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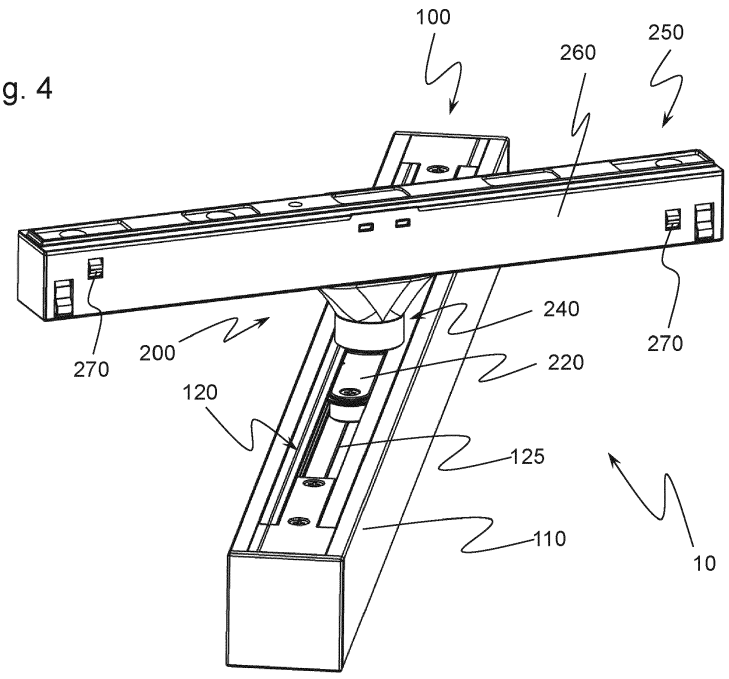
(54) **ILLUMINATION DEVICE AND ASSOCIATED ILLUMINATION SYSTEM, AS WELL AS ADAPTER COMPONENT**

(57) The illumination device (10) comprises a lamp (100) and an adapter (200) for connecting the lamp (100) to a support; the lamp (100) comprises at least a light source (105), a guide rail (120) that is integral with the light source (105), and first electrical terminals (130) extended along the guide rail (120) and electrically coupled to the light source (105); the guide rail (120) is configured for a sliding connection with a slide (220); the adapter (200) comprises a slide (220) that is slidingly connected to the guide rail (120) and that comprises second electrical terminals (230) arranged such to establish a contact with the first electrical terminals (130) in a plurality of mutual positions, and a connecting portion (250) connectable to a support; the device further comprises an intermediate portion (240) interposed between the slide (220) and the connecting portion (250) and defining a revolute joint between them.

Fig. 4



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Description

FIELD OF THE INVENTION

[0001] The present invention relates to the field of illumination devices, typically those connectable to a ceiling or wall and having an adjustable position.

[0002] In particular, the present invention relates to an illumination device and associated illumination system, as well as an adapter constituting a key component thereof.

STATE OF THE ART

[0003] In the illumination field, there exist several solutions for mechanically fixing and electrically connecting lamps to a support, for example to a wall or a ceiling.

[0004] One of these solutions is based on the so called "electrified binaries" that extend longitudinally (e.g. for a length of 100 cm) and can be fixed to the ceiling or to a wall.

[0005] Such electrified binaries can receive a lamp connecting body so as to provide mechanical support and power supply thereto.

[0006] Generally, a single electrified binary can receive more than a lamp and allows to adjust the longitudinal position thereof so as to vary the position of the lamp with respect to the room.

[0007] This solution has rather advantageous adaptability features.

[0008] However it would be desirable to further increase the flexibility of use of known lamps, illumination devices and illumination systems.

SUMMARY

[0009] The general object of the present invention is to improve the known art from one or more perspectives.

[0010] Such object is substantially reached by what set forth in the appended claims which are an integral part of the present disclosure.

[0011] According to one first aspect, the present invention relates to an illumination device .

[0012] According to a second aspect.

[0013] According to a third aspect, the present invention relates to an adapter which can be a component of such illumination device and/or of such illumination system.

[0014] An important concept underlying the present invention is to provide an assembly which comprises one first either electrical and mechanical coupling system and one second either electrical and mechanical coupling system; the first one allows translation movements between the parts and the second one allows rotation movements between the parts.

[0015] Furthermore, advantageously, such assembly also comprises one third either electrical and mechanical coupling system that allows translation movements between the parts.

LIST OF THE FIGURES

[0016] The present invention will be more apparent from the following detailed description to be considered along with the appended drawings wherein:

shows a perspective view of an illumination device (with a lamp) according to the present invention;
shows a perspective view of the illumination device of Fig. 1 in a different operative configuration;
shows a perspective view of the illumination device of Fig. 1 in a different operative configuration;
shows a perspective view of an illumination device (with a lamp) made according to an embodiment alternative to Fig. 1 according to the present invention;
shows a perspective (partial) view of the illumination device of Fig. 1 with some elements removed to highlight others:

shows a section (partial) schematic view of an illumination device (with lamp) according to the present invention with some elements removed for the sake of simplicity;
shows a different section schematic view of the lamp of the device of Fig. 1 with some elements removed for the sake of simplicity;
shows a different section schematic view of the lamp of the device of Fig. 1 with some elements removed for the sake of simplicity and with a slide inserted in a lamp guide rail;
shows a perspective view of an illumination device (with illumination device and lamp) according to the present invention;
shows a perspective view of an illumination device (with illumination device and lamp) made according to an embodiment alternative to Fig. 9 according to the present invention; and
shows a perspective view of an illumination device (with illumination device and lamp) made according to an embodiment alternative to Fig. 9 and Fig. 10 according to the present invention.

[0017] As one can easily understand, there are various ways to implement the present invention which is defined in its main advantageous aspects by the appended claims and which is not limited by the hereinafter detailed description nor by the appended drawings.

DETAILED DESCRIPTION

[0018] Referring to the enclosed drawings, a lamp adapted for the present invention is generally indicated by reference number 100.

[0019] The lamp 100 comprises at least a light source 105. Preferably and as visible in the figures, the light source 105 consists of one or more LED (light-emitting

diode) devices.

[0020] Alternatively, the light source of the lamp consists of one or more incandescent and/or fluorescent lamps (commonly known as "neon lamps").

[0021] Preferably, lamp 100 comprises a box-shaped body 110 intended to house the light source 105; referring to figures 1, 2, 3, 5, 7 and 9, the box-shaped body 110 has for example the shape of a circular-section rectilinear tube, with a back opening which extends throughout its length and which houses a guide rail.

[0022] In general, the box-shaped body 110 has an elongated shape in a longitudinal extension direction and comprises an irradiation portion intended to allow the passage of light and typically also the diffusion of light; the irradiating portion may consist, for example, of a transparent part of the box-shaped body 110 or of one or more openings (holes and/or slits) obtained in the box-shaped body 110; referring to figures 1, 2, 3, 5, 7 and 9, almost all the box-shaped body 110 serves as irradiation portion.

[0023] Preferably, though without limitation, the box-shaped body 110 has a C- or U-section and has a partially tubular shape. Alternatively, the box-shaped body can have other shapes, for example, prismatic or parallelepiped, as shown in Fig. 4.

[0024] Preferably, the box-shaped body 110 has a back opening preferably arranged in a position opposite to the irradiation portion and extending along the longitudinal direction of the lamp 100.

[0025] The lamp 100 further comprises at least a guide rail 120 that is integral with the light source 105. In particular, both guide rail 120 and light source 105 are fixed to the box-shaped body 110. As it can be seen in Fig. 7 and Fig. 8, the light source 105 is in the form of LED devices and is mounted on a base or printed circuit board fixed on the guide rail 120.

[0026] Preferably, the guide rail 120 is inserted in the back opening of the box-shaped body 110 and it is at least partially contained inside the box-shaped body 110, as shown in detail in Fig. 7 and Fig. 8. In a preferred embodiment the profile of the box-shaped body 110 encloses completely the guide rail; namely, according to this preferred embodiment, the guide rail 120 does not protrude from the profile defined by the box-shaped body 110.

[0027] In particular, the guide rail 120 extends longitudinally parallel to the longitudinal extension direction of the box-shaped body 110. Typically, the guide rail 120 has a length that is not lower than 200 mm; however, the length of the guide rail is preferably such to allow an element to slide therein.

[0028] In particular, the guide rail 120 is configured for a sliding connection with a slide 220 (of suitable length, typically 50-100 mm) so as to allow supporting the lamp 110 through the slide 220 and the relative movement between the lamp 100 and the slide 220 along the guide rail 120.

[0029] Preferably, the guide rail 120 defines a groove 125, in particular a T- or U-shaped groove, adapted to house at least partially the slide 220.

