

(19) **DANMARK**

(10) **DK/EP 3540871 T3**



Patent- og
Varemærkestyrelsen

(12) Oversættelse af
europæisk patentskrift

-
- (51) Int.Cl.: **H 01 R 24/76 (2011.01)** *H 01 R 103/00 (2006.01)* *H 02 G 3/12 (2006.01)*
- (45) Oversættelsen bekendtgjort den: **2023-09-18**
- (80) Dato for Den Europæiske Patentmyndigheds bekendtgørelse om meddelelse af patentet: **2023-06-07**
- (86) Europæisk ansøgning nr.: **18161211.0**
- (86) Europæisk indleveringsdag: **2018-03-12**
- (87) Den europæiske ansøgnings publiceringsdag: **2019-09-18**
- (84) Designerede stater: **AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR**
- (73) Patenthaver: **Heinrich Kopp GmbH, Alzenauer Strasse 68, 63796 Kahl am Main, Tyskland**
- (72) Opfinder: **PinzÃn Caballero, Jos , Neuer Weg 31, 60388 Frankfurt, Tyskland**
- (74) Fuldmægtig i Danmark: **H IBERG P/S, Adelgade 12, 1304 K benhavn K, Danmark**
- (54) Ben vnelse: **H jdejusterbar stikd sesokkel og stikd se med denne sokkel**
- (56) Fremdragne publikationer:
DE-A1- 10 029 222
DE-U1- 7 728 676

Description

HEIGHT-ADJUSTABLE SOCKET BASE AND SOCKET

[0001] The present invention relates to a height-adjustable socket base and a socket with the socket base.

5 **[0002]** Socket bases are sufficiently known from the prior art.

[0003] DE 198 356 31 C2 discloses an electrical installation device which can be installed in a device box, in particular a flush-mounted box, in particular in the form of an antenna socket, a power supply socket or a light switch with a resettable spreading device for anchoring the installation device in the device box.

10 **[0004]** DE 4 032 142 A1 discloses a socket with a support ring for a base which has on opposite sides in each case one two-limbed spreading claw which can be transferred by in each case one adjusting screw from a rest position into a working position in which the claws penetrate into adjacent wall regions of a flush-mounted box and to which re-setting means are assigned.

15 **[0005]** DE 196 235 45 C2 relates to a socket for releasable fastening in the installation opening of a housing wall, with a multi-part box housing for receiving a plug which has a stop flange bearing against the front side of the housing wall, with a contact carrier for connecting electrical supply lines, and with resilient spreading elements.

20 **[0006]** DE 100 29 222 A1 relates to an electrical installation device for installation in an installation opening, for example of an installation box or the like, with a support ring and with a base, wherein the support ring consists of an annular plate and of feet projecting substantially perpendicularly from the annular plate, which feet, when the base is fastened to the support ring, in each case come into contact with a contact surface facing the base against a respectively complementary support surface of the base. Such an
25 electrical installation device is to be characterized in that the contact surface and/or the support surface consists of two partial surfaces which are arranged in different positions over a length of the feet or a height of the base extending in the same direction as this length, wherein in two different relative positions of the base turned parallel to the plane of the ring plate to the support ring in each case two different partial surfaces of the

contact surface or different partial surfaces of the contact surfaces bear against the contact surface and in this way determine different distances between the ring plate and the base. Such an electrical installation device is to be adaptable to two different depths of installation boxes or to different distances between the ring plate and the base and thus ensure a high level of ease of assembly and help to minimize the outlay on storage.

[0007] A disadvantage of previous socket bases is that they are generally only suitable for special socket types. This is neither environmentally friendly nor cost-saving. The change of the socket base for adaptation to socket types is usually not possible at all or takes place by manual bending of metal parts during installation. However, this is not secure, since the socket base can become loose, in particular if it is not installed straight and a plug is inserted into the socket with force. The object of the present invention is therefore to provide an improved socket base which is suitable for different socket types and is moreover particularly easy to assemble. It is also an object of the present invention to provide a socket base which prevents loosening of the socket base in the socket and increases security. The object is achieved by a socket base comprising a support ring having a support ring frame and a base plate having a base bottom, wherein the support ring comprises latching pins which each have a latching pin end as well as at least one first and/or second latching resistance, in particular a first and second latching resistance, wherein the base plate comprises guide receptacles for said latching pins, wherein the guide receptacles each have at least one first and/or at least one second latching recess for the first and/or second latching resistance, in particular at least first and second latching recesses for the first and second latching resistance, wherein the distance between support ring frame and base bottom can be adjusted, in particular reversibly, with said latching pins, wherein the guide receptacles each have a first receptacle side and an opposite second receptacle side, wherein the at least one first latching recess, in particular two first latching recesses, is/are present in the first receptacle side and the at least one second latching recess, in particular two second latching recesses, is/are present in the second receptacle side, wherein the at least one first latching resistance, in particular all first latching resistances, is/are inclined in the direction of the corresponding first receptacle side and the at least one second latching resistance, in particular all second latching resistances, is/are inclined in the direction of the corresponding second receptacle side, and wherein the socket base is adapted and arranged to be moved from a first into a second state, wherein the support ring frame has, in the first state, a first adjusting distance (J1) from the base bottom and, in the second state,

a second adjusting distance from the base bottom, wherein the second adjusting distance is greater or smaller than the first adjusting distance.

5 [0008] Said distance between the support ring frame and the base bottom is also referred to below as the adjustment distance. It is preferably determined orthogonally to a plane defined by the support ring frame and extends from said plane orthogonally to the base bottom, in particular to the furthest region of the base bottom. "Adjustable" within the meaning of the present invention means that the distance between the support ring frame and the base bottom can be changed with said latching pins, wherein two, three, four or more distances can be set with the latching pins, preferably according to the invention 10 two to height distances, particularly preferably three to six distances. Preferably, these distances can be set reversibly, i.e. a set distance can also be changed again.

[0009] Furthermore, the term "height" is also used below. This is preferably the distance from the base bottom, in particular to the furthest region of the base bottom, which is determined orthogonally to said plane. A first element which is arranged higher than a 15 second element is preferably located closer to the support ring frame and/or further away from the base bottom.

[0010] A "socket base" within the meaning of the present invention serves as an electrical plug-in connector between lines and generally comprises the components for fixing the socket and for the generic function, in particular for connecting a line, preferably a plug, 20 for the purpose of current transmission. Expansion claws, as mentioned for example in the documents mentioned at the beginning, are preferably used in order to fix the socket base in a wall recess. It may be a socket base for a telephone socket, a data transmission socket or an antenna socket. Particularly preferably, however, it is a socket base for the power supply, for example for a Schuko socket. The socket base is preferably adapted 25 and arranged to be used in a flush-mounted socket and/or to be combined with a socket cover, in particular made of plastic.

