


Fig. 1

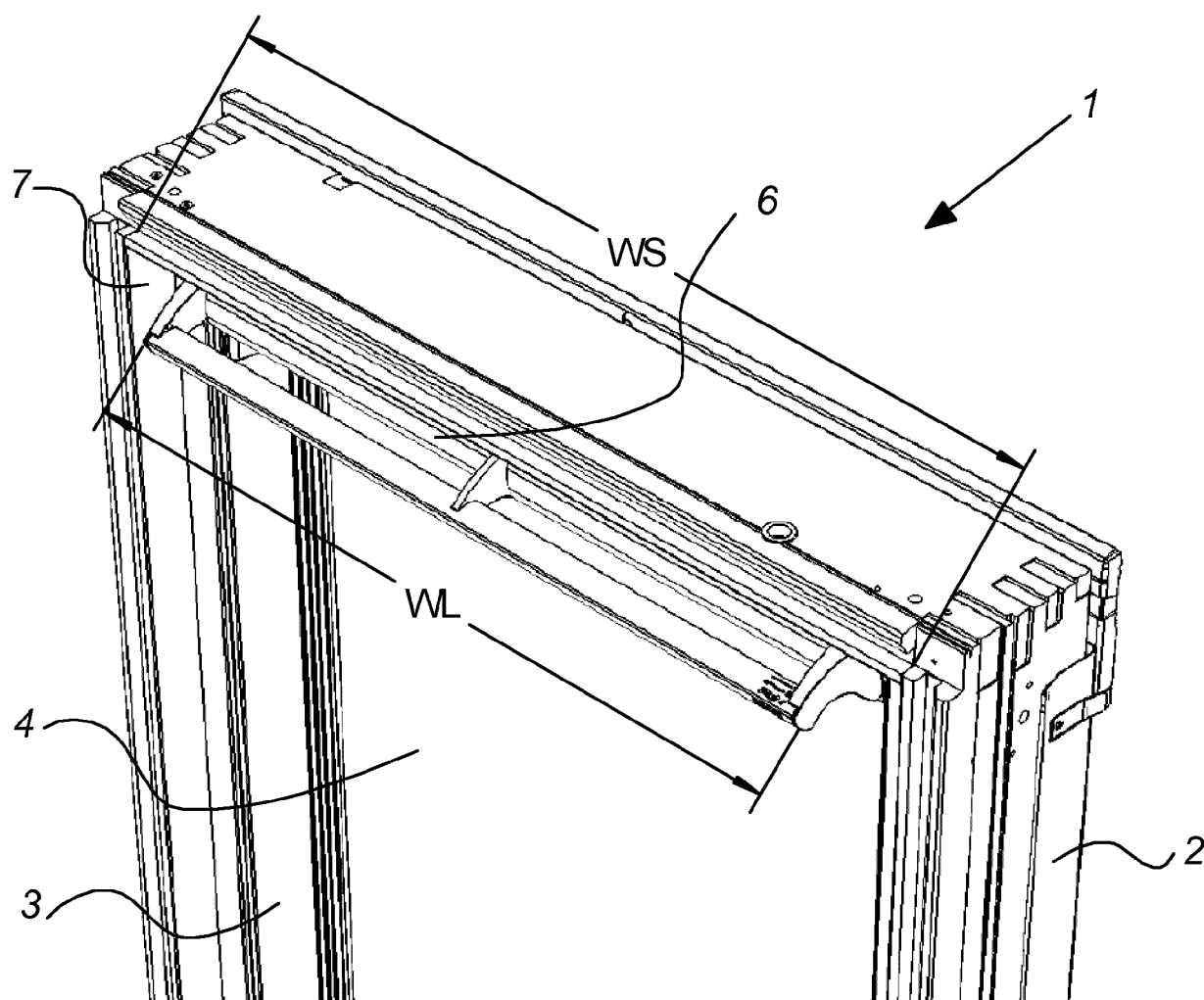


Fig. 2