[0030] Preferably, the guide rail 120 defines a plurality of lateral recesses 126 that extend along the longitudinal direction of the guide rail 120, shown in Fig. 5, Fig. 6, Fig. 7, Fig. 8. Lateral recesses 126 are configured to house respective protrusions 226 of the slide 220, shown in Fig. 8, such to engage it inside the groove 125.

[0031] In particular, the guide rail 120 defines two lateral recesses 126 defined inside the groove 125 on opposite and facing walls of the guide 120.

[0032] The lamp 100 further comprises first electrical terminals 130 extended along the guide rail 120 and electrically coupled with the light source 105 to feed it. Preferably, the first electrical terminals 130 comprise respective electrical conductors extended throughout the length of the guide 120 or a relevant part (e.g. 50-80%) of the length.

[0033] According to the illustrated embodiment, the first electrical terminals 130 are two in number and are configured for a power direct or alternate current connection with the light source 105, i.e. adapted to receive and transmit to the light source the electrical energy to be transformed into emitted light.

[0034] According to alternative embodiments, first electrical terminals 130 comprise at least two power electrical terminals and at least one or two control electrical terminals; the latter are adapted to receive and transmit control signals of at least a parameter for example relative to the intensity and/or colour of the light emitted by the light source 105. In this case, control signals must be received and interpreted by an electronic unit inside the lamp. Alternatively, both control signals and electrical power may be received and transmitted on same electrical terminals.

[0035] Preferably, the groove 125 has at least two opposite lateral volumes "V", in particular exactly two lateral volumes "V" with concave shape and delimited on three sides by a surface of the guide 120, as shown in Fig. 7.

[0036] Preferably, the first electrical terminals 130 consist of at least two electrical conductors (each one defining a respective terminal) inserted in respective lateral volumes "V" and extended along the longitudinal direction of the guide rail 120. Alternatively, electrical conductors can be housed somewhere else (e.g. at the bottom and not on the sides) in the groove 125 (e.g. contained in inserts, as shown in Fig. 7 and Fig. 8) and/or in the guide rail 120. It must be noted that the guide rail may be made of electrical conductive material and for example constitute one of the electrical terminals (for example the one relative to mass) while the other electrical terminals may for example be introduced into inserts; alternatively, the guide rail may be made of electrical insulating material and thus electrical terminals may be made for example by means of electrical conductors directly fixed to the guide rail.

[0037] According to a main aspect, the present invention relates to an illumination device, shown for example

in the appended figures and indicated with reference number 10. It will be hereinafter generally (but not exclusively) referred to with the abbreviated notation "device 10".

[0038] The device 10 comprises a lamp 100 of the above described type and an adapter 200 connected to the lamp 100.

[0039] The term "adapter" means a general body and/or mechanism connected to the lamp 100 and adapted to connect it to a support and to support the weight thereof. The adapter can consist of a single part or, more typically, of more parts; for example, in Fig. 1 and Fig. 2 and Fig. 3 and Fig. 4 and Fig. 5, the adapter consists of three parts indicated with reference numbers 220, 240, and 250; Fig. 6 is a partial view of an adapter of the previous figures.

[0040] In general, the adapter 200 comprises at least a slide 220 that is slidingly connected to the guide 120 of the lamp 100 and a connecting portion 250 connectable to a support. In particular, the slide 220 is partially or completely inserted into the groove 125 and can slide inside thereof in the longitudinal direction of the guide rail 120.

[0041] Preferably, the slide 220 has a plurality of protrusions 226 configured to engage the lateral recesses 126 of the guide rail 120 to constraint the slide 220 to the guide rail 120.

[0042] According to a possible embodiment the protrusions 226 are made of flexible material to allow manually inserting the slide 220 into the guide rail 120 in a direction that is perpendicular to the guide rail 120 itself. Alternatively, protrusions 226 are rigid and the slide 220 can be inserted into the guide rail 120 from an end thereof or is connected to the guide rail 120 while assembling it.

[0043] In order to promote adherence between the slide 220 and the guide rail 120, the slide 220 may comprise one or more magnetic elements and the guide rail may comprise portions of ferromagnetic material so as to make the slide 220 be attracted towards the guide rail 120.

[0044] Preferably, the slide 220 comprises locking portions that can be manually moved by a user between a locking configuration wherein they prevent relative sliding between the slide 220 and the guide rail 120 and a release configuration wherein they allow relative sliding between the slide 220 and the guide rail 120. For example, the locking portions can be moved by means of screws.

[0045] The slide 220 comprises second electrical terminals 230 arranged such to establish a contact with the first electrical terminals 130 of the lamp 100 in a plurality of mutual positions between the slide 220 and the guide rail 120. In particular, the slide 220 is configured to continuously slide along the guide rail 120 between two end positions and electrical terminals 130 and 230 are configured to keep mutual contact in every possible intermediate positions between the aforesaid end positions.

[0046] Thus, in the present patent application (in the previous paragraph as well as in the following description and in the claims), the expression "plurality of positions" also comprises those cases wherein the number of positions is indefinite i.e. "endless".

[0047] In particular, first and second electrical terminals 130 and 230 are configured and/or arranged to maintain a mutual contact at a plurality of different mutual positions between the slide 220 and the guide rail 120.

[0048] Preferably, each second electrical terminal 230 comprises a contact portion 231 that protrudes laterally and arranged in contact with a respective first electrical terminal 130 and an elastic portion coupled to the contact portion 231 for pushing the latter towards the respective first electrical terminal 130, as shown in Fig. 8.

[0049] In the illustrated embodiment each second electrical terminal 230 comprises a metal conductor that is bent to define the first electrical terminal 130 so that the conductor itself, by virtue of its flexural elasticity, defines the elastic portion and the contact portion 231.

[0050] The connecting portion 250 of the adapter 200 can be generally connected to a support to constraint the device 10 to the support.

[0051] According to an embodiment, the connecting portion 250 is configured to be fixingly and rigidly fixed to a support. The support can in particular be a wall or a ceiling or a base. Fixing can be carried out by means of elastic tabs or screws or dowels or glue. The connecting portion 250 can for example consist of a body end of the adapter 200.

[0052] According to a preferred embodiment, the connecting portion 250 consists of an element 260 slidingly connectable to a support; in the examples of the figures (see Fig. 9 and Fig. 10), the element 260 can be slidingly connected in particular to a rail 400.

[0053] Figure 6 shows a partial section view of a possible embodiment of the illumination device 10 wherein the adapter 200 has a free end (i.e. the upper part of the element 240). Such free end may be (first case) directly connectable to a fixed support such as a ceiling or a wall or a base or (second case) connectable to a sliding element 260 of the above-described type. In the first case the connecting portion 250 consists of the free end of the adapter 200, in the second case the connecting portion 250 consists of the sliding element 260. Preferably, the adapter 200 comprises third electrical terminals 270 arranged at the sliding element 260 and electrically coupled with second electrical terminals 230.

[0054] Third electrical terminals 270 are configured to contact an electrified portion of the rail 400 so as to feed the light source 105 in a plurality of different mutual positions between the sliding element 260 and the rail 400.

[0055] Preferably, the sliding element 260 and third electrical terminals 270 are configured and/or mutually arranged similarly to the above described slide 220 and second electrical terminals 230.

[0056] The adapter 200 comprises an intermediate portion 240, preferably a stem, extended between the slide 220 and the connecting portion 250. The interme-

diate portion 240 connects the slide 220 and the connecting portion 250 and defines a revolute joint therebetween. In particular, the intermediate portion 240 defines a rotation axis between the slide 220 and the connecting portion 250 that is perpendicular to the longitudinal direction of the guide rail 120. According to a non-illustrated possible solution, the intermediate portion 240 realises a ball joint between the slide 220 and the connecting portion 250 and thus allows rotations according to two or three degrees of freedom. Preferably, the intermediate portion 240 has an inner cavity 242 extended between the slide 220 and the connecting portion 250 and the adapter 200 comprises a plurality of conductive elements 243 arranged in the inner cavity 242 to electrically connect second electrical terminals 230 and third electrical terminals 270.

[0057] It must be noted that the adapter constitutes an aspect of the present invention; this could be used to mechanically and electrically connect electrical devices other than lamps to a support, in particular an electrified rail with the possibility of translation movements and/or translation.

[0058] Preferably, the intermediate portion comprises one first bushing-shaped body 244 connected to the slide 220 and a second bushing-shaped body 246 connected to the connecting portion 250. In particular, the first and second bushing-shaped body 244 and 246 define the aforesaid inner cavity 242 and are rotatably connected to define the revolute joint of the adapter 200, as shown in Fig. 6.

