HU000028986T2

(19) **HU**

(11) Lajstromszám: **E 028 986**

(13) **T2**

MAGYARORSZÁG
Szellemi Tulajdon Nemzeti Hivatala

EURÓPAI SZABADALOM
SZÖVEGÉNEK FORDÍTÁSA

(21) Magyar ügyszám: **E 12 290221**
(22) A bejelentés napja: **2012. 07. 05.**

(96) Az európai bejelentés bejelentési száma:
EP 20120290221
(97) Az európai bejelentés közzétételi adatai:
EP 2555336 A1 **2013. 02. 06.**
(97) Az európai szabadalom megadásának meghirdetési adatai:
EP 2555336 B1 **2016. 06. 29.**

(51) Int. Cl.: ***H01R 134/47*** *(2006.01)*
H01R 134/53 *(2006.01)*
H01R 13/52 *(2006.01)*
H01R 24/78 *(2006.01)*
H01R 103/00 *(2006.01)*

(30) Elsőbbségi adatok:
1102452 **2011. 08. 04.** **FR**

(72) Feltaláló(k):
Aumaitre, Martin, 87000 Limoges (FR)

(73) Jogosult(ak):
Legrand France, 87000 Limoges (FR)
Legrand SNC, 87000 Limoges (FR)

(74) Képviselő:
Danubia Szabadalmi és Jogi Iroda Kft., Budapest

(54) **Két lezáróval felszerelt dugaszolóaljzat**

Az európai szabadalom ellen, megadásának az Európai Szabadalmi Közlönyben való meghirdetésétől számított kilenc hónapon belül, felszólalást lehet benyújtani az Európai Szabadalmi Hivatalnál. (Európai Szabadalmi Egyezmény 99. cikk(1))

A fordítást a szabadalmas az 1995. évi XXXIII. törvény 84/H. §-a szerint nyújtotta be. A fordítás tartalmi helyességét a Szellemi Tulajdon Nemzeti Hivatala nem vizsgálta.

A POWER OUTLET FITTED WITH TWO SHUTTERS

DESCRIPTION

TECHNICAL FIELD TO WHICH THE INVENTION RELATES

[0001] The present invention generally relates to the safety of electrical installations.

[0002] It relates more particularly to a power outlet as defined in the precharacterizing portion of claim 1.

TECHNOLOGICAL BACKGROUND

[0003] Document FR 2 886 775 discloses a power outlet as described above in which the trim plate defines a reception well for receiving an electric plug and includes a movable flap that moves in translation in the well. When there is no electric plug engaged in the power outlet, this ability to move enables the flap to become flush, in attractive manner, with the wall in which the outlet is installed.

[0004] In that document, provision is made for the casing to house a cradle that is open towards the front and that receives the rear shutter. The cradle is urged to press against the rear face of the trim plate, in such a manner that the rear shutter is held in the cradle by the rear face of the trim plate itself.

[0005] Currently, various kinds of trim plate are proposed, in particular presenting various colors. It thus frequently happens that the user wishes to change the trim plate of a wall outlet that is already installed in a wall surface, so as to match it to a new color of wall paint, for example.

[0006] For the above-mentioned power outlet, when the user removes the trim plate, then the connection terminals are made directly accessible.

[0007] Thus, when the user wishes to change the trim plate of the power outlet, it is necessary beforehand for the power outlet to be electrically disconnected, for the power outlet to be removed from its wall support, for the trim plate to be unclipped from the casing while keeping said casing horizontal so that the rear shutter does not fall out of the casing, and then for the trim plate to be replaced by a new trim plate of appropriate color.

[0008] It should thus be understood that the operation of changing the trim plate is time-consuming and tricky to perform.

[0009] In addition, document FR 2 833 111 discloses a power outlet cap comprising a trim plate that presents a reception well for receiving an electric plug, a keying pin that is fastened to the rear of the end wall of the well, a support that "is adjacent to the rear face" of the end wall of the well, a shutter that comprises two flaps each presenting a plane portion and a ramp and that is mounted to move in a housing that is recessed into the rear of the support, and a plate that closes the rear of the housing defined by the support.

[0010] In that document, the shutter is thus mounted securely to the insulating casing.

[0011] In addition, document FR 2 833 111 discloses a power outlet cap comprising a trim plate that presents a reception well for receiving an electric plug, a keying pin that is fastened to the rear of the end wall of the well, a support that is adjacent to the rear face of the end wall of the well, a shutter that comprises two flaps and that is mounted to move in a housing that is recessed into the rear of the support, and a plate that closes the rear of the housing defined by the support.

[0012] Also, document FR 2 876 508 discloses a power outlet comprising a casing that houses two connection terminals, and a trim plate that presents a reception well for receiving an electric plug. In an embodiment of that power outlet, a shutter is provided that is housed in the casing itself, below the cap. In another embodiment, the shutter is mounted to move between two plates that are fastened on the casing.

[0013] Finally, document WO/2010 076 906 discloses a power outlet comprising a base that defines an insertion well for receiving an electric plug and that supports, in its end wall, a terminal block, a guide that extends at the center of the well and that is fastened to the terminal block, a shutter that is mounted to turn on the guide, and a trim plate comprising a circular front face that is engaged in the well defined by the base and a rod that extends at the rear of the front face and that is engaged in the guide so as to guide the trim plate in sliding in the well.

OBJECT OF THE INVENTION

[0014] In order to remedy the above-mentioned drawback of the prior art, the present invention proposes a novel, modular, and advanced power outlet.

[0015] More particularly, the invention proposes a power outlet as defined in claim 1.

[0016] Initially it should be observed that the adjective "secured" is used in claim 1 to mean that when the trim plate is removed from the casing, the rear shutter remains housed in the casing whatever the position of said rear shutter, and the front shutter remains attached to the trim plate whatever the position of said front shutter.

[0017] Securing the rear shutter to the casing thus makes it possible to avoid the rear shutter falling out of the casing while removing the trim plate. It also enables the rear shutter to remain active even when the trim plate is removed. As a result, the trim plate may be removed when the power outlet is still electrically connected, and is in a vertical position on a wall.

[0018] Since the rear shutter is thus positioned at a distance from the trim plate, a gap exists between the flaps of the rear shutter and the openings provided in the trim plate for passing the pins of an electric plug. In particular, the gap may be large when the end wall of the reception well is mounted to be movable over the side wall of the well.

[0019] The front shutter, which is situated directly behind the openings provided in the trim plate, thus makes it possible to prevent dust particles entering into the casing via the gap.

[0020] Securing the front shutter to the trim plate makes it possible to avoid the front shutter falling out while removing the trim plate.

[0021] Other advantageous and non-limiting characteristics of the power outlet of the invention are defined in claims 2 to 15.

DETAILED DESCRIPTION OF AN EMBODIMENT

[0022] The following description of non-limiting examples given with reference to the accompanying drawings, makes it possible to understand what the invention consists of and how it can be reduced to practice.

[0023] In the accompanying drawings:

- Figure 1 is a semi-exploded diagrammatic perspective view of the power outlet of the invention;

· Figure 2 is an exploded diagrammatic perspective view of the trim plate of the Figure 1 power outlet;

· Figure 3 is a diagrammatic perspective view of the base of the Figure 2 trim plate;

· Figure 4 is a diagrammatic perspective view of the front shutter of the Figure 1 power outlet;

· Figure 5 is a diagrammatic perspective view of the main spring of the Figure 1 power outlet;

· Figures 6 and 7 are diagrammatic perspective views of the Figure 1 power outlet on which the movable flap of the trim plate is shown in its stand-by position and in its depressed position respectively;

· Figures 8 and 9 are diagrammatic section views on planes A-A and B-B in Figures 6 and 7; and

· Figure 10 is a diagrammatic section view of the Figure 7 power outlet on which the movable flap is in its depressed position and the rear shutter is in its tilted position.

