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(54) **FRONT COVER DEVICE FOR POWER SOCKET AND POWER SOCKET EQUIPPED WITH SUCH A FRONT COVER DEVICE**

(57) This invention relates to a front cover device for power socket, comprising a terminal socket (5), said front cover device comprising a cover (1) provided to be mounted on said terminal socket, a mobile element (2) mounted movable in translation in the cover and having at least two front access holes (20, 21) for the pins of a plug and elastic means (4) able to exert a return force on the mobile element.

The mobile element further comprises a closure system, each said front access hole being at least substantially closed or covered by the closure system able to be crossed, through elastic deformation, by the pins and to elastically return toward its original form of closing after their removal. It also relates to a power socket equipped with such a front cover device.

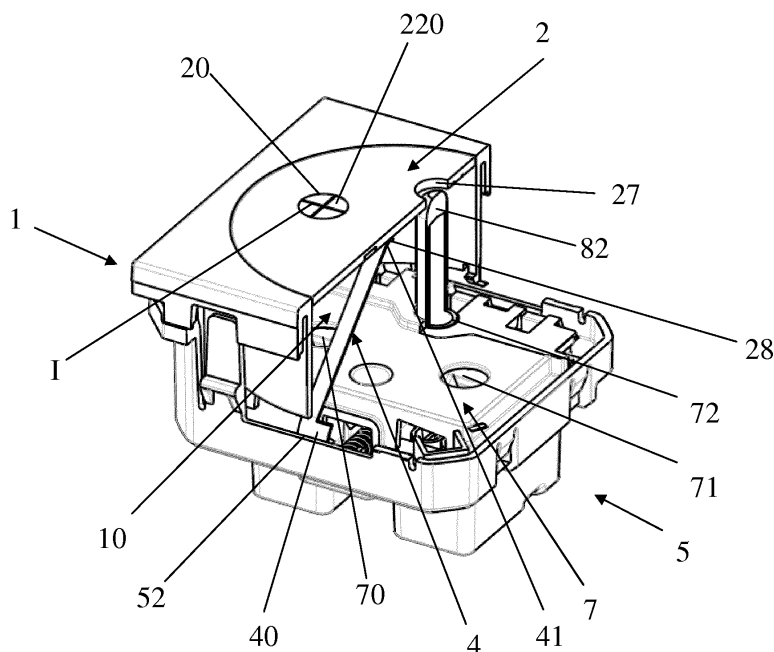


FIG. 9

Description

[0001] The invention relates to the field of the power socket intended to be coupled to a plug to connect a power source to electrical appliances and has as its object a front cover device for power socket. It also has as its object a power socket equipped with such a front cover device.

[0002] It is known that a power socket, also known as electrical outlet, is able to be coupled to a plug, generally a round plug, of an electric or electronic appliance to supply power to the latter. A power socket comprises generally an engine, called hereafter a terminal socket, comprising a housing and a connecting terminal mounted in the latter and having terminals, i.e. points of electrical connection, such as female terminals able to be in electrical contact with the pins of the plug.

[0003] Such a power socket comprises usually a front cover having two front access holes forming openings to the connecting terminal which is, in the mounted state of the power socket, connected to a power source. The electrical contact between the female terminals and the pins of the plug, passing through the front access holes, enables the passage of the current to the electrical appliance. However, such a power socket can easily receive, through the front access holes, a thin conductible element held frequently by children who can then receive an electrical shock by the contact of said element with the female terminals or can be electrocuted. In addition, the dusts or other elements can get into the access holes and affect the mechanism of the power socket.

[0004] The document FR 2 978 876 remedies to these drawbacks by disclosing a power socket comprising a terminal socket which comprises a housing receiving a connecting terminal with two electrical terminals, a cover mounted to the front of the housing and having two front access holes forming through-opening for the pins. The cover defining an insertion well and including mounted means on the housing, said cover having sidewall delimiting an insertion cavity extending along a longitudinal axis of engagement for receiving a plug along said longitudinal axis of engagement. The cover further comprises a movable flap, consisting globally in a disc-shaped plate, mounted mobile in translation in the insertion cavity relative to the side wall along the longitudinal axis of engagement and in which movable flap are provided said front access holes for the pins passing through said movable flap. The housing also has a safe system arranged between the connecting terminal and the movable flap. The safe system comprises safe elements moving between a closing position to prevent access of the pins of the plug to the connecting terminal and an opening position for providing access of said pins to the latter.

[0005] However, in a power socket disclosed in the document FR 2 978 876, the dusts can still get into the socket by passing through the front access opening.

[0006] This invention has as its object to remedy to these drawbacks by proposing a front cover device for

power socket which provides an enhanced protection against dusts or other elements which could pass through the access openings of said movable flap.

[0007] For this purpose, the front cover device for power socket, preferably for standardized power socket, said power socket comprising a terminal socket, preferably a terminal socket of such a standardized power socket, said terminal socket comprising a connecting terminal portion, said front cover device extending, along a longitudinal axis, and comprising:

- a cover provided to be mounted on said terminal socket and defining an insertion well delimiting an interior cavity having a front opening of engagement for engaging and receiving a plug with pins, said cover comprising a front side surrounding said front opening of engagement and a rear side and extending, along the longitudinal axis, between the latter,
- a mobile element, such as a plate, having a front face and being mounted movable in translation in the interior cavity along the longitudinal axis, between a front position closing the front opening of engagement and a rear position making it possible the electrical contact between the connecting terminal and the pins, said mobile element having at least two front access holes for the pins,
- elastic means able to exert a return force toward the front side of the cover,

characterized in that the mobile element further comprises a closure system, each front access hole for the pins being at least substantially closed or covered by the closure system which forms, into or facing each of said front access hole, an elastically deformable closure wall able to be crossed, through elastic deformation, by the pins of the plug and to elastically return toward its original form of closure after their removal.

[0008] The present invention has also as its subject matter a power socket comprising, on the one hand, a terminal socket, preferably a terminal socket of a standardized power socket, which comprises a housing, a connecting terminal and, eventually, a safe system able to be activated and moved between a closing position preventing access to said connecting terminal and an opening position authorizing said access and, on the other hand, a front cover device, characterized in that the front cover device consists of a front cover device according to the present invention, in that the front cover device is fixed, preferably in a removable manner, to the terminal socket, preferably to the housing of the latter, preferably by a snap-fit or clipping or latching assembly or joint and, when appropriate, in that the safe system is interposed between the connecting terminal and the front access holes for the pins of the plug.

[0009] The present invention will be better understood using the description below, which relates to at least one preferred embodiment, given by way of non-limiting example and explained with reference to the accompanying

drawings, in which

- figure 1 shows a perspective view of the front cover device according to the present invention, unassembled, in a preferred embodiment,
- figure 2 shows a perspective view of the cover and the mobile element, unassembled, of the front cover device shown in figure 1,
- figure 3 shows the cover and the mobile element shown in figure 2 with different orientation,
- figure 4 shows a perspective view of the terminal socket of a power socket according to the present invention, assembled,
- figure 5 shows the terminal socket shown in figure 4, unassembled,
- figure 6 shows a perspective view of a power socket according to the present invention, unassembled, with the front cover device shown in figure 2 and the terminal socket shown in figure 5.
- figure 7 shows a perspective view of the power socket shown in figure 6, assembled, when the mobile element is in a front position closing the front opening of engagement,
- figure 8 shows the power socket shown in figure 7 when the mobile element is in a rear position at the bottom of the interior cavity of the cover,
- figure 9 shows the power socket shown in figure 7 in a different orientation, with the front cover device partially represented showing the interior cavity with the elastic means in a preferred embodiment,
- figure 10 (i.e. figures 10a, 10b, 10c, 10d 10e, 10f) shows the functional engagement of a plug in the power socket shown in figure 7. Figure 10f shows a detail view of figure 10b.