[0011] A "guide receptacle" within the meaning of the present invention is adapted and arranged to receive a latching pin and to guide the latter during a change of the distance between the support ring frame and the base bottom. In one embodiment, different types 30 of guide receptacles may be present. A guide receptacle is also a generic term for these types, which may be referred to for example as "first guide receptacle" and "second guide receptacle". Said types do not necessarily have to differ structurally, but may result solely

from the different position of the guide receptacles at the socket base. Nevertheless, structurally different guide receptacles are also possible according to the invention. This is explained in more detail at a corresponding point.

5 [0012] A "latching recess" within the meaning of the present invention is adapted and arranged to receive a latching resistance. In one embodiment, different types of latching recesses may be present. A latching recess is therefore also a generic term for these types, which may be referred to for example as "first latching recess" and "second latch-
10 ing recess". Said types do not necessarily have to differ structurally, but may result solely from a different position at the guide receptacles. Nevertheless, structurally different latching recesses are also possible according to the invention.

[0013] Preferably, it is provided that, particularly for each latching pin in each case, the first latching resistance is present on the latching pin end or spaced apart with a first latching resistance distance from said latching pin end and the second latching re-
15 sistance is present spaced apart with a second latching resistance distance from the same latching pin end, wherein the first latching resistance distance is smaller than the second latching resistance distance. Preferably, the first latching resistance is closer to the latching pin end of the respective latching pin than the second latching resistance. First and second latching resistances at different heights facilitate the setting of different distances, in particular adjustment distances, between the support ring frame and base
20 bottom. Preferably, the first latching resistance and the second latching resistance are spaced apart from each other at least to such an extent that an intermediate section is present between the latching resistances which has no latching resistances.

[0014] It is also preferred if the latching pins each have a, in particular L-shaped, sliding
25 element and the guide receptacles each comprise a sliding groove for receiving the sliding element, wherein the sliding element is adapted and arranged to slide in the sliding groove, in particular wherein the latching resistances are connected to the sliding element, in particular integrally, and/or wherein the sliding groove comprises a side cavity, preferably has an L-shaped cross-section. An L-shaped cross-section is preferably al-
30 ready present when a first and a second leg can be defined which enclose an angle of 60 to 120°, in particular 70 to 110°, particularly preferably 80 to 100°. Sliding elements allow a guided changing of the distances, in particular adjustment distances, between the support ring frame and base bottom along the sliding grooves. Preferably, each of said latching pins has such a sliding element.

[0015] In some embodiments, it is provided that the sliding groove comprises a side cavity and/or an undercut. For example, the sliding groove can have an L-shaped cross-section, wherein the sliding element has a corresponding L-shape. Here, it is preferred that the latching pins comprise a latching pin projection corresponding to the side cavity and/or undercut, which is adapted and arranged to engage in the side cavity and/or to be blocked by the undercut, in particular to engage behind the latter. In the L-shaped cross-section, the latching pin projection preferably corresponds to the short sides of the "L". A side cavity within the meaning of the present invention is a cavity in a side wall of the groove, in particular wherein a protruding region is created. An undercut within the meaning of the present invention is a construction element which protrudes at the sliding groove and can thus prevent the sliding element from being removed from the sliding groove orthogonally to the sliding direction. The side cavity and/or undercut causes the sliding element not to be removed from the sliding groove orthogonally to the sliding direction and prevents the latching pins from inadvertently coming loose. The security during assembly is thus improved.

[0016] Preferably, the latching pins each comprise a connecting portion, in particular in the form of a connecting rod, between the respective sliding element and/or latching resistance and the remaining support ring. The connecting portion, even in its simplest configuration, for example as a rod, facilitates the connecting of the sliding element and/or the latching resistance to the remaining support ring. Furthermore, it is preferred if the connecting portion, in particular in the form of the connecting rod, is angled and/or bent. Preferably, the connecting portion has a maximum longitudinal extension which is greater than a maximum longitudinal extension of the sliding element. The connecting portion improves the positioning of the connecting portion and allows easier cushioning of latching movements of the latching pins at the bend or the angling or the kink. In this way, latching is more gentle, which facilitates assembly and adjustment.

[0017] It is also preferred if the support ring consists predominantly or completely of metal and is preferably formed integrally from said metal. It has been shown that all components of the support ring can be formed from metal, in particular also the latching pins. In one embodiment, the support ring is obtainable from a metal sheet by punching. Preferably, the metal is steel, in particular galvanized steel. This is both cost-effective and also particularly stable. Surprisingly, the latching pins could also be formed from the metal sheet by a punching method. Preferably, the entire support ring has been formed integrally from a metal sheet. In particular, it is preferred if the material thickness of the

metal of the support ring is substantially constant on the support ring frame and on the latching pins, in particular on the entire support ring, preferably wherein the material thickness is determined orthogonally to the local orientation of the metal sheet which was used to form the support ring.

5 **[0018]** In some embodiments, it is provided that the support ring comprises at least four latching pins, in particular exactly four latching pins, and the base plate comprises at least four, preferably corresponding, guide receptacles, in particular exactly four guide
10 receptacles, for the at least four latching pins. The four latching pins are preferably arranged such that they form the four corners of an imaginary rectangle. With at least four latching pins, the support ring can be adjusted particularly uniformly, wherein all regions of the support ring are simultaneously, in particular uniformly, approached to or removed from the base bottom. The stability of the mounting of the support ring on the socket base is also improved.

15 **[0019]** Furthermore, it is preferred if the first and/or second latching resistance, in particular of each latching pin, has a plate-shaped or cuboid basic form. This can in particular also be combined well with the above-described integral embodiment of the support ring. Plate-shaped or cuboid basic forms produce a particularly suitable latching resistance, which facilitates adjustment and holds it firmly in the recesses. If the latching resistance is too low or too high, adjustment of the distances, in particular adjustment distances,
20 between the support ring frame and base bottom is made more difficult and this can moreover impair the security, for example if a latching resistance inadvertently comes loose when a plug is inserted. Alternative forms, for example wedge forms, are also conceivable according to the invention.

25 **[0020]** It is also provided in an expedient embodiment that the base plate comprises guide receptacles in the form of at least two, in particular two, first guide receptacles on a first base side of the base plate, in particular base broad side, and/or in the form of at least two, in particular two, second guide receptacles on an opposite second base side of the base plate, in particular second base broad side. Preferably, the base plate comprises four base sides, in particular said first and second base broad side and two base
30 short sides. It is preferred if the base broad sides have a greater area or maximum longitudinal extension than the base short sides. The base plate is preferably not equally long and wide, but rather elongated, wherein the longer sides provide the base broad sides. Length and width are preferably to be determined parallel to the plane which the

support ring frame defines. By arranging in each case two guide receptacles on opposite base sides, in particular base broad sides, the base plate is fixed slidably on the support ring in a particularly firm and positionally stable manner. Alternatively, it would be conceivable for example to provide in each case exactly one guide receptacle on each of the four base sides, but this is less firm and positionally stable.