[0059] According to a possible non-limiting embodiment, conductive elements 243 comprise electrical wires arranged between the first and the second bushing-shaped body 244 and 246 and having a suitable flexibility to bear mutual rotations therebetween. Preferably, the intermediate portion 240 defines an end-of-stroke configured to limit a maximum mutual rotation between the first bushing-shaped body 244 and the second bushing-shaped body 246. Such maximum mutual rotation is preferably comprised between 320° and 355° (i.e. slightly less than a round angle) or between 355° and 370° (i.e. about a round angle) or between 365° and 400 (slightly more than a round angle).

[0060] According to a further possible non-illustrated embodiment, conductive elements comprise respective rubbing contacts arranged in mutual contact at the revolute joint to determine an electrical connection in a plurality of different angular configurations between the slide 220 and the connecting portion 250.

[0061] According to a possible embodiment, third electrical terminals 270 can be connected to an electrical source to directly receive an electric supply current of the light source 105 (or of the plurality of light sources).

[0062] According to a further embodiment, the device 10 comprises an electronic unit (not illustrated) and the third electrical terminals 270 comprise for example at least two power electrical terminals that are electrically connected to the electronic unit to supply it and for example at least a control electrical terminal, preferably two, electrically connected to the electronic unit and configured to send to the electronic unit a signal relating to the intensity and/or colour of the light emitted by the light source 105. The electronic unit is in turn electrically connected to the light source 105 to provide it with a supply current depending on the control signal.

[0063] It must be noted that the electronic unit according to the present invention can have control functions and/or supply functions; in particular, the electronic unit can be adapted to receive one or more control signals and to control said at least a light source depending on said control signals and/or adapted to generate an electrical supply in particular for a light source. It is not excluded that, according to the invention, there can be one first electronic unit with control functions and one second electronic unit with supply functions that are for example distinct and separated from each other.

[0064] According to a first embodiment, the electronic unit is integrated in the lamp 100 and is electrically connected to third electrical terminals 270 by means of first electrical terminals 130, second electrical terminals 230 and conductive elements 243 in the inner cavity 242 to receive supply and signal currents from outside.

[0065] According to a second embodiment, the electronic unit is integrated in the adapter 200, in particular in the slide 200, or in the intermediate portion 240, or in the connecting portion 250. In this second embodiment, the electronic unit is electrically connected to third electrical terminals 270 for example to receive supply and signal currents from outside and it is electrically connected to the light source 105 through first and second electrical terminals 130 and 230 to provide the supply current.

[0066] According to a possible embodiment illustrated in Fig. 10 and Fig. 11, the device 10 comprises a pin 300 which has a first end 310 connected to the lamp 100 and a second end 320 that can be connected to a further support, for example a wall, a ceiling or a further rail 500.

[0067] Preferably, the pin 300 defines a revolute joint between the first end 310 and the second end 320 and, in particular, it defines a rotation axis that is parallel to the rotation axis defined by the adapter 200.

[0068] The first end 310 of the pin 300 can be fixed to the lamp 100 or can be slidingly connected to the guide rail 120 by means of a further slide (possibly integrated in the pin).

[0069] The second end 320 of the pin 300 can be arranged to be rigidly fixed to the further support, in particular to a ceiling or a wall or can be arranged to be sliding connected to the further support, in particular with the further rail 500, by means of a further sliding element.

[0070] Preferably, the second end 320 has a magnetic element configured to be constrained with the aforesaid further support. For example, referring to Fig. 10, the second end 320 has a magnet which can be magnetically coupled with a metallic plate fixed to a ceiling or to a wall. Alternatively, referring to Fig. 11, the further rail 500 has a track (for example inside thereof) made of ferromag-

netic material extended along its longitudinal direction and the second end 320 has a magnet which can be magnetically coupled with such track.

[0071] An aspect of the present invention is also represented by an illumination system, an embodiment of which is illustrated in Fig. 10 and Fig. 11 and generally indicated by reference number 20. It will be hereinafter referred to with the abbreviated notation "system 20".

[0072] The system 20 comprises an illumination device 10 according to what above described, in particular made according the embodiment wherein the connecting portion 250 comprises the sliding element 260.

[0073] The system 20 further comprises a support which can for example be connected to a ceiling or a wall. Such support comprises a rail 400 and fourth electrical terminals extended along the rail 400 and connectable to a supply electrical grid.

[0074] The sliding element 260 of the adapter 200 is slidingly connected to the rail 400 and third electrical terminals 270 are arranged such to establish a contact with the fourth electrical terminals of the support in a plurality of mutual positions between the sliding element 260 and the rail 400.

[0075] According to a possible embodiment of the system 20, illustrated in Fig. 11, the illumination device 10 further comprises the pin 300 and the system 20 comprises a further support connected to the second end 320 of the pin 300. Such further support comprises in particular a further rail 500 that is preferably parallel to the rail 400.

[0076] The embodiments described overcome the limitations of the prior art. Advantageously, the presence and configuration of the guide rail on the lamp allow to connect it with an adapter to make it possible to slidingly move the lamp while keeping the latter fixed.

[0077] Moreover, the adapter of the disclosed illumination device, and in particular the revolute joint it has, allows to couple the sliding translational movement associated with the guide rail with a rotary movement which allows to arrange the lamp in the most suitable configuration.

[0078] Finally, the disclosed illumination system allows a further sliding movement by the illumination device along the rail, further increasing the flexibility of positioning. In particular the rail allows to establish the best position for the light source in the room to be illuminated, the revolute joint allows to establish its orientation and the guide rail on the lamp allows to adjust the light source position with respect to the rail in the selected orientation.

Claims

1. An illumination device (10), comprising:

- a lamp (100), and
- an adapter (200) for connecting said lamp (100) to a support (400), in particular to a guide rail;

wherein said lamp (100) comprises:

- at least a light source (105),
- a guide rail (120) that is integral with said light source (105),
and
- first electrical terminals (130) extended along said guide rail (120) and electrically coupled with said light source (105),

wherein said guide rail (120) is configured for a sliding connection with a slide (220) provided with second electrical terminals (230), said first electrical terminals (130) being configured for keeping a contact with said second electrical terminals (230) at a plurality of different mutual positions between said slide (220) and said guide rail (120);
wherein said adapter (200) comprises:

- a slide (220) slidingly connected to the guide rail (120), said slide (220) comprising second electrical terminals (230) arranged such as to establish a contact with said first electrical terminals (130) in a plurality of mutual positions between said slide (220) and said guide rail (120);
and
- a connecting portion (250) connectable to said support;

wherein said device further comprises an intermediate portion (240) interposed between said slide (220) and said connecting portion (250) and defining a revolute joint between said slide (220) and said connecting portion (250).

2. The device (10) according to claim 1, wherein said guide rail (120) defines a groove (125), in particular a "T" or "U"-shaped groove.

3. The device (10) according to claim 2, wherein said groove (125) has at least two opposite lateral volumes (V), said first electrical terminals (130) comprising at least two electrical conductors inserted in said lateral volumes (V) and extended along a longitudinal direction of said guide rail (120).

4. The device (10) according to claim 2 or 3, wherein said guide rail (120) defines a plurality of lateral recesses (126) extending along a longitudinal direction of said guide rail (120), said lateral recesses (126) being adapted to house respective protrusions (226) of said slide (220).

5. The device (10) according to one or more of the preceding claims, comprising a box-shaped body (110) defining an inner volume and a back opening, said guide rail (120) being inserted in said back opening

and at least partially, preferably totally, contained in said inner volume.

6. The device (10) according to one or more of the preceding claims further comprising an electronic unit electrically connected to said first electrical terminals (130) and to said at least a light source (105), said electronic unit being adapted to receive one or more control signals and to adjust said at least a light source (105), depending on said control signals and/or adapted to generate an electrical power supply in particular for a light source (105).

7. The device (10) according to one or more of the preceding claims, wherein said intermediate portion (240) has an inner cavity (242) extended between the slide (220) and the connecting portion (250), said adapter (200) comprising third electrical terminals (270) arranged at said connecting portion (250) and a plurality of conductive elements (243) arranged in said inner cavity (242) for electrically connecting the second electrical terminals (230) and the third electrical terminals (270).

8. The device (10) according to one or more of the preceding claims, wherein said intermediate portion (240) comprises one first bushing-shaped body (244) connected to the slide (220) and one second bushing-shaped body (246) connected to the connecting portion (250), said first and second bushing-shaped bodies (244, 246) being mutually rotatably connected in order to define said revolute joint.

9. The device (10) according to one or more of the preceding claims, wherein said connecting portion (250) comprises a sliding element (260) slidingly connectable to the support, in particular to a rail (400);
and wherein said adapter (200) comprises third electrical terminals (270) arranged at said sliding element (260), said third electrical terminals (270) being configured to enter into contact with fourth electrical terminals extended along said support such as to supply the light source (105) in a plurality of different mutual positions between said sliding element (260) and said support

10. The device (10) according to one or more of the preceding claims, wherein each second electrical terminal (230) comprises a contact portion (231) arranged in contact with a corresponding first electrical terminal (130) and an elastic portion coupled with said contact portion (231) for pushing said contact portion (231) towards the corresponding first electrical terminal (130).