[0010] The figures show a front cover device for power socket, preferably for a standardized power socket, said power socket comprising a terminal socket 5, 6, 7, 8, preferably the terminal socket of a standardized power socket. Such a terminal socket comprises a connecting terminal 8. Said front cover device extends along a longitudinal axis and comprises:

- a cover 1 provided to be mounted on said terminal socket and defining an insertion well delimiting an interior cavity 10 having a front opening of engagement 11 for engaging and receiving a plug 3 with pins 30, 31, said cover comprising a front side surrounding said front opening of engagement and a rear side and extending, along the longitudinal axis, between the latter,
- a mobile element 2, such as a plate, having a front face 23 and being mounted movable in translation in the interior cavity 10 along the longitudinal axis, between a front position closing the front opening of engagement 11 and a rear position making it possible the electrical contact between the connecting terminal 8 and the pins 30, said mobile element 2

having at least two front access holes 20 and 21 for the pins 30 and 31 of the plugs 3,

- elastic means 4 able to exert a return force toward the front side of the cover 1, i.e. a return force able to maintain the mobile element 2 in the front position when the plug 3 is removed from the cover 1 but allowing the insertion of the plug 3 in the socket without excessive effort for the user.

[0011] According to the invention, in such a front cover device, the mobile element 2 further comprises a closure system 22, each front access hole 20, 21 for the pins 30, 31 being at least substantially closed or covered by the closure system 22 which forms, into or facing each of said front access hole, an elastically deformable closure wall able to be crossed, through elastic deformation, by the pins 30, 31 of the plug 3 and to elastically return toward its original form of closure after the removal of said pins from the front access hole 20, 21 for the pins 30, 31.

[0012] It is understood that the front cover device of the present invention can be applied to a standard mechanism (terminal connecting) of a power socket.

[0013] The interior cavity 10 of the cover 1, when the mobile element 2 is in the rear position, can determine a plug hole shape according to a standardized power socket, for example a power socket known with the registered trademark "Schuko" or other standards of power socket used around the world.

[0014] In one preferred embodiment, each closure wall can be incised by at least one incision I, preferably by at least one X-shaped incision so as to be able to be crossed, through elastic deformation, by one of the pins 30, 31 of the plug 3 and to elastically return toward its original form of closure after their removal (figures 1, 2, 3, 6, 7, 8, 9, 10a).

[0015] In a preferred embodiment of the closure system, as it can be seen in the figures 1, 2, 3, 6, 7, 8, 9, 10a and more particularly in figure 3, that closure system 22 can comprise a plurality of closure elements 220 and 221, preferably made in an elastic or rubber material, each forming one of the elastically deformable closure walls. Therefore, each closure element 220 and 221 is incised by at least one incision I, preferably by at least one X-shaped incision, so as to be able to be crossed, through elastic deformation, by one of the pins 30 and 31 of the plug 3 and to elastically return toward its original form of closure after the removal of the pins 30 and 31.

[0016] In another embodiment, not shown in the figures, the closure system can comprise a single closure element, preferably made in an elastic or plastic or rubber material, able to form the elastically deformable closure walls. In addition, the single closure element can be incised by at least one incision, preferably by at least one X-shaped incision, in a plurality of area each facing one of the front access hole 20 and 21 of the pins 30 and 31 or located into latter so as to be able to be crossed, through elastic deformation, by one of the pins 30 and 31 of the plug 3 and to elastically return toward its original

form of closure after the removal of said pins.

[0017] Preferably, each deformable closure wall, when appropriate the or each closure element 220 or 221 mentioned above, can consist of a flexible element such as a film or a membrane or, as it can be seen more particularly in figure 3, a rigid or semi-rigid element, for example in the form of a patch or a pellet.

[0018] As it can be seen in figure 3, preferably, the closure system 22 can comprise at least two closure elements 220 and 221 and holding means 222 and 223 for holding said protection elements respectively within the front access holes 20 and 21 for the pins 30 and 31. Holding means can comprise two locking ring 222 and 223 which may each surround and support respectively one of the closure elements 220 and 221 and may be held within one of the front access holes 20 and 21 for the pins so that closure elements 220 and 221 are held in place in the front access holes 20 and 21 for the pins 30 and 31 by the locking rings 222 and 223. The locking rings 222 and 223 may be held in the front access holes 20 and 21, for example but not limited to, by clicking or snapping or welding. In addition, both locking rings 222 and 223 can be attached together, for example by a connection piece 224. On the other hand, the connection piece 224 and the locking rings 222 and 223 and, eventually, the closure elements 220 and 221, can be made in a single piece, preferably made in a plastic or rubber material.

[0019] Preferably, the mobile element 2 can be a bi-injection part composed of two different plastic or rubber material, one of the plastic or rubber material can form the plate and the other plastic or rubber material can form the closure system, i.e. can form the deformable closure walls, when appropriate can form the or each closure element 220 and 221.

[0020] It is understood that each deformable closure wall can be formed by one of the closure elements 220 and 221 or, when appropriate, can be formed by a portion of the single closure element extending over the front access holes 20 and 21 for the pins 30 and 31 or passing through the latter transversally to their axis.

[0021] Preferably, the or each deformable closure walls, when appropriate the or each closure element 220 or 221, can be flush or substantially flush or can coincide with the front face 23 of the mobile element 2 so as to obtain, in front position of the mobile element 2, a regular visible front surface of the front face 23 of the cover 1 (figures 1, 2, 6, 9, 10).

[0022] Advantageously, the or each closure element 220 and 221 can have the same color as the mobile element 2, i.e. at least its front face 23, and/or, preferably, the cover 1, i.e. at least the front side of the latter.

[0023] Preferably, in front position of the mobile element 2, the front face 23 of the same can be flush with the front side 26 of the cover 1 so as to obtain, a global regular visible front surface of the front cover device (figures 1, 7, 9, 10a, 10b, 10f, 10c).

[0024] Preferably, the elastic means 4 can consist of

a return spring such as an elongate leaf spring, more preferably an elongate leaf spring. Such an elongate leaf spring can be placed obliquely in the interior cavity 10 of the cover 1 with respect to its longitudinal axis (figures 9 and 10). Preferably, such an elongate leaf spring can be made in a single piece, preferably with two opposite bearing or abutment ends 40 and 41. Such an elastic means can easily be mounted or placed in a standardized power socket, for example by simply being adapted to abut or for abutment, for example by its two bearing or abutment ends 40 and 41, against respectively at least one bearing or abutment part or surface 28 of the cover 1, preferably of the mobile element 2, that can be adapted for this effect and at least one bearing or abutment part or surface 52 of the terminal socket 5, 6, 7, 8 that can be a part or surface that already exist in a terminal socket of a standardized power socket or a part or surface specially adapted in a terminal socket (see more particularly figure 9).

[0025] In a preferred embodiment, the mobile element 2 can comprise a peripheral edge 24 and lateral guiding projections 25, preferably two or three lateral guiding projections. In addition, the cover 1 can comprise guiding grooves 12, preferably two or three guiding grooves, made in the inner wall of the interior cavity 10 and provided to receive the guiding projections to make it possible the translation of the mobile element 2. Each guiding groove 12 can extend parallel to the longitudinal axis of the cover 1 and the lateral guiding projections 25 can extending transversally to the mobile element 2 or the longitudinal axis and beyond the peripheral edge 24 (figures 2, 3, 6, 8 and 9).

[0026] If reference is made, more particularly to figures 2, 3 and 6, it can be seen that the cover 1 can comprise a plurality of rear stops 13, preferably two or three rear stops, preferably located outside the guiding grooves 12, preferably on or near the rear side of the cover 1. For example, each rear stops 13 can be located between two guiding grooves 12. Each rear stop 13 can form an end stop for the mobile element 2 so that the stroke of the latter toward the rear side, or the bottom side, is determined by said rear stops 13.

[0027] The cover 1 can also comprise a plurality of front stop 14, preferably two or three front stops, preferably located back to the front opening of engagement 11. Each front stop 14 can then form a front stop of the mobile element 2 corresponding to the normal position closing the front opening of engagement 11 so that the stroke of the mobile element 2 toward the front side is determined by said front stops (figures 2, 3, 6, and 8).

[0028] Preferably, the mobile element 2 can consist of a disc-shaped plate and the interior cavity 10 of the cover 1 can be a cylindrical cavity. In this case, the diameter of the mobile element 2 can be substantially the same as the internal diameter of the interior cavity 10 (figures 1, 2, 3, 6, 7, 8, 9 and 10).

[0029] The figures, more particularly the figures 4, 5, 6, 7, 8, 9 and 10, also shown a power socket comprising, on the one hand, a terminal socket 5, 6, 7, 8, preferably

a terminal socket of a standardized power socket, comprising a housing 5, a connecting terminal 8 and a safe system 6 able to be activated and moved between a closing position preventing access to said connecting terminal and an opening position authorizing said access and, on the other hand, a front cover device. The housing 5 can also be understood as being or forming a base of the power socket.