[0021] It is also provided in one embodiment that the base plate is formed at least partially, in particular predominantly, from plastic. Plastic has insulating properties, which improves security and is moreover cost-effective. Furthermore, it is preferred if the plastic comprises glass fibers, in particular 2 to 60% by weight, particularly preferably 10 to 50% by weight, very particularly preferably 20 to 40% by weight. This is advantageous in particular for repeatedly adjustable and stable guide receptacles.

[0022] Preferably, the guide receptacles each comprise one, in particular outer, first receptacle side, in particular a total of four first receptacle sides of four guide receptacles, preferably wherein each first receptacle side has at least one first projection and/or at least one first contact surface, in particular three first projections and three first contact surfaces. Preferably, a first contact surface adjoins each first projection, in particular wherein the first projection and the first contact surface each enclose an angle of 60 to 120°, in particular 70 to 110°, particularly preferably 80° to 100°.

[0023] In some embodiments, the first guide receptacles comprise a different second receptacle side than the second guide receptacles. In particular, it is preferred if the first guide receptacles each have a second receptacle side with in each case at least one second contact surface which is in each case larger than a first contact surface and/or if the second guide receptacles each have a second receptacle side with in each case at least one second projection and at least one third contact surface, in particular wherein the third contact surface is in each case smaller than the second contact surface. In this way, the support ring can be connected more easily to the base plate.

[0024] The first receptacle sides preferably are present on the outside and the second receptacle sides preferably are present on the inside, in particular such that the second receptacle sides are closer to the center of the support ring opening than the first receptacle sides. First receptacle sides within the meaning of the present invention may preferably also be referred to as outside receptacle sides and second receptacle sides preferably also as inside receptacle sides.

[0025] In a particularly suitable embodiment, all of the above-described receptacle sides are provided within one embodiment, i.e. four outside first receptacle sides with four first projections and four first contact surfaces as well as four opposite inside second receptacle sides, wherein two second receptacle sides of the four second receptacle sides have the described second contact surface and the other two of the four second receptacle sides each have the at least one second projection and each have at least one third contact surface. Two types of second receptacle sides are thus present in this embodiment.

[0026] The above-described first and second projections shield the, in particular edged, latching resistances of the latching pins and protect the user when the distance, in particular adjustment distance, between the support ring frame and base bottom is adjusted with said latching pins. It is also prevented that an adjustment of the adjustment distance is blocked by friction on the part of the user or of masonry.

[0027] Furthermore, it is preferred when each first and/or second projection adjoins a corresponding first or second contact surface, in particular at an angle of 60 to 120°, in particular 70 to 110°, particularly preferably 80 to 100°.

[0028] Furthermore, it is preferred when at least one first latching recess, in particular two first latching recesses, is/are formed between the first projections and/or at least one second latching recess, in particular two second latching recesses, is/are formed between the second projections, and/or when at least one first projection is formed between first latching recesses, and/or the at least one second projection is formed between second latching recesses, in particular wherein each guide receptacle comprises in each case three first and three second projections. Accordingly, recesses and projections are preferably interlocked with one another, wherein this allows a finer adjustment and at the same time better shields the latching resistances.

[0029] Furthermore, it is preferred when at least one first latching recess, in particular two first latching recesses, is/are formed between the first contact surfaces and/or at least one second latching recess, in particular two second latching recesses, is/are formed between the second and/or third contact surfaces, and/or when at least one first contact surface is formed between first latching recesses, and/or the at least one second and/or third contact surface is formed between second latching recesses, in particular wherein each guide receptacle comprises in each case six contact surfaces. Accordingly,

latching recesses and contact surfaces are preferably interlocked with one another, wherein this allows a finer adjustment and reduces the resistance of the transition between different states.

5 [0030] According to the invention, it is provided that the guide receptacles each have a first receptacle side and an opposite second receptacle side, in particular the above-described first and second receptacle sides, wherein the at least one first latching recess, in particular two first latching recesses, is/are present in the first receptacle side and the at least one second latching recess, in particular two second latching recesses, is/are present in the second receptacle side. In principle, it is also conceivable according to the invention that the first and second latching recesses of a guide receptacle are present 10 on the same receptacle side. However, it has been shown that the latching resistances latch better in the case of opposite latching recesses. If a latching resistance is removed from a first latching recess, this can support the movement of another latching resistance into the second latching recess. Adjustment is facilitated and can take place more precisely, wherein less force is necessary. It is also now possible to set the distances between first and second latching recesses independently, in particular such that the latching recesses would overlap if they were present on the same receptacle side or now lie 15 opposite one another at least in regions. This thus allows a finer graduation of the height predefined by the first and second latching recesses. In one embodiment, it is very particularly preferred if at least one first latching recess lies at least partially opposite at least one second latching recess, wherein the distances of the first and second latching recesses to the latching pin end are different. 20

[0031] In some embodiments, it is provided that the first receptacle side of each guide receptacle each has at least two first latching recesses, in particular 2, 3 or 4 first latching recesses, and the second receptacle side each has at least two second latching recesses, in particular 2, 3 or 4 second latching recesses, and/or that the first receptacle side of each guide receptacle each has at least three first projections and/or first contact surfaces and the second receptacle side each has at least three second projections and/or second and/or third contact surfaces. This allows an even finer adjustment of the distance, in particular of the adjustment distance, between the support ring frame and 30 base bottom, in particular wherein at least four distances are adjustable.

5 [0032] According to the invention, it is provided that at least one first latching resistance, in particular all first latching resistances, is/are inclined in the direction of the corresponding first receptacle side and at least one second latching resistance, in particular all second latching resistances, is/are inclined in the direction of the corresponding second receptacle side. The corresponding receptacle side is that which belongs to the guide receptacle into which the latching pin is inserted. Changing between opposite latching recesses is facilitated by the inclination of the latching resistances. It is also easier to insert and lift the latching resistances out of latching recesses.

10 [0033] Preferably, the first latching resistance has a first orientation and the second latching resistance has a second orientation and/or the first latching resistance has a first latching resistance surface with the first orientation and the second latching resistance has a second latching resistance surface with the second orientation, preferably wherein the orientations correspond to the orientations of plate-shaped latching resistances, wherein the first orientations define a first plane and the second orientation defines a
15 second plane, wherein said first and second planes meet at an angle of 60 to 120°, in particular 70 to 110°, particularly preferably 80 to 100°.

[0034] Preferably, it is provided that the first projection is inclined in the direction of the opposite second receptacle side and the second projection is inclined in the direction of the opposite first receptacle side. It can also be provided that the first projection and/or
20 a first projection surface of the first projection is substantially aligned with a second contact surface of the same guide element. Furthermore, it can be provided that the second projection and/or a second projection surface of the second projection is substantially aligned with a first contact surface of the same guide element. Preferably, this is the case with all guide elements. "Substantially aligned" means that the corresponding orientations do not differ from each other by more than 20°, in particular 10°, preferably 5°. In
25 this way, a shield is formed from projections, which can extend at least partially over the latching resistances and shields them. This prevents the latching resistances from being inadvertently prevented from changing the latching position by contact on the part of the user and the user is protected from edges of the latching resistances.

