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(54) **Screen device with power interrupt switch**

Schirmvorrichung mit Stromunterbrecherschalter

Dispositif de l'écran avec commutateur d'interruption de courant

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Description

TECHNICAL DOMAIN

[0001] The present invention concerns an improved screen device with a power interrupt switch.

BACKGROUND

[0002] With motorised screen devices, the motor and/or the screen is often shielded by means of a housing or a protective casing against undesirable outside influences such as moisture, dirt, wind, rain, human intervention etc.

[0003] Document EP2354430A2 from prior art concerns a screen device, which comprises, a rolling up and a rolling down screen, a motor for the driving of the rolling up and the rolling down movement of the screen, a fastening body, to which the far end of the motor is attachable via a linear sliding movement, whereby said far end of the motor comprises a fastening head, which is attachable to the fastening body to attach the motor to the fastening body, an electric power supply cable comprising one or more electric wires, for the supply of electric power to and/or the earthing of one or more electric wires of the motor and an electrical coupling for the electrical connecting of the electric wires of the electric power supply cable to the electric wires of the motor. In the document mention is made of a housing to incorporate the motor.

[0004] A problem with the known screen devices is that by installation or replacement the various actions to be carried out are not user-friendly and unsafe. The assembling and disassembling also often involve complicated actions. This often causes much lost time, which as a consequence thereof leads to additional costs. The screen devices, which are often set up at a relatively high position, necessitate an effective, ergonomic, user-friendly, reliable, safe and fast way of installation or replacement.

[0005] Also when, for example, windows require to be washed and a screen device hangs in front of the window, it is possible that during the washing of the windows the screen makes an undesirable and unexpected movement, for example, when controlled by third parties or a sun-wind sensor, and through this endangers the window cleaner. The invention has as an advantage that the electric current can be switched off by the window cleaner during his/ her work.

[0006] The purpose of the present invention is to provide a user-friendly, ergonomic, effective, reliable, safe and fast way of installation or replacement of a motorised screen device. The invention is also purposed to provide an improved method for the installing or replacement of such motorised screen devices.

SUMMARY OF THE INVENTION

[0007] The invention concerns, in particular, a screen device, such comprised of a screen, a motor for the driving of the rolling up and the rolling down movement of the screen, which comprises one or more electric wires for an electric power supply and/or the earthing of the motor and which is connected to said screen, an electric power supply cable comprised of one or more electric wires for the supply of electrical power to and/or the earthing of the one or more electric wires of said motor, a housing, which comprises a fastening body and which shields said motor, said motor attached to said fastening body by means of an attachment head on the motor and a switch, which is provided with an on and off position, whereby in the on position electric power can be supplied to the motor via the electric power supply cable, whereby in the off position the electric power supply to the motor is interrupted, whereby said switch is situated near to the motor, the fastening body or the housing and whereby said switch is constructed to interrupt the electric power when accessing the motor.

[0008] This has as an advantage that the user can interrupt the electric power supply to the motor in a safe, easy and fast manner. In the event of the manual on and off switching of the electrical circuit by the installing of the motor, this presents an uncontrollable risk through the actions of third parties. If this switch is provided at a strategic location, then a user-friendly, reliable and fast switch off of the electric power supply can take place. Moreover, the actions of installation or replacement of the motor by the user occurs in a safer and thus less complicated manner since the electric power supply can be interrupted by means of a simple switching.

[0009] In a second aspect, the invention concerns a system, comprised of a screen, a motor for the driving of the rolling up and the rolling down movement of the screen, which comprises one or more electric wires for the electric power supply and/or the earthing of the motor, an electric power supply cable comprised of one or more electric wires for the supply of electrical power to and/or the earthing of the one or more electric wires of said motor, a housing, comprised of a fastening body and which is suitable to shield said motor, said fastening body suitable for the attachment of said motor and a switch, which is suitable to be situated near to the motor, the fastening body or the housing and which switch is constructed to interrupt the electric power when accessing the motor.

[0010] This system comprises the components of a device such as described in the first aspect of the invention. This comprises, among other things, the switch, through which the second aspect comprises the same advantages as that of the first aspect. In another aspect, the invention concerns a working method for the replacement of a motor in the screen device.

[0011] In another aspect, the invention concerns a working method for the removal of a motor in the screen device.

In another aspect, the invention concerns a working method for the installing of a motor in the screen device. Further preferred forms are elaborated in the sub-claims.

DESCRIPTION OF THE FIGURES

[0012]

Figure 1: is a three-dimensional representation, in perspective, of a part of a screen device according to a preferred form of the invention, whereby the device is provided with a safety pin which prevents the housing from being opened.

Figure 2: is a three-dimensional representation, in perspective, of a part of a screen device according to a preferred form of the invention, whereby the safety pin is pressed in.

Figure 3: is a three-dimensional representation, in perspective, of a part of a screen device according to a preferred form of the invention, whereby the rotatable housing is opened.

Figure 4: is a three-dimensional representation, in perspective, of a part of a screen device according to a preferred form of the invention, whereby the end piece for the motor is unscrewed.

Figure 5: is a three-dimensional representation, in perspective, of a part of a screen device according to a preferred form of the invention, whereby the motor is slid out from the fastening body.

Figure 6: is a three-dimensional representation, in perspective, of an end piece of a screen device according to a preferred form of the invention, whereby the end piece is in the on position.

Figure 7: is a three-dimensional representation, in perspective, of an end piece of a screen device according to a preferred form of the invention, whereby the end piece is in the off position.

Figure 8: is a representation, in side view, of a part of a screen device according to a preferred form of the invention, whereby the housing is closed.

Figure 9: is a three-dimensional representation, in perspective, of a part of a screen device according to a preferred form of the invention, whereby the device is provided with a switch which is switched to the off position if the housing is opened.

Figure 10: is a three-dimensional representation, in perspective, of a part of a screen device according to a preferred form of the invention, whereby the housing is opened.

DETAILED DESCRIPTION

[0013] In the first aspect, the invention concerns a screen device **1**, comprised of a screen, a motor **3** for the driving of the rolling up and rolling down movement of the screen, which comprises one or more electric wires for the supply of electric power and/or the earthing of the motor **3** and which is connected to said screen, an electric power supply cable **5** which includes one or more electric wires for the supply of electric power to and/or the earthing of the one or more electric wires of said motor **3**, a housing **12**, which comprises a fastening body **4** and which shields said motor **3**, said motor **3** attached to said fastening body **4** and a switch **40**, whereby the switch **40** is provided with an on and off position, whereby in the on position electric power can be supplied to the motor **3** via the electric power supply cable **5,** whereby in the off position the electric power supply to the motor **3** is interrupted, whereby said switch **40** is situated near to the motor **3,** the fastening body **4** or the housing **12** and whereby said switch **40** is such constructed to interrupt the electric power when accessing the motor **3**.

[0014] This has as advantage that the user can interrupt the electric power to the motor **3** in an easy, safe and fast manner. In the event of a manual switching on and off of an electric circuit by the installing of the motor **3,** this presents an uncontrollable risk through the actions of third parties. If this switch **40** is provided at a strategic location, then a user-friendly, reliable and fast switch-off of the electric power supply can take place. Moreover, the actions of installation or replacement of the motor **3** by the user takes place in a safer manner since the electric power supply can be interrupted by means of a simple switching and can thus be interrupted in an uncomplicated manner. This also has as an advantage that a much greater degree of safety is achieved than, for example, the manually switching on and off of an electric circuit by the installing of the motor **3**. In that said switch **40** is located near to the motor **3**, the fastening body **4** or the housing **12**, the installation or replacement of a motor **3** can take place without the undesirable influence of third parties. In this manner third parties have less of a possibility to unintentionally or mistakenly supply the motor **3** with electric power. The probability of electrocution or an accident through a becoming operational of the motor **3** greatly decreases. The switch **40** is also situated more conspicuously, which increases the safety for the fitter. Also, this offers the possibility for a fast, more ergonomically responsible and reliable installation or replacement of the motor **3.**

[0015] The term "switch" in the present invention, among other things, refers to a pressure switch, foil push button, slide switch, rotary switch, toggle switch, touch switch, mercury switch or reed switch.

[0016] The term "motion switch" in the present invention refers to a switch **40** which in part comprises a mechanical component.

[0017] In a preferred form of a device according to the invention, said switch **40** is situated on, to and/or in, the housing **12**.

[0018] In that said switch **40** is situated on, to and/or

in the housing **12**, the installation or replacement of a motor **3** or the screen or another component within the housing **12** of the screen device, can take place without the unwanted influence of third parties. Third parties still have a lesser possibility to mistakenly provide electric power to the motor **3.** The probability of electrocution or an accident through a becoming operational of the motor **3** decreases. This also offers the possibility towards a faster, more economically responsible and reliable installation or replacement of the motor **3** or the screen or another component within the housing **12** of the screen device.

[0019] In a preferred form of a device according to the invention, said switch **40** is included in the path of the electric power supply cable **5.**

[0020] This has as advantage that there is a greater certainty by an interruption of the electric power supply from the motor **3.** An indirect connected switch **40** does not have this advantage. A safer installation or replacement is possible.

[0021] In a preferred form of a device according to the invention, said switch **40** concerns a motion switch and said switch **40** comprises a relocation element.

[0022] This has as advantage that a simple relocation of an element allows a faster installation or replacement of a motor **3.**

[0023] In a preferred form of a device according to the invention, the switch **40** is controlled by a hinge moment in said housing **12.**

[0024] This has as an advantage that a rotating movement of the housing **12** promotes the actions of an installation or replacement of the motor **3** in a practical and ergonomic manner.