11. The device (10) according to one or more of the preceding claims, wherein said adapter (200) comprises electronic unit electrically connected to said second and third electrical terminals (230, 270), said electronic unit being adapted to receive one or more control signals and to adjust said at least a light source (105), depending on said control signals and/or adapted to generate an electrical power supply in particular for a light source (105).

12. The device (10) according to one or more of the preceding claims, comprising a pin (300) having one first end (310) connected to said lamp (100) and one second end (320) connectable to one further support.

13. An illumination system (20), comprising:

- a support connectable to a ceiling or a wall, said support comprising a rail (400) and fourth electrical terminals extended along said rail (400) and connectable to an electricity grid;
- an illumination device (10) according to one or more of the preceding claims, wherein the sliding element (260) of the adapter (200) is slidingly connected to said rail (400) and the third electrical terminals (270) are arranged such as to establish a contact with the fourth electrical terminals of the support in a plurality of mutual positions between the sliding element (260) and the rail (400).

14. An adapter (200) adapted to connect a device (100) to a support (400) comprising:

- a slide (220) adapted to be slidingly connected to a guide rail (120) of said device (100) provided with first electrical terminals (130), said slide (220) comprising second electrical terminals (230) arranged such as to establish a contact with said first electrical terminals (130) in a plurality of mutual positions between said slide (220) and said guide rail (120);
- a connecting portion (250) connectable to said support (400);

and
an intermediate portion (240) interposed between said slide (220) and said connecting portion (250) and defining a revolute joint between said slide (220) and said connecting portion (250).

15. The adapter (200) according to claim 14, wherein said intermediate portion (240) has an inner cavity (242) extended between the slide (220) and the connecting portion (250), said adapter (200) comprising third electrical terminals (270) arranged at said connecting portion (250) and a plurality of conductive elements (243) arranged in said inner cavity (242) for electrically connecting the second electrical terminals (230) and the third electrical terminals (270).

16. The adapter (200) according to claim 14 or 15, wherein said connecting portion (250) comprises a sliding element (260) slidingly connectable to the support (400), in particular to a rail;
and wherein said adapter (200) comprises third electrical terminals (270) arranged at said sliding element (260), said third electrical terminals (270) being configured to contact fourth electrical terminals extended along said support (400) such as to electrically supply said third electrical terminals (270) and then said second electrical terminals (230) in a plurality of different mutual positions between said sliding element (260) and said support (400).

17. The adapter (200) according to claim 14 or 15 or 16, wherein said adapter (200) comprises an electronic unit electrically connected to said second and third electrical terminals (230, 270), said electronic unit being adapted to receive one or more control signals and to adjust said at least a light source (105) depending on said control signals and/or adapted to generate electrical power supply.