30 [0035] It is also particularly preferred if the inclination of the first contact surface substantially corresponds to the inclination of the first latching resistance and/or the inclination of the second and third contact surface substantially corresponds to the inclination of the second latching resistance, in particular if the respective latching pin rests in its

corresponding guide receptacle, preferably the corresponding sliding groove. In this way, the latching pins can slide over the contact surface and rest on it, which improves the latching process and also prevents bending of the latching resistances. Changing the latching resistances into another latching recess is also facilitated.

5 **[0036]** It is also particularly preferred if the first and second latching recesses are each arranged offset with respect to one another in height at least in regions lying opposite one another, in particular have corresponding pairs of first and second latching recesses, in which the first and second latching recesses are arranged offset with respect to one another in height at least in regions lying opposite one another. Here, each of the guide
10 receptacles can have at least two such pairs, in particular exactly two such pairs.

[0037] In some very particularly preferred embodiments, it is provided that the at least one first latching recess is opposite the at least one second latching recess within at least one guide receptacle, in particular all guide receptacles, in each case at least partially and/or in regions, wherein the latching recess distance of at least one first latching recess
15 from the base bottom is smaller than the latching recess distance of the respective opposite second latching recess from the base bottom, in particular wherein at least two first latching recesses are opposite at least two second latching recesses at least partially and/or in regions, wherein the latching recess distance of each first latching recess from the base bottom is in each case smaller than the latching recess distance of the respective
20 opposite second latching recess from the base bottom. Although the recesses are thus opposite one another at least partially and/or in regions, there are small height differences. This makes it possible to adjust the distances from the latching pin end very much more precisely. This is possible if the latching recesses are arranged at least partially and/or in regions lying opposite one another. It is also preferred if all first latching
25 recesses are slightly closer to the base bottom than the at least partially and/or in regions opposite second latching recesses. Reference is made to an “at least partially and/or in regions lying opposite one another”, since there can be said small height differences, wherein the recesses nevertheless are substantially opposite one another. Nevertheless, the latching recesses are opposite one another only just not exactly at the same height.
30 In this way, the adjustment distances can be adjusted more precisely and possibly also more distances can be set. If latching recesses are opposite one another in regions, this preferably means that a region of a latching recess are opposite one region of the latching recess being opposite in regions, in particular a first region of a first latching recess is opposite a second region of the second latching recess being opposite in regions.

Here, it is also possible that the latching recesses additionally have further (third) regions which have no corresponding opposite counterparts.

[0038] In an expedient embodiment, the support ring has a rectangular basic form on the outside, in particular wherein four support ring edges can be defined, which determine the rectangle. The support ring furthermore preferably has an, in particular central, support ring opening, in particular preferably for a socket cover. This support ring opening is preferably stabilized by a ring reinforcement. The ring reinforcement preferably surrounds said support ring opening completely or at least predominantly. In an expedient embodiment, the ring reinforcement is formed by a lowering and/or inclination of the support ring material in the direction of the base bottom and/or in the direction of the latching pin ends. It is particularly preferred if the latching pins are fastened to the ring reinforcement, and in particular said lowering and/or inclination of the ring reinforcement merges in a straight line into a portion of the latching pins, in particular the connecting portion. This stabilizes both the support ring opening and simultaneously allows a more stable connection of the latching pins to the support ring frame. The support ring preferably also comprises support ring recesses for the installation and/or assembly of a device box. According to the invention, the socket base is adapted and arranged to be adjusted from a first into a second state, wherein the support ring frame in the first state has a first adjustment distance from the base bottom and in the second state has a second adjustment distance from the base bottom, wherein the second adjustment distance is larger or smaller than the first adjustment distance, in particular wherein the first latching resistance in the first state is mounted in a first latching recess and in the second state is released from the first latching recess, in particular is not present in a first latching recess or second latching recess of the socket base, wherein the second latching resistance in the second state is mounted in a second latching recess.

[0039] It is also preferred if the socket base is adapted and arranged to be adjusted from a first state optionally into a second state or a third state, in particular also optionally into a fourth state, wherein the latching pin end in the first state has a first adjustment distance from the base bottom, in the second state has a second adjustment distance from the base bottom, in the third state has a third adjustment distance from the base bottom and in the fourth state has a fourth adjustment distance from the base bottom, wherein the first adjustment distance is larger than the second adjustment distance, the second adjustment distance is larger than the third adjustment distance and the third adjustment

distance is larger than the fourth adjustment distance. Preferably, it is provided that the adjustment can take place reversibly, i.e. between states can be changed reversibly.

[0040] In one embodiment of the socket base, it is provided that the support ring is connected releasably to the socket base.

5 **[0041]** In a further embodiment of the socket base according to the invention, the socket base is adapted and arranged for the latching plug connection to the above-described support ring. The possible embodiments of the socket base result from the above explanations thereof.

10 **[0042]** Furthermore, the invention relates to a socket comprising the above-described socket base and a socket cover.

[0043] The described socket base, the support ring, the socket base or the socket can be used for adaptation of the socket base, the support ring, the socket base or the socket to socket covers of different design, in particular with different installation depth, in particular preferably during the installation of a socket in a building wall.

15 **[0044]** With the present invention, a socket base is provided which is height-adjustable. It has been shown that this is achieved in a particularly simple and secure manner with latching pins of the above-described design. In particular, a reversible adjustment is preferably also possible. Through the construction of the latching pins and the guide receptacles, numerous heights lying close to one another can be set firmly and thus finely
20 adjusted. Surprisingly, a fine adjustment is particularly successful if latching recesses are used which are arranged offset with respect to one another in height at least in regions being opposite one another. This enables a requirement-specific adaptation of the distance between support ring frame and socket base during or before assembly. The socket base is thus suitable for socket covers of different design, which was hitherto
25 often not possible.

[0045] Further features and advantages of the invention result from the following description, in which exemplary embodiments of the invention are explained by way of example with reference to schematic drawings, without thereby restricting the invention.

[0046] In the drawings:

- FIG. 1 shows a perspective view of a socket base according to the invention;
- FIG. 2 shows a perspective view of a support ring;
- FIG. 3 shows schematic side views of the support ring;
- FIG. 4 shows a top view of the base plate;
- 5 FIG. 5 shows a perspective view of the base plate;
- FIG. 6 shows a perspective view of the socket base according to the invention;
- FIG. 7 shows a schematic side view of the socket base according to the invention;
- FIG. 8 shows a top view of the socket base according to the invention; and
- FIG. 9 shows schematic side views of the socket base according to the invention
10 with different adjustment distances.