[0025] In a preferred form of a device according to the invention, the motor **3** and/or the screen is removable from the housing **12.**

[0026] This has as an advantage that a faster installation or replacement of the motor **3** is possible. The housing **12** can thus remain hung at the window or wall which allows a cheaper installation or replacement of a damaged or malfunctioning motor **3** or the replacement of a damaged screen. In a preferred form of a device according to the invention, the motor **3** is detachable if the switch **40** is in the off position.

[0027] This has as an advantage that the detachment of the motor **3** or replacement of a screen or another component within the housing **12** of the screen device can preferably only occur if the switch **40** is in the off position and thus the motor **3** is not supplied with electric power. The impossibility of the motor **3** coming into operation and the lesser probability of electrocution increases the degree of safety for the fitter or the person effecting the replacement.

[0028] In a preferred form of a device according to the invention, the switch **40** when in the on position blocks the opening of the housing **12.**

[0029] This has as an advantage that the housing **12** cannot be opened if the electric power is not interrupted. This increases the degree of safety for the fitter or the person effecting the replacement.

[0030] In a preferred form of a device according to the invention, the switch **40** comprises a blocking element that blocks the removal of the motor **3** or the replacement of a screen, preferably fully blocks same, if the switch **40** is in the on position.

[0031] This has as an advantage that a detachment of the motor **3** or the replacement of a screen cannot occur if the motor **3** is supplied with electric power. This is mechanically blocked. The impossibility of the motor **3** coming into operation and the lesser probability of electrocution increases the degree of safety for the fitter or the person effecting the replacement.

[0032] In a preferred form of a device according to the invention, the switch **40** comprises a reed contact **23** and a relocation element, whereby the relocation element comprises a magnet **24**.The term "reed contact" in the present invention refers to an electrical switch contact in a glass tubule, which tubule is filled with an inert gas, that is operated by a magnetic field, originating from a magnet.

The term "magnet" in the present invention refers to a permanent magnet or a coil through which a current flows.

[0033] This has as an advantage that no or hardly any sparks arise on switching. This increases the degree of safety for the fitter or the person effecting the replacement. There is less possibility towards the wear of the switch **40** in that the glass tubule of the reed contact is filled with an inert gas, so that the switching of currents does not, or hardly, affect the switch contacts of the reed contact.

[0034] In a preferred form of a device according to the invention, the attachment head **15** is provided with guiding ribs **9** and the fastening body **4** is provided with guiding slots **8,** which are suitable to attach the motor **3** to the fastening body **4** perpendicular to its axis by means of a linear sliding movement.

[0035] This has as an advantage that this promotes the ergonomics for the installing or replacement of the motor **3** or the screen.

[0036] In a preferred form of a device according to the invention, the attachment head **15** is provided with at least one bore **11** which is suitable for taking up a fastening means **10** and whereby the attachment head **15** to which the motor **3** is attached by a fastening means **10** can be held fast to the fastening body **4** whereby the head of the fastening means **10** is shielded by the relocation element of the switch **40** if the switch **40** is in the on position and whereby the head of the fastening means **10** is not shielded by the relocation element of the switch **40** if the switch **40** is in the off position.

[0037] This has as an advantage that a detachment of the motor **3** or the replacement of a screen can occur if the motor **3** is supplied with electric power. The impossibility of the motor coming into operation **3** and the lesser probability of electrocution increases the degree of safety

for the fitter or the person effecting the replacement.

[0038] The term "fastening means" in the present refers to a means which is suitable to connect at least two bodies to each other, such as a bolt or a screw.

[0039] In a second aspect, the invention concerns a system for the constructing of a device, comprising a screen, a motor **3** for the driving of the rolling up and rolling down movement of the screen, which comprises one or more electrical wires for the supply of electrical power and/or the earthing of the motor **3,** an electric power supply cable **5** which comprises one or more electric wires for the supply of electrical power to and/or the earthing of the one or more electric wires of said motor **3,** a housing **12,** which comprises a fastening body **4** and which is suitable to shield said motor **3,** said fastening body **4** suitable to which to attach the motor **3** and a switch **40,** whereby the switch **40** is provided with an on position and an off position, whereby in the on position electric power can be supplied to the motor **3** via the electric power supply cable **5** and whereby in the off position the electric power supply to the motor **3** is interrupted.

[0040] In a third aspect, the invention concerns a working method for the replacement of a motor **3** of a device **1,** comprising the following steps: the switching of the switch **40** to the off position, the opening of the housing **12,** the removing of the fastening means **10** the removing of the motor **3,** the attaching of a motor **3,** the attaching of fastening means **10** which are suitable to attach the motor **3** to the fastening body **4,** the closing of the housing **12** and the switching of the switch **40** to the on position.

[0041] This has as an advantage that the fitter can replace a defective or malfunctioning motor **3** with a new motor **3** in an easier, faster, user-friendly, more ergonomic and reliable manner.

[0042] In an another aspect, the invention concerns a working method for the removing of a motor **3** of a device **1,** comprising the following steps: the switching of the switch **40** to the off position, the opening of the housing **12,** the removing of the fastening means **10** which are suitable to attach the motor **3** to the fastening body **4,** the removing of a motor **3,** the closing of the housing **12** and the switching of the switch **40** to the on position.

[0043] This has as an advantage that the fitter can remove a motor **3** from the housing **12** in a safe, easier, faster, user-friendly, more ergonomic and reliable manner.

[0044] In another aspect, the invention concerns a working method for the installing of a motor **3** of a device **1,** comprising the following steps: the switching of the switch **40** to the off position, the opening of the housing **12,** the attaching of a motor **3,** the attaching of fasteners **10** which are suitable to attach the motor **3** to the fastening body **4,** the closing of the housing **12** and the switching of the switch **40** to the on position.

[0045] This has as an advantage that the fitter can install a motor **3** in the housing **12** in an easier, faster, user-friendly, more ergonomic, safe and reliable manner.

EXAMPLES

EXAMPLE 1: Preferred form for a screen device according to the invention

[0046] Figures 1 up to and including 7 show a three-dimensional representation, in perspective, of a part of a screen device **1** according to a preferred form of the invention. Figure 8 shows a representation, in side view, of a part of a screen device **1** according to a preferred form of the invention. Figure 1 shows a device **1** which is provided with a safety pin **20** which blocks the housing **12** from being opened. The housing **12** shields a motor **3** which is suitable for the driving of the rolling up and rolling down movement of a screen, which is connected to the motor **3.** The housing **12** is provided with a cover housing **13** which is rotatable around a hinge **14.** In the housing **12** there is an opening for an electric power supply cable **5** which is connected to the motor **3.** The electric power supply cable **5** supplies the motor **3** with electric power. If this safety pin **20** is not pressed in, the cover housing **13** is blocked by the protruding safety pin **20** to rotate open around the hinge **14.**

[0047] A safety pin **20,** which is a relocation element, is part of a switch **40** provided with an on position and an off position, whereby in the on position current can be supplied to the motor **3** via the electric power supply cable **5** and whereby in the off position the electric power supply to the motor **3** is interrupted.

[0048] Figure 2 shows a part of a screen device **1** according to a preferred form of the invention, whereby the safety pin **20** is pressed in. The cover housing **13** is now no longer blocked to rotate open around the hinge **14.**

[0049] Figure 3 shows a part of the screen device **1** whereby the rotatable housing **13** is opened and removed. The motor **3** is attached to the fastening body **4** by means of an attachment head **15,** which is attached the housing **12.** The fastening body **4** is provided with an end piece **21** which is provided with a switch **40** provided with a relocation element **20.** The end piece **4** blocks the removing of the motor **3.** If the safety pin **20** is pressed in, it is possible to screw-on or unscrew the motor **3** to or from the fastening body **4** by means of fastening means **10.** The electric wires of the motor **3** are electrically connected with the electric wires of the electric power supply cable **5** by means of a male coupling piece **6** and a female coupling piece **7.** The female coupling piece **7** is attached to the fastening body **4** and the male coupling piece **6** is attached to the motor **3.** These coupling pieces are suitable to be electrically coupled via a linear sliding movement.

[0050] Figure 4 shows a part of a screen device according to a preferred form of the invention, whereby the end piece **21** for the motor 3 is unscrewed. The end piece **21** is provided with an electric power cable **22** which is electrically coupled with the electric power supply cable **5.** The motor **3** is provided with an attachment head **15** which is suitable to attach the motor **3** to the fastening

body **4,** which is attached to the housing **12.** The fastening body **4** is provided with bores **11** which are suitable for fastening means **10** to be inserted.

[0051] Figure 5 shows a part of a screen device **1** according to a preferred form of the invention from Figure 1, whereby the motor **3** is slid out of the fastening body **4.**

[0052] Figure 6 shows a part of a screen device **1** according to a preferred form of the invention, whereby the end piece **21** comprises a reed contact **23,** a magnet **24** and a stiff spring **25.** The reed contact **23** is provided in the electrical path of the electric power cable **22.** In a preferred form of the invention, this electrical path concerns the electrical neutral wire or neuter. The switch **40** which comprises the reed contact **23,** the magnet **24,** the stiff spring **25** and the safety pin **20,** is in the on position. In that the safety pin **20** is not pressed in, the stiff spring **25,** which is connected to the safety pin, and the magnet **24,** which is connected to the stiff spring, are provided close to the reed contact **23** through which the reed contact electrically couples the electric power cable **22.** Thus the motor **3** is supplied with electric power.