[0030] Always according to this invention, in such a power socket, the front cover device consists of a front cover device according to the present invention and the front cover device is fixed, preferably in a removable manner, preferably by a snap-fit or clipping or latching assembly or joint 16, 17, 50, 51 to the terminal socket 5, 6, 7, 8, preferably to the housing 5 of the latter. To this end, the front cover device, preferably the cover 1, can comprise at least one opening or female part 16 or 17 and the terminal socket, preferably the housing 5, can comprise at least one male part 50 or 51 for engagement, preferably by snap-fit or clipping or latching, in the at least female part (figures 4, 5, 6, 7, 8). The safe system 6 is interposed between the connecting terminal 8 and the front access holes 20 and 21 for the pins 30 and 31.

[0031] The connecting terminal 8 can comprise a plurality of female terminal(s) 80 and 81 able to receive respectively the pins 30 and 31 of the plug 3 and/or male terminal(s) 82 able to be inserted and connected in a female terminal 33 of the plug 3, for example, as it can be seen in figures 4, 5, 6, 8, 9 and 10, preferably, two female terminals 80 and 81 and one male terminal 82.

[0032] Preferably, such a terminal socket 5, 6, 7, 8 can further comprise a cover element 7 having at least two rear access holes 70 and 71 passing through the latter each facing one of the front access holes 21 and 22 for the pins 30 and 31 of the plug 3 (figures 4, 5, 6, 9 and 10). The safe system 6 can comprise safe elements 60 able to be moved between a closing position closing the rear access holes 70 and 71 (figure 10a, 10b) and an opening position opening the latter. The female terminals 80 or 81 can be located directly opposite to the rear access hole 70 and 71. The opening position can be caused by the movement of the pins 30 and 31 inserted into the rear access holes 70 and 71 and coming into contact with the safe elements 60 before being inserted in the female terminals 80 and 81.

[0033] When the connecting terminal 8 comprises at least one male terminal 82, the mobile element 2 can further comprise at least one front access hole 27 provided to receive the male terminal 82 passing through it (figures 1, 2, 6, 7, 8, 9 and 10). In this case the cover element 7 can further comprise one rear access hole 72 able to receive the male terminal 82 (figures 4, 5, 6, 9 and 10).

[0034] The present invention can provide that the front access hole 27 for the male terminal 82 does not require to be closed by the closure system 22. Indeed, the present invention can provide that, in front position of the mobile element 2, the male terminal 82 is engaged in the

corresponding front access hole 27 so as to ensure that the latter is substantially closed by the male terminal 82 passing through the latter (figures 1, 7, 8, 9 and 10).

[0035] The safe system 6 can be provided to be interposed between the connecting terminal 8, more particularly the female terminals 80 and 81, and the rear access holes 70 and 71 facing the front access holes 21 and 22 for the pins 30 and 31 (figures 4, 5, 6).

[0036] The terminal socket 5, 6, 7, 8 can comprise a first bearing or abutment part or surface 52 and the mobile element 2 can comprise a second bearing or abutment part or surface 28. The elastic means 4, more particularly when the latter consist of an elongate leaf spring, can have two opposed bearing or abutment ends 40 and 41 coming into bearing or abutment contact respectively against the first and second bearing or abutment parts or surfaces 52 and 28 (figure 9). The second bearing or abutment part or surface 28 can consist of an inner part of the mobile element 2, for example at least one stop made in, or attached to, the inner face, opposite to the front face 23, of the mobile element 2 (figures 7, 8, 9, 10). The first bearing or abutment part or surface 52 can consist of a part or surface of the housing 5, preferably of the housing 5 of the terminal socket of a standardized power socket, for example an inner corner or an inner wall, of the housing (figures 7, 8, 9, 10), able to maintain the position of the elongate leaf spring in the operative or non-operative state of the latter.

[0037] Therefore, in an example of operating mode of the present invention, it can be seen in figure 10 that:

- when the plug 3 is inserted in the interior cavity 10 of the cover 1 by the front opening of engagement 11 of the cover 1 of the front cover device equipping the power socket, the pins 30 or 31 of said plug 3 pass through the corresponding front access holes 20 and 21 (figures 10b, 10f), which has the effect of elastically deforming each closure element 220 and 221 extending into or cover the latter,
- the plug 3 can freely go down or toward the bottom of the power socket till it touch, by means of its front side from which extends perpendicularly the pins 30 and 31, the front face 23 of the mobile element 2 and the safe system 6 (about the same moment), which has the effect to open the safe system 6 (figure 10c),
- after opening safe system 6, the plug 3 can go further and insert the pins 30 and 31 in the female terminals 80 and 81 making it possible the electrical contact between the connecting terminal 8 and said pins 30 and 31, the elastic means 4 are compressed (figure 10d),
- when the plug 3 moves toward the connecting terminal 8 in the interior cavity 10 of the cover 1, the mobile element 2 moves together with the plug 3 in the same direction along the longitudinal axis of the front cover device (figures 10d, 10e).

[0038] When the plug 3 is removed from the interior

cavity 10 of the cover 1 and the pins 30 and 31 are removed from the corresponding front access holes 20 and 21, the elastic means 4, which are compressed or resiliently deformed, exert a return force toward the front side of the cover 1 having for effect to maintain the mobile element 2 in the front position closing the interior cavity 10.

[0039] The present invention offers then several advantages such as:

- protection against the introduction of the dusts thanks to the closure system 22,
- the front cover device according to the invention is especially well-suited to be mounted on standardized terminal sockets,
- to give an esthetic effect when the or each deformable closure walls is flush or substantially flush or coincides with the front face 23 of the mobile element 2.

[0040] Of course, the invention is not limited to the at least one embodiment described and represented in the accompanying drawings. Modifications remain possible, particularly from the viewpoint of the composition of the various elements or by substitution of technical equivalents without thereby exceeding the field of protection of the invention.

Claims

1. Front cover device for power socket, preferably for a standardized power socket, said power socket comprising a terminal socket (5, 6, 7, 8), preferably a terminal socket of such a standardized power socket, said terminal socket comprising a connecting terminal (8), said front cover device extending along a longitudinal axis and comprising :

- a cover (1) provided to be mounted on said terminal socket and defining an insertion well delimiting an interior cavity (10) having a front opening of engagement (11) for engaging and receiving a plug (3) with pins (30, 31), said cover comprising a front side surrounding said front opening of engagement and a rear side and extending, along the longitudinal axis, between the latter,

- a mobile element (2), such as a plate, having a front face (23) and being mounted movable in translation in the interior cavity (10) along the longitudinal axis, between a front position closing the front opening of engagement (11) and a rear position making it possible the electrical contact between the connecting terminal(8) and the pins (30), said mobile element (2) having at least two front access holes (20, 21) for the pins (30, 31),

- elastic means (4) able to exert a return force toward the front side of the cover (1),

characterized in that the mobile element (2) further comprises a closure system (22), each front access hole (20, 21) for the pins (30, 31) being at least substantially closed or covered by the closure system (22) which forms, into or facing each of said front access hole, an elastically deformable closure wall able to be crossed, through elastic deformation, by the pins (30, 31) of the plug (3) and to elastically return toward its original form of closure after their removal.

2. Front cover device, according to claim 1, **characterized in that** the mobile element (2) consist of a disc-shaped plate and **in that** the interior cavity (10) of the cover is a cylindrical cavity.
3. Front cover device, according to claim 2, **characterized in that** the interior cavity (10), when the mobile element (2) is in the rear position, determine a plug hole shape according to a standardized power socket.
4. Front cover device, according to anyone of claims 1 to 3, **characterized in that** each closure wall is incised by at least one incision (1), preferably by at least one X-shaped incision.
5. Front cover device, according to claim 4, **characterized in that** closure system (22) comprises a plurality of closure elements (220, 221), preferably made in an elastic or rubber material, each forming one of the elastically deformable closure walls.
6. Front cover device, according to claim 4, **characterized in that** the closure system comprises a single closure element, preferably made in an elastic or rubber material, forming the elastically deformable closure walls.
7. Front cover device, according to anyone of claims 1 to 6, **characterized in that** each deformable closure walls consists of a flexible element, such as a film or a membrane or a rigid or semi-rigid element, for example in the form of a patch or a pellet.
8. Front cover device, according to claim 1 to 7, **characterized in that** the or each deformable closure walls is flush or substantially flush or coincides with the front face (23) of the mobile element so as to obtain, in front position of the mobile element (2), a regular visible front surface of the front face (23) of the cover (1).
9. Front cover device, according to anyone of claims 1 to 6, characterizes in that the mobile element (2) is

a bi-injection part composed of two different plastic or rubber material, one of the plastic or rubber material forming the plate and the other plastic or rubber material forming the closure system (22).