[0047] FIG. 1 shows a socket base 1 comprising a support ring 2 with a support ring frame 17 and a base plate 100 with a base bottom 101, wherein the support ring 2 comprises latching pins 5 which each have a first and second latching resistance 3, 4 and a connecting portion 15, wherein the base plate 100 comprises guide receptacles 102 for said latching pins 5, wherein the guide receptacles 102 each have at least one first and/or at least one second latching recess 103, 104, wherein the distance between the support ring frame 17 and the base bottom 101 is adjustable with said latching pins 5. On the front, the first base broad side 105 can be seen, which is adjoined by the first base short side 107 and, opposite, the second base short side 108. The support ring has a support ring opening 6 for a socket cover. For reasons of clarity, some components which are usually installed in socket bases, for example expansion claws, are not explicitly reproduced. These components from the prior art are sufficiently familiar to a person skilled in the art.

[0048] FIG. 2 shows the support ring 2, which was turned over in order to show the latching pins 5 more clearly. The support ring 2 with the support ring frame 17 comprises support ring recesses 9 for the installation and assembly of a device box. It comprises a ring reinforcement 10, which adjoins the support ring opening 6 and surrounds the latter. In each case two latching pins 5 are connected by an intermediate reinforcement 16.

The four latching pins 5 each comprise a latching pin end 7, a connecting portion 15, a first latching resistance 3 and a second latching resistance 4, wherein the first latching resistance 3 is present in each case on the latching pin end 7 and the second latching resistance 4 is present spaced apart with a second latching resistance distance from the latching pin end 7, wherein the first latching resistance distance is smaller than the second latching resistance distance. The latching pins 5 each have an L-shaped sliding element 8, wherein the latching resistances 3, 4 are integrally connected to the sliding element 8. It can also be seen that the lowering and/or inclination of the ring reinforcement 10 merges in a straight line into the connecting portion 15.

10 [0049] FIG. 3 shows a support ring 2 with a support ring frame 17, wherein the support ring 2 comprises latching pins 5, which each have a latching pin end 7 and a first and second latching resistance 3, 4. The latching pins 5 each have an L-shaped sliding element 8, wherein the latching resistances 3, 4 are integrally connected to the sliding element 8. The ring reinforcement 10 can also be seen, which extends in the direction of the latching pin ends 7 and from which the connecting portion 15 of the latching pins 5
15 departs. FIG. 3 a) shows a view rotated by 90° compared to FIG. 3 b).

[0050] FIG. 4 shows the base plate with a first base broad side 105, an opposite second base broad side 106, a first base short side 107 and a second base short side 108, which extend between the base broad sides. Said two base broad sides each have two guide receptacles 102, 112 for latching pins. Each of the four guide receptacles 102, 112 has an outside first receptacle side 116 with first projections 109 and first contact surfaces 110. Opposite second receptacle sides 117, 118 are located. The two second receptacle sides 117 of the first base broad side 105 have no projections like the other receptacle sides. Instead, larger second contact surfaces 114 are provided here. The two second receptacle sides 118 of the second base broad side 106 have projections 111 and third contact surfaces 113. It can also be seen that each of the guide receptacles 102, 112 each comprises a sliding groove 115 for receiving the sliding element 8, wherein the sliding grooves 115 each comprise a side cavity 120 and have an L-shaped cross-section. In addition, the base plate comprises a connection block 119 for expansion claws which can be inserted into recesses defined by the connection block. The first projections 109 and the first contact surfaces 110 each adjoin one another at an angle of 90° or enclose said angle.

[0051] FIG. 5 shows a perspective view of the base plate 100 from the direction of the first base broad side 105. Here, two first guide receptacles 102 can be seen which each have two first latching recesses 103 between first projections 109, wherein in each case one first projection 109 between first latching recesses 103. Opposite the first guide receptacles 102, the second guide receptacles 112 can be seen. The first guide receptacles 102 each comprise a second receptacle side, which each have three second contact surfaces 114, wherein second latching recesses 104 of the first guide receptacles 102 extend between the second contact surfaces 114.

[0052] FIG. 6 shows a perspective view of the socket base 1 comprising a support ring 2 with a support ring frame 17 and a base plate 100 with a base bottom 101 and the connection block 119 for expansion claws. Two second latching recesses 104 can be seen which are formed between second projections 111, wherein a second projection 111 is formed between second latching recesses 104.

[0053] FIG. 7 shows a side view of the base plate 100 with a base bottom 101 from the direction of the second base broad side 106. The second guide receptacles 112 each comprise outside first receptacle sides 116 and inside second receptacle sides 118. Two first latching recesses 103 are formed between three first projections 109 in each case in the two first receptacle sides 116. Two second latching recesses 104 are formed between three first projections 111 in each case in the two second receptacle sides 118. Here, the first latching recesses 103 are in each case opposite the second latching recesses 104 within the guide receptacles, wherein the latching recess distance of the first latching recess 103 from the base bottom 101 is smaller than the latching recess distance of the respective opposite second latching recess 104 from the base bottom 101. This feature has proven to be particularly beneficial for a fine adjustment.

[0054] FIG. 8 shows a socket base 1 comprising a support ring 2 with a support ring frame 17 and a base plate 100, wherein the base plate 100 comprises a first base broad side 105 and an opposite second base broad side 106, which are visible through the support ring opening 6. The support ring 2 is substantially rectangular and comprises a first support ring edge 11, an opposite second support ring edge 12, a third support ring edge 13 and an opposite fourth support ring edge 14, which define said rectangular form.

[0055] FIG. 9 shows socket bases 1 with different distances between the support ring frame 17 and base bottom 101, wherein the distances were set by a displacement of the

latching pins. Here, the socket base is adapted and arranged to be adjusted from a first state optionally into a second state or a third state, in particular also optionally into a fourth state, wherein the latching pin end in the first state has a first adjustment distance J1 from the base bottom, in the second state has a second adjustment distance J2 from the base bottom, in the third state has a third adjustment distance J3 from the base bottom and in the fourth state has a fourth adjustment distance J4 from the base bottom, wherein the first adjustment distance J1 is larger than the second adjustment distance J2, the second adjustment distance J2 is larger than the third adjustment distance J3 and the third adjustment distance J3 is larger than the fourth adjustment distance J4. The first adjustment distance J1 is shown in FIG. 9 a), the second adjustment distance J2 is shown in FIG. 9 b), the third adjustment distance J3 in FIG. 9 c) and the fourth adjustment distance J4 in FIG. 9 d). The adjustment distances were determined orthogonally to the plane defined by the support ring frame. It can also be seen here that the recesses each are opposite one another in regions and are moreover arranged slightly offset with respect to one another in height. This facilitates the fine adjustment of the distances J1, J2, J3 and J4 with an optimal arrangement of the recesses.

[0056] The features of the invention disclosed in the above description, the claims and the drawings can be essential both individually and in any desired combination for the realization of the invention in its various embodiments.