By the pressing in of the safety pin **20,** the stiff spring **25** is moved together with the magnet **24,** which magnet **24** is situated outside the vicinity of the reed contact **23.** This is shown in Figure 7. Through this the reed contact electrically disconnects the electric power cable **22.** Thus the electric power supply from the motor **3** is interrupted. The switch **40,** which comprises the reed contact **23,** the magnet **24,** the stiff spring **25** and the safety pin **20,** is in the off position.

[0053] Figure 8 shows a representation, in side view, of a part of a screen device **1** according to preferred form of the invention, whereby the housing **12** is closed. The switch **40,** which comprises the reed contact **23,** the magnet **24,** the stiff spring **25** and the safety pin **20,** is in the on position.

[0054] EXAMPLE 2: The preferred form for a screen device according to the invention.

[0055] Figure 9 shows a three-dimensional representation, in perspective, of a part of a screen device **1** according to a preferred form of the invention. Figure 9 shows a device **1** which is provided with a housing **12** which shields a motor **3,** which motor **3** is suitable for the driving of the rolling up and the rolling down movement of screen, which is connected to the motor **3.** The housing **12** is provided with a cover housing **13** which is rotatable around a hinge **14.** In the housing **12** there is an opening provided for an electric power cable **5** which is connected to the motor **3.** The electric power cable **5** provides the motor **3** with an electric power supply. The device is provided with a switch **40,** which comprises a reed contact **23** on an end piece **30** and a magnet housing **31,** which is provided with a magnet and which switch **40** is switched to the on position if the housing **12** is closed. The magnet housing **31** is attached to the inside of the cover housing **13** and is situated near to the reed contact **23,** through which the reed contact **23** electrically connects the electric power cable **22.** Thus the motor **3** is supplied with electric power.

[0056] Figure 10 shows a part of a screen device **1** according to a preferred form of the invention, whereby the housing **12** is opened. The magnet housing **31** is situated outside the vicinity of the end piece **30** with the reed contact **23,** through which the reed contact electrically disconnects the electric power cable **22.** Thus the electric power supply from the motor **3** is interrupted. The switch **40** is in the off position.

Claims

1. Screen device (1), which comprises:

- a screen;
- a motor (3) for the driving of the rolling up and rolling down movement of the screen, which comprises one or more electrical wires for the supply of electric power and/or earthing of the motor (3) and which is connected to said screen;
- an electric power supply cable (5) which comprises one or more electrical wires for the supply of electric power to and/or the earthing of one or more electric wires of said motor (3);
- a housing (12), which comprises a fastening body (4) and which shields said motor (3);
- said motor (3) attached to said fastening body (4);
- a switch (40), **characterised in that** said switch (40) is provided with an on and off position, whereby in the on position electric power can be supplied to the motor (3) via the electric power supply cable (5), whereby the electric power supply to the motor (3) is interrupted in the off position, in which said switch (40) is situated near to the motor (3), the fastening body (4) or the housing (12) and whereby said switch (40) is constructed to interrupt the electric power when accessing the motor (3).

2. Device according to claim **1**, **characterised in that** said switch (40) is provided on, to and/or in the housing (12).

3. Device according to any of claims **1** and **2, characterised in that** said switch (40) is provided in the path of the electric power supply cable (5).

4. Device according to any of claims **1** to **3, characterised in that** said switch (40) concerns a motion switch, **characterised in that** said switch (40) comprises a relocation element.

5. Device according to any of claims **1** to **4, characterised in that** said switch (40) is controlled by a hinge moment in said housing (12).

6. Device according to any of claims **1** to **5, characterised in that** the motor is removable from the housing (12).

7. Device according to any of claims **1** to **6, characterised in that** the motor (3) is demountable if the switch (40) is in the off position.

8. Device according to any of claims **1** to **7, characterised in that** said switch (40) blocks the opening of the housing (12) when in the on position.

9. Device according to any of claims **1** to **8, characterised in that** the switch (40) comprises a blocking element which impedes the removal of the motor (3), preferably fully blocks, if the switch (40) is in the on position.

10. Device according to any of claims **1** to **9, characterised in that** said switch (40) comprises a reed contact (23) and a relocation element, whereby the relocation element comprises a magnet (24).

11. Device according to any of claims **1** to **10, characterised in that** the motor head (15) is provided with guiding ribs (9) and **characterised in that** the fastening body (4) is provided with guiding slots (8), which are suitable to attach the motor (3) to the fastening body (4) perpendicular to its axis by means of a linear sliding movement.

12. Device according to any of claims **1** to **11, characterised in that** the motor head (15) has at least one bore (11) suitable for taking up a fastening means (10) and whereby the motor head (15) to which the motor (3) is attached can be held fast to the fastening body (4) by means of a fastening means (10) with which the head of the fastening means (10) is shielded by the relocation element of the switch (40) if the switch (40) is in the on position and whereby the head of the fastening means (10) is not shielded by the relocation element of the switch (40) if the switch (40) is in the off position.

13. A system for constructing of the device according to claim **1**, comprising:

- a screen;
- a motor (3) for the driving of the rolling up and the rolling down movement of the screen, which comprises one or more electric wires for the supply of electric power and/or the earthing of the motor (3);
- an electric power supply cable (5) which comprises one or more electric wires for the supply of electric power to and/or the earthing of the one or more electric wires of said motor (3);
- a housing (12), which comprises a fastening body (4) and which is suitable to shield said motor (3);
- said fastening body (4) suitable to which to attach said motor (3);
- a switch (40), **characterised in that** the switch (40) is suitable to be situated near to the motor (3), the fastening body (4) or the housing (12) and **characterised in that** the switch is constructed to interrupt the electric power in the device when accessing the motor (3).

14. Method for the replacing of a motor (3) in a device (1) according to any of claims **6** to **12, characterised in that** the method comprises the following steps:

- the switching of the switch (40) to the off position;
- the opening of the housing (12);
- the removing of the fastening means (10) such suitable to attach the motor (3) to the fastening body (4);
- the removing of a motor (3);
- the attaching of a motor (3);
- the attaching of fastening means (10) such suitable to attach the motor (3) to the fastening body (4);
- the closing of the housing (12);
- the switching of the switch (40) to the on position.

15. Method for the removal of a motor (3) in a device (1) according to any of claims **6** to **12, characterised in that** the method comprises the following steps:

- the switching of the switch (40) to the off position;
- the opening of the housing (12);
- the removal of the fastening means (10) such suitable to attach the motor (3) to the fastening body (4);
- the removal of a motor (3);
- the closing of the housing (12);
- the switching of the switch (40) to the on position.

16. Method for the installing of a motor (3) in a device (1) according to any of claims **6** to **12, characterised in that** the method comprises the following steps:

- the switching of the switch (40) to the off position;
- the opening of the housing (12);
- the attaching of a motor (3);
- the attaching of fastening means (10) such suitable to attach the motor (3) to the fastening body (4);
- the closing of the housing (12);
- the switching of the switch (40) to the on posi-

tion.

Patentansprüche

1. Schirmvorrichtung (1), die Folgendes umfasst:

   • einen Schirm;
   • einen Motor (3) für den Antrieb der Aufroll- und Ausrollbewegung des Schirms, der einen oder mehrere elektrischen Drähte für die Zuführung der elektrischen Leistung und/oder die Erdung des Motors (3) umfasst und der mit dem Schirm verbunden ist;
   • ein Zuleitungskabel für die elektrische Leistung (5), das einen oder mehrere elektrische Drähte für die Zuführung der elektrischen Leistung und/oder die Erdung von einem oder mehreren elektrischen Drähten des Motors (3) umfasst;
   • ein Gehäuse (12), das einen Befestigungskörper (4) umfasst und das den Motor (3) abschirmt;
   • den Motor (3), der am Befestigungskörper (4) angebracht ist;
   • einen Schalter (40), **dadurch gekennzeichnet, dass** der Schalter (40) mit einer Ein- und Aus-Stellung versehen ist, wobei in der Ein-Stellung dem Motor (3) über das Zuleitungskabel für die elektrische Leistung (5) elektrische Leistung zugeführt werden kann, wobei die Zuführung der elektrischen Leistung zum Motor (3) in der Aus-Stellung, in der der Schalter (40) sich nahe dem Motor (3), dem Befestigungskörper (4) oder dem Gehäuse (12) befindet, unterbrochen wird, und wobei der Schalter (40) so aufgebaut ist, dass er die elektrische Leistung bei Zugriff auf den Motor unterbricht.

2. Vorrichtung nach Anspruch **1**, **dadurch gekennzeichnet, dass** der Schalter (40) auf, an und/oder in dem Gehäuse (12) bereitgestellt wird.

3. Vorrichtung nach einem der Ansprüche **1** und **2**, **dadurch gekennzeichnet, dass** der Schalter (40) in dem Strompfad des Zuleitungskabels für die elektrische Leistung (5) bereitgestellt wird.

4. Vorrichtung nach einem der Ansprüche **1** bis **3, dadurch gekennzeichnet, dass** der Schalter (10) einen Bewegungsschalter betrifft, **dadurch gekennzeichnet, dass** der Schalter (40) ein Verschiebungselement umfasst.

5. Vorrichtung nach einem der Ansprüche **1** bis **4, dadurch gekennzeichnet, dass** der Schalter (40) durch ein Drehmoment in dem Gehäuse (12) gesteuert wird.

6. Vorrichtung nach einem der Ansprüche **1** bis **5, dadurch gekennzeichnet, dass** sich der Motor aus dem Gehäuse (12) entfernen lässt.

7. Vorrichtung nach einem der Ansprüche **1** bis **6, dadurch gekennzeichnet, dass** sich der Motor (3) demontieren lässt, wenn sich der Schalter (40) in der Aus-Stellung befindet.