10. Front cover device, according to anyone of claims 1 or 9, **characterized in that** the elastic means (4) consist of a return spring such as an elongate leaf spring, more preferably an elongate leaf spring having a single leaf. 5
11. Front cover device, according to claim 10, **characterized in that** the elongate leaf spring is placed obliquely in the interior cavity (10) of the cover (1) with respect to its longitudinal axis. 10
12. Front cover device, according to anyone of claim 1 to 11, **characterized in that** the mobile element (2) comprises a peripheral edge (24) and lateral guiding projections (25), preferably two or three lateral guiding projections, and the cover (1) comprises guiding grooves (12), preferably two or three guiding grooves, made in the inner wall of the interior cavity (10) and provided to receive the guiding projections to make it possible the translation of the mobile element (2), each guiding groove (12) extending, parallel to the longitudinal axis, the lateral guiding projections (25) extending transversally to the mobile element (2) or the longitudinal axis of the cover (1) and beyond the peripheral edge (24). 15 20 25 30
13. Front cover device, according to claim 2, characterized and in that the cover (1) comprises a plurality of rear stops (13), preferably two or three bottom stops, located outside the guiding grooves (12) on or near the bottom side, each rear stop (13) forming an end stop for the mobile element (2) so that the stroke of the latter toward the bottom side is determined by said rear stops. 35 40
14. Power socket comprising, on the one hand, a terminal socket (5, 6, 7, 8), preferably a terminal socket of a standardized power socket, which comprises a housing (5), a connecting terminal (8) and, eventually, a safe system (6) able to be activated and moved between a closing position preventing access to said connecting terminal and an opening position authorizing said access and, on the other hand, a front cover device, **characterized in that** the front cover device consists of a front cover device according to anyone of claims 1 to 13, **in that** the front cover device is fixed, preferably in a removable manner, to the terminal socket (5, 6, 7, 8), preferably to the housing (5), preferably by a snap-fit or clipping or latching assembly or joint (16, 17, 50, 51) and, when appropriate, **in that** the safe system (6) is interposed between the connecting terminal (8) and the front access holes (20, 21) for the pins (30, 31) of the plug (3). 45 50 55

15. Power socket, according to claim 14, **characterized in that** the terminal socket (5, 6, 7, 8) further comprises a cover element (7) having at least two rear access holes (70, 71) passing through the latter each facing one of the front access holes (21, 22) for the pins (30, 31) and **in that** the safe system (6) is interposed between the connecting terminal (8) and the rear access holes (70, 71) and comprises safe elements (60) able to be moved between a closing position closing the rear access holes (70, 71) and an opening position opening the latter.

16. Power socket, according to anyone of claims 1 to 5, **characterized in that** the terminal socket (5, 6, 7, 8, 9) comprises a first bearing or abutment part or surface (52) and the mobile element (2) comprises a second abutment or bearing part or surface (28) and **in that** the elastic means (4), more particularly when the latter consist of an elongate leaf spring (4) according to claims 10 to 11 has two opposed bearing or abutment ends (40, 41), coming into bearing or abutment contact respectively against the first and second bearing or abutment part or surfaces (28, 52).

