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(54) DOOR FOR A HOUSEHOLD COOKING APPLIANCE, IN PARTICULAR AN OVEN

TÜR FÜR EIN HAUSHALTSKOCHGERÄT, IM BESONDEREN EINEN OFEN

PORTE DESTINÉE À UN APPAREIL DE CUISSON ÉLECTROMÉNAGER, EN PARTICULIER UN FOUR

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Description

Field of the invention

[0001] The present invention relates to a door for a household cooking appliance, in particular an oven. More in particular, the invention relates to a door of this sort having a concealed handle device, provided with a mechanism of a push-push type.

Background of the invention

[0002] The use of hide-away or concealed handle devices on doors for household cooking appliances is widely known. In some solutions these devices are provided with a catch mechanism of a push-push type, i.e., a bistable mechanism, which can be switched between respective conditions of locking and release of a handle body by pressing the body itself towards a respective closed position.

[0003] These known handle devices basically comprise a handle body, which is hinged to a corresponding supporting structure so as to turn about an axis generally parallel to the axis of rotation of the door. Associated to the handle device is the push-push mechanism, which is able to assume a locking condition and a release condition. In the locking condition of the mechanism, the handle body is substantially flush with the front surface of the door. By pressing the handle body slightly, switching of the push-push mechanism occurs, and hence passage thereof to the release condition, which enables the handle body to assume a respective open condition: in said condition, the handle body can be gripped by a user of the household appliance with his or her hand, in order to open the door.

[0004] The handle devices provided with a push-push mechanism according to the known art are in general complex from a constructional standpoint, as well as relatively problematical and expensive to assemble and install. Said devices of a known type prove moreover far from suited for applications in which the handle body must extend almost the whole width of the door.

[0005] Relevant prior art can be found in DE4343976 and WO2009/116094.

Summary of the invention

[0006] The object of the present invention is basically to overcome one or more of the aforesaid drawbacks, and in particular to provide a door for a household cooking appliance, in particular an oven, provided with a handle device that is simple and inexpensive to produce, reliable in operation, and extremely simplified to install. A further object of the invention is to provide a door of the above sort in which the handle device extends almost throughout the whole width of the door, at the same time guaranteeing a precise and reliable operation.

[0007] The above and yet further purposes, which will emerge more clearly hereinafter, are achieved according to the present invention by a door for a household cooking appliance having the characteristics indicated in the annexed claims. The claims form an integral part of the technical teaching provided herein in relation to the invention.

Brief description of the drawings

[0008] Further characteristics and advantages of the present invention will emerge clearly from the ensuing description, with reference to the annexed drawings, which are provided purely by way of non-limiting example and in which:

- Figures 1 and 2 are a front view in elevation and a side view, respectively, of a door for a household cooking appliance according to the present invention, with a corresponding handle device in the open condition;
- Figures 3 and 4 are views similar to those of Figures 1 and 2, but with the handle device in the closed condition;
- Figure 5 is a partially exploded view of the door of Figures 1-4;
- Figure 6 is a rear view in elevation of a frame of the door of Figures 1-5;
- Figure 7 is an exploded view of a handle device of a door according to the invention, for example the door of Figures 1-5;
- Figure 8 is an enlarged detail of Figure 7;
- Figure 9 is a further exploded view of the handle device of Figure 7;
- Figures 10 and 11 are enlarged details of Figure 9;
- Figure 12 is a further partial exploded view of the handle device of Figures 7 and 9;
- Figure 13 is an enlarged detail of Figure 12;
- Figures 14 and 15 are a rear view in elevation and a view from above, respectively, of a component of the handle device of Figures 7, 9 and 12;
- Figure 16 is an enlarged detail of Figure 14; and
- Figure 17 is a cross section, at an enlarged scale, according to the line XVII-XVII of Figure 14.

Description of preferred embodiments of the invention

[0009] Reference to "an embodiment" or "one embodiment" in the framework of this description is meant to indicate that a particular configuration, structure, or characteristic described in relation to the embodiment is comprised in at least one embodiment. Hence, phrases such as "in an embodiment" or "in one embodiment" and the like that may be present in different points of this description do not necessarily all refer to one and the same embodiment. In addition, the particular configurations, structures, or characteristics can be combined in any adequate way in one or more embodiments. The references used in what follows are only provided for convenience

and do not define the sphere of protection or the scope of the embodiments.

[0010] In Figures 1 to 4, designated as a whole by 1 is a door for a household cooking appliance according to the present invention. In the sequel of the present description it is assumed that the door 1 is provided at the opening of a cooking chamber or muffle of a domestic oven. For this purpose the door is hinged in a bottom region thereof to the structure of the oven so as to turn about a substantially horizontal axis.

[0011] The door 1 comprises a door frame, designated as a whole by 2, which has a structure that comprises two vertical sides 3 and 4, connected at the respective ends via two transverse elements 5 and 6. The frame 2 substantially defines a mounting frame for a closing panel, designated as a whole by 7. The panel 7, which is preferably a panel made of tempered glass, is fixed to the frame 2. In one embodiment of the invention, the frame 2 has a body made of plastic material to which the glass panel 7 is fixed via gluing. Associated to the frame 2, in an upper part thereof, is a handle device, designated as a whole by 10 in Figure 5.

[0012] As represented for example in Figures 7, 9 and 12, the handle device 10 comprises a supporting body, designated as a whole by 20, which is to be mounted on the frame 2 above the panel 6. The handle device 10 further comprises a handle body, designated as a whole by 30, which is mounted movable on the supporting body 20 in order to be able to assume a closed position and an open position. In the open position, visible in Figures 1-2, the handle body 30 projects from a front plane of the door, for example the plane defined by the front surface of the panel 6, so that it can be gripped by a user. Shown, instead, in Figures 3 and 4 is the closed position of the handle body 30, in which the body itself cannot be gripped. As will emerge clearly hereinafter, in a preferred embodiment of the invention, as represented in the figures, at the front of the handle body 30 a corresponding covering panel is applied, designated by 40. Preferably, also this panel 40 is made of glass and, in the closed condition of the handle body 30, the panel 40 is substantially flush with the panel 6, as may be clearly appreciated, for example, from Figure 4.

[0013] The handle device 10 comprises a catch mechanism, described hereinafter, substantially of a push-push type, i.e., one that can be switched between respective conditions of locking and release via a slight pressure of the handle body 30 towards the respective closed position. The device 10 moreover includes elastic means, described hereinafter, mounted so as to bias the handle body 30 constantly towards the respective open position.

[0014] According to a characteristic of the invention, the handle body 30 has, in the rear face thereof, i.e., its own face generally facing the supporting body 20, at least one contrast element, designated by 31 in Figures 9, 10, 14, 16 and 17. The contrast element 31 is substantially configured as a projection projecting from the aforesaid rear face of the handle body 30. In a particularly advantageous embodiment, the projection that provides the contrast element 31 is made integrally in the body itself, which is preferably made of a single piece of thermoplastic material obtained by moulding. As may be seen in Figures 10 and 17, the contrast element 31 has a head 31a generally enlarged with respect to a corresponding stem. In the example illustrated, this head 31a includes two opposite inclined surfaces.

[0015] Once again according to a characteristic of the invention, the supporting body 20 has, in its own front face, i.e., its own face generally facing the handle body 30, at least one seat for receiving a catch mechanism of a push-push type.

[0016] The aforesaid seat, designated as a whole by 21 for example in Figures 8, 12 and 13, is designed to receive the casing of a respective catch mechanism, designated in the aforesaid figures by 22. In a preferred embodiment, the seat 21 is defined integrally in the supporting body 20, which is preferably also made of a single piece of moulded thermoplastic material. In Figures 8, 11 and 13 the casing of the mechanism 22 is designated by 23.

[0017] In a particularly advantageous embodiment, the casing 23 of the mechanism 22 and the corresponding receiving seat 21 are configured for mutual engagement, in particular a snap-action engagement. In the case exemplified, the casing 23 has, on two opposite walls, a respective engagement tooth, only one of which is visible, designated by 23a, designed to engage in a corresponding slit 21a - see Figure 8 - made in a homologous wall of the seat 21. In the example of embodiment illustrated, the casing 23 has a generally parallelepipedal shape, open at the front end and closed at the rear end, and the seat 21 has a respective cavity having a cross section substantially complementary to the cross section of the casing 23. It will be appreciated, however, that, in possible alternative embodiments, the shape of the casing 23 and of the seat 21 may be different from the one exemplified, it being understood that, preferentially, the type of engagement between the two parts in question is an engagement of a fast-coupling type.

[0018] Once again according to the invention, the catch mechanism 22 includes a pair of arms 22a, generally shaped like a jaw, preferably projecting from the front from the casing 23. The arms 22a are mounted with respect to the corresponding casing 23 in such a way that, in the release condition of the mechanism 22, the arms themselves are in a wide apart configuration, so as to be able to receive freely the head 31a of the corresponding contrast element 31 between them; in the locking condition of the mechanism 22, the arms 22a are, instead, in a generally mutually approached condition, adapted for withholding the head 31a of the contrast element 31 between them.