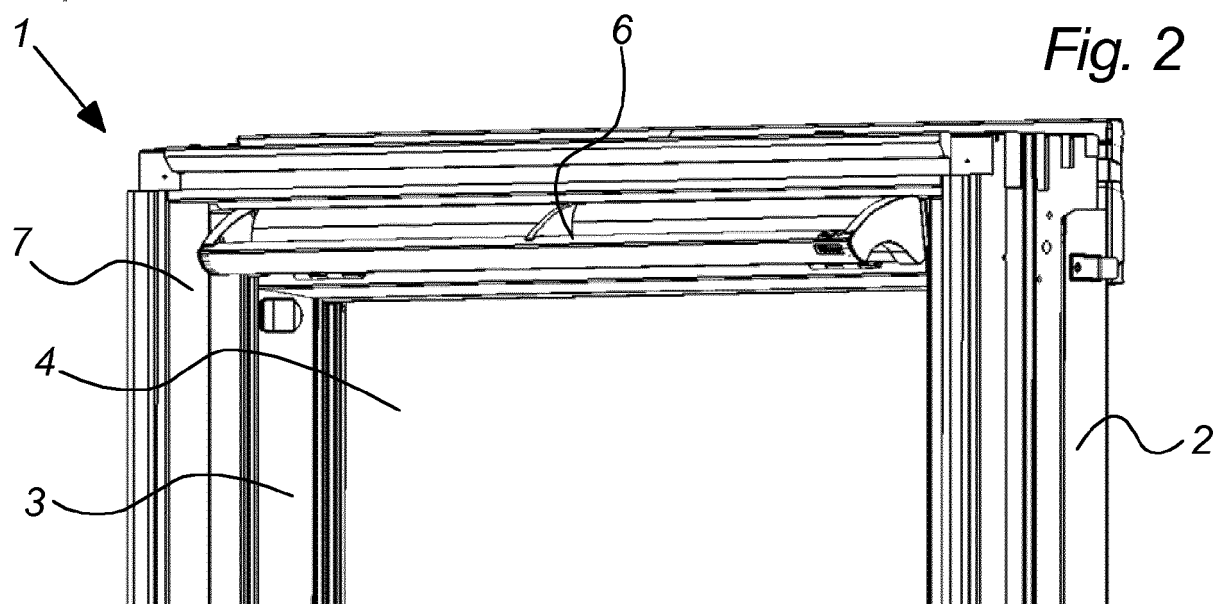


Fig. 3

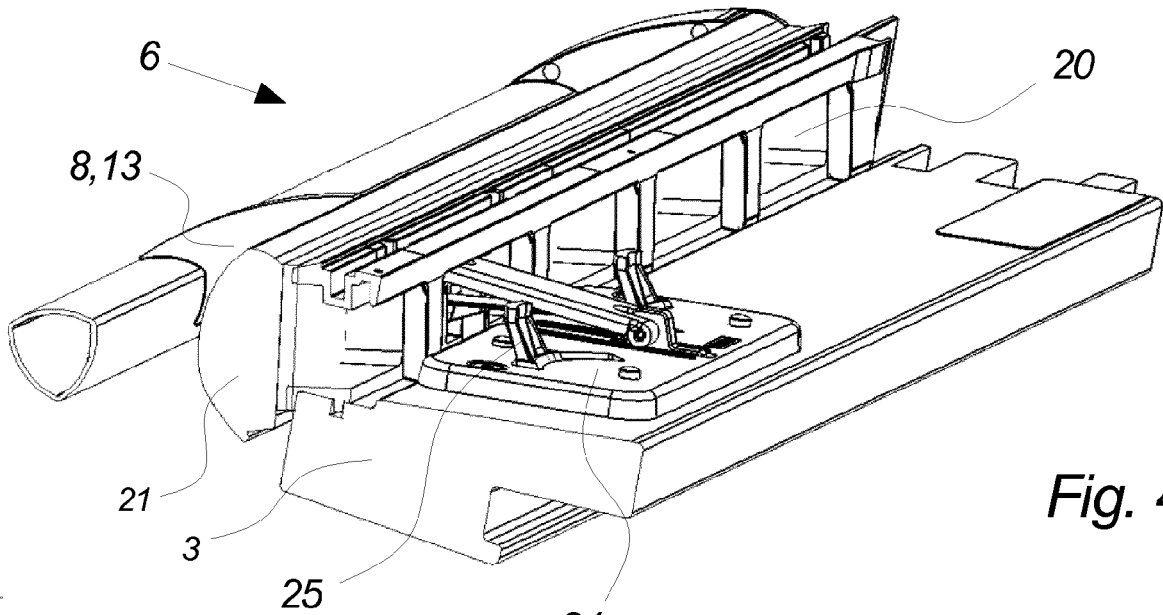


Fig. 4