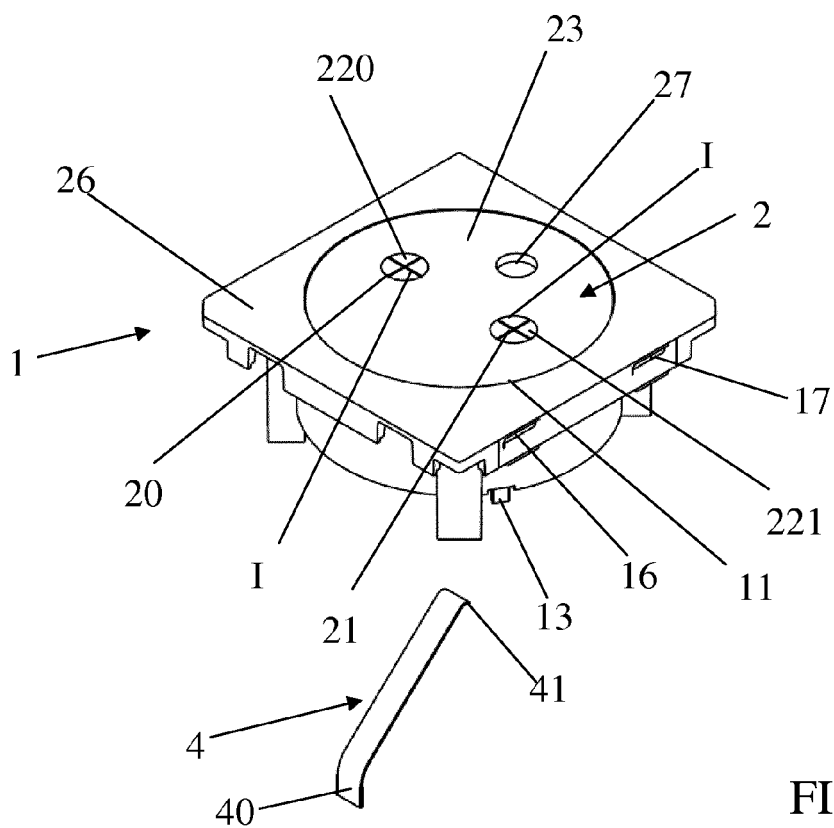


FIG. 1

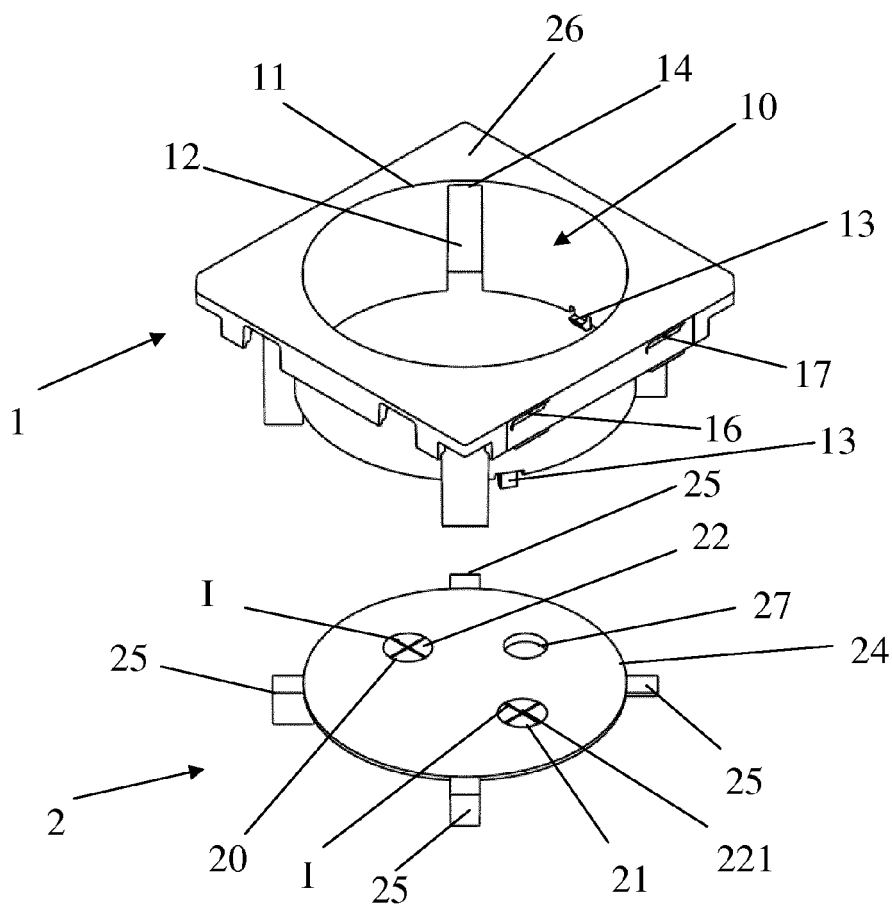


FIG. 2

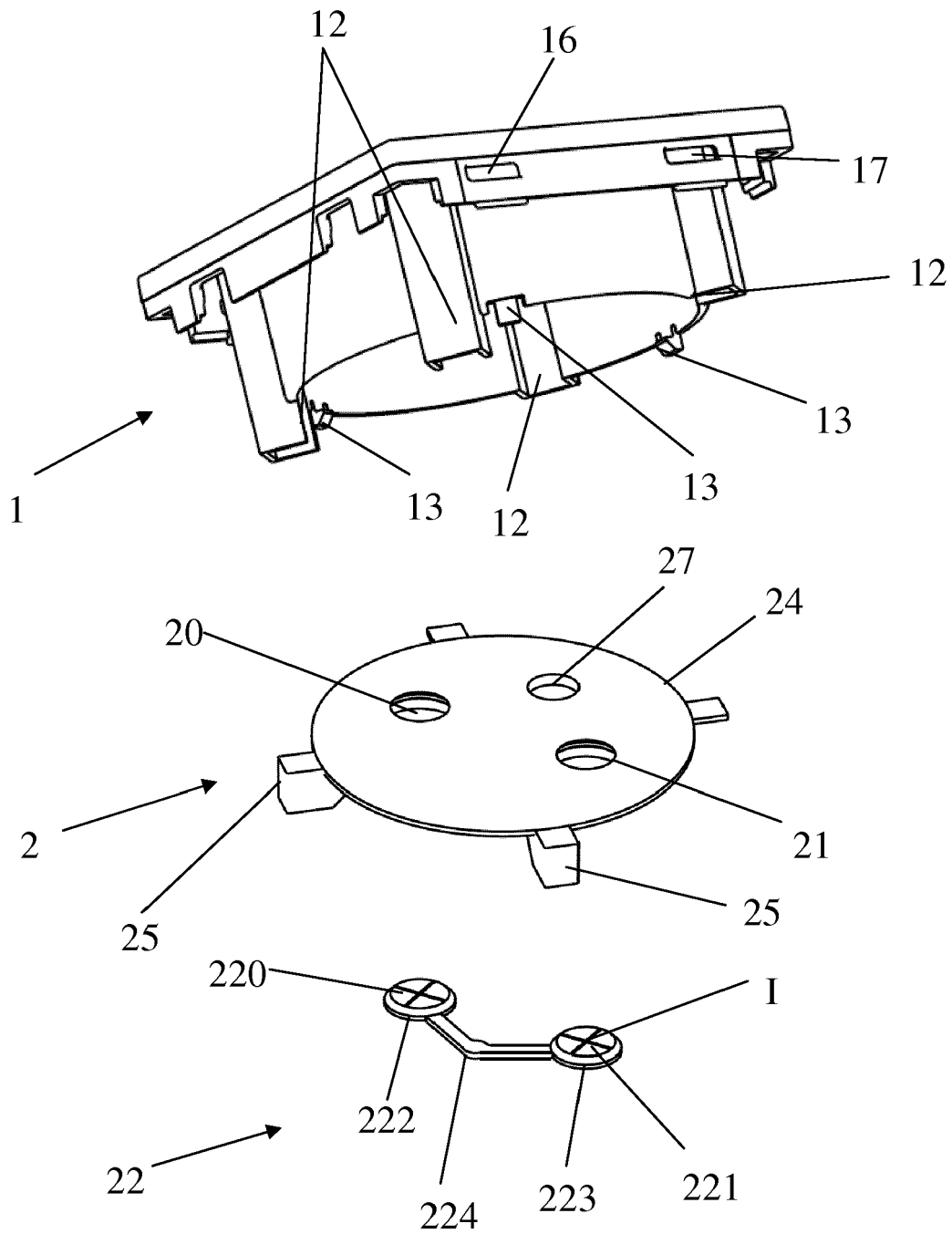
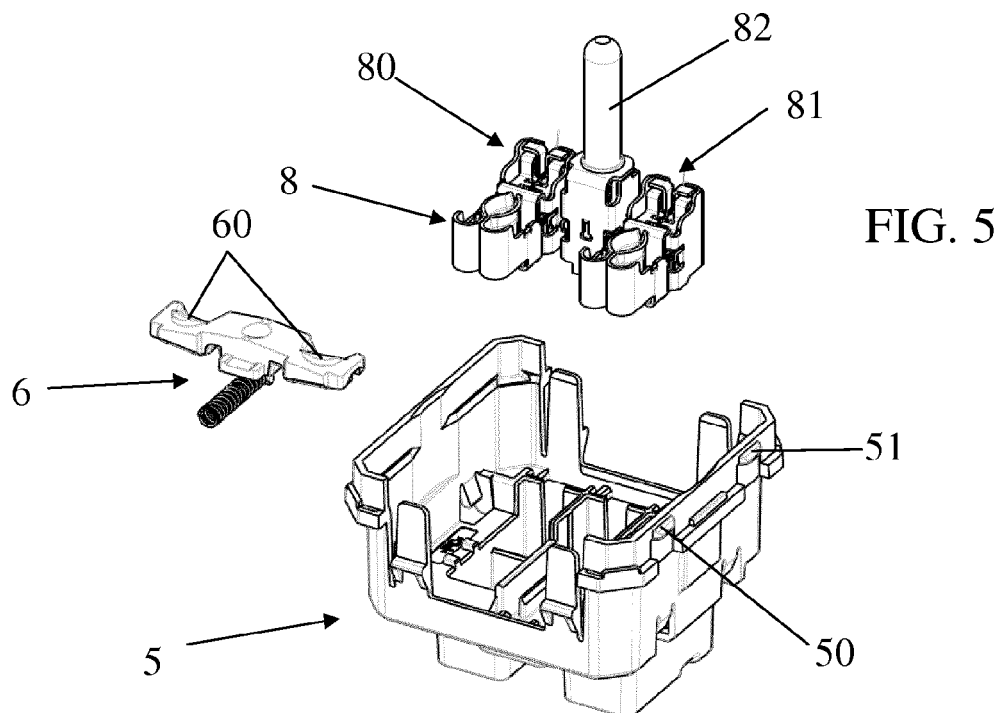
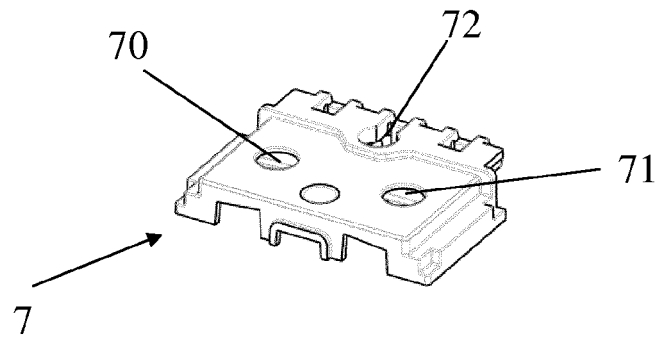
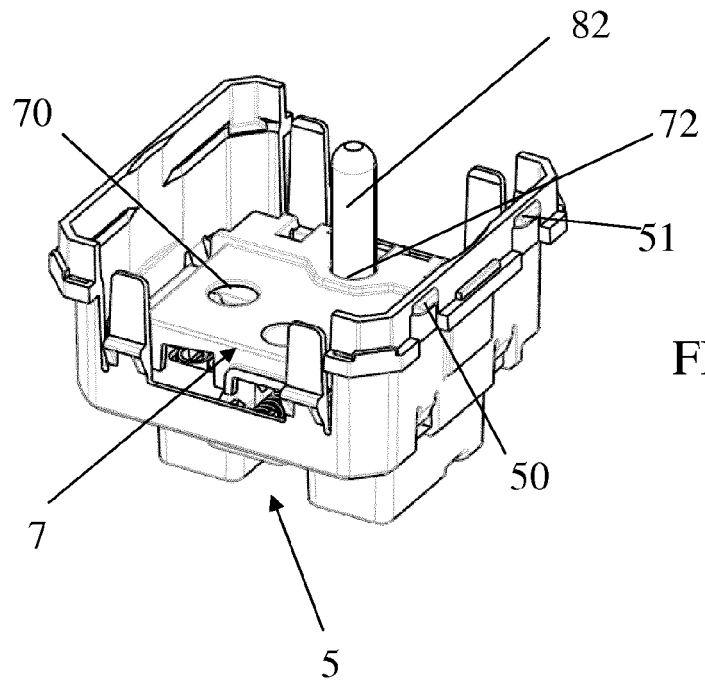