[0019] In the embodiment exemplified, the mechanism 22 also comprises a movable body 22b, partially housed within the casing 23 in such a way that its front part is

accessible on the front of the casing itself. The movable body 22b is biased by an elastic element (not visible) towards the outside of the casing 23, or in any case into a position such that the top of the head 31a of the contrast element 31 can press thereon. The movable body 22b basically has the function of controlling approach or recession in rotation of the two arms 22a.

[0020] Present inside the casing 23 are the components of the bistable mechanism that enable the two aforesaid mutual positions of the arms 22a to be maintained. The practical modalities of implementation of the internal components of the mechanism 22 do not fall within the purposes of the present invention. For this purpose, it is pointed out that mechanisms of a push-push type with jaw-like arms of the type indicated are generally known and that, for example, mechanisms that can be used for the purposes of implementation of the present invention can be of the type as those described in EP-A-477863, or else in US-A-4,709, 949. In a preferred embodiment of the invention, such as the one represented in the drawings, at least two contrast elements 31, two receiving seats 21, and two catch mechanisms 22 are provided. In this case, the two contrast elements 31 and the two seats 21 are preferably defined in opposite lateral regions of the handle body 30 and of the supporting body 20, respectively. This arrangement guarantees a good balance in engagement and a good alignment of the handle body 30, when it assumes the respective closed position. The presence of a pair of mechanisms 22 is particularly useful in those embodiments in which, as in the case exemplified here, the concealed handle of a door for an electrical household cooking appliance - i.e., the supporting body 20 and the handle body 30 - have a length at least equal to the minimum distance between the two vertical sides 3 and 4 of the door frame 2. As may be appreciated, in fact, for example from Figures 1 and 3, in a preferred embodiment of the present invention the handle device has as a whole a length substantially equal to the width of the panel 7.

[0021] It is to be noted that a reverse arrangement of the components that enable the handle body 30 to be kept in the respective closed position is possible, i.e., an arrangement in which the contrast element 31, or the contrast elements 31, are on the supporting body 20, whereas the seat 21, or each seat 21, for a corresponding mechanism 22 is in the handle body 30.

[0022] In a preferred embodiment, the front face of the supporting body 20 includes at least one generally hollow region, open at the front, and it is within this portion that a corresponding seat 21 is defined. In this way, the position of the mechanism 22 is generally set back with respect to the general plane of the handle body 30 when it is in the closed position, and this enables, in a simple way, the body itself to be "hidden away" in said position; i.e., the panel 40 is substantially flush with the panel 7.

[0023] In the preferred embodiment illustrated, and as may be seen for example in Figures 7, 8, 12 and 13, the front face of the supporting body 20 includes a main wall 24, which is substantially plane and extends between two generally hollow regions, designated by 25. These two hollow regions 25 have a respective end wall 25a (see, for example, Figures 8 and 11) that is in a position generally set back with respect to the wall 24. Defined in each hollow region 25 is a respective seat 21. In the example, the seats 21 are formed integrally with the end wall 25a, but other embodiments are evidently possible. In any case, preferably, the seats 21 are in a position set back with respect to the front surface of the main wall 24, for the reason previously explained.

[0024] It should be noted that the presence of the regions 25, with the corresponding rear walls 25a set back with respect to the wall 24 enables also limitation of the area of contact between the device 10 and the frame 2 of the door 1. In this way the transmission of heat from the frame 2 to the device 10 can be reduced.

[0025] In the embodiment exemplified, the handle body 30 is hinged to the supporting body 20 so as to turn about a respective axis of rotation, not indicated. Preferentially, the axis of rotation of the handle body 30 is substantially parallel to the axis of rotation of the door 1, the frame 2 of which - as has been said - is hinged in a bottom region of its own, with means in themselves known, to the body of the cooking appliance (here not represented).

[0026] As may be seen in particular in Figures 8 and 13, each hollow region 25 is delimited laterally by an outer wall 25b of the supporting body 20. This wall 25b is preferentially generally perpendicular to the main wall 24, and formed therein is a through hole 26 for receiving a respective pin 27 for rotation of the handle body 30.

[0027] Once again with reference to the embodiment exemplified, and as may be seen, for example, in Figures 9, 10 and 12-13, the handle body 30 has also two opposite side walls, designated by 32, which are generally perpendicular to the front face of the body 30, which is substantially plane, designated by 30a.

[0028] Defined in a position substantially corresponding to at least one of the side walls 32, and preferably at both of them, is a substantially cylindrical hollow housing, open towards the external part of the body 30, designated by 33 for example in Figures 7, 9 and 12. Within the housing 33 a bushing 34 (just one of which is represented) is designed to be received, having a respective axial cavity 34a in which a respective rotation pin 27 is partially inserted. The bushing 34 is preferentially made of a resilient material and basically has the function of exerting friction on the movement of rotation of the handle body 20, in particular when this passes from the closed position to the open position, under the action of the elastic means described hereinafter.

[0029] In one embodiment, the handle device 10 has means constituting an end-of-travel for the movement of opening of the handle body.

[0030] With reference to the non-limiting example illustrated, in Figures 9, 10 and 12 it may be noted how, in at least one of the side walls 32, and preferably in both of the walls 32, a projection 35 is provided, generally

projecting towards the supporting body 20. The projection 35, or else each projection 35, has at the end a respective stop element 35a, projecting from the corresponding projection 35 in a direction substantially perpendicular with respect to the wall 32 of the handle body 30. On the other side, in the wall 25b of the supporting body 20, or in each of them, a slit is formed, designated as a whole by 28 for example in Figures 8 and 11.

[0031] In the condition where the handle body 30 is mounted on the supporting body 20, the side walls 32 of the former are generally parallel to the outer walls 25b of the latter, with the stop elements 35a that are constrained in a movable way within a corresponding slit 28, i.e., in such a way as to enable the movement of rotation of the handle body 30 with respect to the supporting body 30 about the hinge axis determined by the pins 27.

[0032] As may be readily understood, the stop element 35a, or else each stop element 35a, is able to co-operate at least with the end of the slit 28 facing the handle body 30, in order to determine a mechanical end-of-travel of the latter in its open position. In order to facilitate installation of the handle body 30 on the supporting body 20, at least one of the projection 35 is elastically deformable, in order to enable insertion of the corresponding stop element 35a within the corresponding slit 28.

[0033] Of course mechanical means constituting an end-of-travel for the movement of opening of the body 30 can be shaped differently. For example, in an alternative embodiment (not represented), the aforesaid end-of-travel means comprise a plurality of teeth or projections in relief, defined in an upper region of the body 30, preferably in an intermediate position with respect to the housings 33, said teeth or projections in relief coming into contrast with the upper edge of the supporting body 20 when the body 30 is in its position of complete opening.

[0034] In a preferred embodiment, the main wall 24 of the supporting body 20 integrally defines housing means for the elastic means that constantly bias the handle body 30 towards the respective open position. In the exemplificative embodiment represented, for this purpose, defined in an upper part of the wall 24, in two opposite lateral regions of the wall itself, are two housings 29, each designed to receive a respective helical spring 50. Each housing 29 is configured such that the corresponding spring 50 is constrained inside it so as to extend axially substantially in the same direction as the axis of rotation of the handle body 30. As may be seen for example in Figure 12, the spring 50 has an end 50a designed to come into contrast with the supporting body 20, whilst the other end 50b is designed to come into contrast with the handle body 30. For this purpose, conveniently, in the rear face of the handle body 30 there can be defined a slidable point of constraint for the end 50b of the spring 50. One point of constraint may, for example, be obtained via two small vertical walls, designated by 51 in Figure 16, which extend parallel to define between them a space for receiving and guiding the end 50b of the spring 50.

[0035] As has been explained previously, in a preferred embodiment of the invention, fixed to the front face of the handle body 30, in particular via gluing, is a corresponding covering panel 40. This panel 40, which is clearly visible for example in Figures 7 and 9, has a generally narrow and elongated configuration, and is conveniently made of glass, so as to be homogeneous from a design point of view with the panel 7.

[0036] In an advantageous embodiment, as has been said, both the supporting body 20 and the handle body 30 are entirely made of thermoplastic material and can be obtained via moulding. For this purpose it may be noted from the various Figures how the aforesaid bodies have appropriate passages, necessary for positioning and movement of die slides forming part of the moulding equipment, for example necessary to form the possible undercut elements.

[0037] As has been said, in a preferred version, also the door frame 2 is made of plastic material. Figure 6 illustrates the face of the frame 2 generally facing the inside of the cooking appliance, i.e., the face opposite to the one partially visible in Figures 1-5. In the upper part of the frame 2, substantially in the two upper corner regions, holes are provided, designated by 2a, via which the supporting body 20 can be fixed to the frame 2 via threaded members, for example screws. For this purpose, the supporting body 20 has corresponding through holes, designated by 56 in Figures 11-13.

[0038] The solution according to the present invention is extremely advantageous in so far as it simplifies considerably and facilitates production of the handle device 10, and hence of the door 1 as a whole.