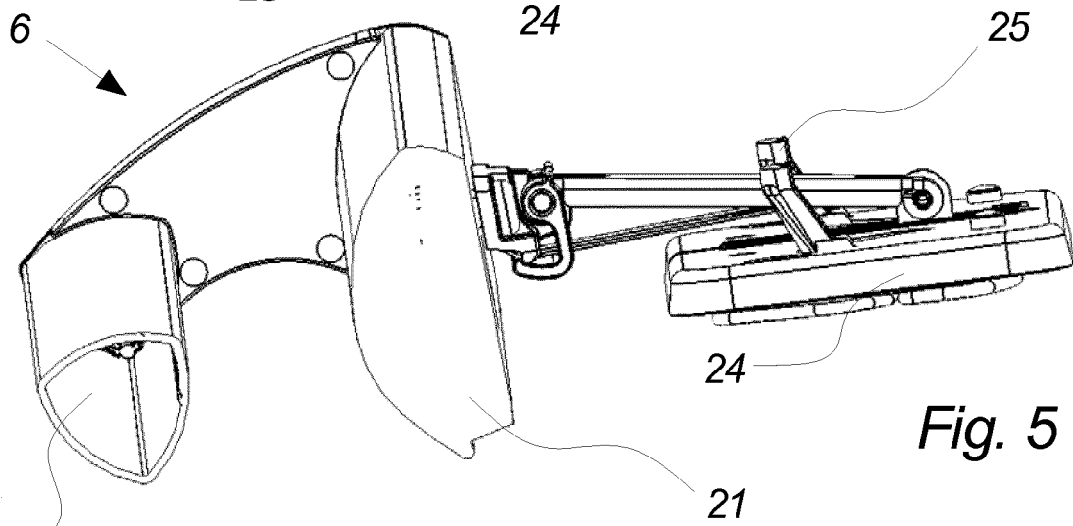


Fig. 5

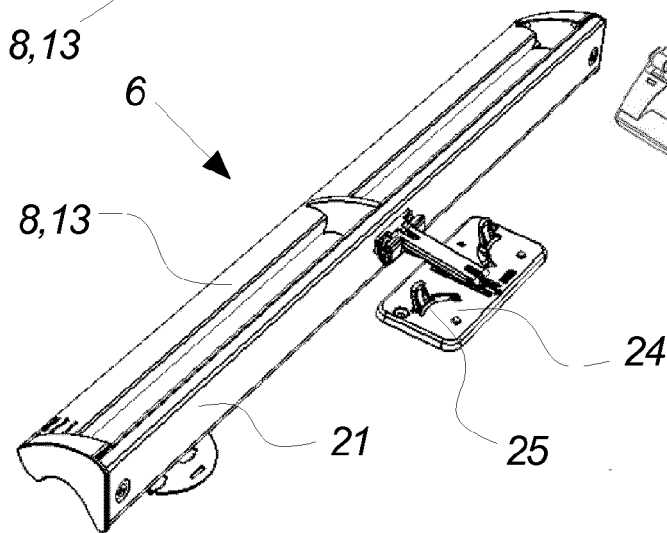