20 Reference list:

[0057]

1	socket base
2	support ring
3	first latching resistance
25 4	second latching resistance
5	latching pin
6	support ring opening
7	latching pin end
8	sliding element
30 9	support ring recesses for device socket assembly
10	ring reinforcement
11	first support ring edge

	12	second support ring edge
	13	third support ring edge
	14	fourth support ring edge
	15	connecting portion
5	16	reinforcement portion
	17	support ring frame
	100	base plate
	101	base bottom
	102	guide receptacles, in particular first guide receptacles
10	103	first latching recesses
	104	second latching recesses
	105	first base broad side
	106	second base broad side
	107	first base short side
15	108	second base short side
	109	first projections
	110	first contact surface
	111	second projections
	112	guide receptacles, second guide receptacles
20	113	third contact surface
	114	second contact surface
	115	sliding groove
	116	first receptacle side
	117	second receptacle side of the first guide receptacles
25	118	second receptacle side of the second guide receptacles
	119	connection block for claws
	120	side cavity

PATENTKRAV

1. Stikdåsesokkel (1) omfattende en støttering (2) med en støtteringramme (17) og en sokkelbase (100) med en sokkelbund (101),

5 hvor støttingen (2) omfatter låsestifter (5), som hver har en låsestiftende (7) samt mindst én første og/eller anden låsemodstand (3, 4),
hvor sokkelbasen (100) omfatter styreholdere (102, 112) til låsestifterne (5),
hvor styreholderne (102, 112) hver har mindst én første og/eller mindst én anden låseudsparring (103, 104) for den første og/eller anden låsemodstand (3, 4),
10 især i det mindste en første og anden låseudsparring (103, 104) til den første og anden låsemodstand (3, 4), hvor afstanden mellem støtteringramme (17) og sokkelbund (101) kan justeres med låsestifterne (5),
kendetegnet ved, at
styreholderne (102) hver har en første holderside (116) og en modstående anden holderside (117, 118), hvor den mindst ene første låseudsparring (103),
15 især to første låseudsparringer, er til stede i den første holderside (116), og den mindst ene anden låseudsparring (104), især to anden låseudsparringer, er til stede i den anden holderside (117, 118),
hvor den mindst ene første låsemodstand (3), især alle første låsemodstande,
20 hælder i retning af den tilsvarende første holderside (116), og den mindst ene anden låsemodstand (4), især alle anden låsemodstande, hælder i retning af den tilsvarende anden holderside (117, 118), og
hvor stikdåsesokkelen (1) er tilpasset og indrettet til at blive flyttet fra en første tilstand til en anden tilstand, hvor støtteringrammen (17) i den første tilstand har
25 en første justeringsafstand (J1) fra sokkelbunden (101) og i den anden tilstand en anden justeringsafstand fra sokkelbunden (101), hvor den anden justeringsafstand er større eller mindre end den første justeringsafstand.

2. Stikdåsesokkel (1) ifølge krav 1, kendetegnet ved, at

30 den første låsemodstand (3) er til stede på låsestiftenden (7) eller adskilt med en første låsemodstandsafstand fra låsestiftenden (7), og den anden låsemodstand (4) er til stede adskilt med en anden låsemodstandsafstand fra låsestiftenden (7), hvor den første låsemodstandsafstand er mindre end den anden låsemodstandsafstand.

3. Stikdåsesokkel (1) ifølge krav 1 eller 2, kendetegnet ved, at låsestifterne (5) hver især har et især L-formet element, især et glideelement (8), og styreholderne (102, 112) hver omfatter en rille, især en gliderille (115), til modtagelse af elementet (8), især glideelementet (8), hvor elementet (8), især glideelementet (8), er udformet og indrettet til at blive ført, især til at glide, i rillen, især gliderillen (115), især hvor låsemodstandene (3, 4) er forbundet, især integreret, med elementet (8), især glideelementet (8) og/eller hvor rillen, især gliderillen (115), omfatter en sidefordybning (120) og/eller en underskæring, fortrinsvis et L-formet tværsnit.
- 10 4. Stikdåsesokkel (1) ifølge et hvilket som helst af de foregående krav, kendetegnet ved, at
- låsestifterne (5) hver har et forbindelsesafsnit (15) mellem den resterende støttering (2) og glideelementet (8) og/eller låsemodstandene (3, 4), især hvor forbindelsesdelen (15) er vinklet eller bøjet, og/eller
- 15 støtteringen (2) overvejende eller fuldstændigt består af metal og især er udformet i ét stykke af metallet.
5. Stikdåsesokkel (1) ifølge et hvilket som helst af de foregående krav, kendetegnet ved, at
- 20 støtteringen (2) omfatter mindst fire låsestifter (5), især nøjagtigt fire låsestifter (5), og sokkelbasen (100) omfatter mindst fire styreholdere (102, 112), især nøjagtigt fire styreholdere (102, 112), til de mindst fire låsestifter (5), og/eller den i det mindste første og/eller anden låsemodstand (3, 4) har en pladeformet eller kubisk grundform.
- 25 6. Stikdåsesokkel (1) ifølge et hvilket som helst af de foregående krav, kendetegnet ved, at
- sokkelbasen (100) omfatter styreholdere i form af mindst to første styreholdere (102) på en første sokkelside (105) og i form af mindst to anden styreholdere (112) på en modsat anden sokkelside (106),
- 30 fortrinsvis hvor sokkelbasen (100) i det mindste delvist, især overvejende, er udformet af plast, især plast omfattende glasfibre.
7. Stikdåsesokkel (1) ifølge et hvilket som helst af de foregående krav, kendetegnet ved, at
- 35

- styreholderne (102, 112) hver har en første holderside (116), hvor hver første holderside (116) har mindst ét første fremspring (109) og/eller mindst én første kontaktflade (110), og/eller
- 5 de første styreholdere (102) hver har en anden holderside (117) med hver mindst én anden kontaktflade (114), som er større end den mindst ene første kontaktflade (110), og/eller
- de anden styreholdere (112) hver har en anden holderside (118) med hver mindst ét andet fremspring (111) og mindst én tredje kontaktflade (113), især hvor den tredje kontaktflade (113) er mindre end den anden kontaktflade (114).
- 10
8. Stikdåsesokkel (1) ifølge et hvilket som helst af de foregående krav, kendetegnet ved, at
- mindst én, især to, første låseudsparinger (103) mellem de første fremspring (109) og/eller mindst én, især to, anden låseudsparinger (104) er udformet mellem de anden fremspring (111), og/eller
- 15 mindst ét første fremspring (109) er udformet mellem første låseudsparinger (103), og/eller det mindst ene andet fremspring (111) er udformet mellem anden låseudsparinger (104).
- 20
9. Stikdåsesokkel (1) ifølge et hvilket som helst af de foregående krav, kendetegnet ved, at
- den første holderside (116) har mindst to første låseudsparinger (103), og den anden holderside (117, 118) har mindst to anden låseudsparinger (104), og/eller
- 25 den første holderside (116) har mindst tre første fremspring (109), og den anden holderside (118) har mindst tre anden fremspring (111).
10. Stikdåsesokkel (1) ifølge et hvilket som helst af de foregående krav, kendetegnet ved, at
- 30 vinklen mellem hældningerne af den første og anden låsemodstand (3, 4) er mindre end 120° , og/eller
- det første fremspring (109) hælder i retning af den modsatte anden holderside (117, 118), og det andet fremspring (111) hælder i retning af den modsatte første holderside (116), og/eller

hældningen af den første kontaktflade (110) i det væsentlige svarer til hældningen af den første låsemodstand (3), og/eller hældningen af den anden og tredje kontaktflade (113, 114) i det væsentlige svarer til hældningen af den anden låsemodstand (4).