[0024] In the description, the terms "front" and "rear" respectively designate the side of the electrical accessory that faces towards the user when the accessory is used, and the opposite side. By way of example, when the electrical accessory is installed in a wall surface of a room, the front of an element of the electrical accessory designates the side of the element that faces towards the inside of the room, and the rear designates the side of the element that faces towards the outside of the room.

[0025] Figure 1 shows a power outlet 1 that includes a reception well 101 making it possible to receive an electric plug so as to connect the electric plug to the local electricity network.

[0026] As described in greater detail in the description below, the power outlet 1 shown in the figures is adapted to be housed in an electrical box (not shown) that is embedded in, or wall mounted on, any wall. In a variant, it could be a power outlet that is situated at the end of an extension cable, or a power outlet that forms part of multi-outlet block. The principle of the invention described herein would not be modified thereby.

[0027] As shown in Figure 1, the power outlet 1 includes a casing 10 that is closed at the front by a trim plate 100 so as to co-operate therewith to define a reception housing 15 for receiving at least two connection terminals 20, 30.

[0028] In order to enable the electric plug to be plugged into the power outlet 1, the trim plate 100 presents at least two access openings for accessing the connection terminals 20, 30.

[0029] For the electrical safety of the power outlet 1, in particular in order to prevent a child from inserting a pencil into one or the other of the connection terminals 20, 30, the casing 10 houses a rear shutter 60 that comprises two flaps 62, 63 and that is movable between a closed position in which its flaps 62, 63 are interposed between the access openings of the trim plate 100 and said connection terminals 20, 30 so as to prevent access to said connection terminals 20, 30, and an open position in which they are moved away from said access openings so as to allow such access.

[0030] According to particularly advantageous characteristics of the invention, the rear shutter 60 is secured to the casing 10, and the power outlet 1 includes a front shutter 150 that comprises two flaps 152, 153 (Figure 2) that is secured to the trim plate 100 and that is movable between a closed position in which its flaps 152, 153 are interposed between the access openings provided in the trim plate 100 and said connection terminals 20, 30 so as

to prevent access to said connection terminals 20, 30, and an open position in which they are moved away from said access openings so as to allow such access.

[0031] The term "secured to" means that the front shutter 150 is connected to the trim plate 100 and that the rear shutter 60 is connected to the casing 10, such that when the trim plate 100 is removed from the casing 10, the front shutter 150 remains assembled to the trim plate 100 and the rear shutter 60 remains assembled to the casing 10.

[0032] As a result of these characteristics, the rear shutter 60 thus retains its electrical protection role when the trim plate 100 is removed from the casing 10. In addition, it is easier to assemble and reassemble the power outlet 1.

[0033] In the embodiment of the invention shown in the figures, the casing 10 presents a shape that is generally a rectangular block and that has an open front face.

[0034] As shown in Figure 1, it thus comprises an end wall 11 that is bordered by a side wall 12 that presents four panels, in opposing pairs, that project from the end wall 11, substantially perpendicularly thereto.

[0035] At approximately one third of their height, two opposite panels of the side wall 12 of the casing 10 present respective shoulders 17. The two shoulders 17 co-operate with each other to form a widening of the section of the casing 10 towards the front.

[0036] In addition, the casing 10 includes mounting means for mounting on an accessory support in the form of a frame (not shown), which is itself arranged to be fastened on the electrical box.

[0037] The mounting means comprise firstly a peripheral rim 13 that borders the edge of the front opening of the casing 10 and that is adapted to bear against the front face of the accessory support, and secondly snap-fastener means 14 that are formed in two opposite panels of the side wall 12 and that are adapted to catch onto the rear face of the accessory support.

[0038] The casing 10 also includes two internal partitions 16 that project from its end wall 11, orthogonally thereto, over approximately one third of its height.

[0039] The two internal partitions 16 extend in parallel in such a manner that their front edges 16A extend from the top of one of the shoulders 17 to the top of the other of the shoulders 17 of the casing 10.

[0040] In this embodiment, the casing 10 is made integrally with its internal partitions 16 and its mounting means, e.g. as a one-piece molding of an insulating plastics material.

[0041] As can be seen in Figure 1, the two internal partitions 16 co-operate with the side wall 12 of the casing 10 to define three reception housings for receiving the connection terminals 20, 30, 40 of the power outlet 1.

[0042] Specifically, in this embodiment, three connection terminals are provided having identical line and neutral terminals 20, 30 and a ground terminal 40.

[0043] As shown, the connection terminals are in accordance with the Franco-Belgian standard. In a variant, the connection terminals could be in accordance with another standard, e.g. the German "schuko" standard, without affecting the operation of the present invention.

[0044] Each of the connection terminals 20, 30, 40 includes a metal base 22, 32, 42 via which it is fastened to the casing 10 and connected to the local electricity network, and a functional portion via which the electric plug may by connected to the power outlet 1.

[0045] Each of the functional portions of the line and neutral terminals 20, 30 thus comprises two metal blades that are folded in such a manner as to co-operate with each other to define a reception socket 21, 31 for receiving a pin of the electric plug.

[0046] The functional portion of the ground terminal 40 includes a cylindrical pin 41 that projects from its metal base 42.

[0047] As shown in Figure 1, the rear shutter 60 is mounted to move in translation in the casing 10 along a transverse axis A2 that is parallel to the front edges 16A of the internal partitions 16 of the casing 10, so as to close or open access to the line and neutral terminals 20, 30.

[0048] The rear shutter 60 presents the general shape of a rectangular plate, with a notch 61 recessed into the center of one of its longitudinal edges 67B.

[0049] The two flaps 62, 63 of the rear shutter 60 are thus defined on either side of the notch 61.

[0050] In order to prevent access to the line and neutral terminals 20, 30 when the rear shutter 60 is in its closed position, the flaps 62, 63 of the rear shutter 60 are interposed between the access openings of the trim plate 100 and the line and neutral terminals 20, 30 housed in the casing 10.

[0051] In order to open access to the terminals, the rear shutter 60 moves in translation along the transverse axis A2 until its flaps 62, 63 release the passage towards the line and neutral terminals 20, 30.

[0052] The rear shutter 60 bears via its rear face against the front edges 16A of the two internal partitions 16 of the casing 10, so much so that it extends parallel to the end wall 11 of the casing 10. It is arranged in the casing 10 in such a manner that its two side edges 66A, 66B extend parallel to the internal partitions 16.

[0053] The rear shutter 60 includes guide means for guiding it to move in translation along the transverse axis A2.

[0054] In this embodiment, the guide means are formed by two ribs 68 that project from its rear face at a distance from each other that, ignoring clearance, is equal to the distance between the outside faces of the two internal partitions 16 of the casing 10.

[0055] As a result of these guide means, the rear shutter 60 is guided properly to move in translation along the internal partitions 16.

[0056] In addition, the casing 10 includes first abutment means serving to block the movement in translation of the rear shutter 60 towards its open position when it is tilted, and second abutment means serving to block the movement in translation of the rear shutter 60 towards its closed position when it is closed.

[0057] The first and second abutment means are described in greater detail in the description below.

[0058] In order to drive it from its closed position to its open position when the electric plug is engaged in the power outlet 1, the rear shutter 60 presents two sloping panels 64, 65 on its two flaps 62, 63.