Fig. 6

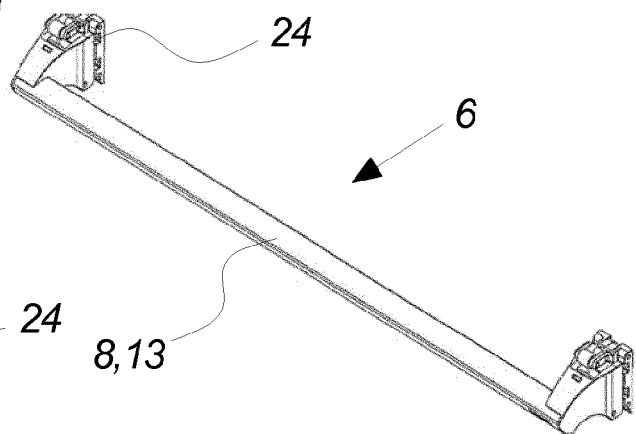


Fig. 7

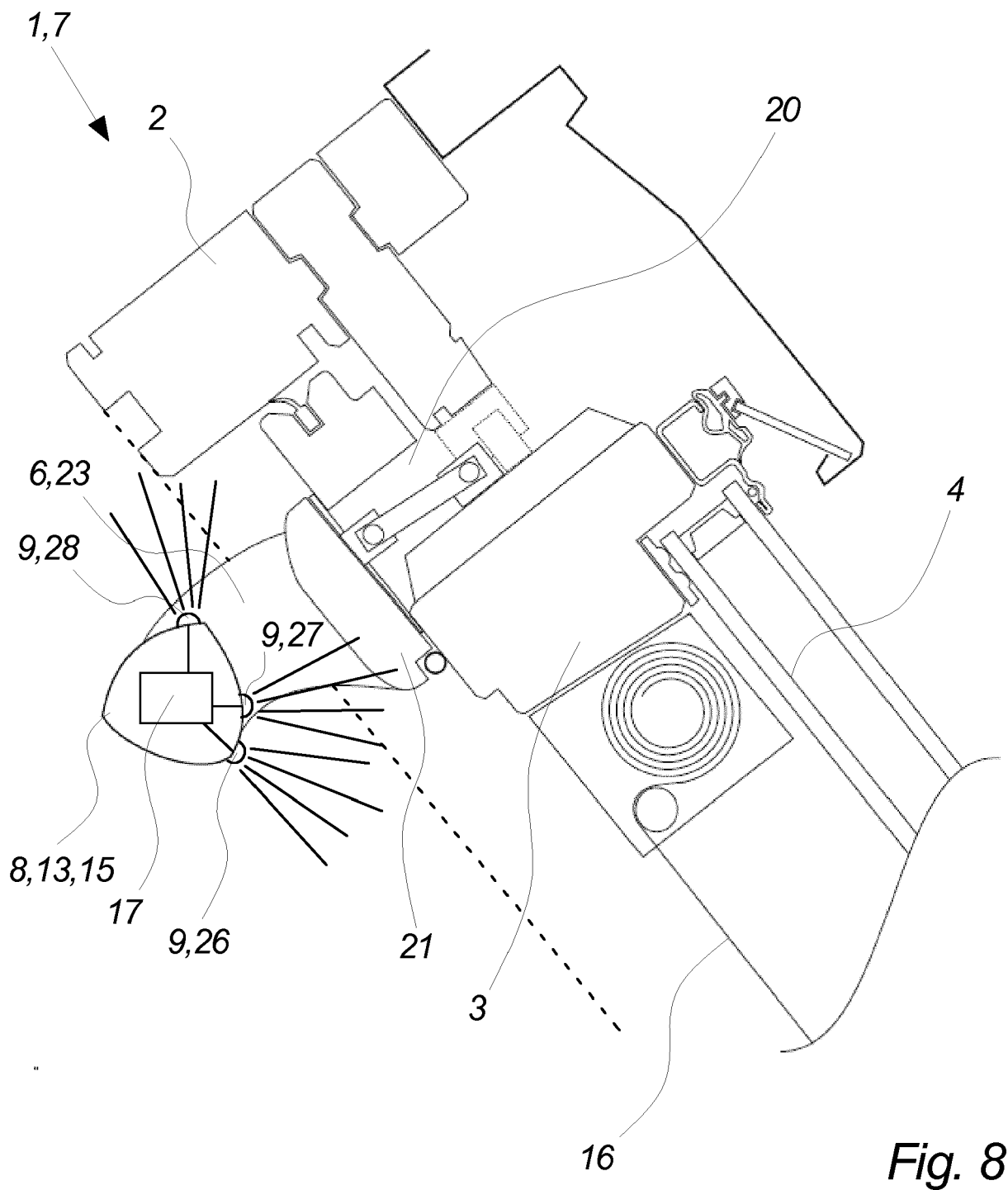
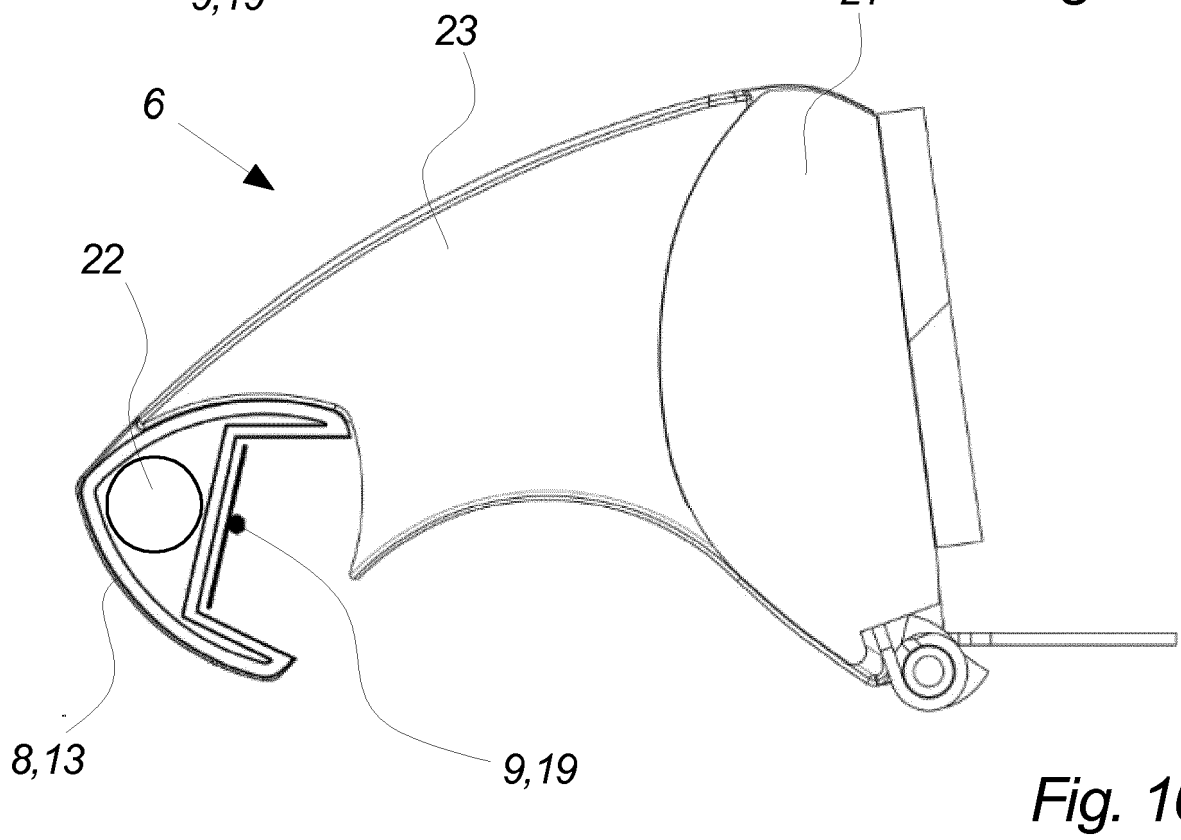