5

11. Stikdåsesokkel (1) ifølge et hvilket som helst af de foregående krav, kendetegnet ved, at

den mindst ene første låseudsparring (103) i hvert tilfælde ligger i det mindste delvist overfor den mindst ene anden låseudsparring (104) inde i styreholderen, hvor mindst én første låseudsparings (103) låseudsparingsafstand fra sokkelbunden (101) er mindre end den respektive modsatte anden låseudsparings (104) låseudsparingsafstand fra sokkelbunden (101), især hvor mindst to første låseudsparinger (103) ligger overfor mindst to anden låseudsparinger (104), hvor hver første låseudsparings (103) låseudsparingsafstand fra sokkelbunden (101) i hvert tilfælde er mindre end den respektive modstående anden låseudsparings låseudsparingsafstand fra sokkelbunden (101) .

15

12. Stikdåsesokkel (1) ifølge et hvilket som helst af de foregående krav, kendetegnet ved, at

den første låsemodstand (3) i den første tilstand er lejret i en første låseudsparring (103) og i den anden tilstand er frigivet fra den første låseudsparring (103) og især ikke er til stede i nogen første låseudsparring (103) eller anden låseudsparring (104) af stikdåsesokkelen, hvor den anden låsemodstand (4) i den anden tilstand er lejret i en anden låseudsparring (104).

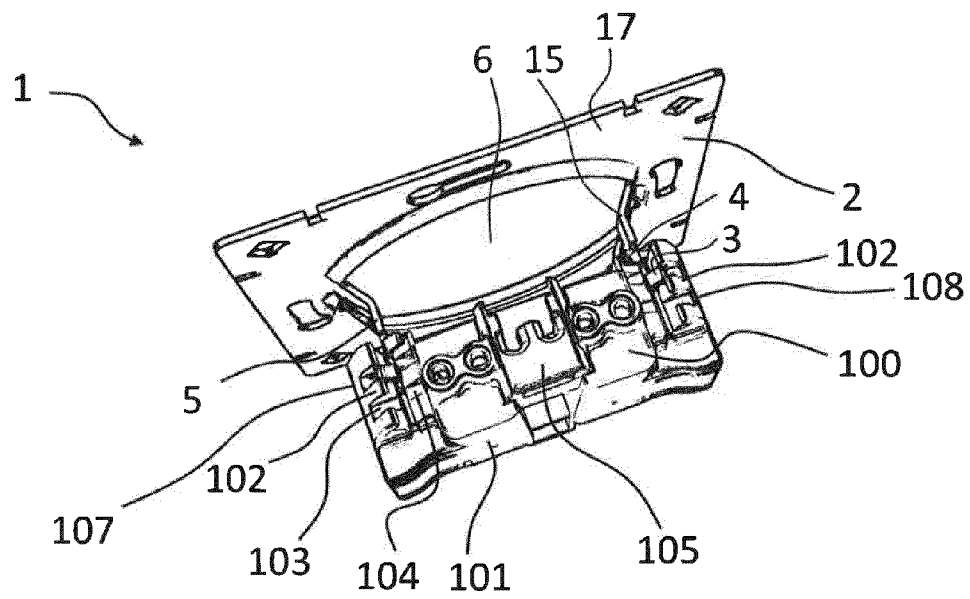
20

13. Stikdåsesokkel (1) ifølge et hvilket som helst af kravene 1 til 12, hvor stikdåsebasen (100) er tilpasset og indrettet til en låsende stikforbindelse med støttingen (2).