[0059] The two sloping panels 64, 65 are arranged on either side of the notch 61, along the corresponding longitudinal edge 67B of the rear shutter 60, so that they are interposed between the access openings provided in the trim plate 100 and the line and neutral terminals 20, 30 housed in the casing 10 when the rear shutter 60 is in its closed position.

[0060] The slope of the sloping panels 64, 65 is provided so that, when the pins of the electric plug are engaged through the access openings provided in the trim plate 100 and bear against the sloping panels, they cause the rear shutter 60 to move towards its open position, which enables the pins to access the line and neutral terminals 20, 30 of the power outlet 1 freely.

[0061] To ensure that the rear shutter 60 returns into its closed position when the pins of the electric plug are removed from the power outlet 1, resilient return means 50 are provided for automatically returning the rear shutter 60.

[0062] Specifically, the return means comprise a compression spring 50 that bears against a groove provided on the front face of one of the shoulders 17 of the casing 10, and that is interposed between the inside face of the side wall 12 of the casing 10 and a projection (not shown) provided on the rear face of the rear shutter 60.

[0063] In order to block the rear shutter 60 in its closed position when an element is engaged through only one of the access openings provided in the trim plate 100, the rear shutter 60 is mounted to tilt in the casing 10 about at least one axis that is parallel to said transverse axis A2, and blocking means are provided for blocking the shutter when it is sloping.

[0064] More precisely, in this embodiment, it is mounted to tilt about two axes that are distinct and parallel to the transverse axis A2.

[0065] For this purpose, on either side of the front edges 16A of the internal partitions 16 of the casing 10, spaces are provided that enable the rear shutter 60 to tilt from one side or the other of the front edges 16A, from an untilted position parallel to the end wall 11 of the casing (Figure 9) to one or the other of two tilted positions (Figure 10).

[0066] In order to limit its tilting, the rear shutter 60 includes teeth 69 that project from its side edges 66A, 66B and that are adapted to come to bear against the front edges of additional partitions 18 provided in the casing 10.

[0067] In order to prevent the rear shutter 60 from passing into its open position when it is tilted, the front edges of the additional partitions 18 present lugs 19 (shown in Figure 8) that project towards the front and that make it possible to block the teeth 69 of the rear shutter 60 along the transverse axis A2. In this embodiment, the lugs 19 form the first abutment means.

[0068] In order to avoid interfering with the teeth 69 of the rear shutter 60 when said rear shutter is in its untilted position, the lugs 19 are small in height and leave the rear shutter 60 free to slide towards its open position.

[0069] In this way, the rear shutter 60 releases access to the line and neutral terminals 20, 30 only when both pins of the electric plug are simultaneously engaged in the power outlet 1.

[0070] In this embodiment, the rear shutter 60 is made as a one-piece molding of an insulating plastics material.

[0071] As shown in Figure 1, a cartridge 80 is also provided that is designed to hold the rear shutter 60 in bearing, via its rear face, against the free edges 16A of the internal partitions 16 of the casing 10.

[0072] For this purpose, the cartridge 80, made of insulating material, includes a rectangular front wall 81 that extends parallel to the end wall 11 of the casing 10, and a drop edge 85 that borders the front wall 81.

[0073] The front wall 81 and the drop edge 85 thus form a housing for the rear shutter 60, which housing is designed to hold said rear shutter in bearing against the front edges 16A of the internal partitions 16 of the casing 10, but without hindering the ability of the shutter to move in translation along the transverse axis A2.

[0074] The front wall 81 of the cartridge 80 presents three openings 82, 83, 84, situated on the axis of the access openings provided in the trim plate 100, for passing the cylindrical pin 41 of the ground terminal 40 and for passing the pins of the electric plug.

[0075] The drop edge 85 of the cartridge 80 is provided to bear, via its rear free edge, against the front faces of the shoulders 17 of the casing 10, and against the front edges of the additional partitions 18.

[0076] In addition, the cartridge 80 includes fastener means for fastening to the casing 10.

[0077] In this embodiment, the fastener means are formed by four anti-removal hooks 86 that are situated at the four corners of the cartridge 80, that extend in alignment with the drop edge 85, and that are folded into a U-shape towards the front, so as to co-operate by snap-fastening with the ribs 12A that project from the inside face of the side wall 12 of the casing 10.

[0078] As shown clearly in Figure 1, in order to guarantee that the anti-removal hooks 86 are properly docked and held on the ribs 12A, each of said ribs are bordered by two flanks that extend orthogonally to the corresponding panel of the side wall 12 of the casing 10.

[0079] The second abutment means that make it possible to block the stroke in translation of the rear shutter 60 when it passes into its closed position are carried by the cartridge 80.

[0080] In this embodiment and in particular, the second abutment means comprise ribs (not shown) that project from the rear face of the front wall 81 of the cartridge 80, against which one of the longitudinal edges 67B of the rear shutter 60 bears when the shutter is in its closed position.

[0081] The trim plate 100 and the front shutter 150 are shown in detail in Figure 2.

[0082] In this embodiment, the trim plate 100 comprises two portions, a base 110 and a movable flap 170 that is mounted to move on the base 110.

[0083] The base 110 comprises a side wall 112 that is circularly cylindrical around the insertion axis A1, that is open towards the front, and that is closed at the rear by an end wall 111 so as to define an insertion well 101 for inserting the electric plug.

[0084] As shown in Figure 3, the end wall 111 presents two openings 118 for passing the pins of the electric plug into the line and neutral terminals 20, 30, and an opening 118A for passing the cylindrical pin 41 of the ground terminal 40.

[0085] As shown in Figure 2, the side wall 112 is bordered externally at its front end by an annular collar 114, itself bordered by a drop edge 115 that is arranged to bear against the front face of the peripheral rim 13 of the casing 10.

[0086] The base 110 of the trim plate 100 thus includes mounting means for mounting on the casing 10, which mounting means make it possible, in particular, to hold the drop edge 115 of the base 110 in bearing against the front face of the peripheral rim 13 of the casing 10.

[0087] In this embodiment, the mounting means comprise two elements 119 (see Figure 8) that project from the outside face of the side wall 112 of the base 110, which elements project away from the engagement axis A1, and are adapted to catch on the catch zones correspondingly provided in the side wall 12 of the casing 10.

[0088] As shown in Figure 2, the movable flap 170 includes a main plate 171 in the shape of a disk, having dimensions that are provided so that it closes the section of the insertion well 101 and thus forms the end wall of the well.

[0089] The three above-mentioned access openings 172, 173, 174 provided in the trim plate 100 are formed in the main plate 171. Their dimensions and their positions are adjusted to enable the pins of the electric plug to pass.

[0090] The movable flap 170 is mounted to move in translation in the insertion well 101 along the insertion axis A1, between two extreme positions shown in Figures 6 and 7.

[0091] As shown in Figure 2, the main plate 171 is bordered, in part, by a drop wall 175 that is designed to bear against the inside face of the side wall 112 of the base 110, so as to guide the movement in translation of the movable flap 170 along the lateral wall 112, between its two extreme positions.

[0092] In one of the extreme positions, referred to as the "depressed position" below (Figures 7 and 9), the main plate 171 of the movable flap 170 is set back from the front face of the annular collar 114 of the base 110 of the trim plate 100.

[0093] In this depressed position, the rear edge of the drop wall 175 of the movable flap 170 comes into abutment against the end wall 111 of the base 110. The access openings 172, 173 provided in the movable flap 170 for passing the pins of the electric plug extend in the proximity of the flaps 62, 63 of the rear shutter 60, and the cylindrical pin 41 of the ground terminal 40 passes through the access opening 174 of the movable flap 170.