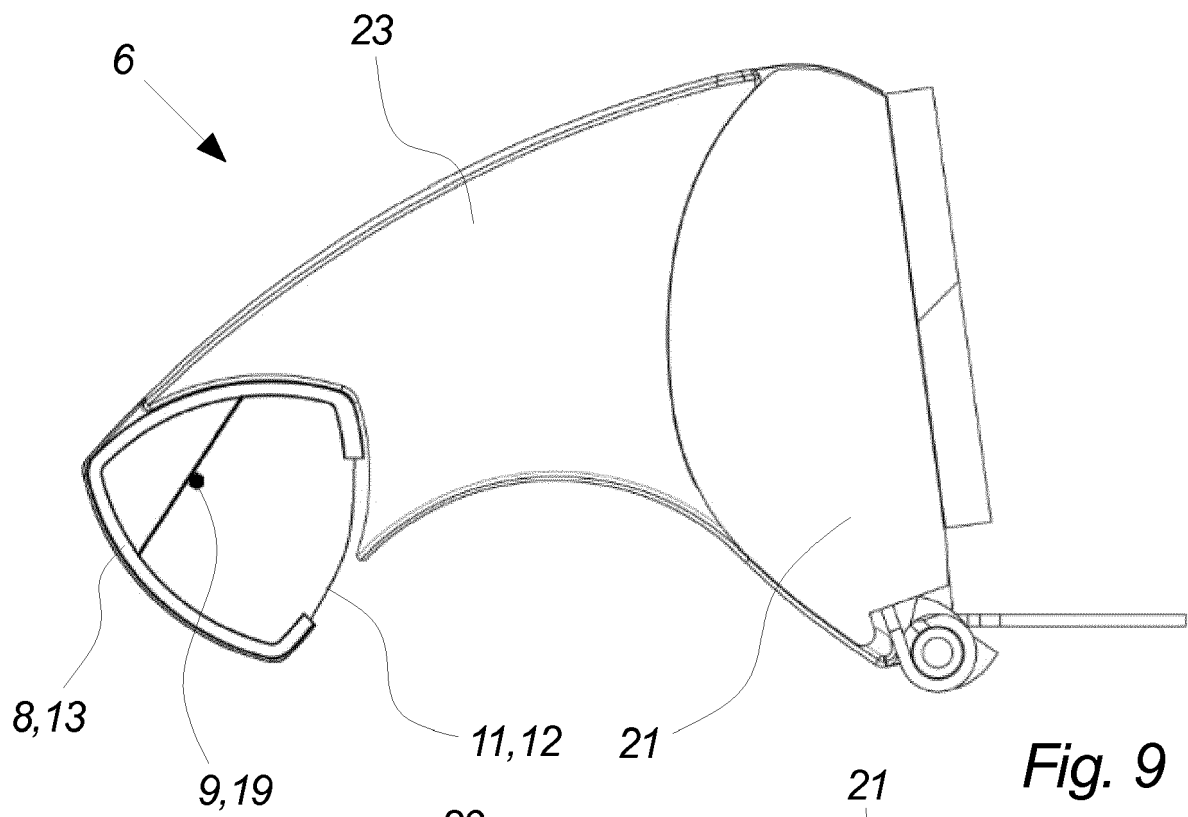
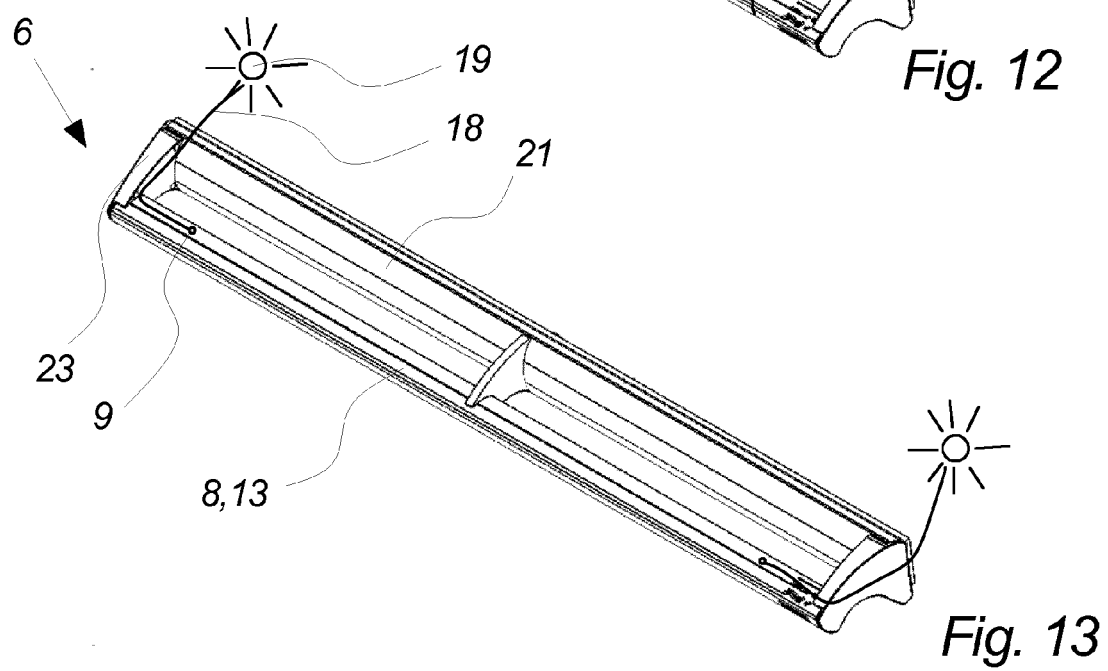