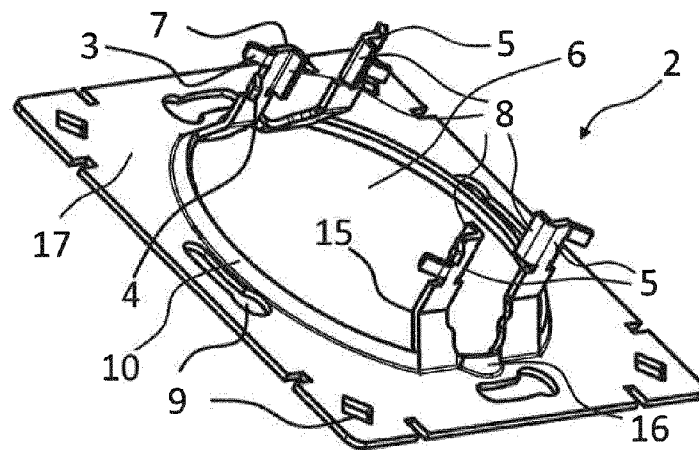
25

14. Stikdåse omfattende en stikdåsesokkel (1) ifølge et hvilket som helst af kravene 1 til 12 og et stikdåsedæksel.

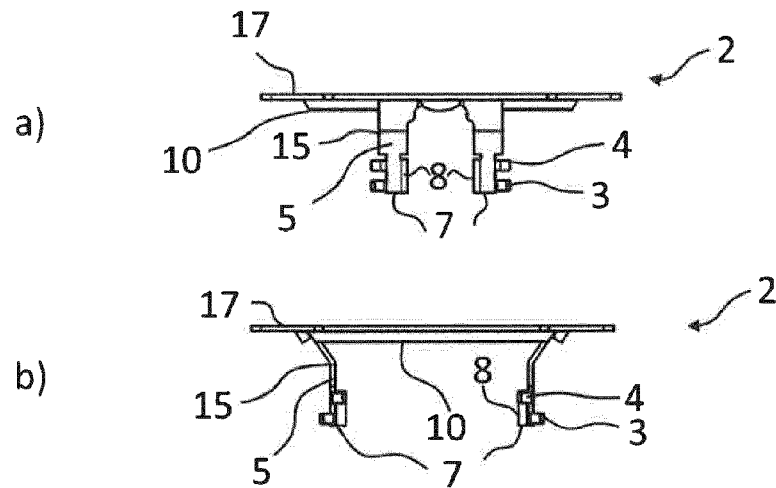
30



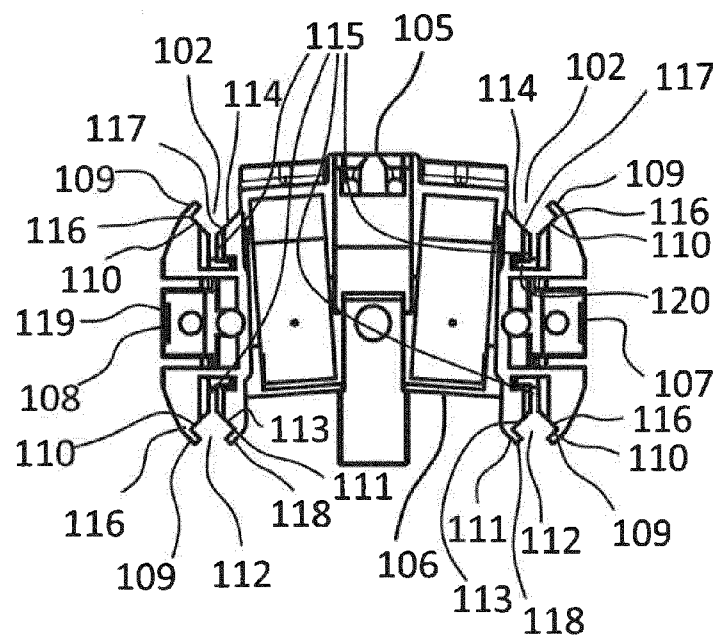
Figur 1



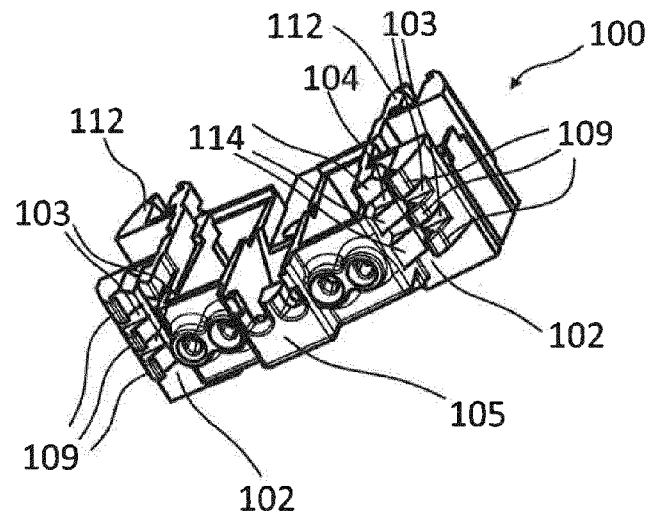
Figur 2



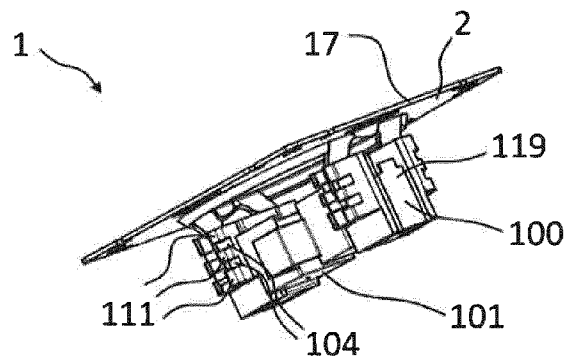
Figur 3



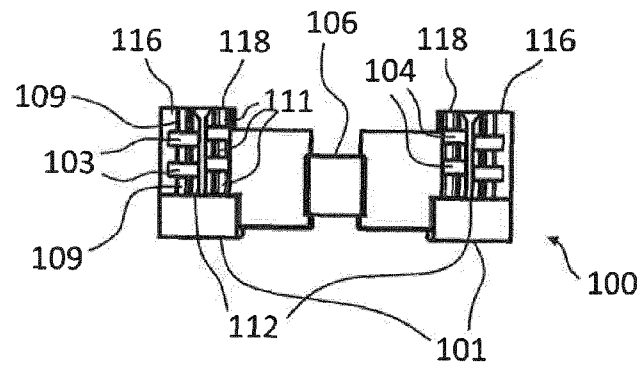
Figur 4



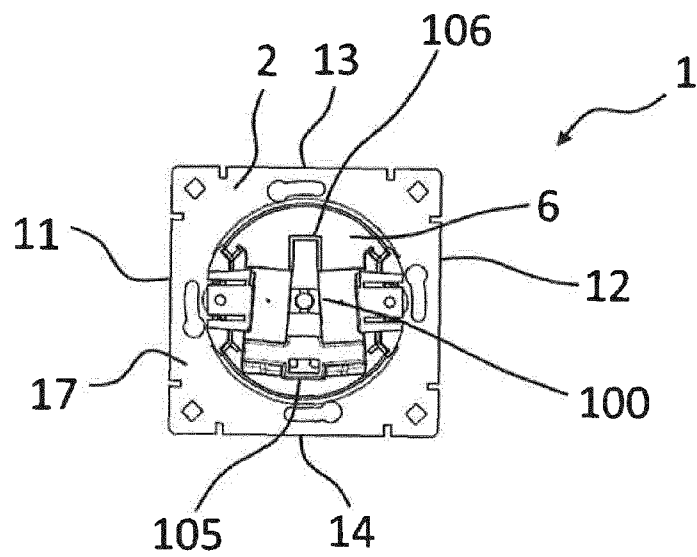
Figur 5



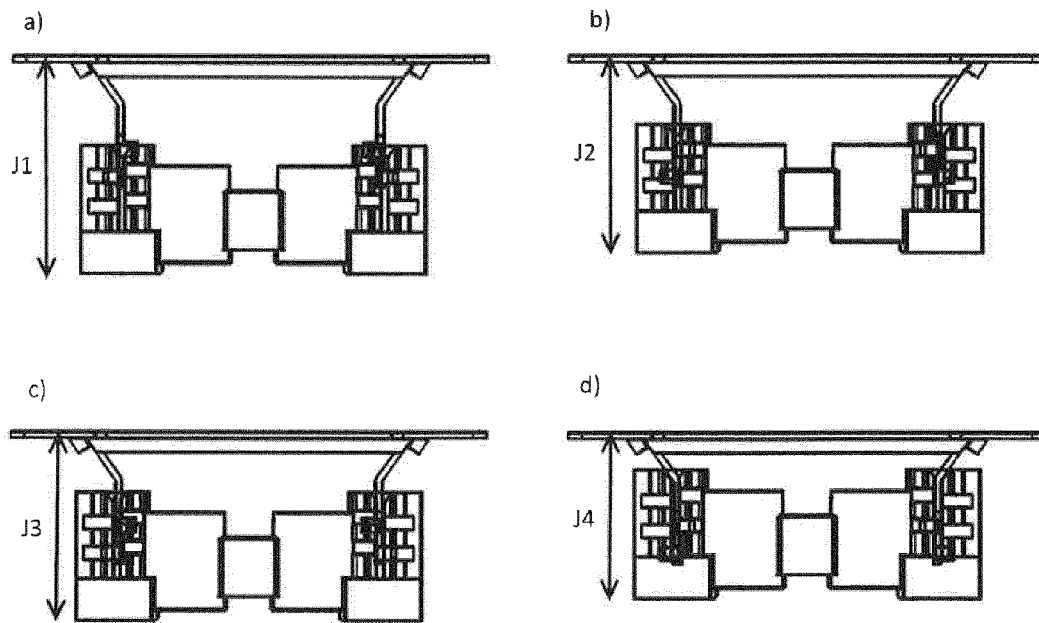
Figur 6



Figur 7



Figur 8



Figur 9