[0094] In the other extreme position, referred to as the "stand-by position" below (Figures 6 and 8), the main plate 171 of the movable flap 170 extends flush with the front face of the annular collar 114 of the base 110 of the trim plate 100.

[0095] As shown in Figures 2 and 8, in order to block the main plate 171 in abutment towards the front when it moves from its depressed position to its stand-by position, the movable flap 170 includes two tabs 176 that extend towards the rear in alignment with the drop wall 175 over a length that is greater than the distance between the two extreme positions of the movable flap 170.

[0096] Each of the two tabs 176 present an outside face that is arranged to bear against the inside face of the side wall 112 of the base 110, and an inside face that, in the proximity of the free end of the tab 176, carries a retainer tooth 177.

[0097] The end wall 111 of the base 110 correspondingly presents two slots 116 (Figures 3 and 8) in which the two tabs 176 are engaged.

[0098] In this way, the two retainer teeth 177 come into abutment against the rear face of the end wall 111 of the base 110 when the movable flap 170 reaches its stand-by position, which makes it possible to retain the movable flap 170 in this position.

[0099] As shown in Figure 2, the front shutter 150 is mounted to move in rotation relative to the trim plate 100 about the axis of engagement A1, so as to close or open access to the line and neutral terminals 20, 30.

[0100] For this purpose, the front shutter 150 presents a T-shape with a tubular leg 151 of axis that coincides with the engagement axis A1, surmounted by a rectangular plane plate 156 that extends in a plane that is orthogonal to the engagement axis A1.

[0101] The two flaps 152, 153 of the front shutter 150 are thus formed by the two ends of the plane plate 156.

[0102] The flaps 152, 153 are arranged relative to each other in such a manner that they can be interposed between the access openings 172, 173 of the movable flap 170 and the line and neutral terminals 20, 30 housed in the casing 10, so as to prevent access to the terminals when the front shutter 150 is in its closed position.

[0103] In order to allow access to the terminals, the front shutter 150 pivots about the engagement axis A1 until its flaps 152, 153 completely free the passage towards the line and neutral terminals 20, 30.

[0104] The base 110 includes guide means for guiding the front shutter 150 in rotation about the engagement axis A1.

[0105] In this embodiment, the guide means are formed by a tube 113 that is extruded from the center of the end wall 111 of the base 110, towards the rear, and that presents an inside diameter that, ignoring clearance, is equal to the diameter of the leg 151 of the front shutter 150. In this embodiment, the tube 113 is closed at the rear, and open at the front so as to enable the leg 151 of the front shutter 150 to be engaged therein.

[0106] As a result of these guide means, the front shutter 150 is well guided to move in rotation and in translation relative to the trim plate 100 along the engagement axis A1.

[0107] In addition, the base 110 includes abutment means that make it possible to prevent the front shutter 150 from turning in one direction (in its closed position) and in the other direction (in its open position).

[0108] As shown in Figure 3, specifically, in the open position the abutment means comprise two opposite grooves 117 that are recessed into the side wall of the tube 113, parallel to the engagement axis A1, and that present cross-sections that are trapezoidal.

[0109] As shown in Figure 4, the leg 151 of the front shutter 150 correspondingly carries two opposite splines 157 that project from the side wall of the leg 151, parallel to the engagement axis A1, and that present cross-sections that are trapezoidal, of width that is smaller than the width of the grooves 117.

[0110] More precisely, the widths of the splines 157 and grooves 117 are provided so that the side faces of the splines 157 of the leg 151 of the front shutter 150 come into abutment against the inside side faces of the grooves 117 of the tube 113 of the base 110 when the front shutter 150 reaches its open position.

[0111] As can be seen in Figure 8, the abutment means of the front shutter 150, in its closed position, are formed by ribs 179 that project from the rear face of the main wall 171 of the movable flap 170, and against which the longitudinal edges of the front shutter 150 bear when the shutter is in its closed position.

[0112] As shown in Figure 2, in order to drive it in rotation from its closed position to its open position when the electric plug is engaged in the power outlet 1, the front shutter 150 presents two sloping panels 154, 155 on its two flaps 152, 153.

[0113] The two sloping panels 154, 155 are situated on the flaps 152, 153 so that they are interposed between the access openings 172, 173 of the movable flap 170 and the line and neutral terminals 20, 30 housed in the casing 10 when the front shutter 150 is in its closed position.

[0114] They are arranged on either side of the engagement axis A1 and each opens out onto a respective one of the longitudinal edges of the plane plate 156.

[0115] The slope of the sloping panels 154, 155 is provided so that, when the pins of the electric plug are engaged through the access openings 172, 173 and when they bear against the sloping panels, they cause the front shutter 150 to pivot towards its open position, giving the pins free access to the line and neutral terminals 20, 30 of the power outlet 1.

[0116] As shown in Figure 4, the sloping panels generate extra thickness on the rear faces of the flaps 152, 153 of the front shutter 150.

[0117] When the movable flap 170 is in its depressed position, in order to avoid the flaps 152, 153 of the front shutter 150 interfering with the end wall 111 of the base 110 of the trim plate 100, the openings 118 provided in the end wall 111 are made to be wide. In this embodiment, they are wide enough for said extra thickness to pass freely therein when the front shutter 150 pivots between its open and closed positions.

[0118] In this embodiment, advantageously, the front shutter 150 includes blocking means for blocking the movable insert 170 in its stand-by position, which blocking means are unlockable only by moving the front shutter 150 from its closed position to its open position.

[0119] The blocking means make it possible to avoid the movable flap 170 being depressed towards the rear merely by pressing thereon, when the front shutter 150 is still in its closed position.

[0120] Specifically, the blocking means are formed by the rear end faces 157A of the splines 157 that are provided along the leg 151 of the front shutter 150 (Figure 2), which rear end faces are adapted to come to bear against the end wall 111 when the front shutter 150 is in its closed position and when, with the movable flap 170 being in its stand-by position, a force is applied on the front face of its main wall 171.

[0121] However, the splines 157 are oriented in such a manner that when the front shutter 170 pivots into its open position, they are situated on the axis of the grooves 117 of the tube 113 of the base 110, so much so that they can be engaged therein, thus enabling the movable flap 170 to be depressed.

[0122] In this embodiment, the front shutter 150 is made as a one-piece molding of an insulating plastics material.

[0123] As shown in Figure 2, in order that the front shutter 150 returns into its closed position when the pins of the electric plug are removed from the power outlet 1, resilient return means 130 are provided for automatically returning the front shutter 150.

[0124] In this embodiment and advantageously, the return means 130 also make it possible to return the movable flap 170 into its stand-by position.

[0125] As shown in Figures 2 and 5, for this purpose the return means comprise a single main spring 130 operating both in compression and in torsion, which spring is engaged inside the tubular leg 151 of the front shutter 150 and is thus interposed between the end wall of the tube 113 of the base 110 and the portion of the rear face of the plane plate 156 that closes the front end of the leg 151 of the front shutter 150.

[0126] The main spring 130 thus acts in compression to hold the front face of the plane plate 156 of the front shutter 150 bearing against the rear face of the main wall 171 of the movable flap 170, and thus returns the movable flap 170 into its stand-by position when no force is exerted thereon.

[0127] In addition, the ends 131, 132 of the main spring 130 are prevented from turning about the engagement axis A1 relative to the front shutter 150 and relative to the base 110 respectively.