FIG. 3



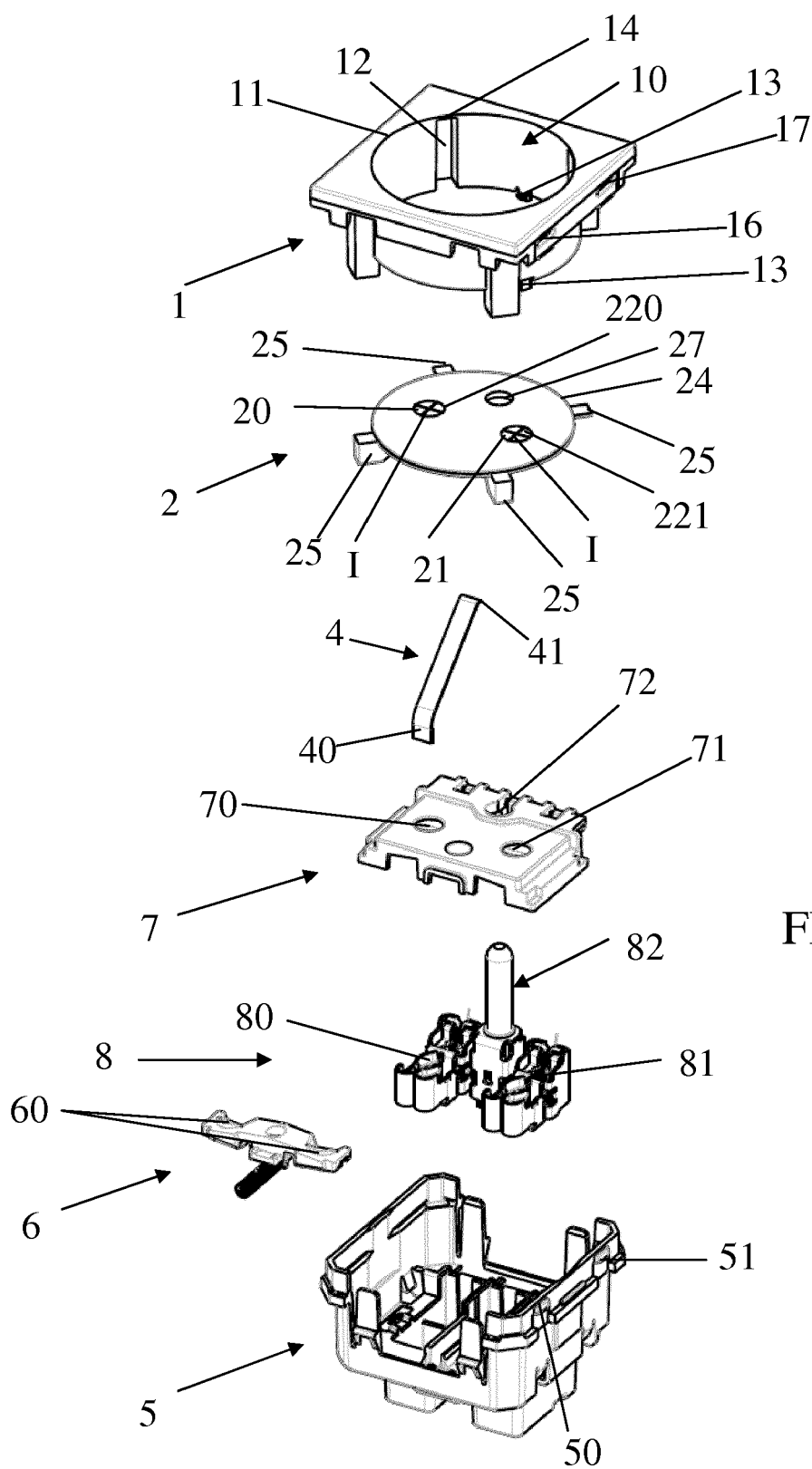
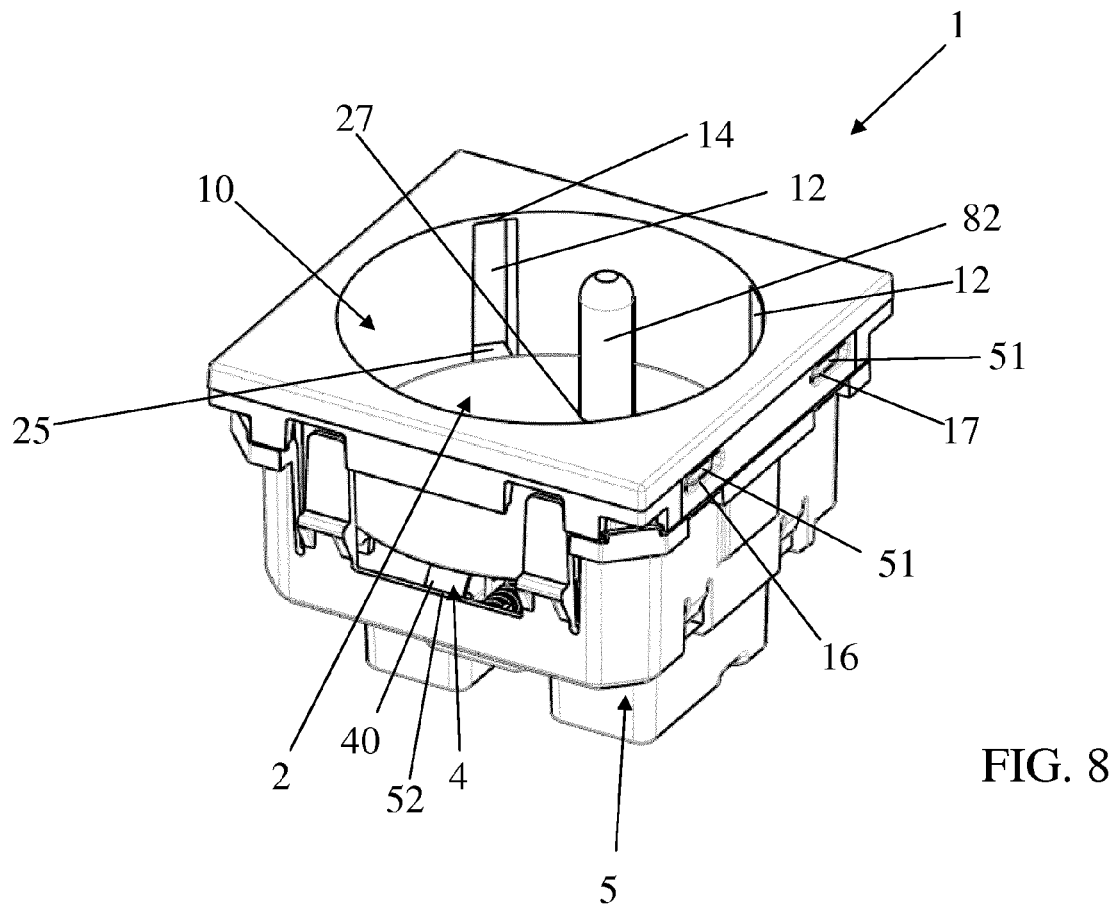
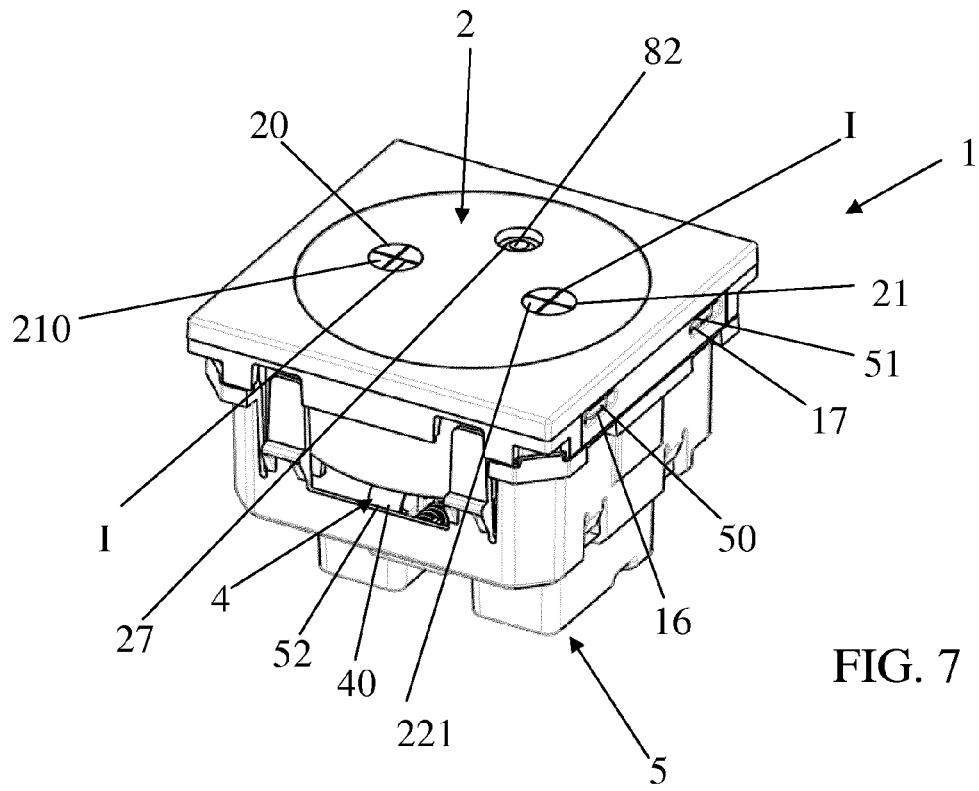