[0039] The catch mechanisms 22 are configured as individual components, and are basically commercially available components. The fact that they can be mounted in corresponding seats 21 facilitates assembly of the handle device considerably, as compared to known solutions, and this advantage is further enhanced in the preferred case of a snap-action engagement of the casing 23 of the mechanisms in the corresponding seats 21.

[0040] The fact that the seats 21 can be obtained integrally in the supporting body further simplifies production of the device, reducing the overall cost thereof. Similar considerations obviously apply in relation to the fact that other functional elements of the handle device 10 are preferentially obtained integrally in the body 20 or in the body 30, during the operations of moulding of the bodies themselves, such as the contrast elements 31, the end-of-travel means represented by the projection 35 and the slits 28, the housings 29 for the springs 50, etc.

[0041] The solution illustrated, with two lateral contrast elements 31 and two seats 21 for respective mechanisms 22, is particularly advantageous in applications in which the handle body 20 extends for the most part of the width of the door, as, precisely, in the case exemplified. In this way, a precise engagement in the two opposite areas of the handle body 30 is guaranteed. The alignment and balancing of the handle body 30 is evidently enhanced also thanks to the fact that two distinct elastic elements

are provided, represented by the springs 50.

[0042] As may be readily understood, the assembling of the bodies 20 and 30 is extremely simple.

[0043] Engaged within the seats 21, via a simple thrust, are the mechanisms 22 and constrained in the housings 29 are the corresponding springs 50. The bushings 34 are inserted in the corresponding housings 33. Preferentially, the bushings 34 have a peripheral relief (not visible in the figures), designed to engage in an axial groove (visible for example in Figure 12, not indicated) defined in the housing 33 so as to prevent rotation of the bushings thereof. At this point, one or both of the projections 35 are deformed elastically in order to be able to insert the arrest elements 35a within the grooves 28. The rotation pins 27 are then driven with interference fit in the holes 26, care being taken that an axially extensive portion thereof is inserted in the axial passage 34a of the bushings 34. As has been said, applied on the front surface 30a of the handle body 30 is the covering panel 40, for example via gluing.

[0044] The supporting body 20 is then fixed to the front-upper part of the frame 2, exploiting the presence of the holes 2a of the frame and the holes 56 of the body 30. In the case where the device 10 is fixed on the frame 2 only after being assembled, self-tapping screws can be used, which are screwed starting from the holes 2a, from the back of the frame 2, and are designed to form an internal screw within the holes 56. Obviously, the body 20 could also be fixed to the frame 2 before coupling of the handle body 30 thereto, in which case the self-tapping screws may be screwed starting from the holes 56, from the front of the body 30, to form an internal screw within the holes 2a.

[0045] The invention has been described with reference to a configuration of handle device 10 in which the handle body 30 is angularly movable with respect to the supporting body 30. It will be appreciated, however, that, in possible variant embodiments not represented, the handle body could be mounted, by guide means, so as to slide linearly with respect to the supporting body, for example via guides made in the side walls, or else the top and bottom walls, of the supporting body and of the handle body. Also in such an embodiment elastic means will be provided for biasing the handle body into the corresponding open position, these means possibly being for example represented by helical or leaf springs. Also in such an embodiment, in a rear face of the handle body, contrast elements will be provided functionally similar to the ones previously designated by 31. Likewise, on one face of the supporting body facing said rear face of the handle body the seats 21 for the mechanisms 22 will be made; also in an embodiment of this sort, preferentially, said seats will be in a position generally set back with respect to the position assumed by the rear face of the handle body when it is in the closed condition.

Claims

1. A door for a cooking appliance, in particular an oven, having a door frame (2) with two vertical sides (3, 4) and two transverse sides (5, 6), there being fixed on the frame (2) a closing panel (7), in particular made of glass, the door further comprises a handle device (10), being associated to the frame (2), in an upper part thereof, comprising a supporting body (20), mounted on the frame (2) above the closing panel (7), and a handle body (30), mounted movable on the supporting body (20) such that it can assume a closed position, in which the handle body (30) cannot be gripped, and an open position, in which the handle body (30) can be gripped, the handle device (10) moreover including elastic means (50) for biasing the handle body (30) towards the open position, and at least one catch mechanism (22), which is substantially of a push-push type, i.e., prearranged to be switched between respective conditions of locking and release by pressing the handle body (30) towards the respective closed position, the door being **characterized in that**:

   - one of the supporting body (20) and the handle body (30) has, in a face thereof generally facing the other of the supporting body (20) and the handle body (30), at least one contrast element (31) projecting from the aforesaid face,
   - the other of the supporting body (20) and the handle body (30) has, in a face thereof generally facing the other of the supporting body (20) and the handle body (30), at least one seat (21) for receiving a casing (23) of the respective catch mechanism (22),
   - the catch mechanism (22) includes a pair of front arms (22a), generally jaw-shaped, mounted with respect to the corresponding casing (23) such that, in the locking condition of the mechanism (22), the arms (22a) are set close to one another so as to withhold between them a head (31a) of the contrast element (31) and, in the release condition of the mechanism (22), the arms (22a) are set at a distance apart so as not to withhold the head (31a) of the contrast element (31).

2. The door according to Claim 1, wherein the seat (21) and the casing (23) are configured for mutual engagement, in particular a snap-action engagement.

3. The door according to Claim 1 or Claim 2, wherein at least one of the contrast element (31) and the seat (21) is made integrally in the supporting body (20) or in the handle body (30).

4. The door according to one of the preceding claims, comprising at least two said contrast elements (31),

two said receiving seats (21), and two said catch mechanisms (22), the two contrast elements (31) and the two seats (21) being in opposite lateral regions of the corresponding supporting body (21) or handle body (31).

5. The door according to any one of Claims 1 to 3, wherein said face of the supporting body (20) includes at least one generally hollow region (25), defined in the supporting body (20) and open on said face, there being defined in the hollow region (25) one said seat (21) for one said mechanism (22).

6. The door according to Claims 4 and 5, wherein said face of the supporting body (20) includes a substantially plane main wall (24), which extends between two said generally hollow regions (25), there being defined in each hollow region (25) one said seat (21) for a respective said mechanism (22), each seat (21) being in a position set back with respect to the main wall (24).

7. The door according to any one of Claims 1 to 3, wherein the handle body (30) is hinged to the supporting body (20) so as to turn about a respective axis of rotation.

8. The door according to Claim 6 and 7, wherein each said hollow region (25) is delimited laterally by an outer wall (25b) of the supporting body (20) that is generally perpendicular to said main wall (24), there being made in said outer wall (25a) a hole (26) for receiving a respective pin (27) for rotation of the handle body (30) and wherein the handle body (30) has two opposite side walls (32), generally parallel to the outer walls (25b) of the supporting body (20), there being defined in a position substantially corresponding to at least one said side wall (32), or to each said side wall (32), a housing (33) for a bushing element (34) having an axial cavity (34a), at least partially inserted in which is a respective said rotation pin (27).

9. The door according to any one of the preceding claims, wherein the handle device (10) has means constituting an end-of-travel for the handle body (30), wherein the end-of-travel means comprise a plurality of teeth or projections in relief, defined in an upper region of the handle body (30), which come into contrast with an upper edge of the supporting body (20) when the handle body (30) is in a position of complete opening.

10. The door according to Claims 6, 7, and 9, wherein

- each said hollow region (25) is delimited laterally by an outer wall (25b) of the supporting body (20) that is generally perpendicular to said main wall (24), there being formed in one said outer wall (25b), or in each said outer wall, a slit (28),
- the handle body (30) has two opposite side walls (32), generally parallel to the outer walls (25b) of the supporting body (20), at least one said side wall (32) having a projection (35) generally projecting towards the supporting body (20), the projection (35), or each projection, having a stop element (35a) generally projecting from the corresponding projection (35) in a direction substantially perpendicular with respect to the corresponding side wall (32) of the handle body (30),

and wherein, when in an installed condition the handle body (30), a respective said stop element (35a) is constrained in a movable way in the slit (28), or in each slit, the stop element (35a) being able to cooperate with an end of the corresponding slit (28) in order to determine a mechanical end-of-travel for the handle body (30), and wherein at least one said projection (35) is elastically deformable to enable insertion of the corresponding stop element (35a) in the corresponding slit (28).

11. The door according to any one of the preceding claims, wherein fixed to a front part of the handle body (30) is a respective covering panel (40), in particular made of glass.

12. The door according to any one of the preceding claims, wherein the supporting body (20) and the handle body (30) have a length at least equal to the minimum distance between the two vertical sides (3, 4) of the door frame (2).

13. The door according to any one of the preceding claims, wherein the supporting body (20) is fixed with screws to the door frame (2).

14. The door according to any one of the preceding claims, wherein the supporting body (20) and the handle body (30) and the door frame (2) are made of thermoplastic material.