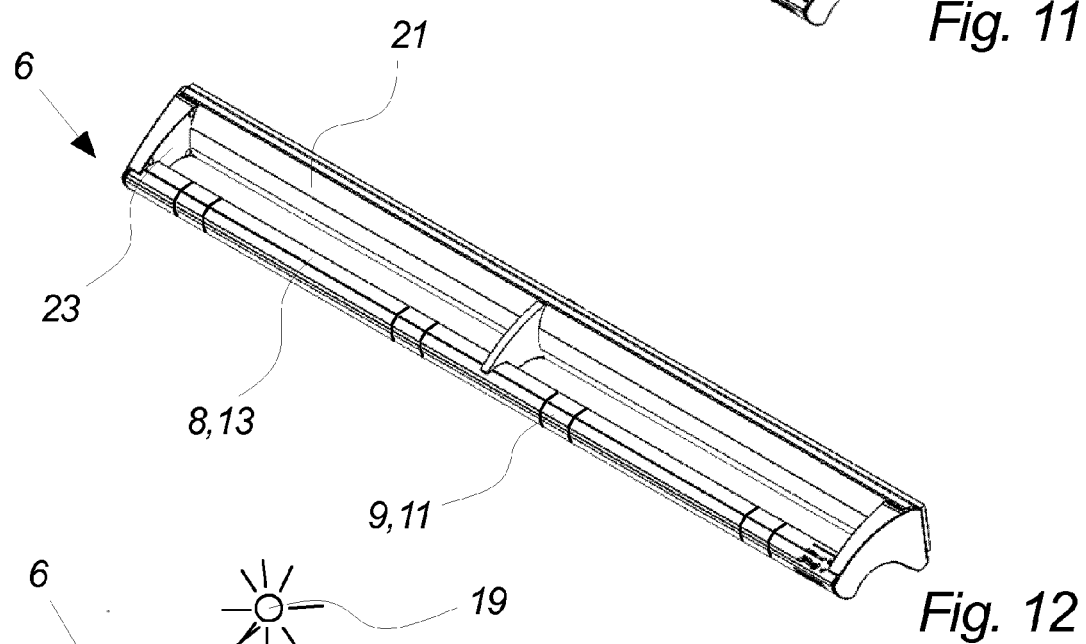
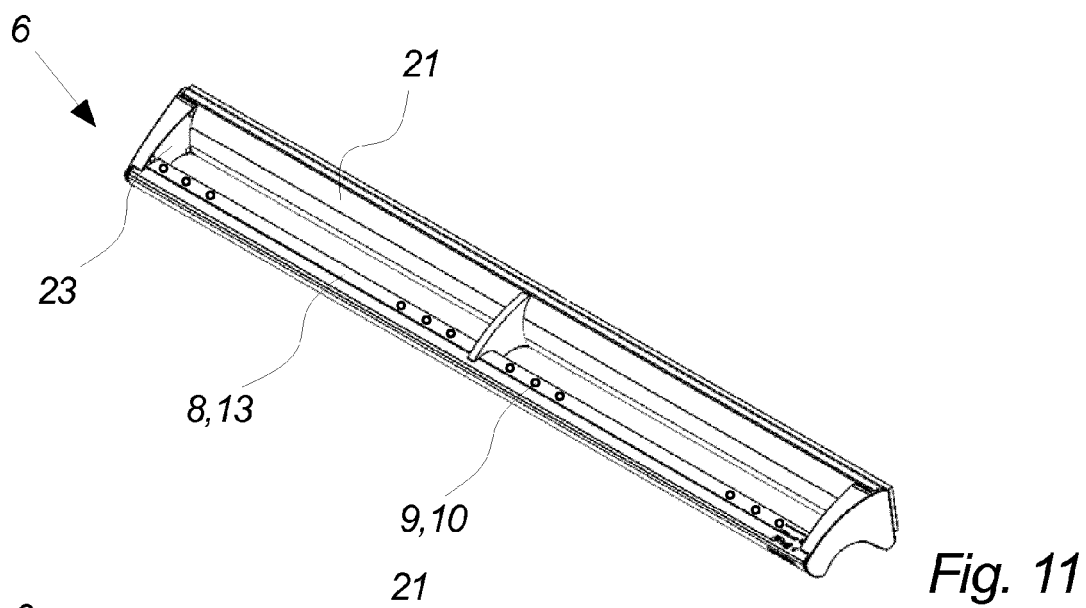