FIG. 6



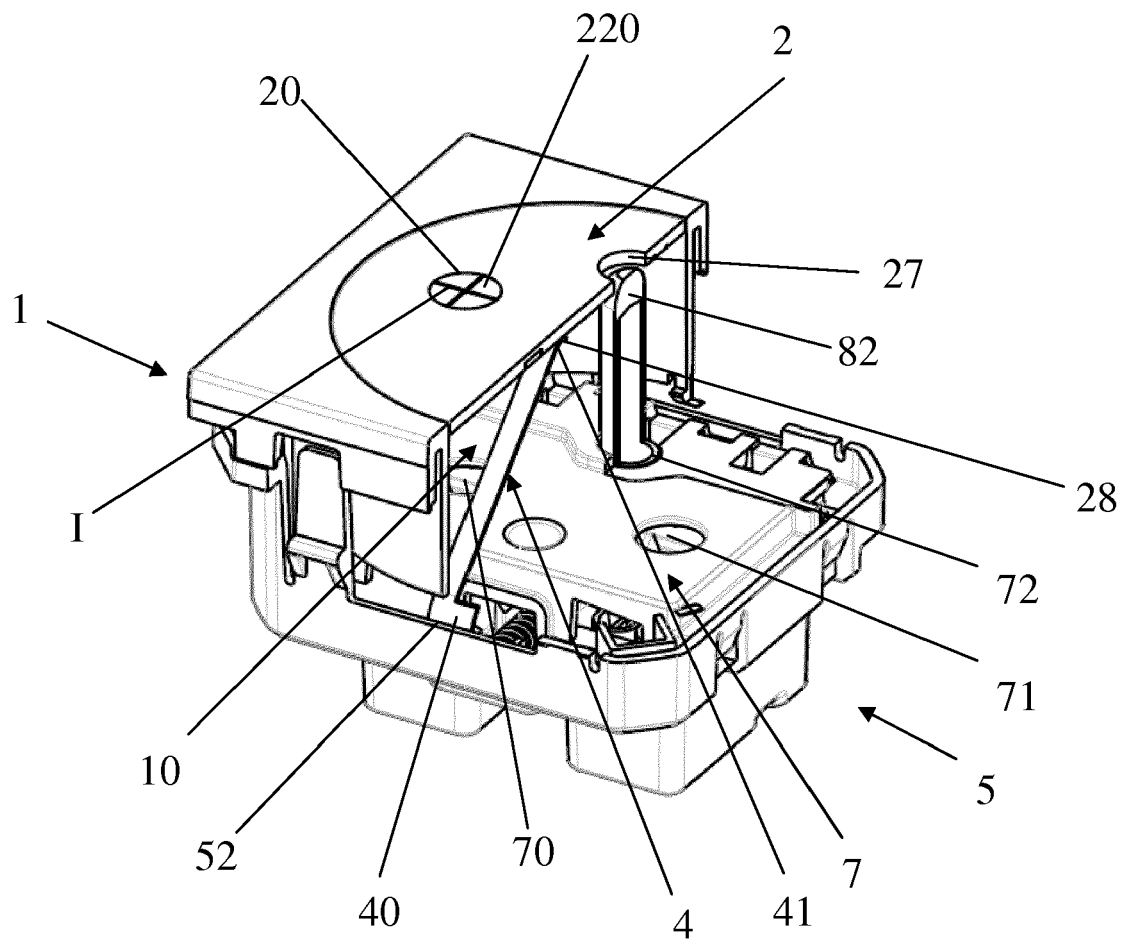


FIG. 9

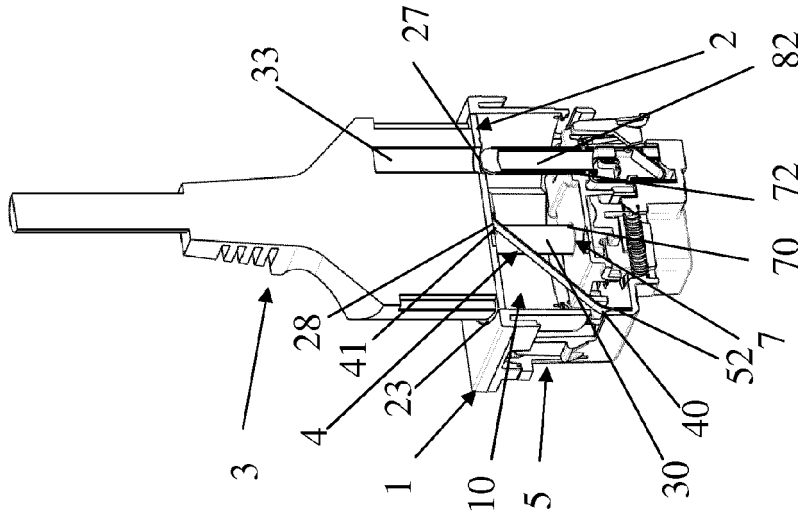


FIG. 10c

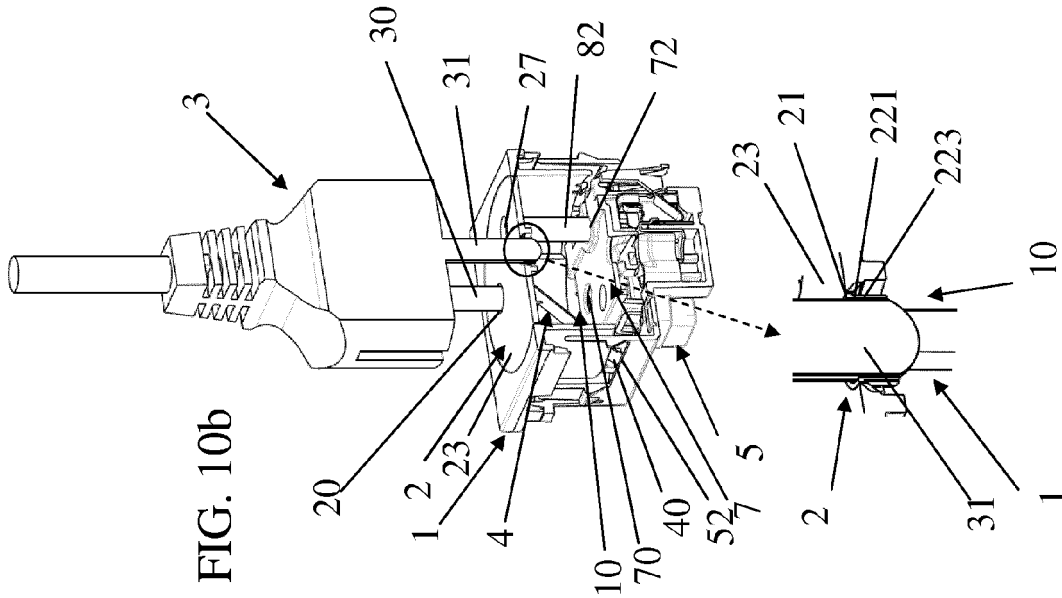


FIG. 10b

FIG. 10

FIG. 10f