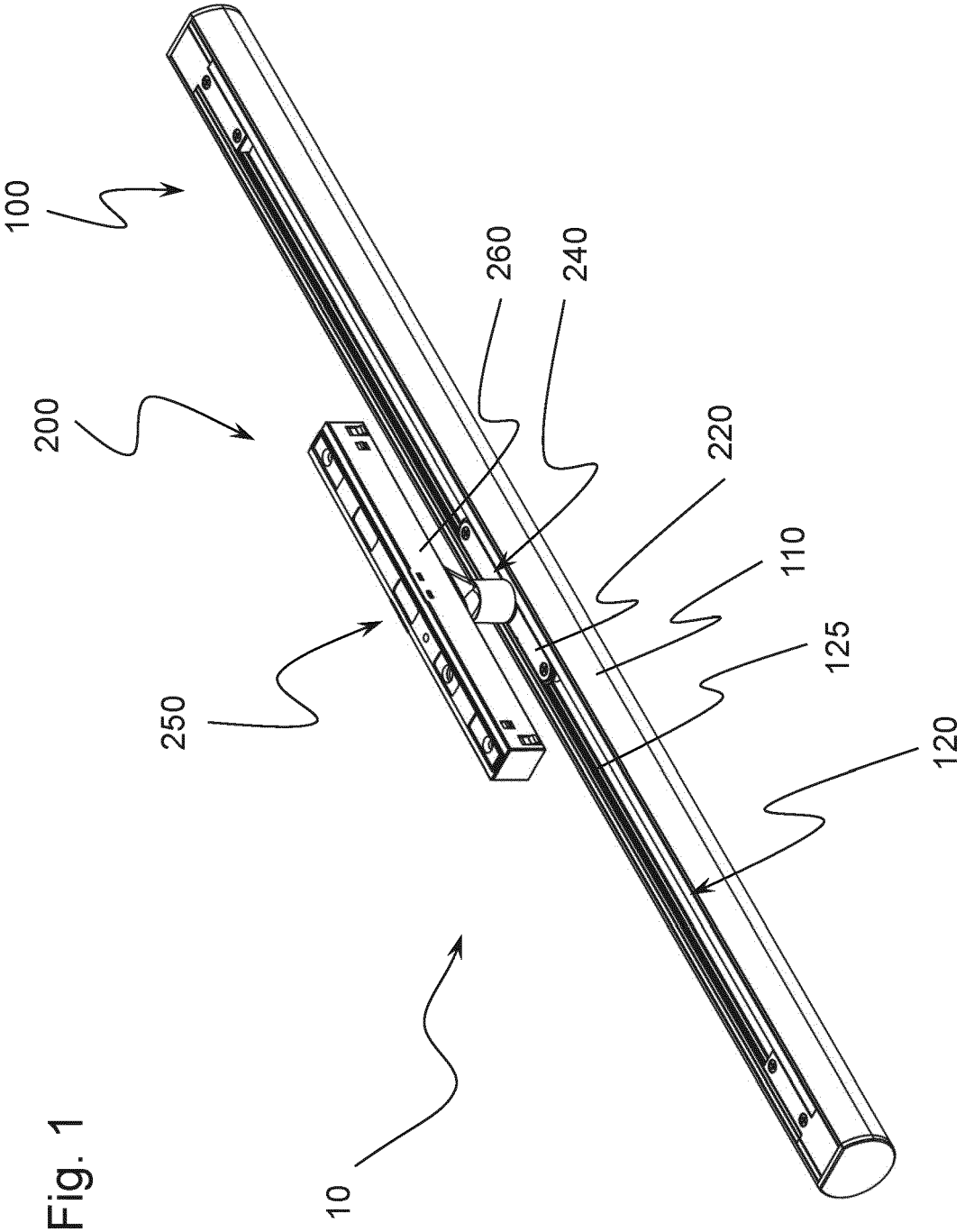


Fig. 1

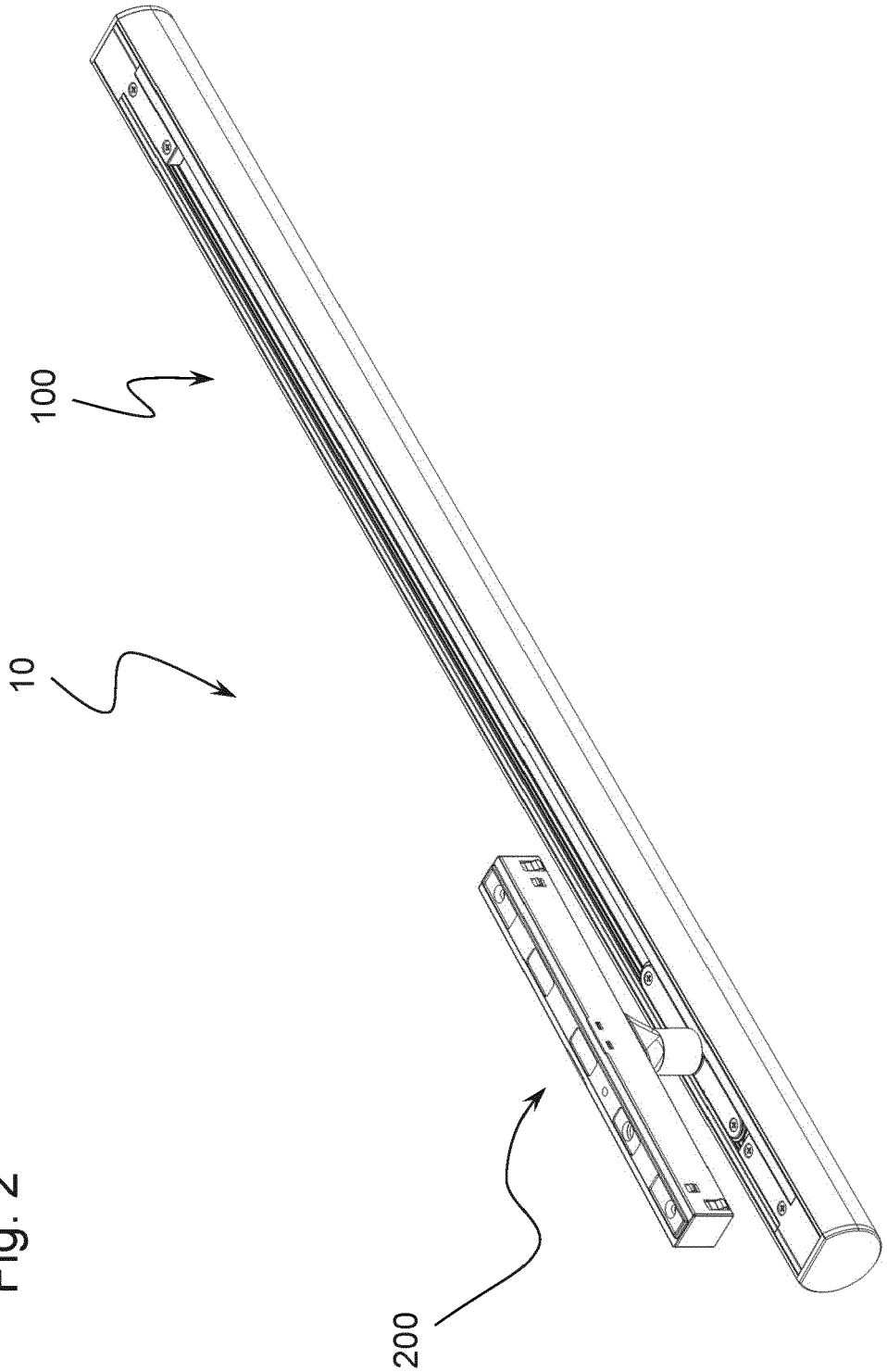
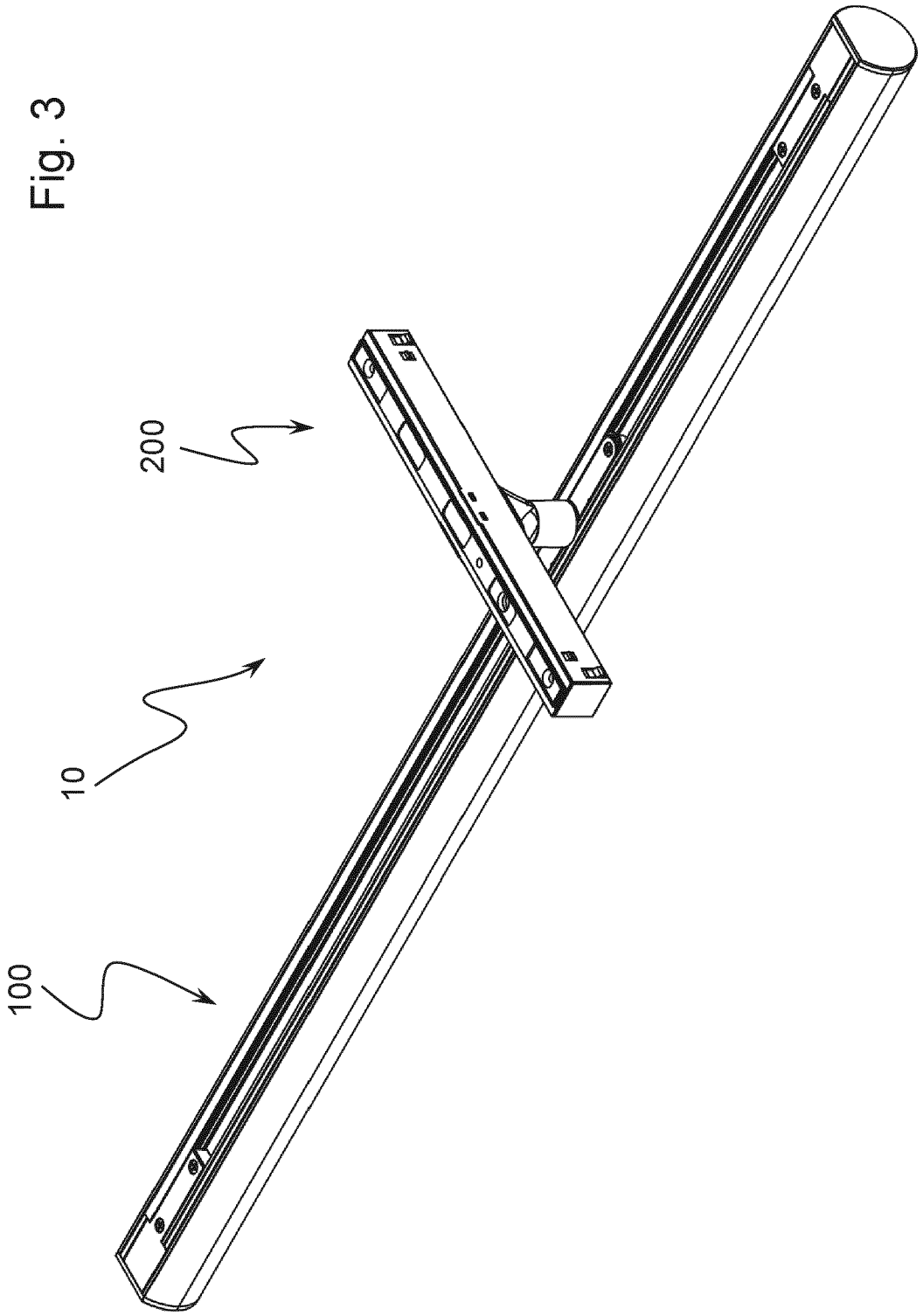