[0128] For this purpose, they are folded so as to extend along a diameter of the main spring 130. Correspondingly, both the end wall of the tube 113 of the base 110 and also the end walls of said portion of the rear face of the plane plate 156 of the front shutter 150 carry respective ribs 113A, 151A that co-operate with each other to define a reception groove for receiving the corresponding end 131, 132 of the main spring 130.

[0129] The main spring 130 thus acts in torsion about the engagement axis A1, so as to return the front shutter 150 into its closed position when no force is exerted thereon.

[0130] The movements of the various components of the power outlet 1 while an electric plug is being inserted into the insertion well 101 of the power outlet 1 are described below with reference to Figures 6 to 9.

[0131] As shown in Figures 6 and 8, the movable flap 170 is initially held in its stand-by position by the main spring 130.

[0132] The front shutter 150, which is held in its closed position by the main spring 130, thus makes it possible to prevent dust particles entering into the power outlet 1, and avoids said movable flap 170 being depressed into the insertion well 101 merely by pressing on the main wall 171 of the movable flap 170.

[0133] The rear shutter 60 is held in its closed position by the spring 50.

[0134] Then, when a user engages an electric plug in the power outlet 1, the pins of the electric plug pass through the access openings 172, 173 of the movable flap 170 and come to bear against the sloping panels 154, 155 of the front shutter 150, which causes the front shutter to pivot. The splines 157 of the front shutter 150 are thus situated on the axis of the grooves 117 provided along the tube 113 of the base 110 of the trim plate 100.

[0135] The electric plug is thus free to penetrate deeper into the power outlet 1, until its base comes to bear against the front face of the movable flap 170 and pushes said movable flap towards its depressed position (see Figures 7 and 9).

[0136] During this movement, the pins of the electric plug pass through the openings 82, 83 of the cartridge 80 and come to bear against the sloping panels 64, 65 of the rear shutter 60, which causes said rear shutter to slide.

[0137] The electric plug is thus free to penetrate deeper into the power outlet 1, until its pins are engaged in the sockets 21, 31 of the line and neutral terminals 20, 30.

[0138] Removing the electric plug from the power outlet 1 leads to reverse movements of the various components of the power outlet 1, in particular under drive from the springs 50, 130.

[0139] Finally, it should be observed that while removing the trim plate 100, the rear shutter 60 remains secured to the casing 10 in the sense that the cartridge 80 holds it in position so as to guarantee the electrical safety of the power outlet 1. The front shutter 150 remains secured to the trim plate 100, which makes it easier to remove said trim plate.

[0140] In a variant, the trim plate need not have a movable flap. In this variant and by way of example, the front shutter could thus be held secured to the trim plate by a cartridge that is snap-fastened onto the rear of the end wall of the reception well.

Két lezáróval felszerelt dugaszolóaljzat

Szabadalmi igénypontok

1. Dugaszolóaljzat (1), amely tartalmaz:

– egy házat (10), amely legalább két csatlakozókapcsot (20, 30) fogad be,

– egy a ház (10) elejére felszerelt burkolatot (100), amely két hozzáférési nyílással (172, 173) rendelkezik a csatlakozókapcsokhoz (20, 30),

– egy két szárnnyal (62, 63) rendelkező hátsó lezárót (60), amely egy zárt helyzet és egy nyitott helyzet között mozgatható, ahol zárt helyzetben a szárnyai (62, 63) a hozzáférési nyílások (172, 173) és a csatlakozókapcsok (20, 30) közé vannak beiktatva, hogy megakadályozzák a hozzáférést a csatlakozókapcsokhoz (20, 30), míg nyitott helyzetben el vannak távolítva a hozzáférési nyílásoktól (172, 173), hogy megengedjék ezt a hozzáférést, ***azzal jellemezve***, hogy a dugaszolóaljzat (1) tartalmaz egy a hátsó lezárótól (60) különböző és szintén két szárnnyal (152, 153) rendelkező elülső lezárót (150) is, amely egy zárt helyzet és egy nyitott helyzet között mozgatható, ahol zárt helyzetben a szárnyai (152, 153) a hozzáférési nyílások (172, 173) és a csatlakozókapcsok (20, 30) közé vannak beiktatva, hogy megakadályozzák a hozzáférést a csatlakozókapcsokhoz (20, 30), míg nyitott helyzetben el vannak távolítva a hozzáférési nyílásoktól (172, 173), hogy megengedjék ezt a hozzáférést, és hogy a hátsó lezáró (60) és az elülső lezáró (150) egyaránt szilárdan hozzá van erősítve a házhoz (10) és a burkolathoz (100), oly módon, hogy amikor a burkolat (100) le van szerelve a házról (10), az elülső lezáró (150) rögzítve marad a burkolaton (100), a hátsó lezáró (60) pedig rögzítve marad a házon (10).

2. Az előző igénypont szerinti csatlakozóaljzat (1), amelynél az elülső és a hátsó lezáró (60, 150) egyike elforgathatóan mozgatható nyitott helyzete és zárt helyzete között, míg a másik lezáró lineárisan eltolható nyitott helyzete és zárt helyzete között.

3. Az előző igénypontok bármelyike szerinti csatlakozóaljzat (1), amelynél a burkolat (100) tartalmaz:

– egy alaptestet (110), amely eszközökkel rendelkezik a házra (10) való felszereléshez és egy oldalfala (112) van, amely egy illesztő bemélyedést (101) határol egy villamos csatlakozódugónak egy beillesztési tengely (A1) mentén történő beillesztéséhez, és

– egy mozgatható betétet (170), amely az alaptest (110) oldalfalához (112) képest lineárisan elmozdíthatóan van felszerelve a beillesztési tengely (A1) mentén, amely mozgatható betétben (170) vannak a hozzáférési nyílások (172, 173) kialakítva és amely az illesztő bemélyedés (101) mozgatható fenekét képezi.

4. Az előző igénypont szerinti csatlakozóaljzat (1), amelynél az elülső lezáró (150) elforgathatóan van felszerelve a burkolathoz (100) képest a beillesztési tengely (A1) körül, hogy lezárja vagy nyissa a hozzáférést a csatlakozókapcsokhoz (20, 30).

5. Az előző igénypont szerinti csatlakozóaljzat (1), amelynél visszaállító eszközök (130) vannak beépítve az elülső lezáró (150) zárási helyzetbe való visszaállításához.

6. A 4. vagy 5. igénypont szerinti csatlakozóaljzat (1), amelynél a mozgatható betét (170) egy besüllyesztett helyzet és egy készenléti helyzet között mozgatható, ahol az elülső lezáró (150) eszközöket tartalmaz a mozgatható betét (170) készenléti helyzetben való rögzítésére, amelyek kireteszelhetők az elülső lezáró (150) zárási helyzetéből a nyitott helyzete felé történő elmozdíthatósága érdekében.

7. A 3-6. igénypontok bármelyike szerinti csatlakozóaljzat (1), amelynél az alaptest (110) tartalmaz az oldalfalának (112) hátsó részén egy fenékfalat (111), amely átmenőnyílásokkal (118) rendelkezik a villamos csatlakozódugó csapjainak a csatlakozókapcsokba (20, 30) való behatolásához, és amelynél az elülső lezáró (150) a mozgatható betét (170) és a burkolat (100) fenékfala (111) közé van beiktatva.

8. Az előző igénypont szerinti csatlakozóaljzat (1), amelynél az elülső lezárót (150) a mozgatható betétre (170) támaszkodó helyzetbe visszaállító eszközök (130) vannak beépítve.