15. A household cooking appliance, in particular an oven, comprising a door according to one or more of Claims 1 to 14.

Patentansprüche

1. Tür für ein Kochgerät, insbesondere einen Ofen, die einen Türrahmen (2) mit zwei vertikalen Seiten (3, 4) und zwei transversalen Seiten (5, 6) aufweist, wobei auf dem Rahmen (2) ein Schließpanel (7) fixiert ist, insbesondere aus Glas hergestellt, wobei die Tür weiter eine Griffeinrichtung (10) umfasst, die mit dem Rahmen (2), in einem oberen Teil davon, assoziiert

ist, umfassend einen Stützkörper (20), montiert auf dem Rahmen (2) oberhalb des Schließpanels (7), und einen Griffkörper (30), bewegbar auf dem Stützkörper (20) montiert, sodass er eine geschlossene Position einnehmen kann, in der der Griffkörper (30) nicht gegriffen werden kann, und eine offene Position, in der der Griffkörper (30) gegriffen werden kann, wobei die Griffeinrichtung (10) weiter elastische Mittel (50) zum Vorspannen des Griffkörpers (30) in Richtung der offenen Position umfasst, und mindestens eine Fangsicherung (22), die im Wesentlichen von einem push-push-Typ ist, d.h., bestimmt, um zwischen entsprechenden Bedingungen des Verschließens und Lösens mittels Drückens des Griffkörpers (30) in Richtung der entsprechend geschlossenen Position umgeschaltet zu werden, wobei die Tür **dadurch gekennzeichnet ist, dass**:

- eines aus dem Stützkörper (20) und dem Griffkörper (30), in einer Fläche davon, die im Allgemeinen dem anderen aus dem Stützkörper (20) und dem Griffkörper (30) gegenüberliegt, mindestens ein Kontrastelement (31) aufweist, das aus der vorgenannten Fläche hervorsteht,
- das andere aus dem Stützkörper (20) und dem Griffkörper (30), in einer Fläche davon, die im Allgemeinen dem anderen aus dem Stützkörper (20) und dem Griffkörper (30) gegenüberliegt, mindestens einen Sitz (21) zum Aufnehmen einer Verkleidung (23) der entsprechenden Fangsicherung (22) aufweist,
- die Fangsicherung (22) ein Paar von Frontarmen (22a), im Allgemeinen klemmbackenförmig, umfasst, die in Bezug auf die entsprechende Verkleidung (23) so montiert sind, dass, in der Verschließbedingung der Sicherung (22), die Arme (22a) nahe beieinander liegen, um zwischen ihnen einen Kopf (31a) des Kontrastelements (31) zurückzuhalten und, in der Lösebedingung der Sicherung (22), die Arme (22a) in einer Entfernung liegen, um den Kopf (31a) des Kontrastelements (31) nicht zurückzuhalten.

2. Tür nach Anspruch 1, wobei der Sitz (21) und die Verkleidung (23) zu gegenseitigem Eingriff eingerichtet sind, insbesondere zu einem Schnappeingriff.

3. Tür nach Anspruch 1 oder 2, wobei mindestens eines aus dem Kontrastelement (31) und dem Sitz (21) einstückig mit dem Stützkörper (20) oder dem Griffkörper (30) hergestellt ist.

4. Tür nach einem der vorstehenden Ansprüche, umfassend mindestens zwei Kontrastelemente (31), zwei Aufnahmesitze (21) und zwei Fangsicherungen (22), wobei die zwei Kontrastelemente (31) und die zwei Sitze (21) in entgegengesetzten lateralen Regionen des entsprechenden Stützkörpers (21) oder Griffkörpers (31) sind.

5. Tür nach einem der Ansprüche 1 bis 3, wobei die Fläche des Stützkörpers (20) mindestens eine im Allgemeinen hohle Region (25) umfasst, definiert in dem Stützkörper (20) und offen an der Fläche, wobei in der hohlen Region (25) der eine Sitz (21) für die eine Sicherung (22) definiert ist.

6. Tür nach Anspruch 4 oder 5, wobei die Fläche des Stützkörpers (20) eine im Wesentlichen ebene Hauptwand (24) umfasst, die sich zwischen zwei im Allgemeinen hohlen Regionen (25) erstreckt, wobei in jeder hohlen Region (25) der eine Sitz (21) für die eine entsprechende Sicherung (22) definiert ist, wobei jeder Sitz (21) in einer in Bezug auf die Hauptwand (24) zurückgesetzten Position ist.

7. Tür nach einem der Ansprüche 1 bis 3, wobei der Griffkörper (30) klappbar an dem Stützkörper (20) ist, um um eine entsprechende Rotationsachse zu drehen.

8. Tür nach Anspruch 6 oder 7, wobei jede hohle Region (25) lateral mittels einer äußeren Wand (25b) des Stützkörpers (20) abgegrenzt ist, die im Wesentlichen senkrecht zu der Hauptwand (24) ist, wobei in der äußeren Wand (25a) ein Loch (26) zur Aufnahme eines entsprechenden Stifts (27) zur Rotation des Griffkörpers (30) hergestellt ist und wobei der Griffkörper (30) zwei entgegengesetzte Seitenwände (32) aufweist, im Allgemeinen parallel zu den äußeren Wänden (25b) des Stützkörpers (20), wobei in einer Position, die im Wesentlichen mindestens der einen Seitenwand (32), oder jeder Seitenwand (32), entspricht, ein Gehäuse (33) für ein Buchsenelement (34) definiert ist, das einen axialen Hohlraum (34a) aufweist, mindestens teilweise eingesetzt, in dem, was ein entsprechender Rotationsstift (27) ist.

9. Tür nach einem der vorstehenden Ansprüche, wobei die Griffeinrichtung (10) Mittel aufweist, die eine Bewegungsbegrenzung für den Griffkörper (30) darstellen, wobei die Bewegungsbegrenzungsmittel eine Vielzahl von Zähnen oder Projektionen im Relief umfassen, definiert in einer oberen Region des Griffkörpers (30), die in Kontrast mit einer oberen Kante des Stützkörpers (20) kommen, wenn der Griffkörper (30) in einer Position der vollständigen Öffnung ist.

10. Tür nach einem der Ansprüche 6, 7, und 9, wobei

- jede hohle Region (25) lateral mittels einer äußeren Wand (25b) des Stützkörpers (20) begrenzt ist, die im Allgemeinen senkrecht zu der Hauptwand (24) ist, wobei in einer äußeren Wand (25b), oder in jeder äußeren Wand, ein

Schlitz (28) gebildet ist,
- der Griffkörper (30) zwei entgegengesetzte Seitenwände (32) aufweist, im Allgemeinen parallel zu den äußeren Wänden (25b) des Stützkörpers (20), wobei mindestens eine Seitenwand (32) eine Projektion (35) aufweist, die im Allgemeinen in Richtung auf den Stützkörper (20) vorsteht, wobei die Projektion (35), oder jede Projektion, ein Stoppelement (35a) aufweist, das im Allgemeinen von der entsprechenden Projektion (35) in eine Richtung im Wesentlichen senkrecht in Bezug auf die entsprechende Seitenwand (32) des Griffkörpers (30) hervorsteht,
- und wobei, wenn in einer installierten Bedingung des Griffkörpers (30), das eine entsprechende Stoppelement (35a) auf eine bewegbare Weise in dem Schlitz (28), oder jedem Schlitz, gehalten ist, das Stoppelement (35a) in der Lage ist, mit einem Ende des entsprechenden Schlitzes (28) zusammenzuwirken, um eine mechanische Bewegungsbegrenzung für den Griffkörper (30) zu bestimmen, und wobei mindestens eine Projektion (35) elastisch deformierbar ist, um das Einsetzen des entsprechenden Stoppelements (35a) in den entsprechenden Schlitz (28) zu ermöglichen.

11. Tür nach einem der vorstehenden Ansprüche, wobei an einem Frontteil des Griffkörpers (30) ein entsprechendes Abdeckpanel (40) fixiert ist, insbesondere aus Glas hergestellt.

12. Tür nach einem der vorstehenden Ansprüche, wobei der Stützkörper (20) und der Griffkörper (30) eine Länge aufweisen, die mindestens gleich der minimalen Entfernung zwischen den zwei vertikalen Seiten (3, 4) des Türrahmens (2) ist.

13. Tür nach einem der vorstehenden Ansprüche, wobei der Stützkörper (20) mit Schrauben an dem Türrahmen (2) fixiert ist.

14. Tür nach einem der vorstehenden Ansprüche, wobei der Stützkörper (20) und der Griffkörper (30) und der Türrahmen (2) aus thermoplastischem Material gebildet sind.