8. Vorrichtung nach einem der Ansprüche **1** bis **7, dadurch gekennzeichnet, dass** der Schalter (40) das Öffnen des Gehäuses (12) blockiert, wenn er sich in der Ein-Stellung befindet.

9. Vorrichtung nach einem der Ansprüche **1** bis **8, dadurch gekennzeichnet, dass** der Schalter (40) ein Blockierelement umfasst, das die Entfernung des Motors (3) behindert, vorzugsweise vollständig blockiert, wenn sich der Schalter (40) in der Ein-Stellung befindet.

10. Vorrichtung nach einem der Ansprüche **1** bis **9, dadurch gekennzeichnet, dass** der Schalter (40) einen Reed-Kontakt (23) und ein Verschiebungselement umfasst, wobei das Verschiebungselement einen Magneten (24) umfasst.

11. Vorrichtung nach einem der Ansprüche **1** bis **10, dadurch gekennzeichnet, dass** der Motorkopf (15) mit Führungsrippen (9) versehen ist und **dadurch gekennzeichnet, dass** der Befestigungskörper (4) mit Führungsnuten (8) versehen ist, die geeignet sind, den Motor (3) an dem Befestigungskörper (4), senkrecht zu seiner Achse, mittels einer linearen Gleitbewegung anzubringen.

12. Vorrichtung nach einem der Ansprüche **1** bis **11**, **dadurch gekennzeichnet, dass** der Motorkopf (15) mindestens eine Bohrung (11) aufweist, die für die Aufnahme eines Befestigungsmittels (10) geeignet ist, und wobei der Motorkopf (15), an dem der Motor (3) angebracht ist, an dem Befestigungskörper (4) mittels eines Befestigungsmittels (10) festgehalten werden kann, mit dem der Kopf des Befestigungsmittels (10) durch das Verschiebungselement des Schalters (40) abgeschirmt wird, wenn sich der Schalter (40) in der Ein-Stellung befindet und wobei der Kopf des Befestigungsmittels (10) durch das Verschiebungselement des Schalters (40) nicht abgeschirmt wird, wenn sich der Schalter (40) in der Aus-Stellung befindet.

13. Ein System für den Aufbau der Vorrichtung nach Anspruch **1,** umfassend:

   • einen Schirm;
   • einen Motor (3) für den Antrieb der Aufroll- und Ausrollbewegung des Schirms, der einen oder mehrere elektrischen Drähte für die Zuführung

der elektrischen Leistung und/oder die Erdung des Motors (3) umfasst;
• ein Zuleitungskabel für die elektrische Leistung (5), das einen oder mehrere elektrische Drähte für die Zuführung der elektrischen Leistung und/oder die Erdung von einem oder mehreren elektrischen Drähten des Motors (3) umfasst;
• ein Gehäuse (12), das einen Befestigungskörper (4) umfasst und das geeignet ist, den Motor (3) abzuschirmen;
• den Befestigungskörper (4), der geeignet ist, um daran den Motor (3) anzubringen;
• einen Schalter (40), **dadurch gekennzeichnet, dass** der Schalter (40) geeignet ist, in der Nähe des Motors (3), des Befestigungskörpers (4) oder des Gehäuses (12) angeordnet zu werden, und **dadurch gekennzeichnet, dass** der Schalter so aufgebaut ist, dass er die elektrische Leistung in der Vorrichtung bei Zugriff auf den Motor (3) unterbricht.

14. Verfahren für den Austausch eines Motors (3) in einer Vorrichtung (1) nach einem der Ansprüche **6** bis **12, dadurch gekennzeichnet, dass** das Verfahren die folgenden Schritte umfasst:

• das Umschalten des Schalters (40) in die Aus-Stellung;
• das Öffnen des Gehäuses (12);
• das Ausbauen der Befestigungsmitteln (10) so, dass sich der Motor (3) an dem Befestigungskörper (4) anbringen lässt;
• das Ausbauen eines Motors (3);
• das Anbringen eines Motors (3);
• das Anbringen der Befestigungsmitteln (10) so, dass sich der Motor (3) an dem Befestigungskörper (4) anbringen lässt;
• das Schließen des Gehäuses (12);
• das Umschalten des Schalters (40) in die Ein-Stellung.

15. Verfahren für den Ausbau eines Motors (3) in einer Vorrichtung (1) nach einem der Ansprüche **6** bis **12, dadurch gekennzeichnet, dass** das Verfahren die folgenden Schritte umfasst:

• das Umschalten des Schalters (40) in die Aus-Stellung;
• das Öffnen des Gehäuses (12);
• das Ausbauen der Befestigungsmitteln (10) so, dass sich der Motor (3) an dem Befestigungskörper (4) anbringen lässt;
• das Ausbauen eines Motors (3);
• das Schließen des Gehäuses (12);
• das Umschalten des Schalters (40) in die Ein-Stellung.

16. Verfahren für den Einbau eines Motors (3) in eine Vorrichtung (1) nach einem der Ansprüche **6** bis **12, dadurch gekennzeichnet, dass** das Verfahren die folgenden Schritte umfasst:

• das Umschalten des Schalters (40) in die Aus-Stellung;
• das Öffnen des Gehäuses (12);
• das Anbringen eines Motors (3);
• das Anbringen von Befestigungsmitteln (10) so, dass sich der Motor (3) an dem Befestigungskörper (4) anbringen lässt;
• das Schließen des Gehäuses (12);
• das Umschalten des Schalters (40) in die Ein-Stellung.

Revendications

1. Dispositif de l'écran (1), qui comprend:

• un écran;
• un moteur (3) pour l'entraînement du mouvement d'enroulement et de déroulement de l'écran, qui comprend un ou plusieurs fils électriques pour l'alimentation d'énergie électrique et/ou la mise à la terre du moteur (3) et qui est relié audit écran;
• un câble d'alimentation d'énergie électrique (5) qui comprend un ou plusieurs fils électriques pour l'alimentation d'énergie électrique et/ou la mise à la terre d'un ou plusieurs fils électriques dudit moteur (3);
• un boîtier (12), qui comprend un corps de fixation (4) et qui protège ledit moteur (3);
• ledit moteur (3) fixé audit corps de fixation (4);
• un commutateur (40), **caractérisé en ce que** ledit commutateur (40) est pourvu d'une position marche et arrêt, dans lequel dans la position marche, l'énergie électrique peut être fournie au moteur (3) par l'intermédiaire du câble d'alimentation d'énergie électrique (5), dans lequel l'alimentation d'énergie électrique au moteur (3) est interrompue dans la position arrêt, dans lequel ledit commutateur (40) est situé à proximité du moteur (3), du corps de fixation (4) ou du boîtier (12) et dans lequel ledit commutateur (40) est construit de façon à interrompre l'énergie électrique lors de l'accès au moteur (3).

2. Dispositif selon la revendication **1, caractérisé en ce que** ledit commutateur (40) est prévu sur, au et/ou dans le boîtier (12).

3. Dispositif selon l'une quelconque des revendications **1** et **2, caractérisé en ce que** ledit commutateur (40) est prévu dans le cheminement du câble d'alimentation d'énergie électrique (5).

4. Dispositif selon l'une quelconque des revendications **1** à **3, caractérisé en ce que** ledit commutateur (40) concerne un commutateur de mouvement, **caractérisé en ce que** ledit commutateur (40) comprend un élément de relocalisation.

5. Dispositif selon l'une quelconque des revendications **1** à **4, caractérisé en ce que** ledit commutateur (40) est commandé par un moment d'articulation dans ledit boîtier (12).

6. Dispositif selon l'une quelconque des revendications **1** à **5, caractérisé en ce que** le moteur est amovible du boîtier (12).

7. Dispositif selon l'une quelconque des revendications **1** à **6, caractérisé en ce que** le moteur (3) est démontable si le commutateur (40) est dans la position arrêt.

8. Dispositif selon l'une quelconque des revendications **1** à **7**, **caractérisé en ce que** ledit commutateur (40) bloque l'ouverture du boîtier (12) lorsqu'il est dans la position marche.

9. Dispositif selon l'une quelconque des revendications **1** à **8, caractérisé en ce que** le commutateur (40) comprend un élément de blocage qui empêche l'enlèvement du moteur (3), de préférence bloque entièrement, si le commutateur (40) est dans la position marche.

10. Dispositif selon l'une quelconque des revendications **1** à **9, caractérisé en ce que** ledit commutateur (40) comprend un contact reed (23) et un élément de relocalisation, dans lequel l'élément de relocalisation comprend un aimant (24).

11. Dispositif selon l'une quelconque des revendications **1** à **10, caractérisé en ce que** la tête de moteur (15) est pourvu de nervures de guidage (9) et **caractérisé en ce que** le corps de fixation (4) est prévu de fentes de guidage (8), qui sont adaptées pour fixer le moteur (3) au corps de fixation (4) perpendiculaire à son axe au moyen d'un mouvement de coulissement linéaire.

12. Dispositif selon l'une quelconque des revendications **1** à **11, caractérisé en ce que** la tête de moteur (15) a au moins un alésage (11) apte à prendre un moyen de fixation (10) et dans lequel la tête de moteur (15) à laquelle la moteur (3) est attachée peut être retenu au corps de fixation (4) au moyen d'un moyen de fixation (10) avec lequel la tête des moyens de fixation (10) est protégée par l'élément de relocalisation du commutateur (40) si le commutateur (40) est en position marche et dans lequel la tête des moyens de fixation (10) n'est pas protégée par l'élément de relocalisation du commutateur (40) si le commutateur (40) est dans la position arrêt.