9. Az előző két igénypont bármelyike szerinti csatlakozóaljzat (1), amelynél az alaptest (110) fenékfala (111) egy a hátulján fenékkel lezárt tokot (113) hordoz, és amelynél az elülső lezáró (150) egy lábbal (151) rendelkezik, amely a beillesztési tengely (A1) mentén eltolhatóan és ezen tengely körül elforgathatóan van felszerelve a tokban (113).

10. Az 5., 8. és 9. igénypontok szerinti csatlakozóaljzat (1), amelynél az elülső lezárót (150) a mozgatható betétre (170) támaszkodó helyzetbe visszaállító eszközök és az elülső lezárót (150) zárt helyzetébe visszaállító eszközök egyetlen, az alaptest (110) tokjának (113) feneke és az elülső lezáró (150) lába (151) közé beiktatott rugóból (130) állnak, amelynek végei (131, 132) az elülső lezáróhoz (150) és a burkolathoz (100) képesti elfordulás ellen gátolva vannak.

11. Az előző igénypontok bármelyike szerinti csatlakozóaljzat (1), amelynél a hátsó lezáró (60) egy a beillesztési tengelyhez (A1) képest megdöntött vagy arra merőleges keresztirányú tengely (A2) mentén lineárisan elmozdíthatóan van felszerelve a házban (10), hogy lezárja vagy nyissa a hozzáférést a csatlakozókapcsokhoz (20, 30).

12. Az előző igénypont szerinti csatlakozóaljzat (1), amelynél a hátsó lezárót (60) zárt helyzetébe visszaállító eszközök (50) vannak beépítve.

13. Az előző két igénypont szerinti csatlakozóaljzat (1), amelynél a hátsó lezáró (60) egy a keresztirányú tengellyel (A2) párhuzamos tengely körül egy egyenes helyzet és két elbillentett helyzet között elbillenthetően van a házban (10) felszerelve, és amelynél a ház (10) ütköztető eszközöket (19) tartalmaz, amelyek alkalmasak a hátsó lezáró (60) lineáris elmozdulásának meggátolására, amikor ez utóbbi kibillentett helyzetben van.

14. Az előző igénypont szerinti csatlakozóaljzat (1), amelynél a hátsó lezáró (60) elbillenthetően van felszerelve két különböző, a keresztirányú tengellyel (A2) párhuzamos tengely körül.

15. Az előző igénypont szerinti csatlakozóaljzat (1), amelynél a ház (10) két párhuzamos bordát (16) tartalmaz, amelyek szabad szélei párhuzamosan húzódnak a keresztirányú tengellyel (A2), és amelynél a hátsó lezáró (60) hátsó oldalával fekszik fel ezen két párhuzamos bordán (16).

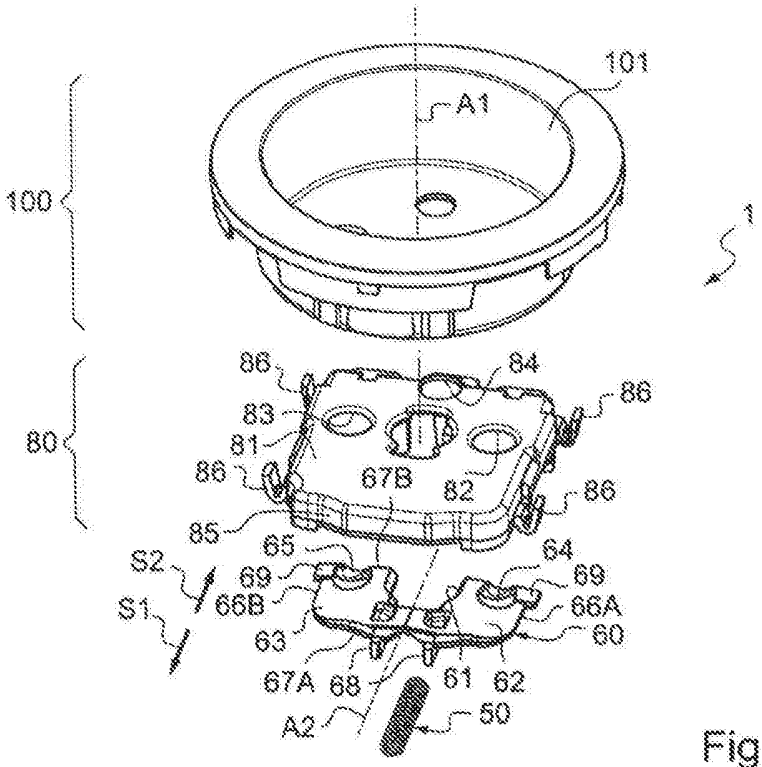
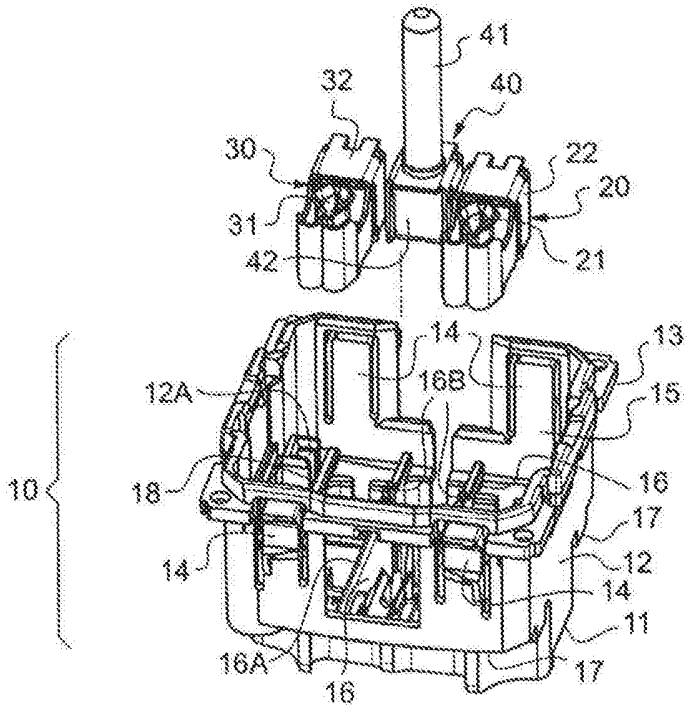