Fig. 2

Fig. 3



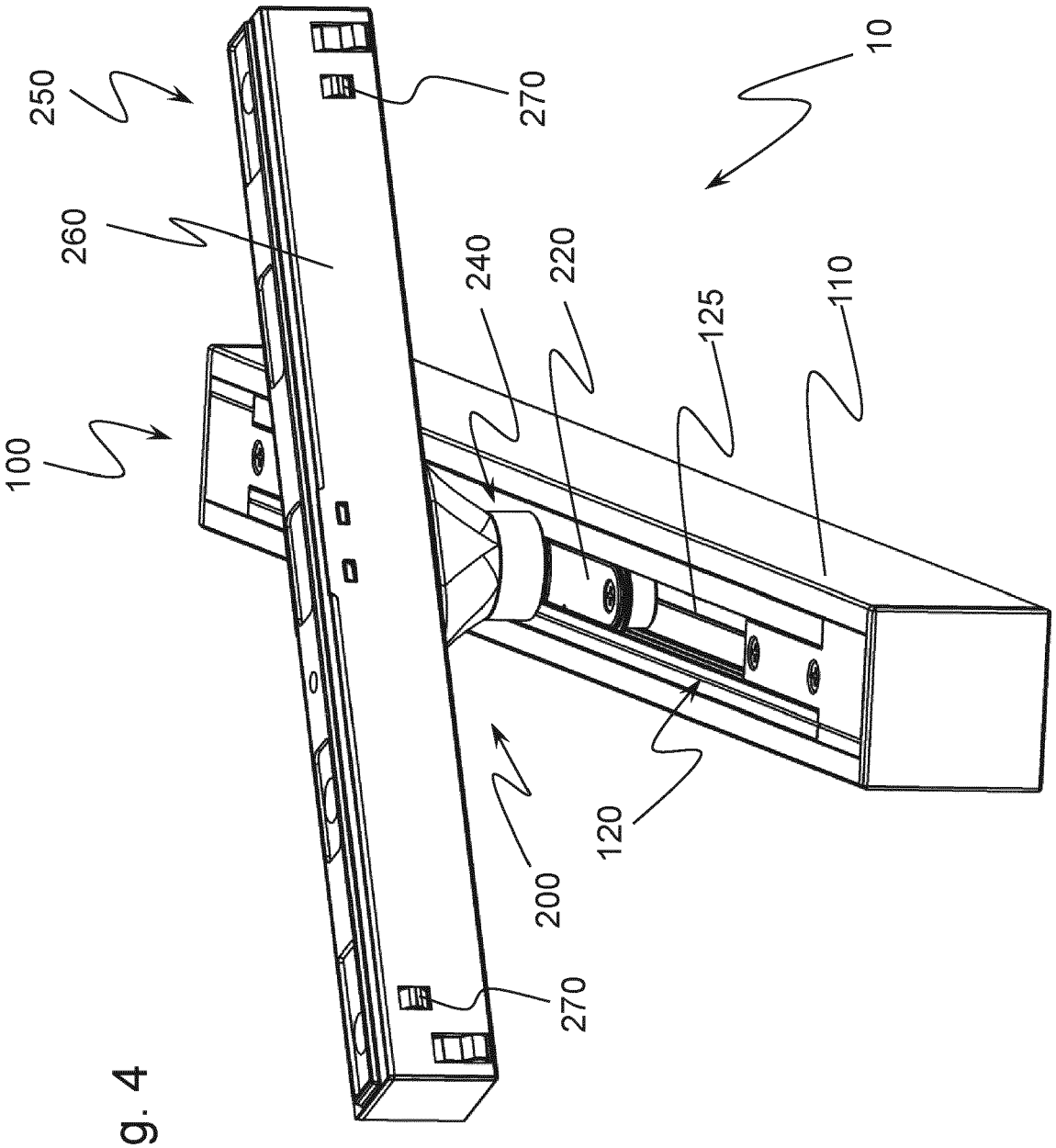
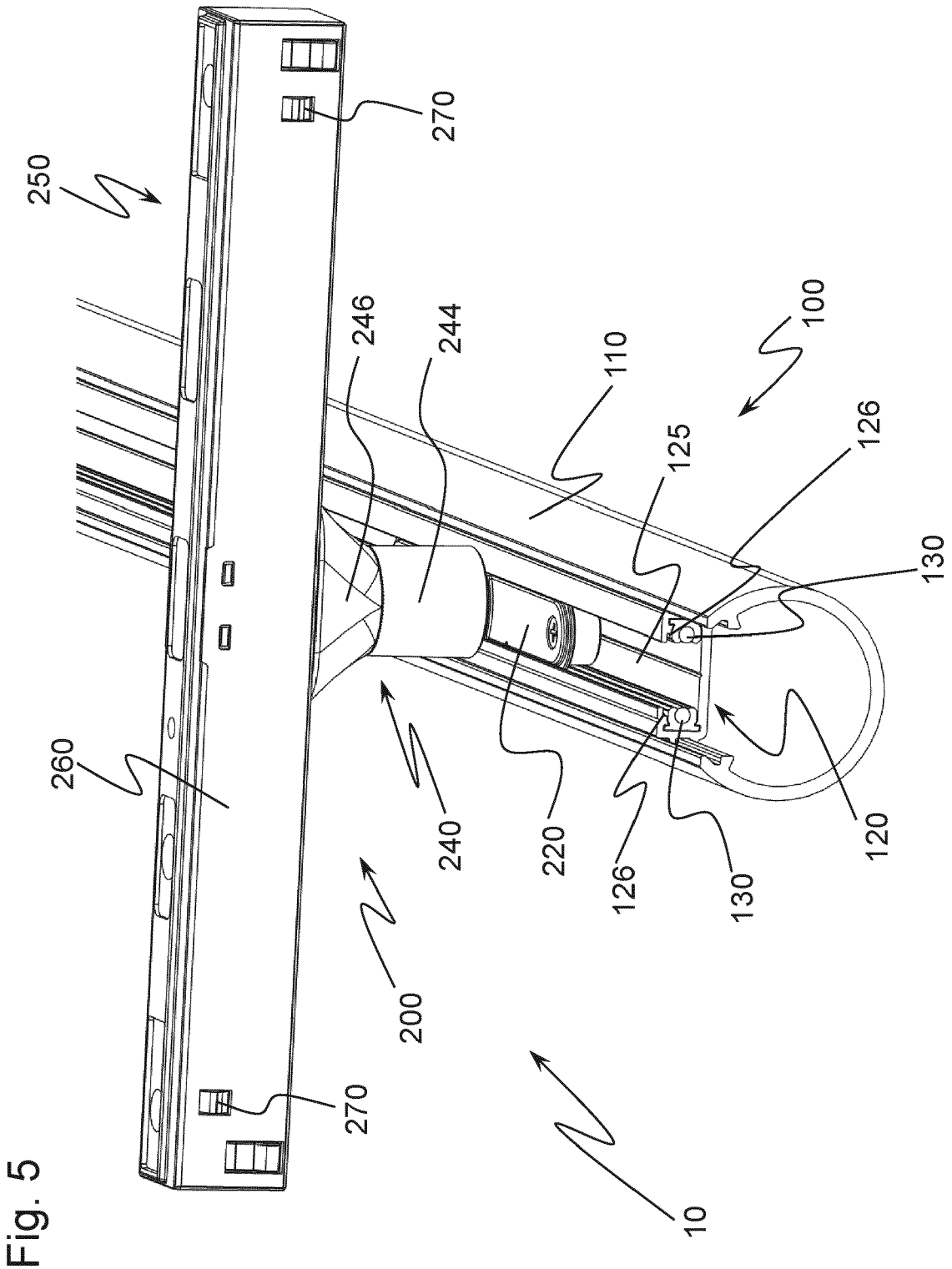


Fig. 4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270
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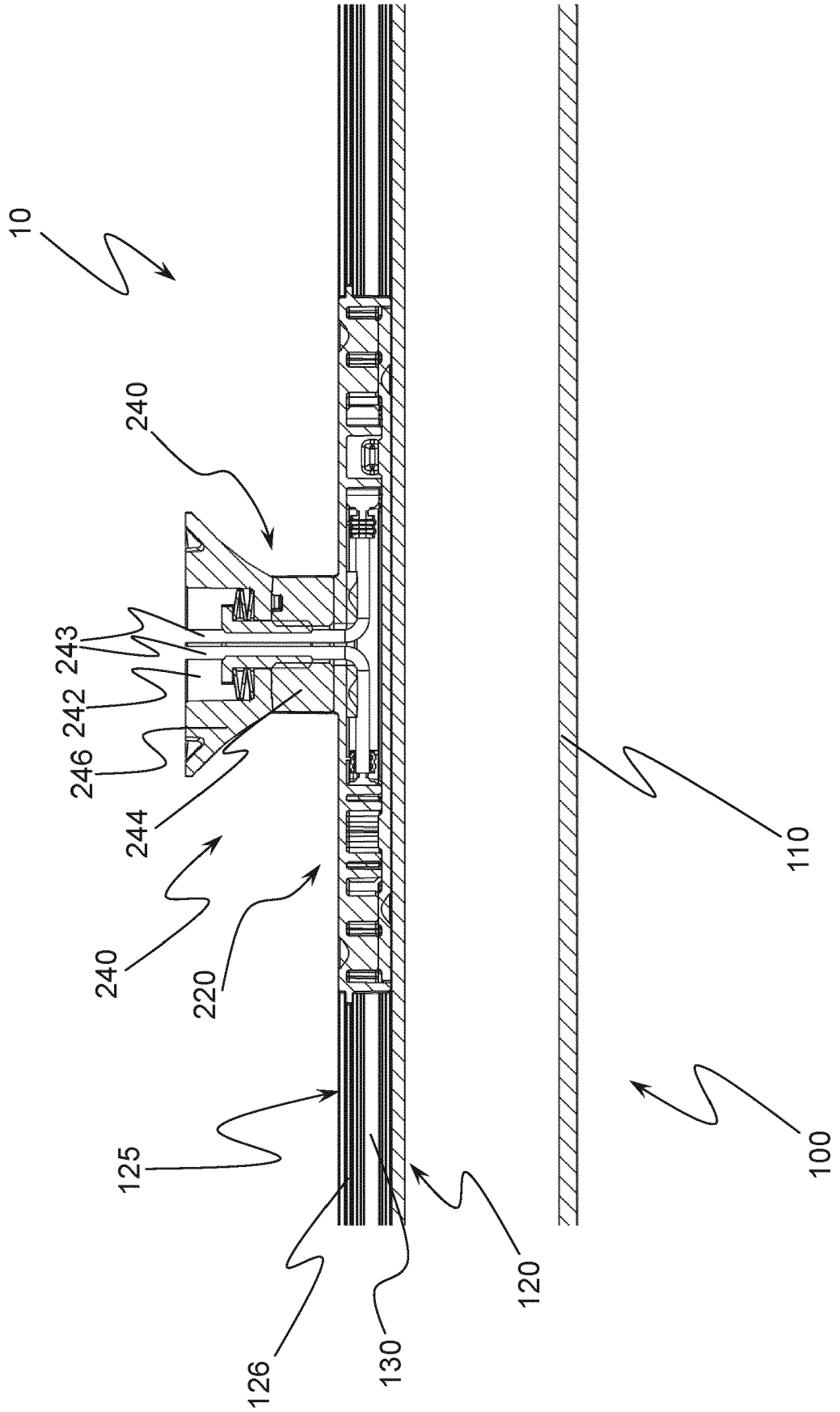
Fig. 5