13. Un système pour la construction du dispositif selon la revendication **1**, comprenant:

- un écran;
- un moteur (3) pour l'entraînement du mouvement d'enroulement et de déroulement de l'écran, qui comprend un ou plusieurs fils électriques pour l'alimentation d'énergie électrique et/ou la mise à la terre du moteur (3);
- un câble d'alimentation d'énergie électrique (5) qui comprend un ou plusieurs fils électriques pour l'alimentation d'énergie électrique et/ou la mise à la terre d'un ou plusieurs fils électriques dudit moteur (3);
- un boîtier (12), qui comprend un corps de fixation (4) et qui est approprié à protéger ledit moteur (3);
- ledit corps de fixation (4) approprié à y attacher ledit moteur (3);
- un commutateur (40), **caractérisé en ce que** ledit commutateur (40) est approprié à être situé à proximité du moteur (3), du corps de fixation (4) ou du boîtier (12) et **caractérisé en ce que** ledit commutateur est construit de façon à interrompre l'énergie électrique dans le dispositif lors de l'accès au moteur (3).

14. Procédé de remplacement d'un moteur (3) dans un dispositif (1) selon l'une quelconque des revendications **6** à **12**, **caractérisé en ce que** le procédé comprend les étapes suivantes:

- la commutation du commutateur (40) à la position arrêt;
- l'ouverture du boîtier (12);
- l'enlèvement des moyens de fixation (10) de telle manière approprié à attacher le moteur (3) au corps de fixation (4);
- l'enlèvement d'un moteur (3);
- la fixation d'un moteur (3);
- la fixation de moyens de fixation (10) de telle manière appropriée à attacher le moteur (3) au corps de fixation (4);
- la fermeture du boîtier (12);
- la commutation du commutateur (40) à la position marche.

15. Procédé pour l'enlèvement d'un moteur (3) dans un dispositif (1) selon l'une quelconque des revendications **6** à **12**, **caractérisé en ce que** le procédé comprend les étapes suivantes:

- la commutation du commutateur (40) à la position arrêt;
- l'ouverture du boîtier (12);
- l'enlèvement des moyens de fixation (10) de

telle manière approprié à attacher le moteur (3) au corps de fixation (4);
• l'enlèvement d'un moteur (3);
• la fermeture du boîtier (12);
• la commutation du commutateur (40) à la position marche.

16. Procédé pour l'installation d'un moteur (3) dans un dispositif (1) selon l'une quelconque des revendications **6** à **12, caractérisé en ce que** le procédé comprend les étapes suivantes:

• la commutation du commutateur (40) à la position arrêt;
• l'ouverture du boîtier (12);
• la fixation d'un moteur (3);
• la fixation de moyens de fixation (10) de telle manière appropriée à attacher le moteur (3) au corps de fixation (4);
• la fermeture du boîtier (12);
• la commutation du commutateur (40) à la position marche.

Figure 1:

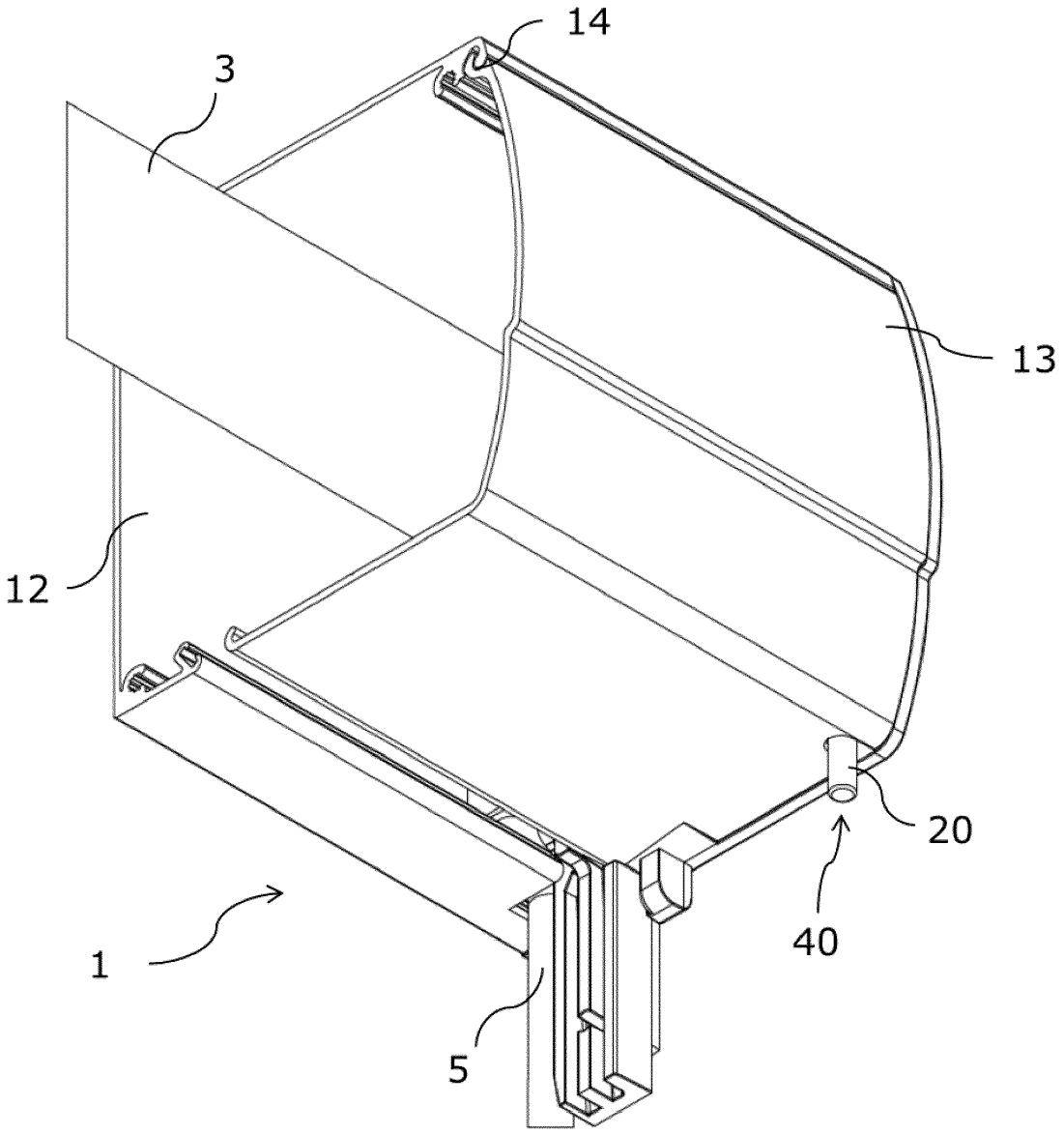


Figure 2:

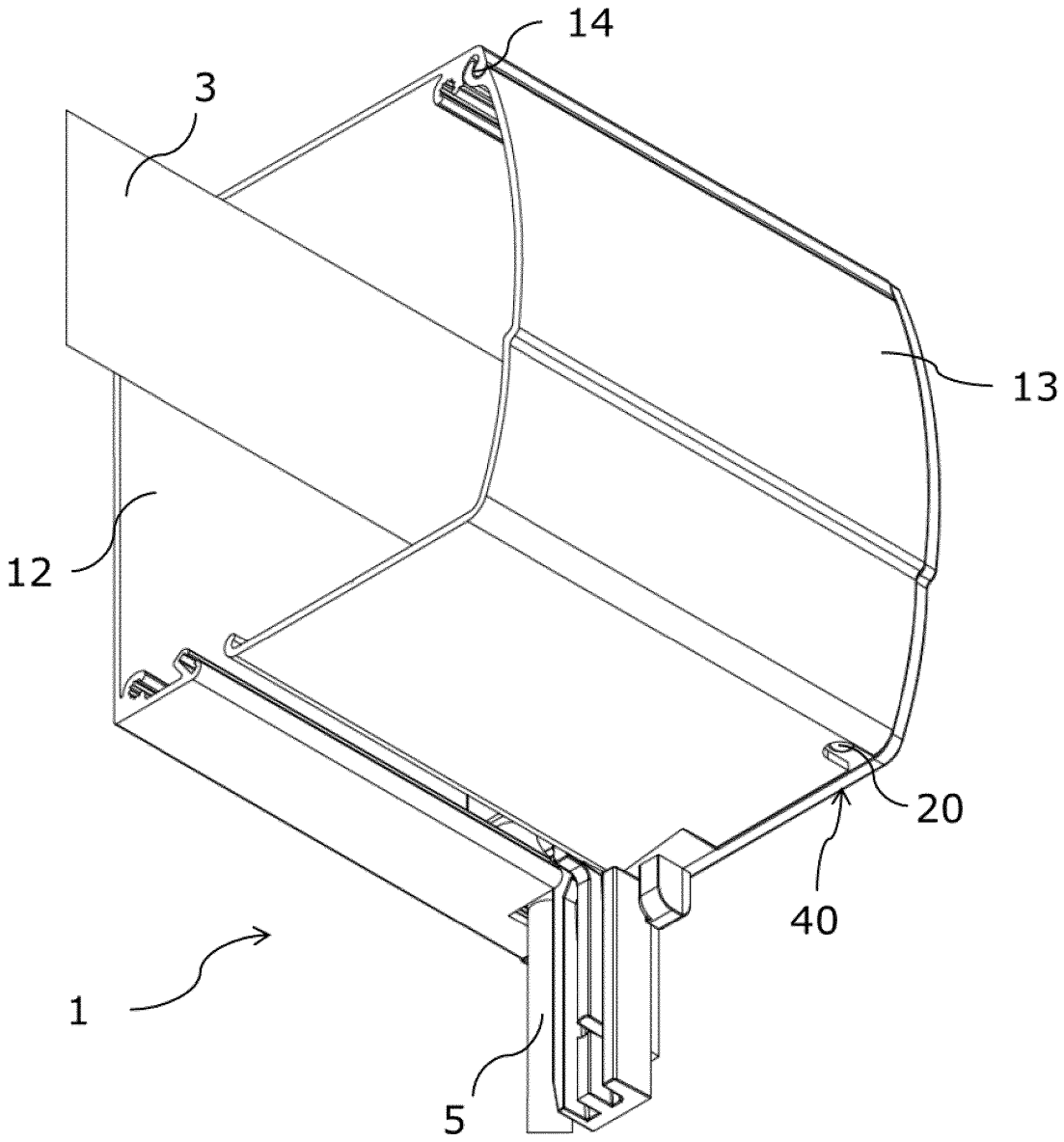
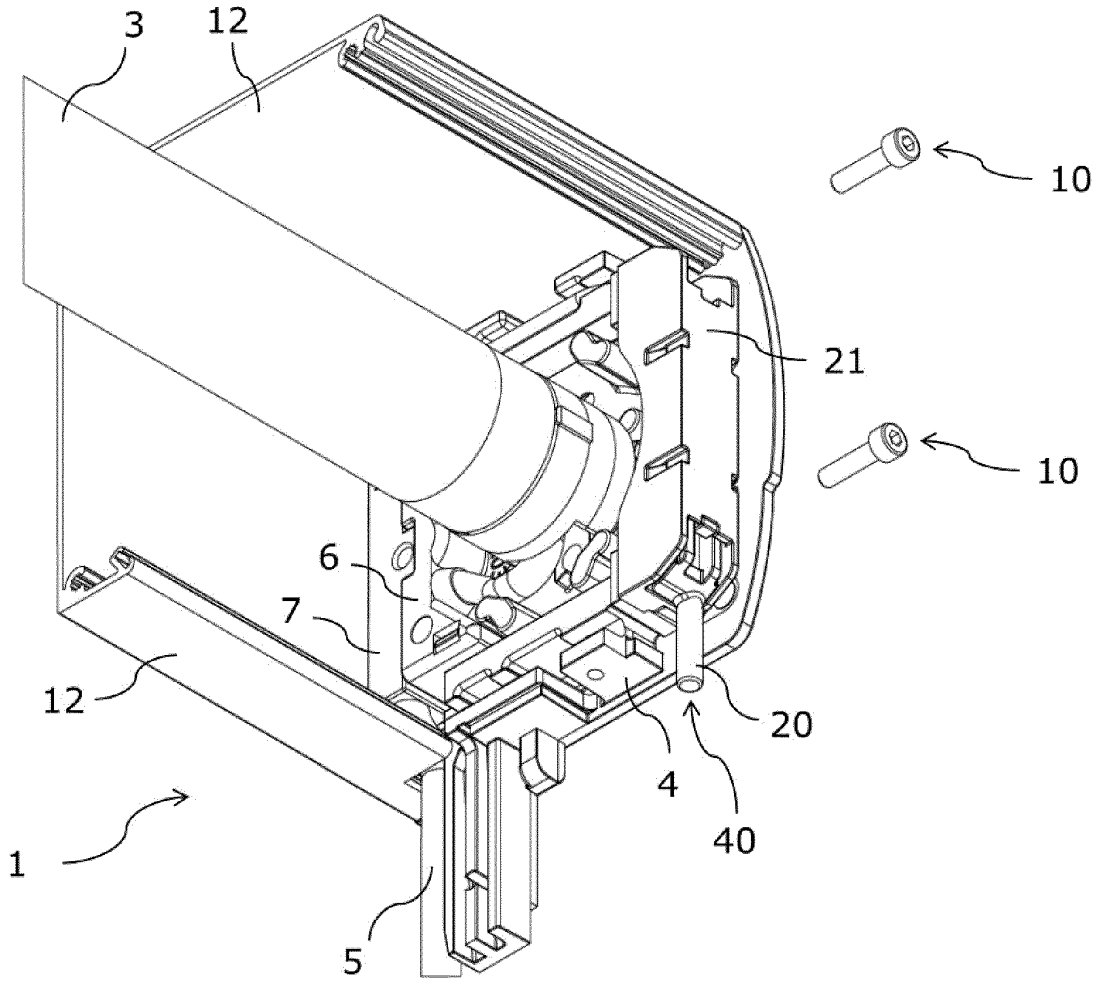


Figure 3:



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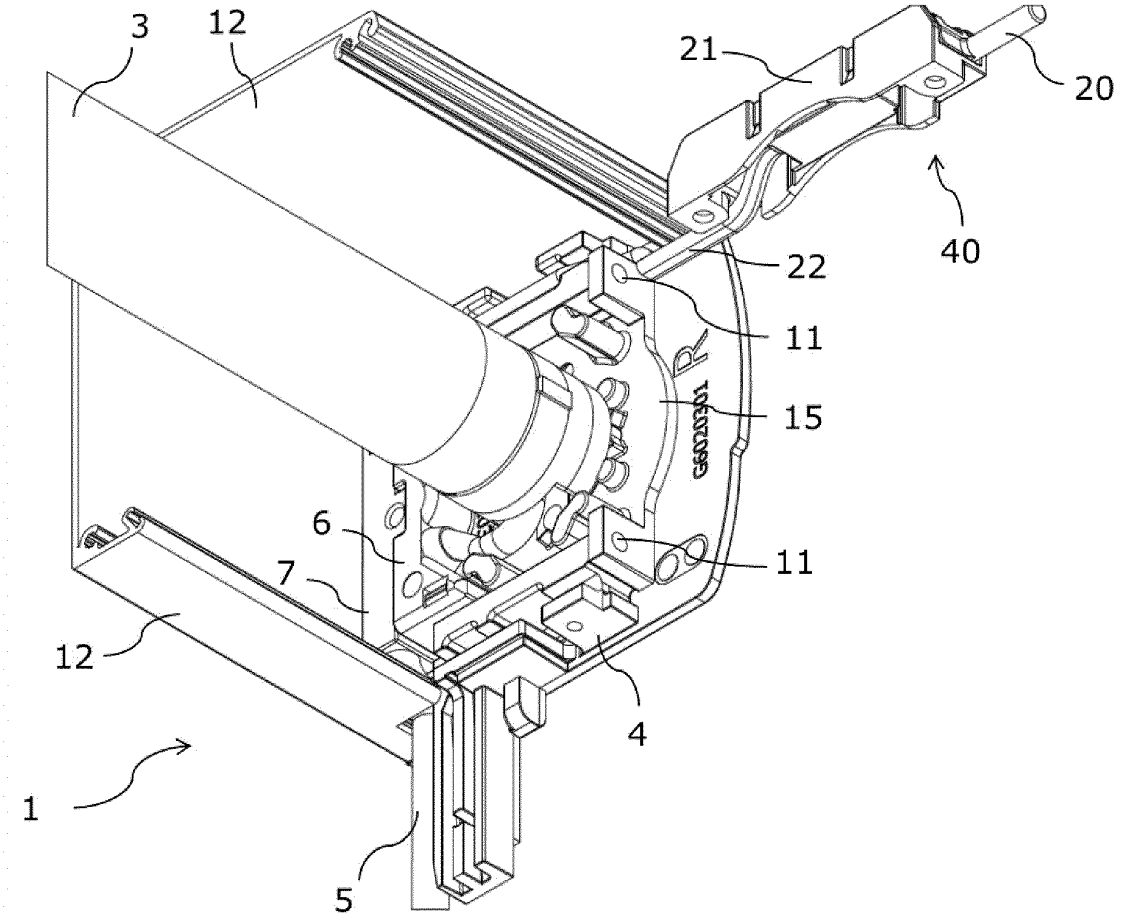


Figure 5:

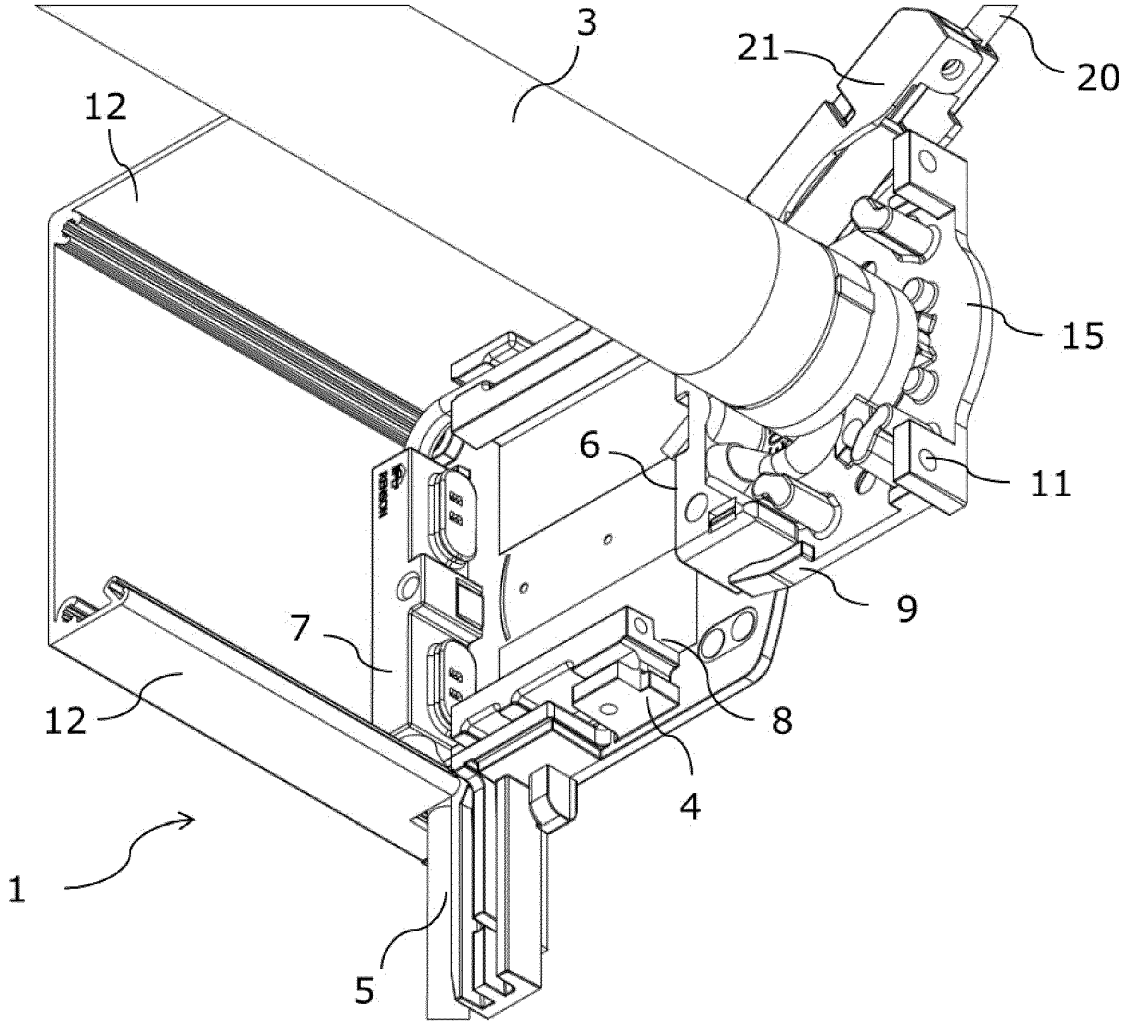


Figure 6:

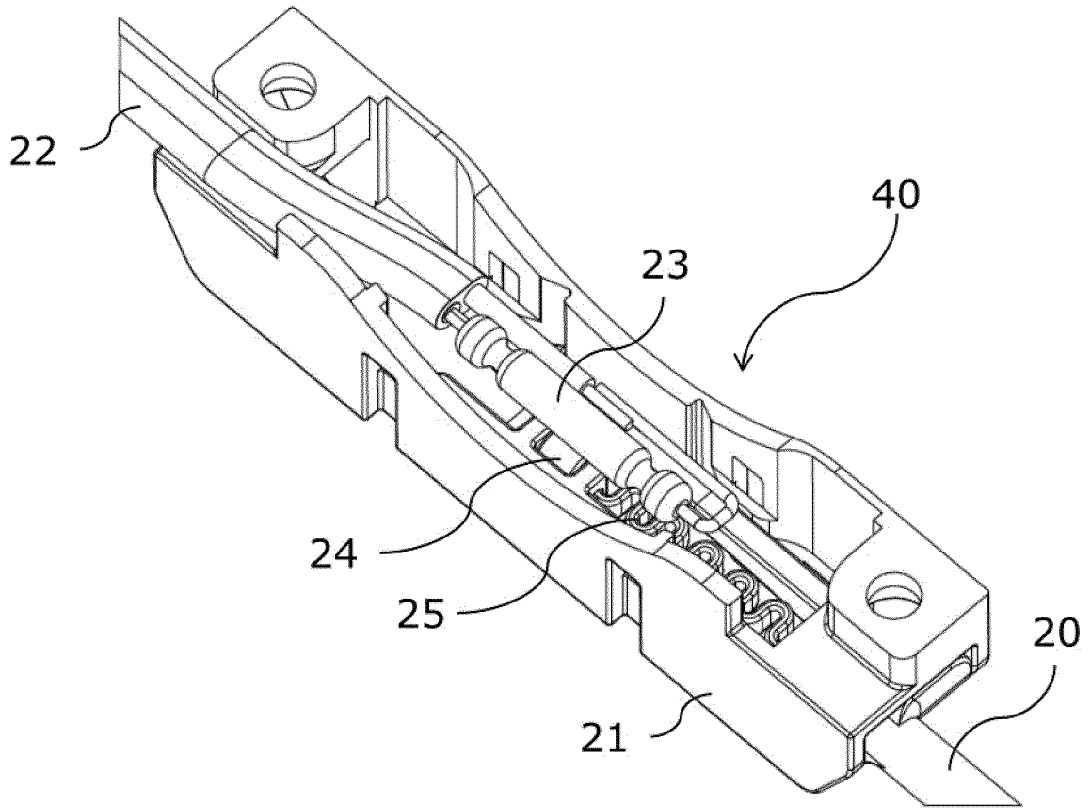
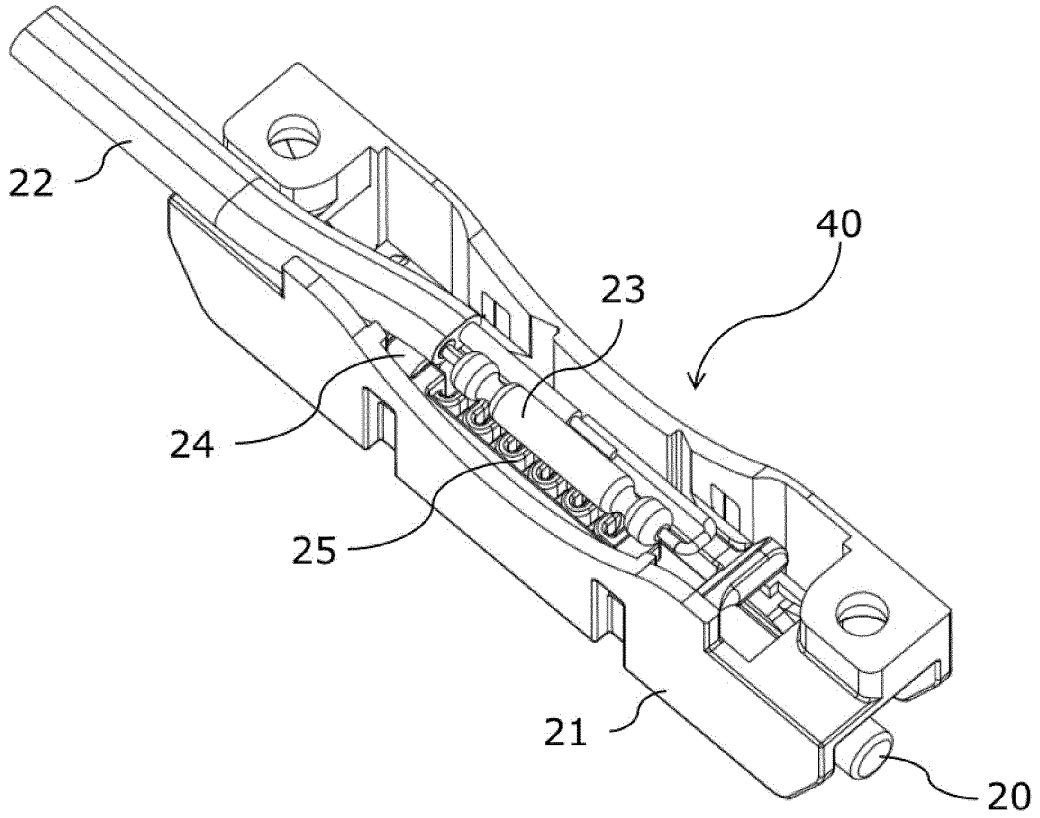


Figure 7:



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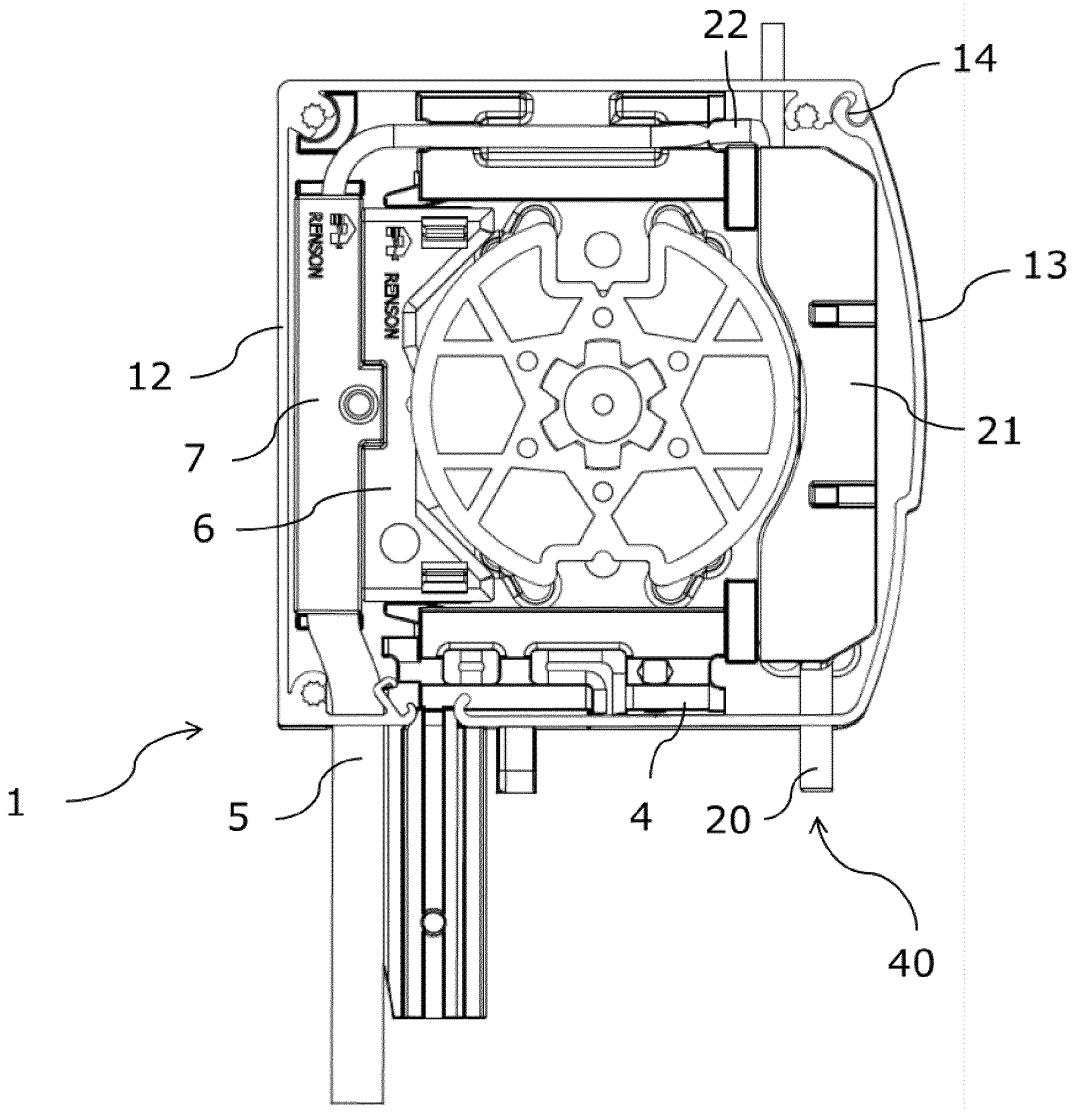