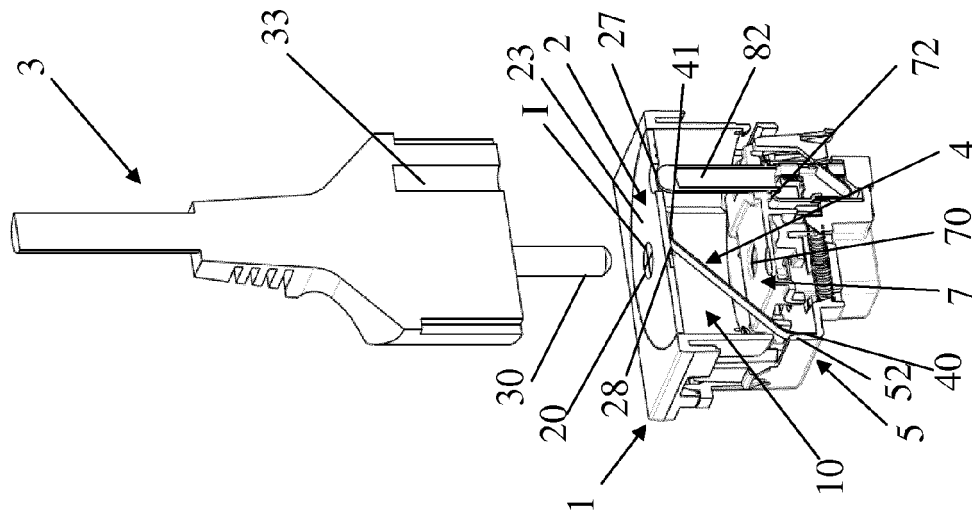


FIG. 10a

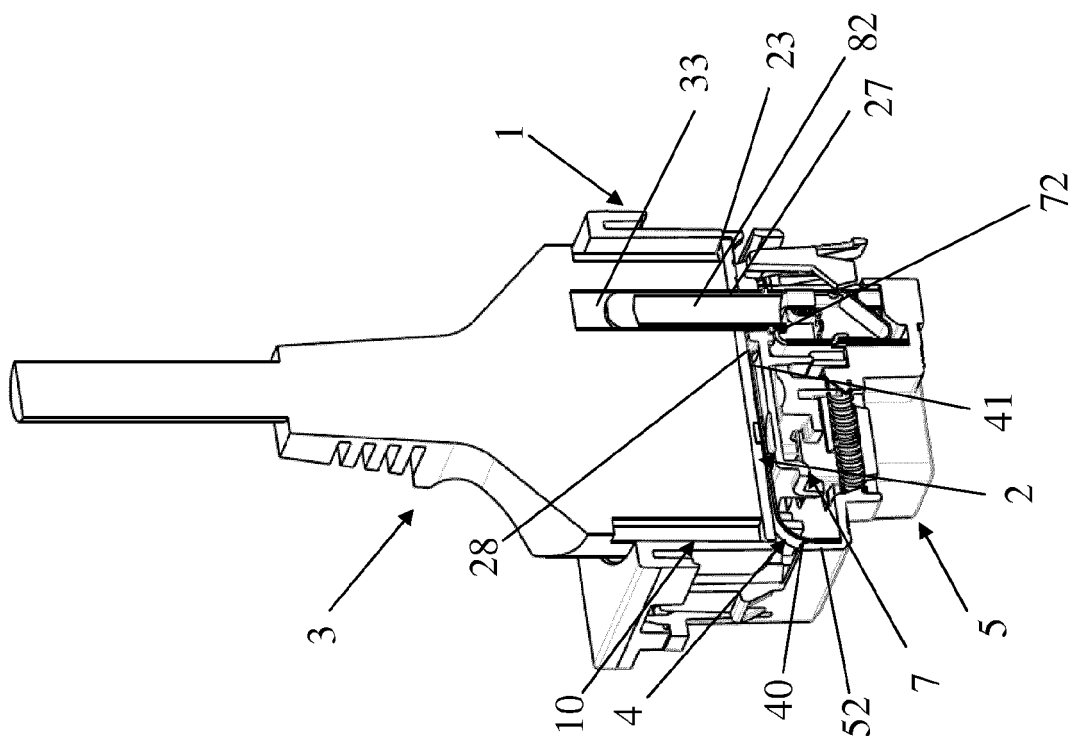


FIG. 10e

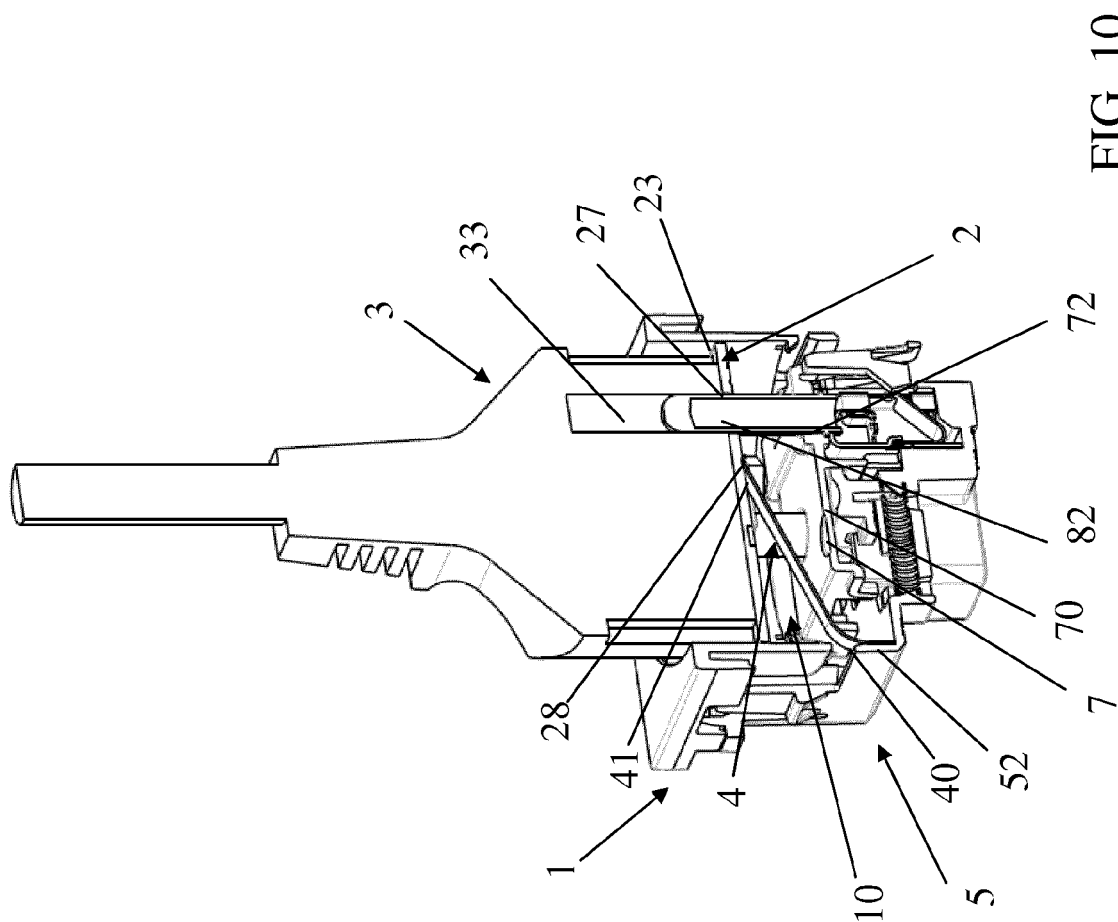


FIG. 10

FIG. 10d



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