101
A1
100
1
80
86
84
83
81
67B
82
85
65
64
69
66B
66A
S2
S1
63
60
67A
68
61
62
A2
50

Fig.1


41
32
40
30
22
20
31
42
21
14
13
12A
16B
15
10
18
16
17
14
12
14
11
16A
17
16

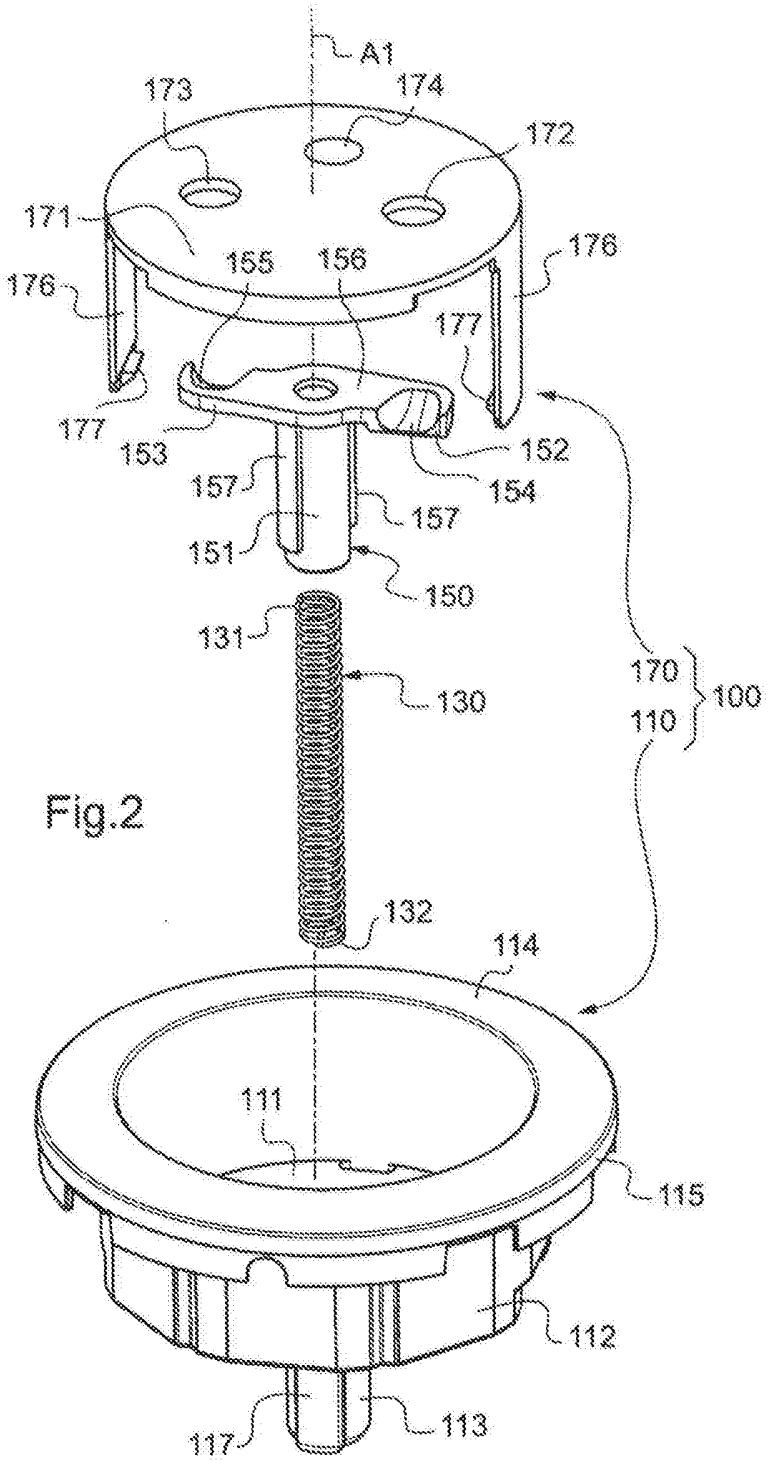
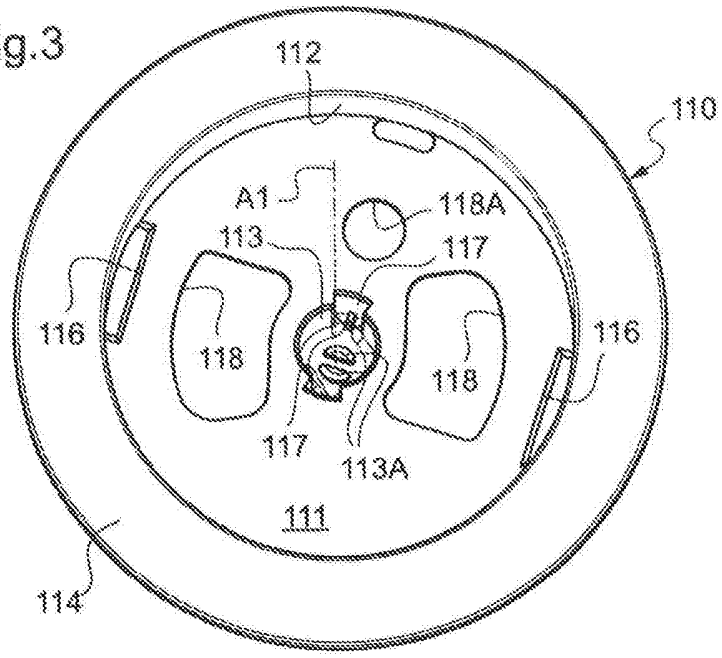