Fig. 8





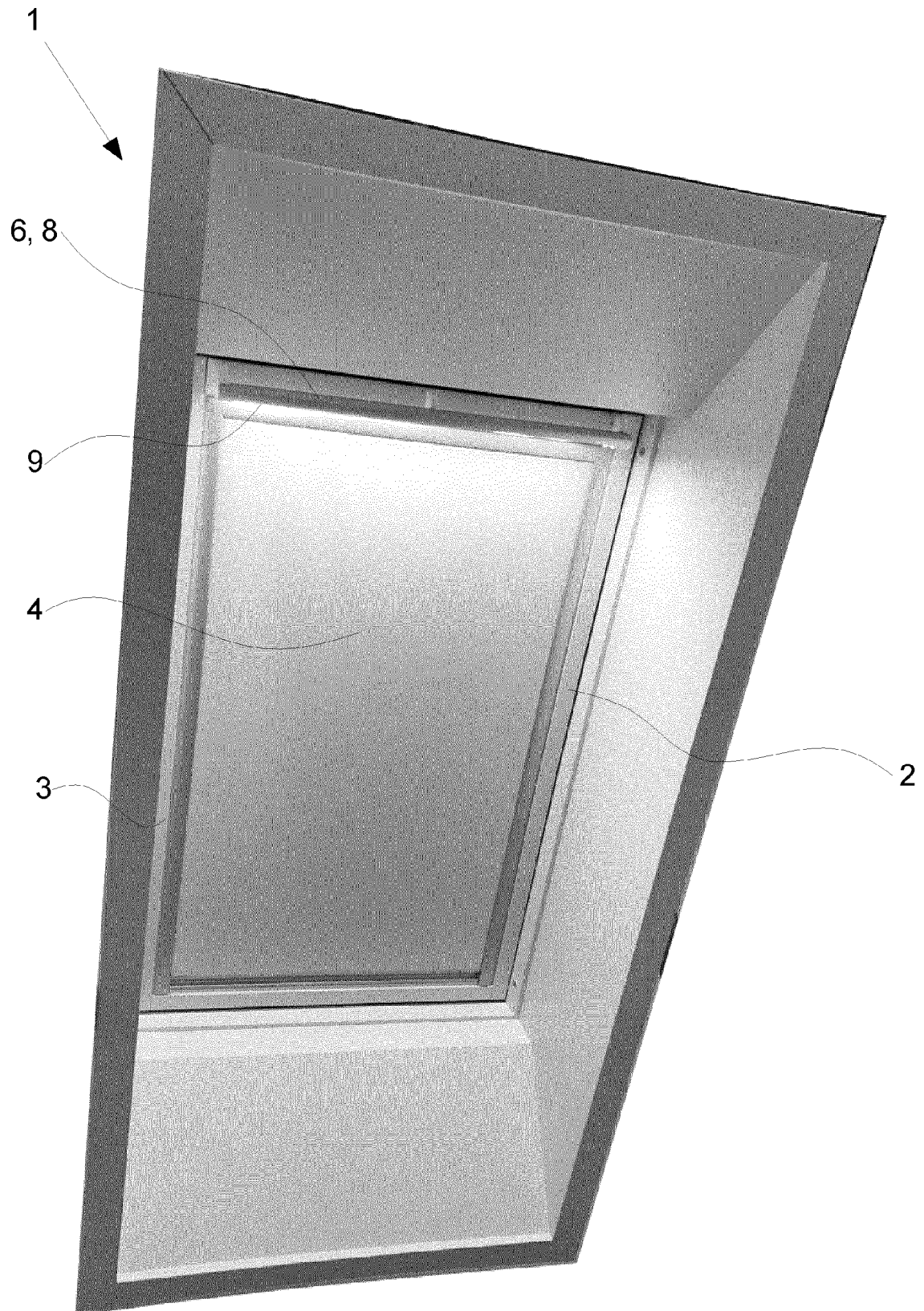


Fig. 14



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Place of search The Hague		Date of completion of the search 28 March 2018	Examiner Leroux, Corentine
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