Fig. 6



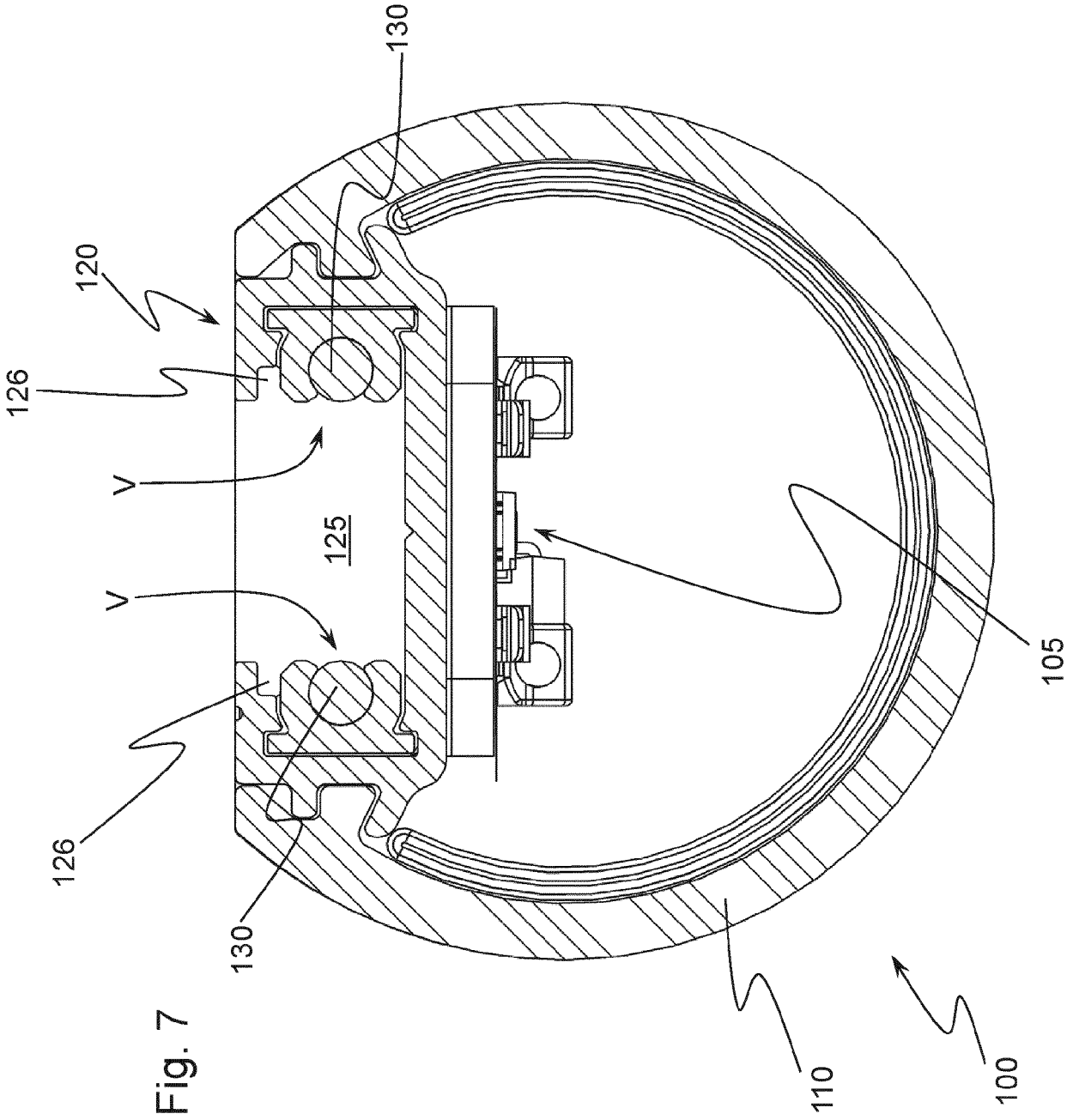


Fig. 7

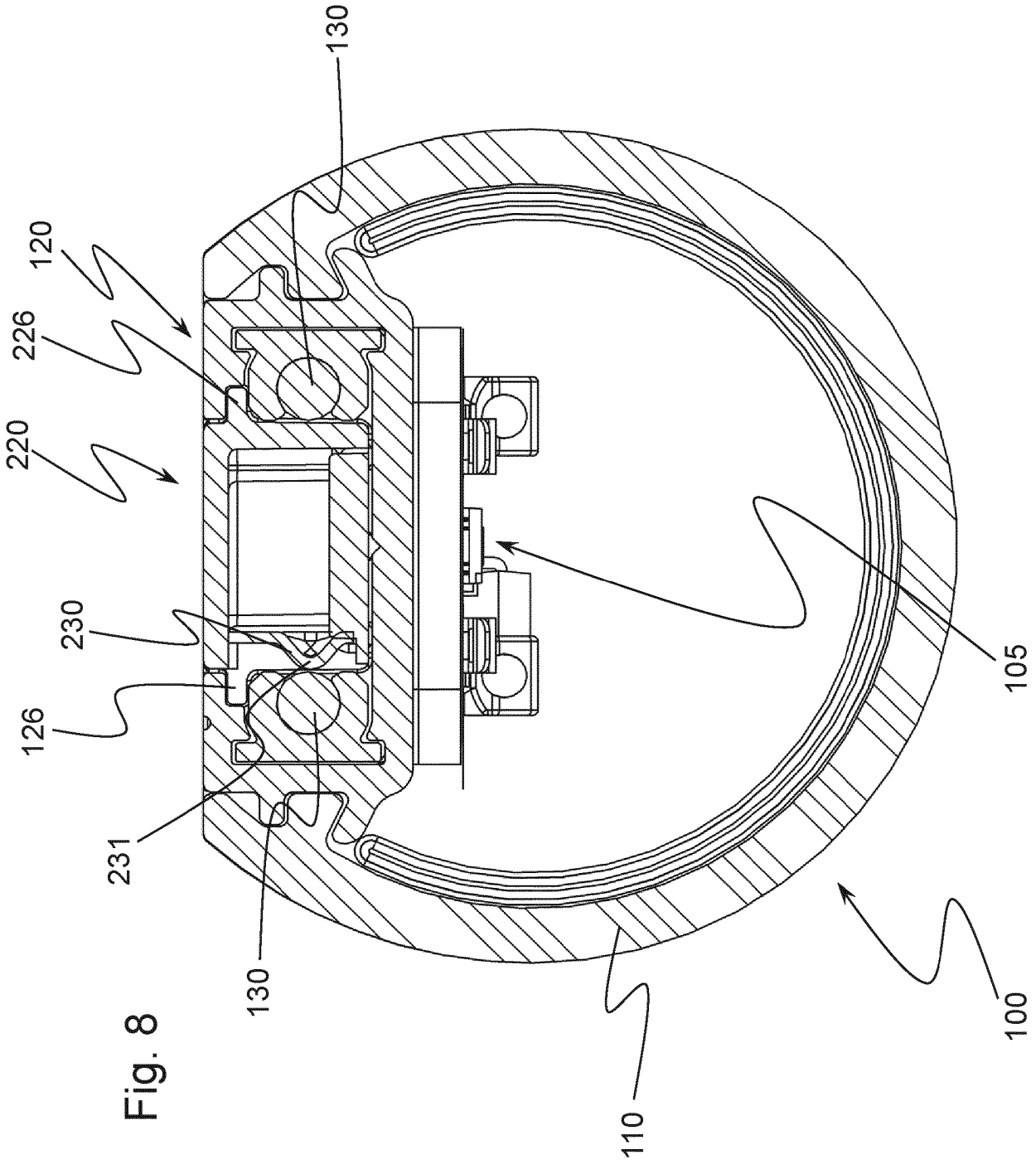


Fig. 8

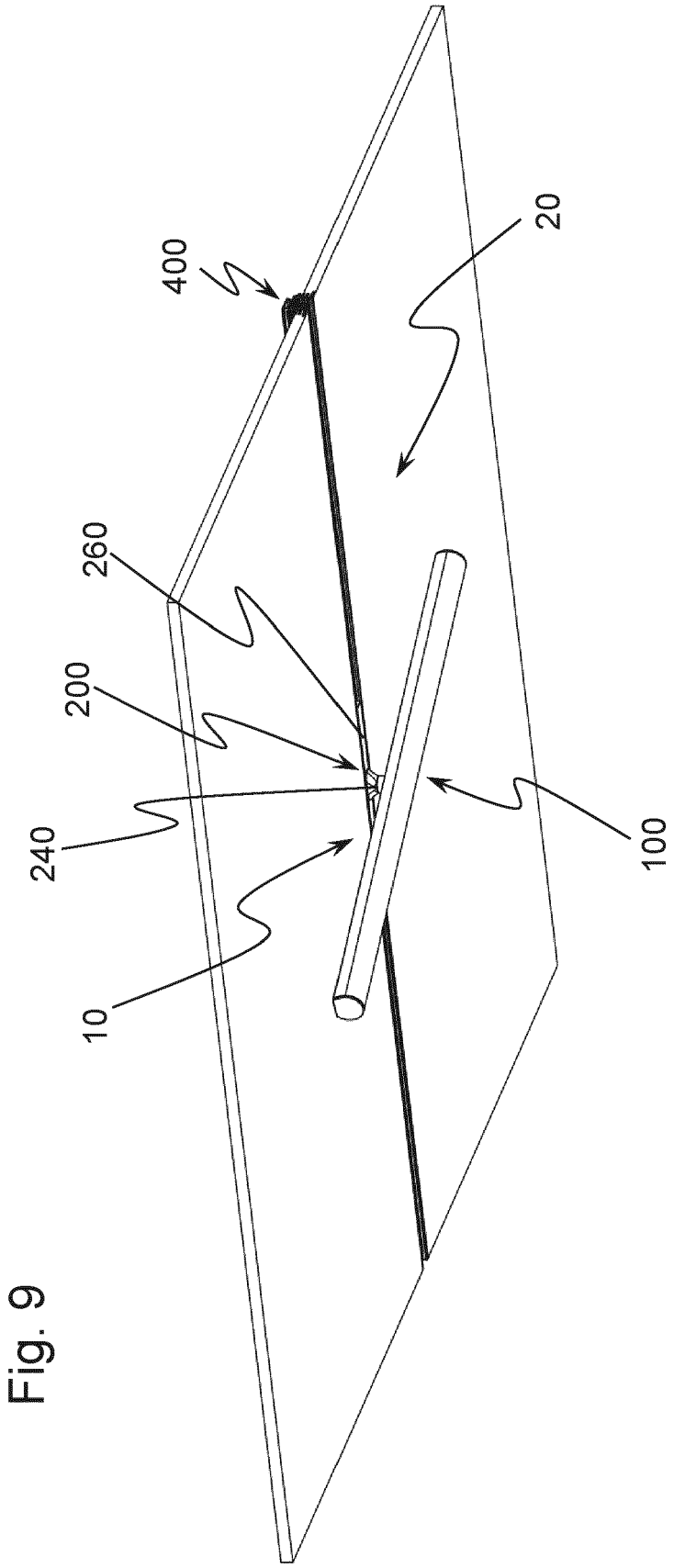
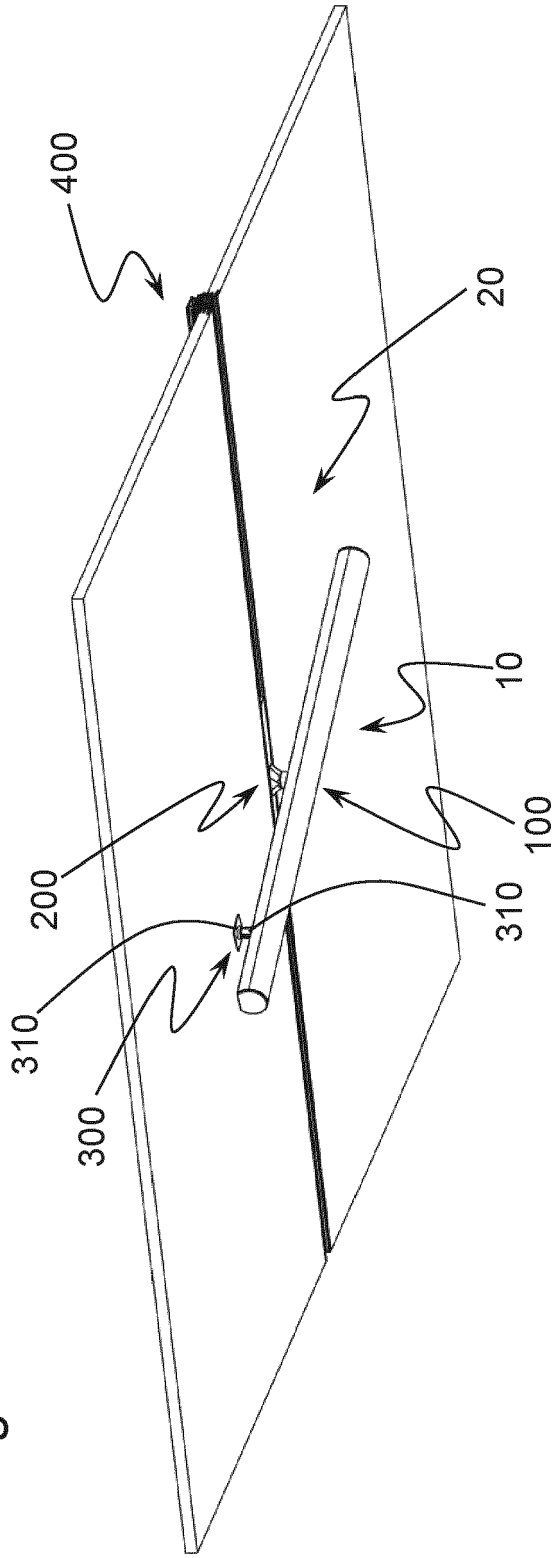


Fig. 9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310
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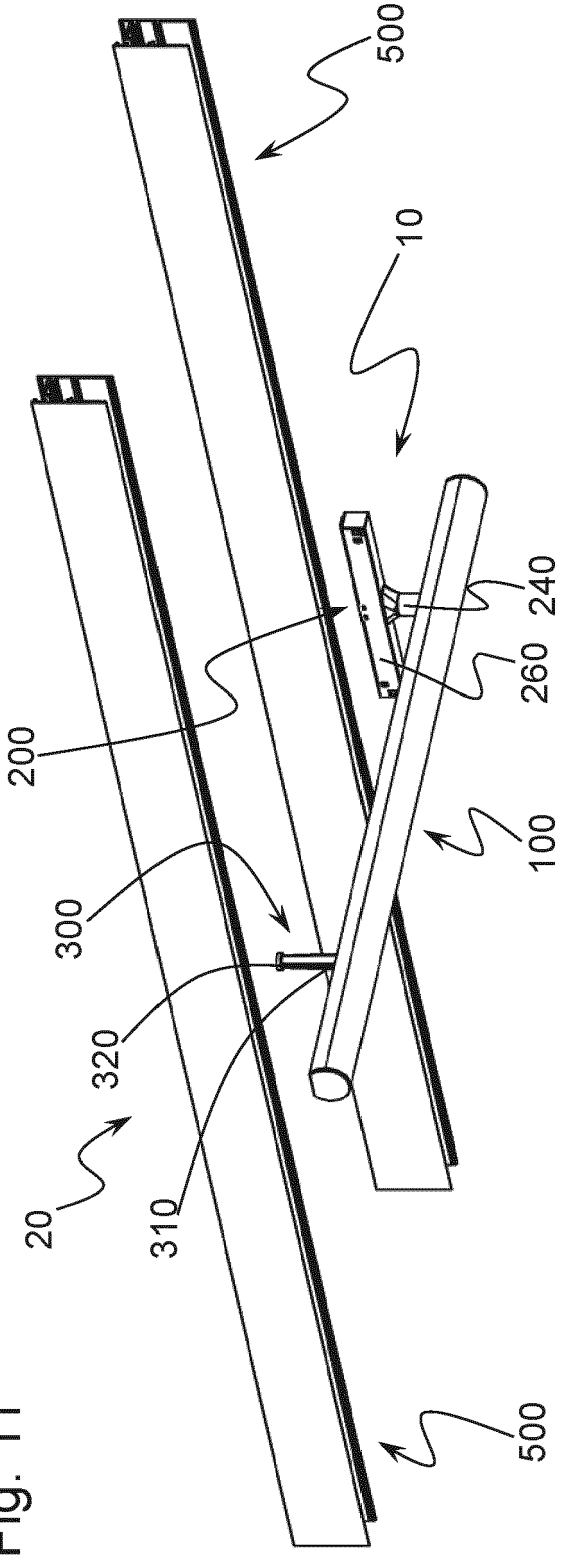
Fig. 10


500
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260
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100
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320
20
310
500

Fig. 11

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EUROPEAN SEARCH REPORT

Application Number
EP 20 16 7542

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2019/103702 A1 (ECCO DESIGN INC) 4 April 2019 (2019-04-04) * paragraphs [0081], [0082] * * paragraph [0085] - paragraph [0088] * * figures 56, 67-74, 90 * -----	1,6,9, 10,13, 14,16	INV. F21V21/35 F21S8/04 F21V23/06 F21V21/30 H01R25/14
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TECHNICAL FIELDS SEARCHED (IPC)

F21V
F21S
F21Y
H01R

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	24 July 2020	Demirel, Mehmet

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24-07-2020

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