15. Haushaltskochgerät, insbesondere ein Ofen, umfassend eine Tür nach einem oder mehreren der Ansprüche 1 bis 14.

Revendications

1. Porte pour un appareil de cuisson, en particulier un four, ayant un cadre de porte (2) avec deux côtés verticaux (3, 4) et deux côtés transversaux (5, 6), un panneau de fermeture (7), en particulier fait de verre, étant fixé sur le cadre (2), la porte comprend en outre un dispositif formant poignée (10), associé au cadre (2), dans une partie supérieure de ce dernier, comprenant un corps de support (20), monté sur le cadre (2) au-dessus du panneau de fermeture (7), et un corps de poignée (30), monté mobile sur le corps de support (20) de sorte qu'il peut prendre une position fermée, dans laquelle le corps de poignée (30) ne peut pas être saisi, et une position ouverte, dans laquelle le corps de poignée (30) peut être saisi, le dispositif formant poignée (10) incluant en outre un moyen élastique (50) pour solliciter le corps de poignée (30) vers la position ouverte, et au moins un mécanisme à cliquet (22), qui est sensiblement d'un type pousse-pousse, c'est-à-dire agencé à l'avance pour être commuté entre des états respectifs de verrouillage et de libération en pressant le corps de poignée (30) vers la position fermée respective, la porte étant **caractérisée en ce que** :

- l'un du corps de support (20) et du corps de poignée (30) a, dans une face de ce dernier faisant globalement face à l'autre du corps de support (20) et du corps de poignée (30), au moins un contre-élément (31) dépassant de la face susmentionnée,
- l'autre du corps de support (20) et du corps de poignée (30) a, dans une face de ce dernier faisant globalement face à l'autre du corps de support (20) et du corps de poignée (30), au moins un siège (21) pour recevoir une enveloppe (23) du mécanisme à cliquet respectif (22),
- le mécanisme à cliquet (22) inclut un couple de crochets avant (22a), globalement en forme de mâchoire, monté par rapport à l'enveloppe correspondante (23) de sorte que, dans l'état de verrouillage du mécanisme (22), les crochets (22a) sont positionnés l'un près de l'autre afin de retenir entre eux une tête (31a) du contre-élément (31) et, dans l'état de libération du mécanisme (22), les crochets (22a) sont positionnés à une certaine distance l'un de l'autre afin de ne pas retenir la tête (31a) du contre-élément (31).

2. Porte selon la revendication 1, dans laquelle le siège (21) et l'enveloppe (23) sont configurés pour une mise en prise mutuelle, en particulier une mise en prise par encliquetage.

3. Porte selon la revendication 1 ou la revendication 2, dans laquelle au moins un du contre-élément (31) et du siège (21) est fait d'un seul tenant dans le corps de support (20) ou dans le corps de poignée (30).

4. Porte selon l'une des revendications précédentes, comprenant au moins deux dits contre-éléments

(31), deux dits sièges de réception (21) et deux dits mécanismes à cliquet (22), les deux contre-éléments (31) et les deux sièges (21) étant dans des régions latérales opposées du corps de support (21) ou du corps de poignée (31) correspondant.

5. Porte selon l'une quelconque des revendications 1 à 3, dans laquelle ladite face du corps de support (20) inclut au moins une région globalement creuse (25), définie dans le corps de support (20) et ouverte sur ladite face, un dit siège (21) pour un dit mécanisme (22) étant défini dans la région creuse (25).

6. Porte selon les revendications 4 et 5, dans laquelle ladite face du corps de support (20) inclut une paroi principale sensiblement plane (24), qui s'étend entre deux dites régions globalement creuses (25), un dit siège (21) pour un dit mécanisme respectif (22) étant défini dans chaque région creuse (25), chaque siège (21) étant dans une position en arrière par rapport à la paroi principale (24).

7. Porte selon l'une quelconque des revendications 1 à 3, dans laquelle le corps de poignée (30) est articulé au corps de support (20) afin de tourner autour d'un axe de rotation respectif.

8. Porte selon les revendications 6 et 7, dans laquelle chaque dite région creuse (25) est délimitée latéralement par une paroi extérieure (25b) du corps de support (20) qui est globalement perpendiculaire à ladite paroi principale (24), un trou (26) étant réalisé dans ladite paroi extérieure (25a) pour recevoir un ergot respectif (27) pour la rotation du corps de poignée (30) et dans laquelle le corps de poignée (30) a deux parois latérales opposées (32), globalement parallèles aux parois extérieures (25b) du corps de support (20), un logement (33) pour un élément formant bague (34) ayant une cavité axiale (34a), dans laquelle est inséré au moins partiellement ledit ergot de rotation respectif (27), étant défini dans une position correspondant sensiblement à au moins une dite paroi latérale (32), ou à chaque dite paroi latérale (32).

9. Porte selon l'une quelconque des revendications précédentes, dans laquelle le dispositif formant poignée (10) a un moyen constituant une butée pour le corps de poignée (30), dans laquelle le moyen formant butée comprend une pluralité de dents ou de parties en saillie en relief, définies dans une région supérieure du corps de poignée (30), qui viennent en contact avec un bord supérieur du corps de support (20) quand le corps de poignée (30) est dans une position d'ouverture complète.

10. Porte selon les revendications 6, 7 et 9, dans laquelle

- chaque dite région creuse (25) est latéralement délimitée par une paroi extérieure (25b) du corps de support (20) qui est globalement perpendiculaire à ladite paroi principale (24), une fente (28) étant formée dans une dite paroi extérieure (25b) ou dans chaque dite paroi extérieure,
- le corps de poignée (30) a deux parois latérales opposées (32), globalement parallèles aux parois extérieures (25b) du corps de support (20), au moins une dite paroi latérale (32) ayant une partie en saillie (35) dépassant globalement vers le corps de support (20), la partie en saillie (35), ou chaque partie en saillie, ayant un élément d'arrêt (35a) dépassant globalement de la partie en saillie correspondante (35) dans une direction sensiblement perpendiculaire par rapport à la paroi latérale correspondante (32) du corps de poignée (30),

et dans laquelle, quand le corps de poignée (30) est dans un état installé, un dit élément d'arrêt respectif (35a) est contraint d'une façon mobile dans la fente (28), ou dans chaque fente, l'élément d'arrêt (35a) étant capable de coopérer avec une extrémité de la fente correspondante (28) afin de déterminer une butée mécanique pour le corps de poignée (30), et dans laquelle au moins une dite partie en saillie (35) peut être déformée de façon élastique pour permettre l'insertion de l'élément d'arrêt correspondant (35a) dans la fente correspondante (28).

11. Porte selon l'une quelconque des revendications précédentes, dans laquelle un panneau de revêtement respectif (40), en particulier fait de verre, est fixé à une partie avant du corps de poignée (30).

12. Porte selon l'une quelconque des revendications précédentes, dans laquelle le corps de support (20) et le corps de poignée (30) ont une longueur au moins égale à la distance minimale entre les deux côtés verticaux (3, 4) du cadre de porte (2).

13. Porte selon l'une quelconque des revendications précédentes, dans laquelle le corps de support (20) est fixé avec des vis au cadre de porte (2).

14. Porte selon l'une quelconque des revendications précédentes, dans laquelle le corps de support (20) et le corps de poignée (30) et le cadre de porte (2) sont faits d'une matière thermoplastique.

15. Appareil ménager pour cuisson, en particulier un four, comprenant une porte selon une ou plusieurs des revendications 1 à 14.