A1
173
174
172
171
176
155
156
176
177
177
153
152
154
157
157
151
150
131
130
170
110
100
132
114
111
115
112
117
113

Fig.2

Fig.3



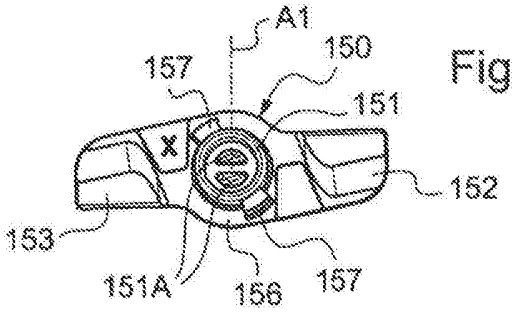


Fig.4

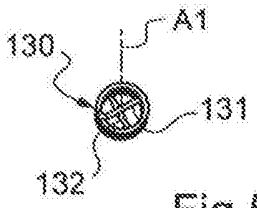


Fig.5

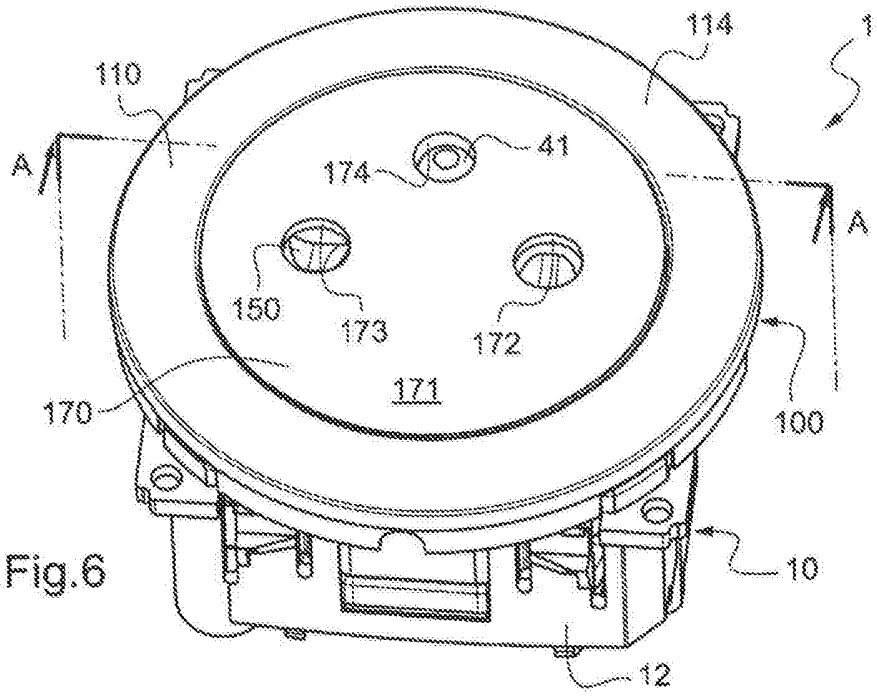

114
1
110
A
41
174
A
150
173
172
171
170
100
10
12

Fig.6

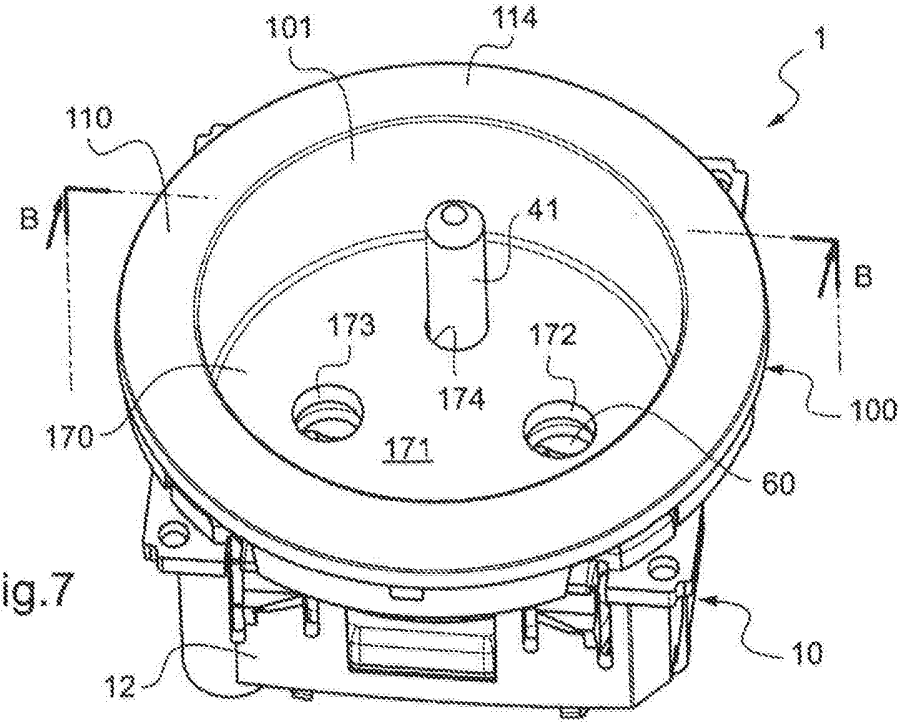

101
114
1
110
B
41
B
173
172
174
170
100
171
60
10
12

Fig.7

Fig.8

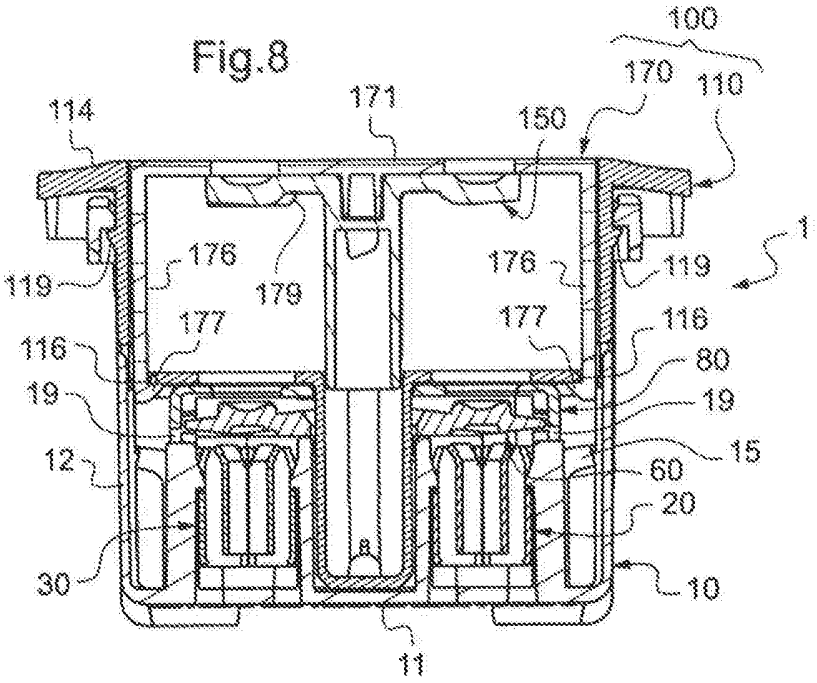
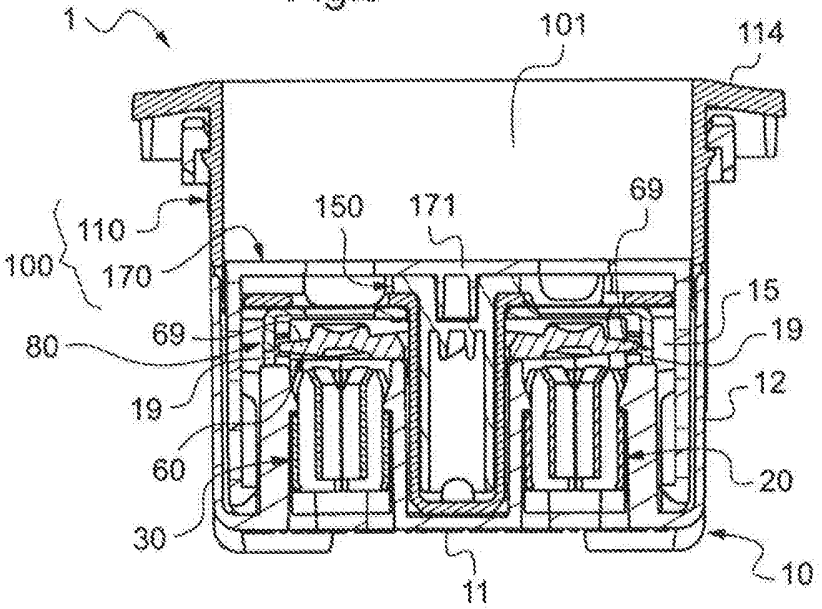

100
170
110
114
171
150
1
176
179
176
119
119
177
177
116
116
80
19
19
15
12
60
20
30
10
11

Fig.9


1
101
114
110
150
171
69
100
170
15
80
69
19
19
12
60
20
30
10
11

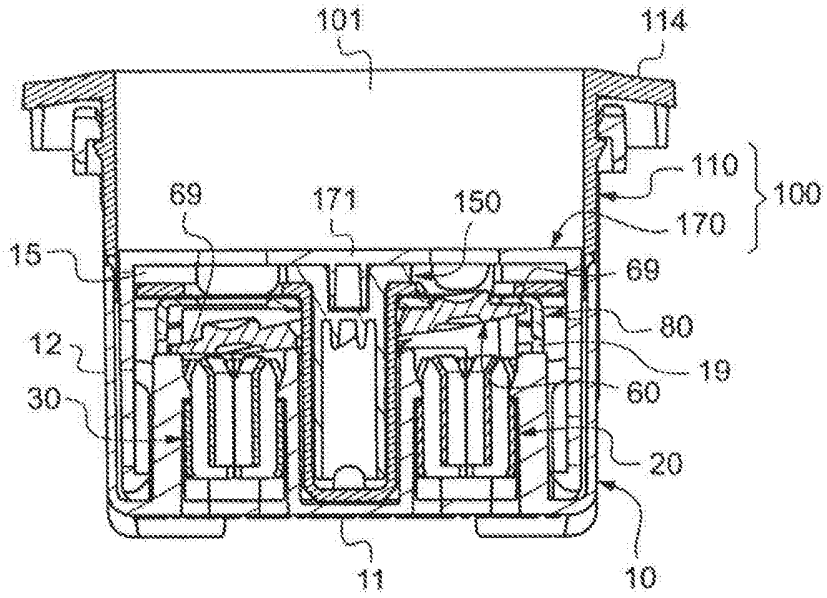


Fig.10