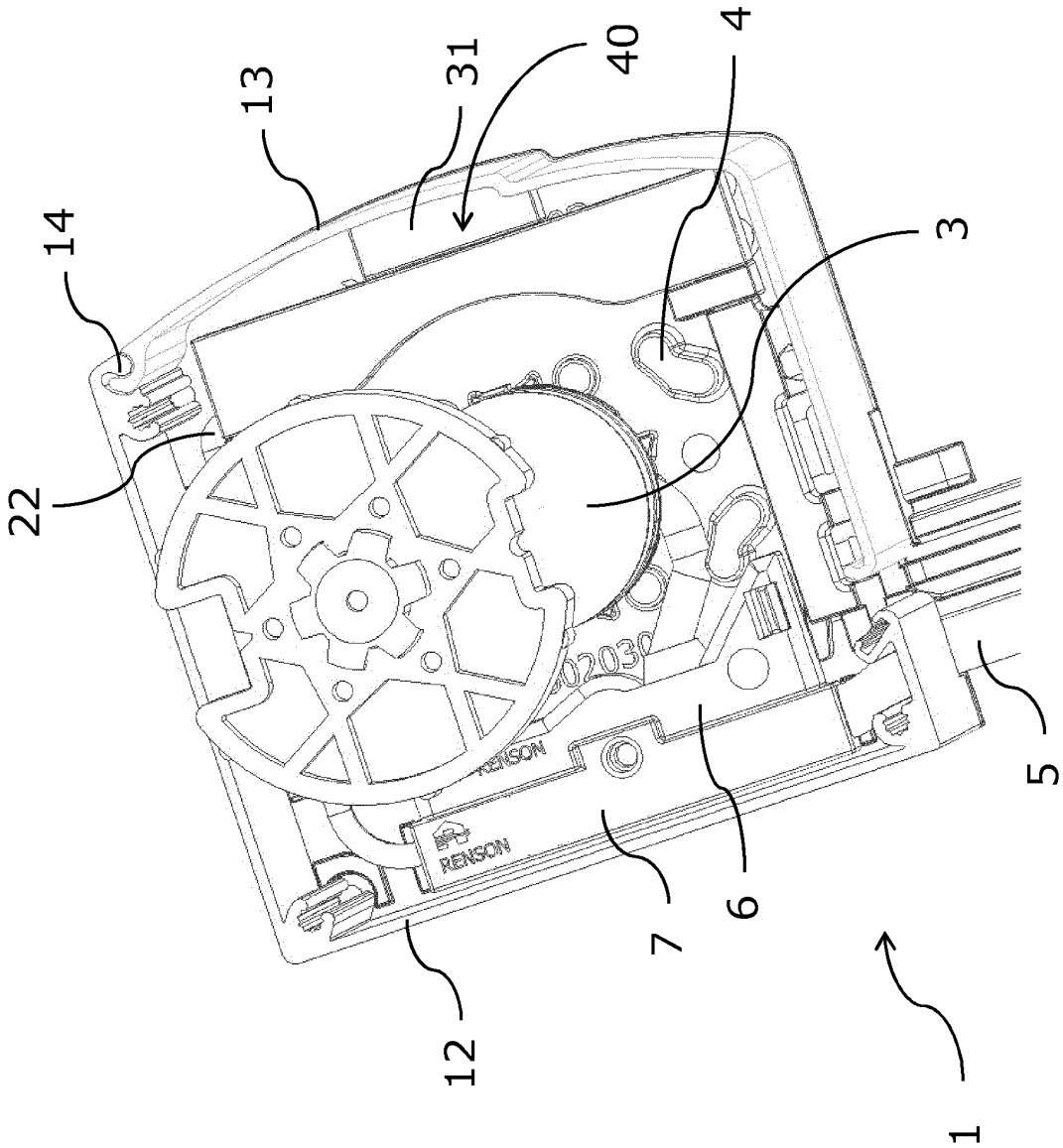

Figure 9:

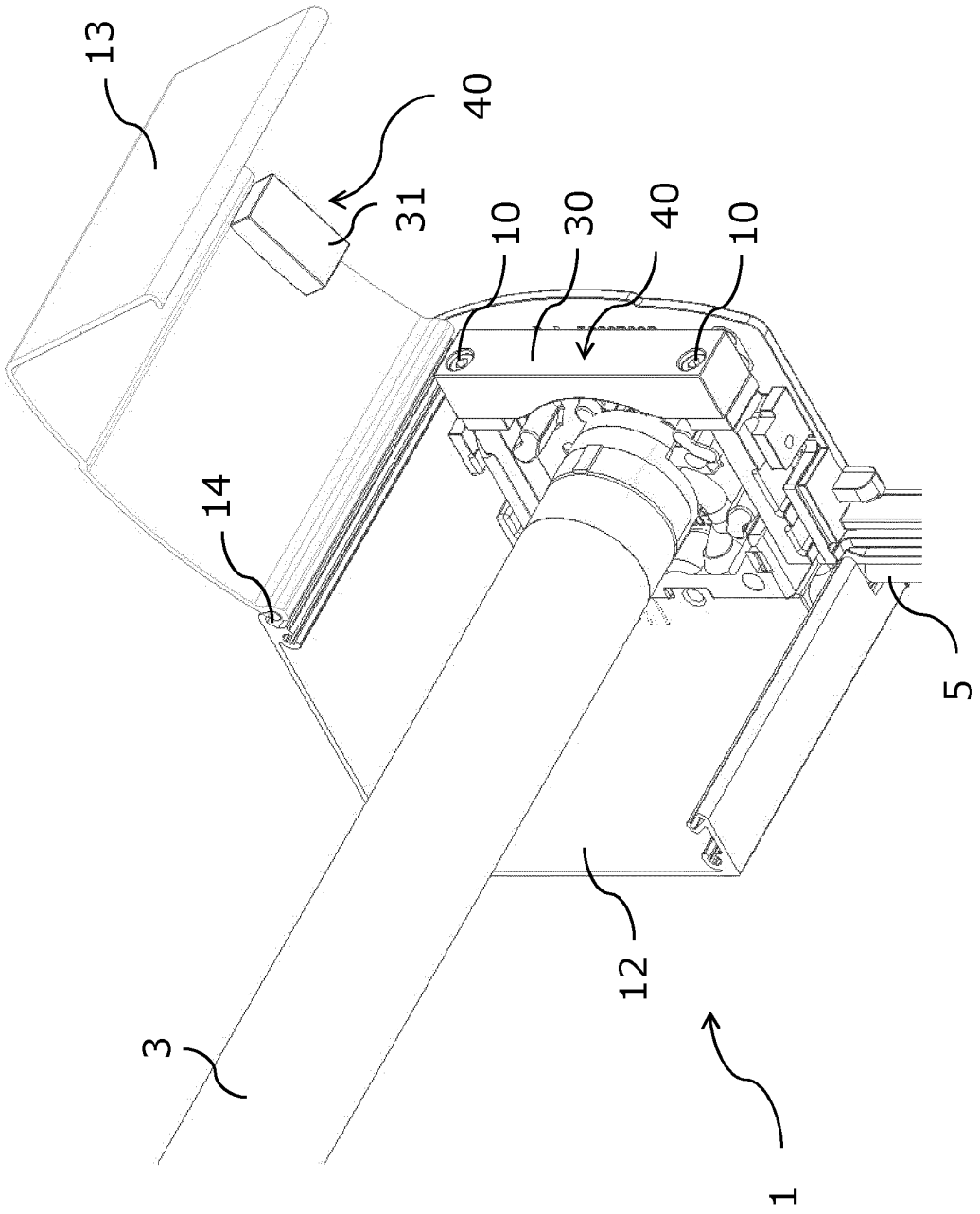

Figure 10:

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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