Fig. 1

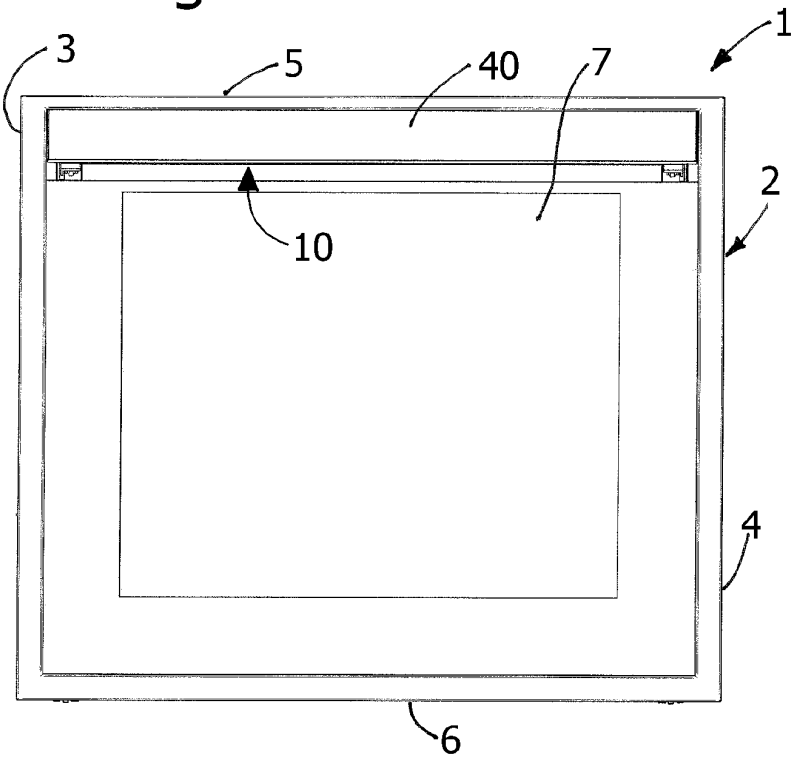


Fig. 2

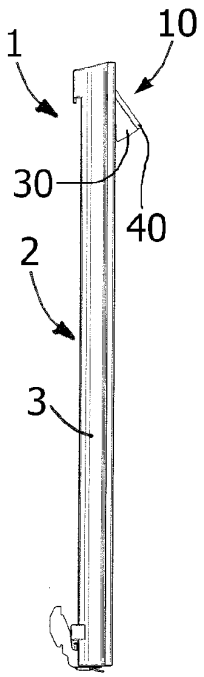


Fig. 3

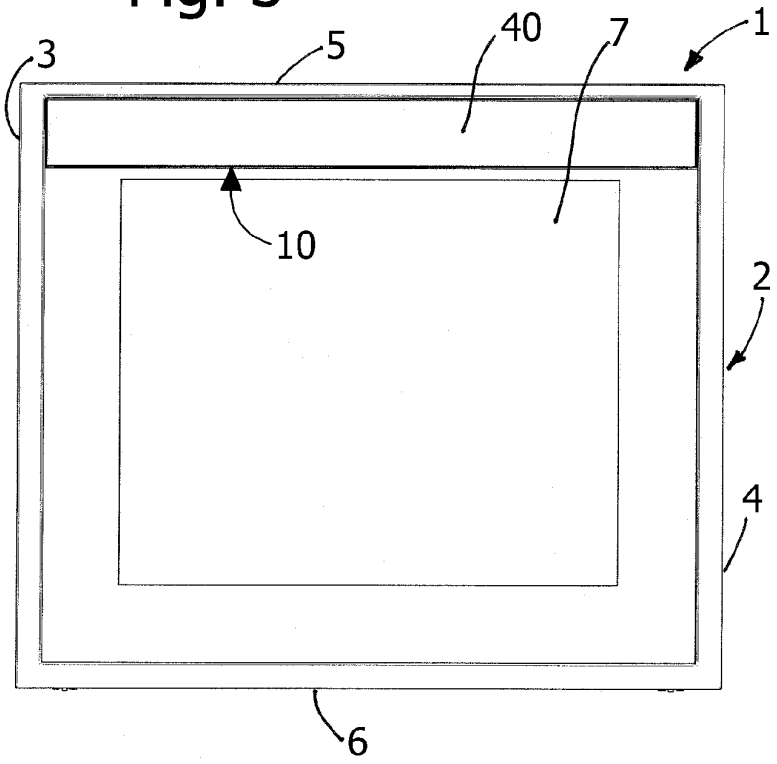
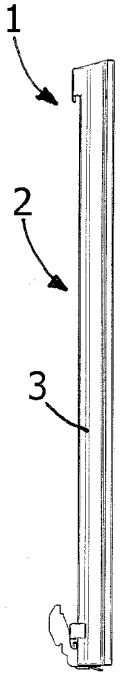


Fig. 4



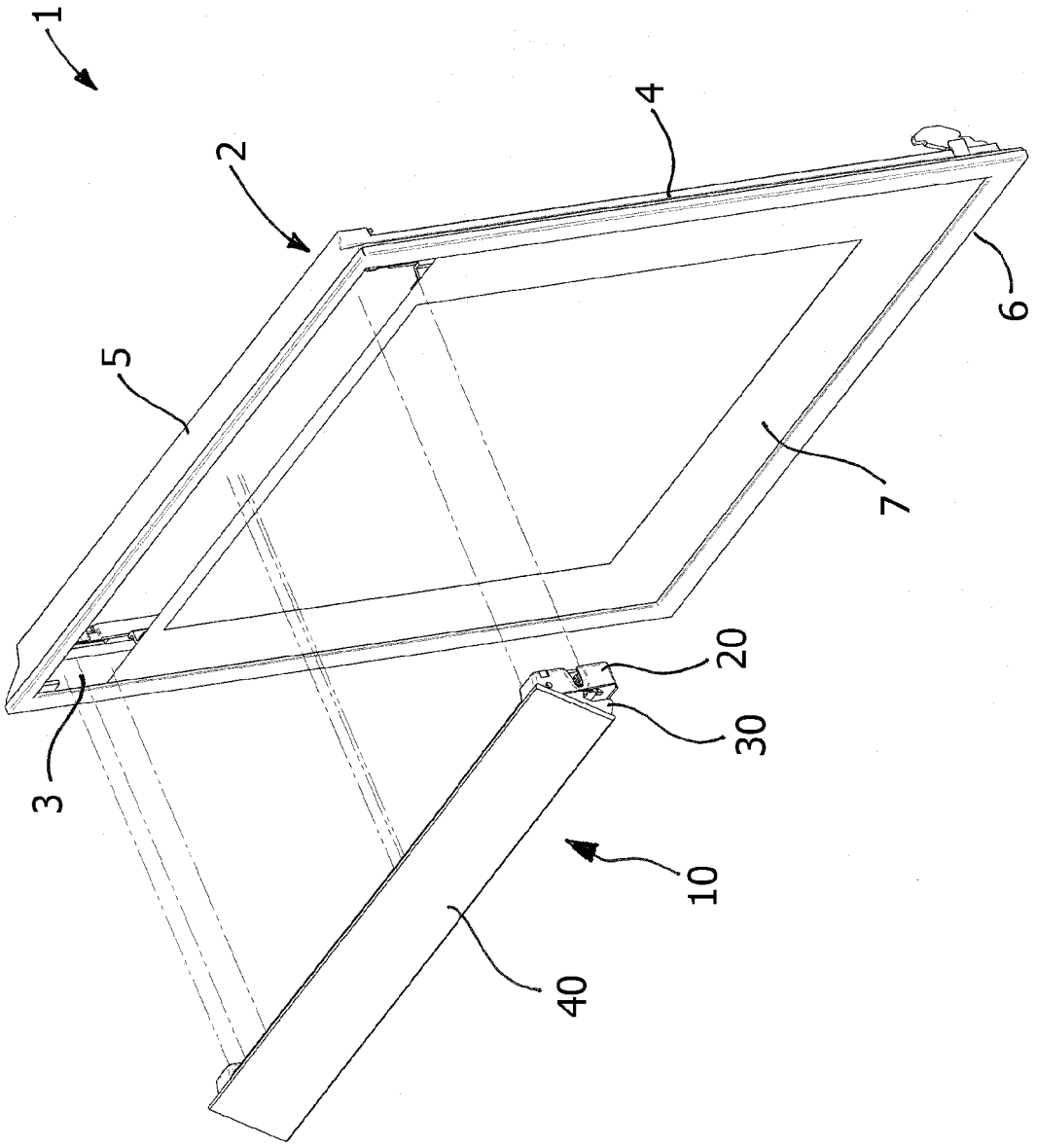


Fig. 5

Fig. 6

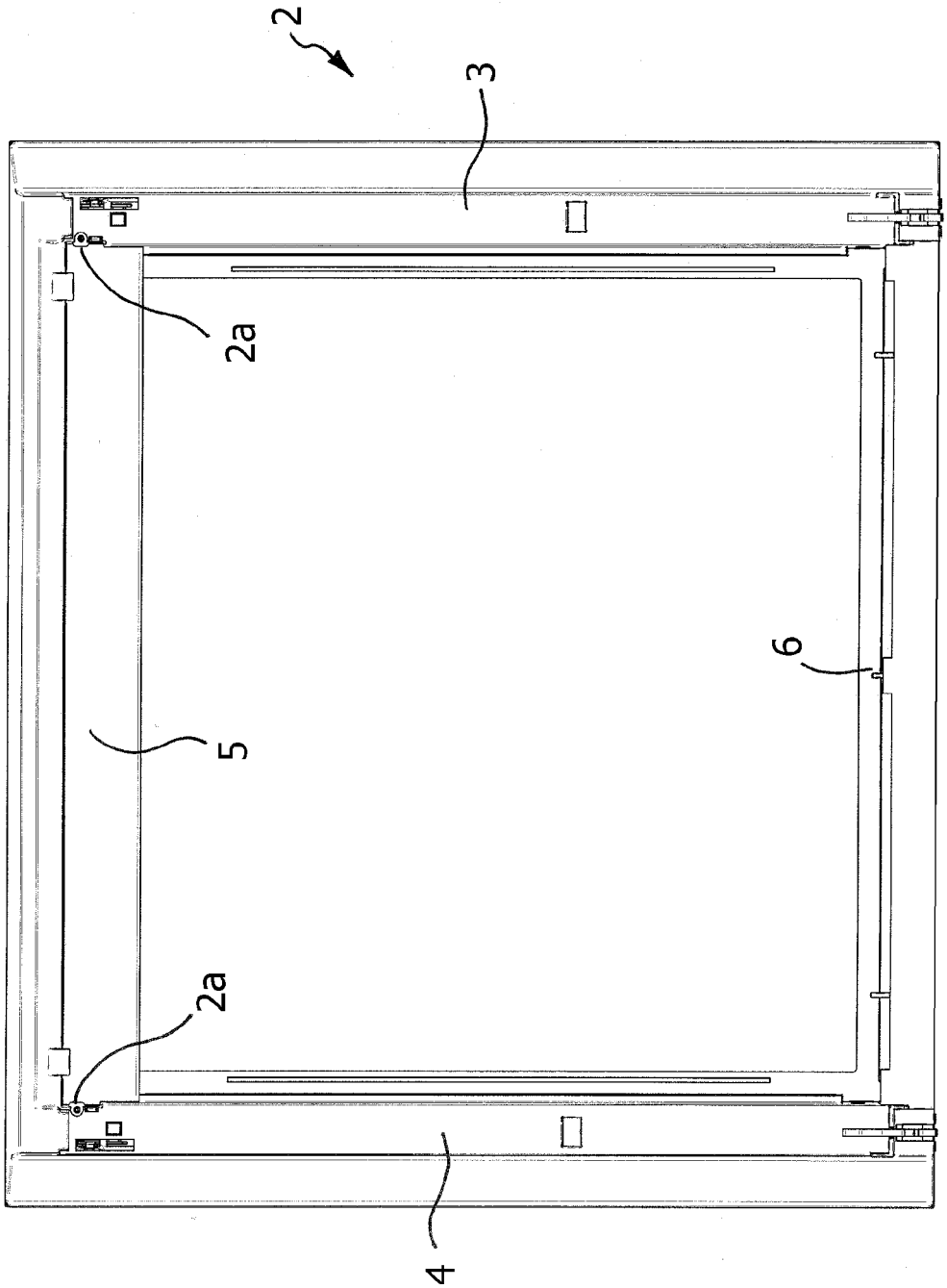
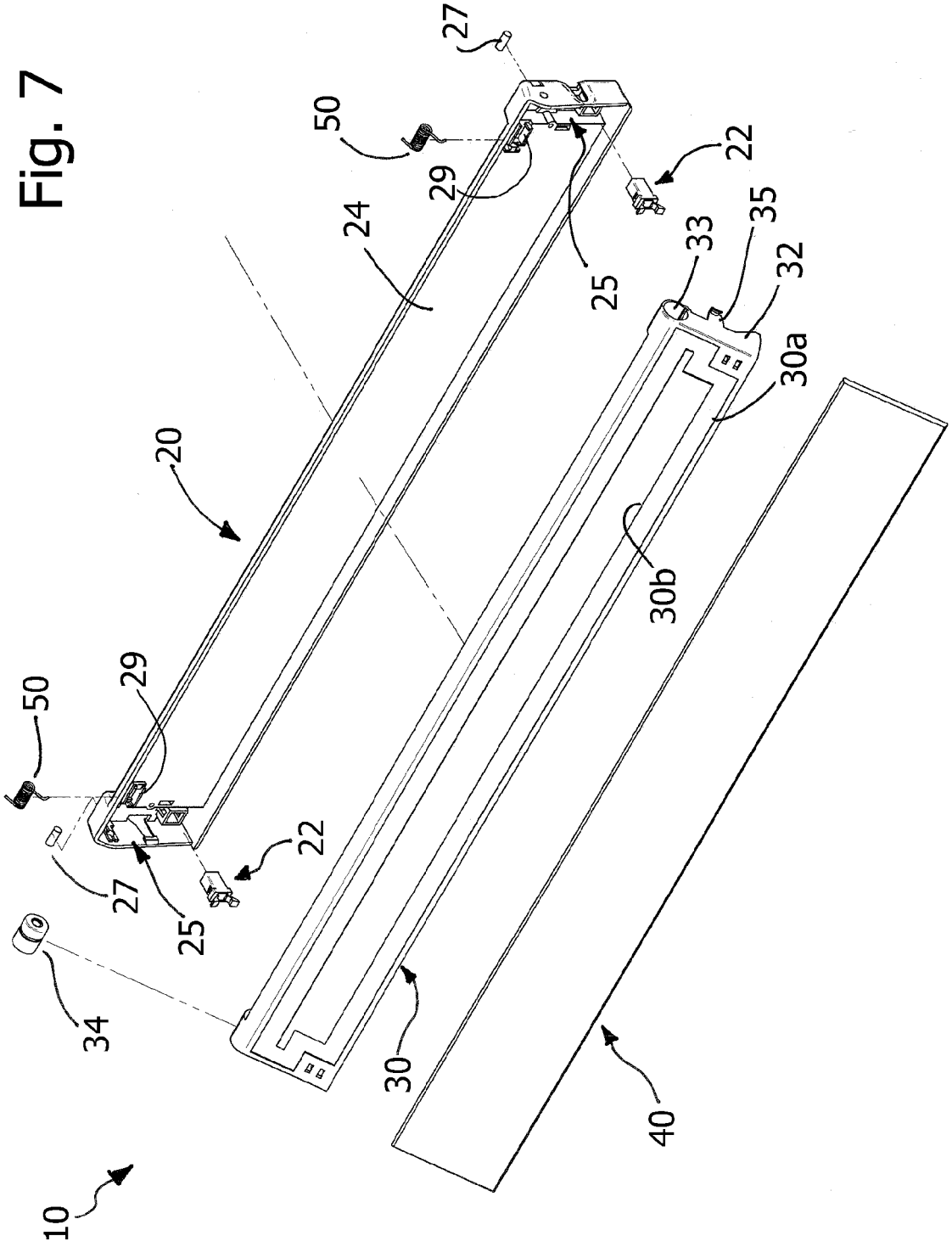


Fig. 7



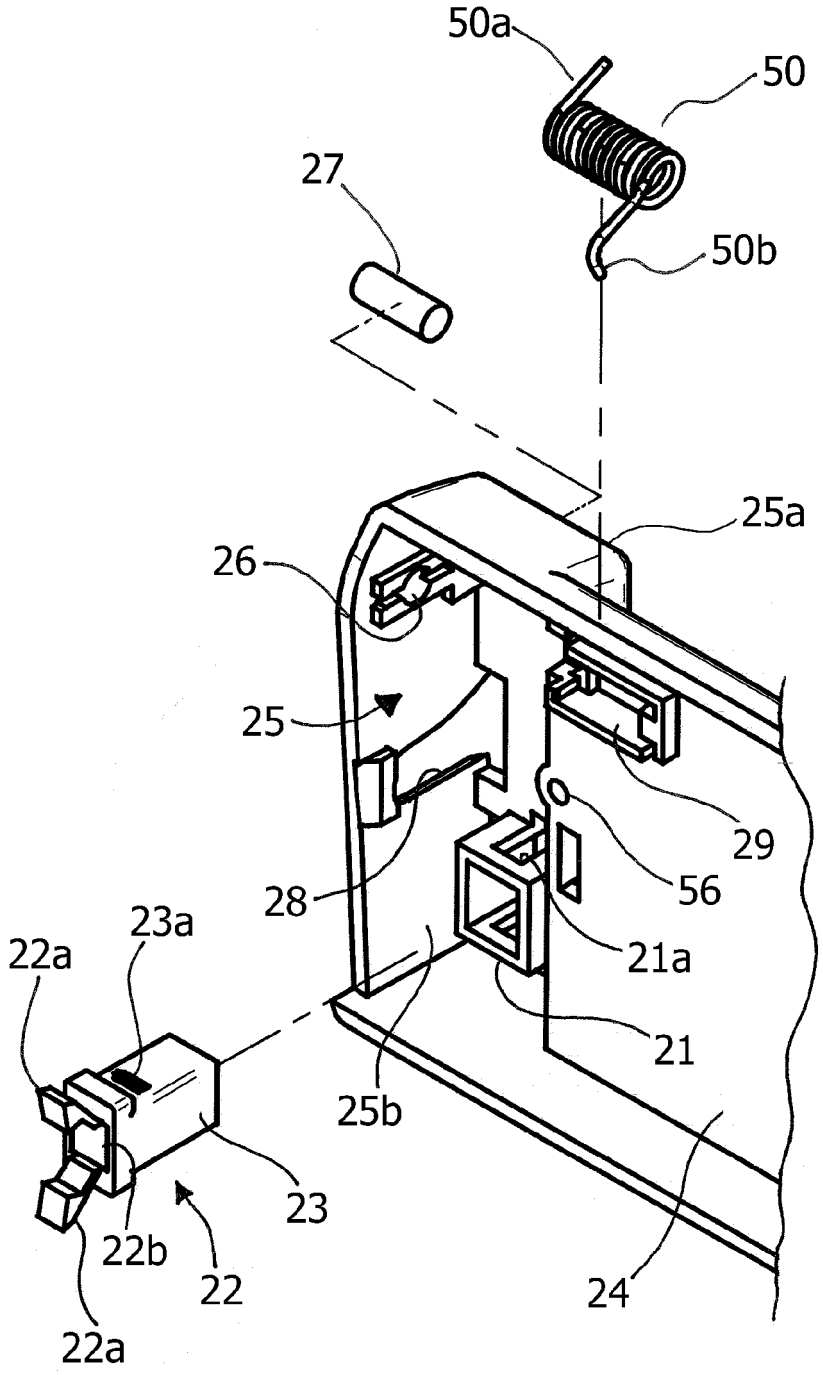


Fig. 8

Fig. 9

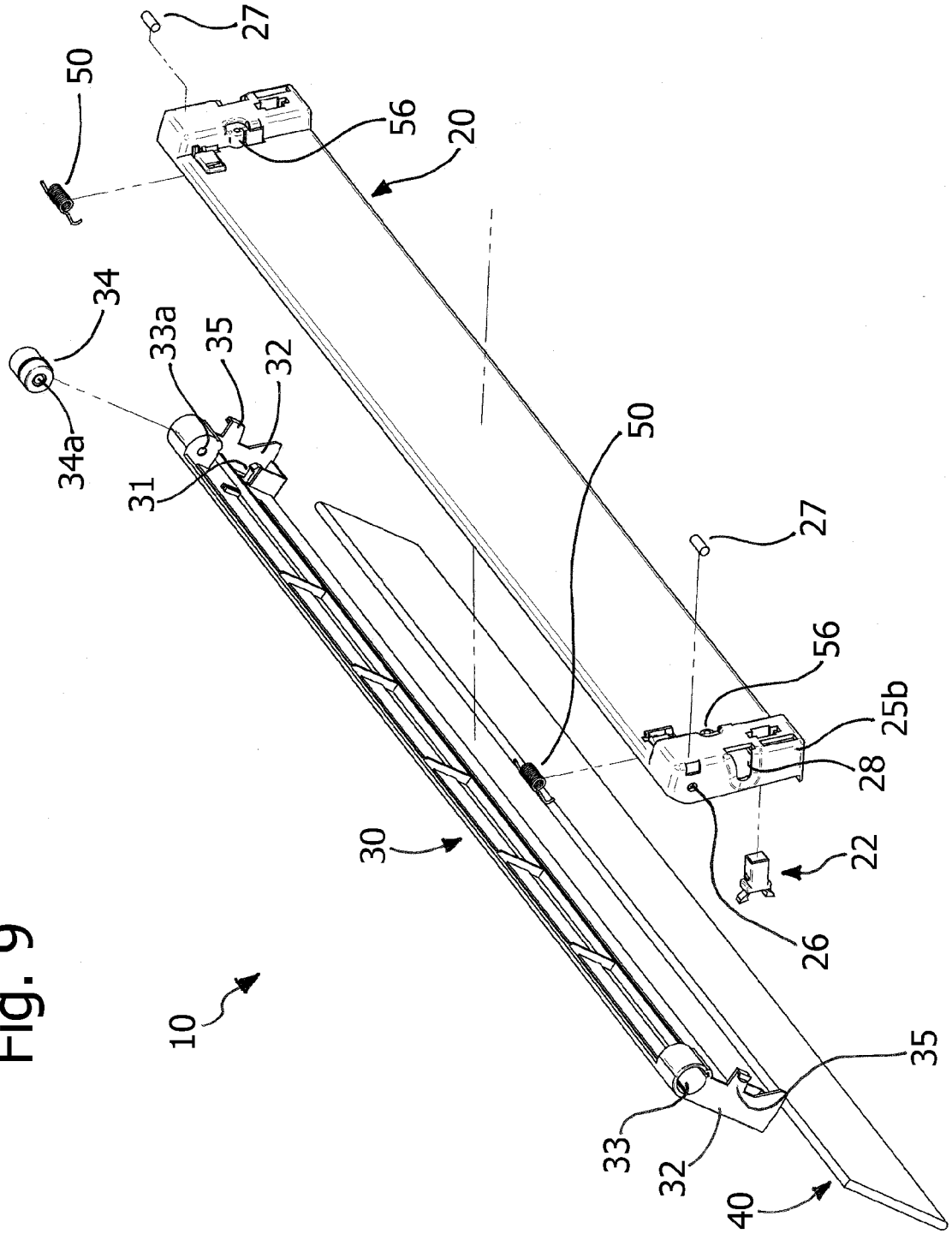


Fig. 10

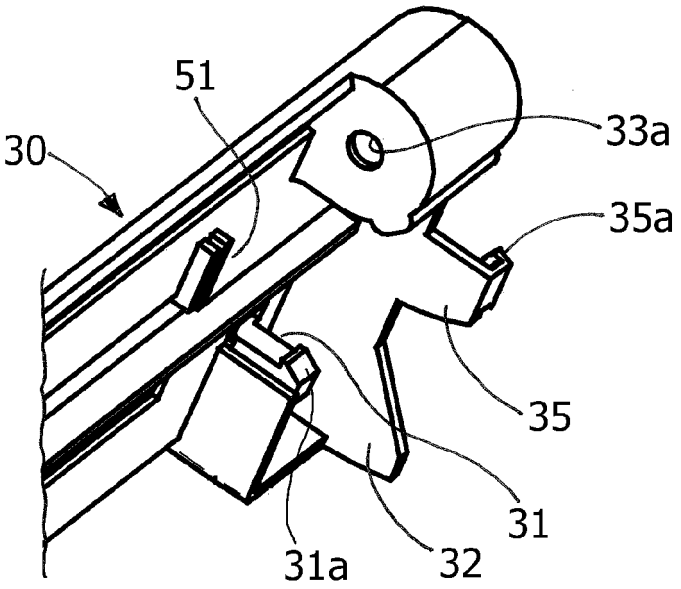


Fig. 11

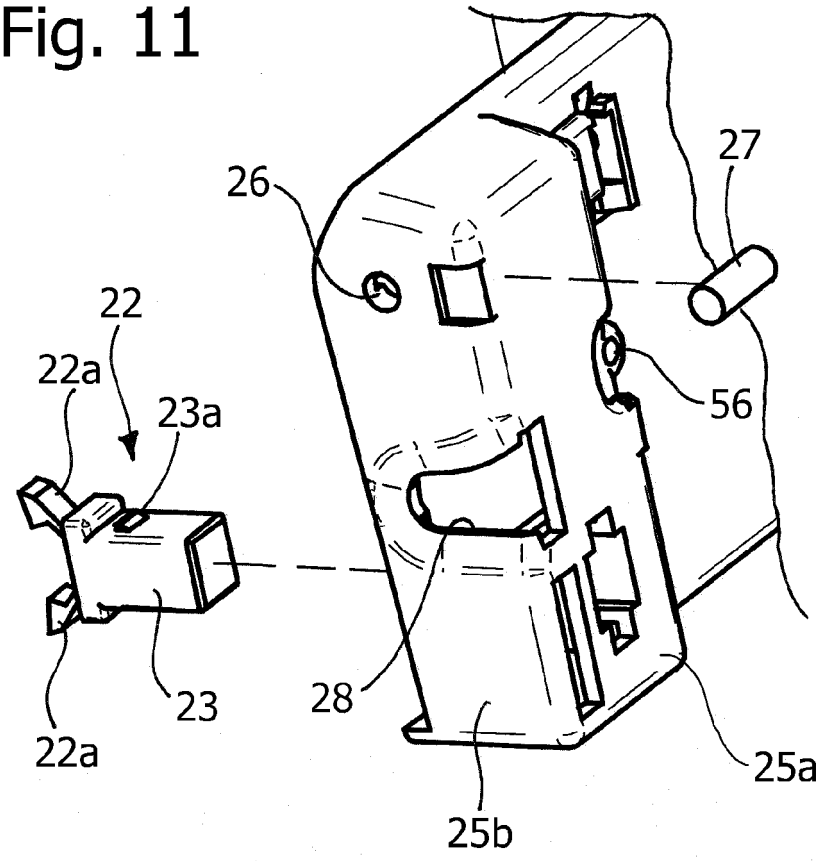


Fig. 13

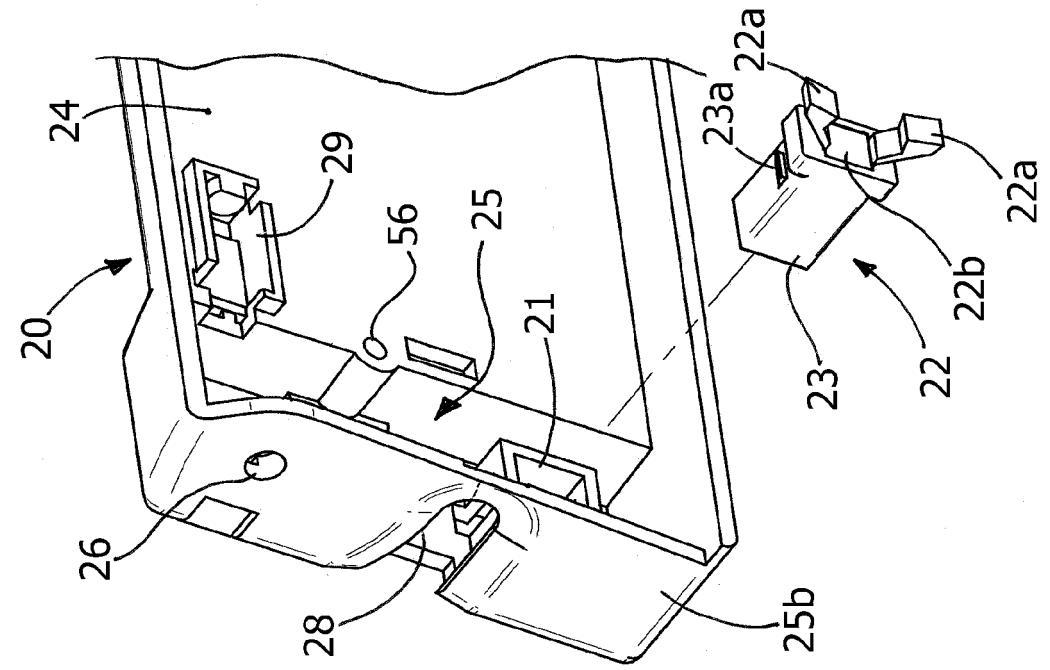
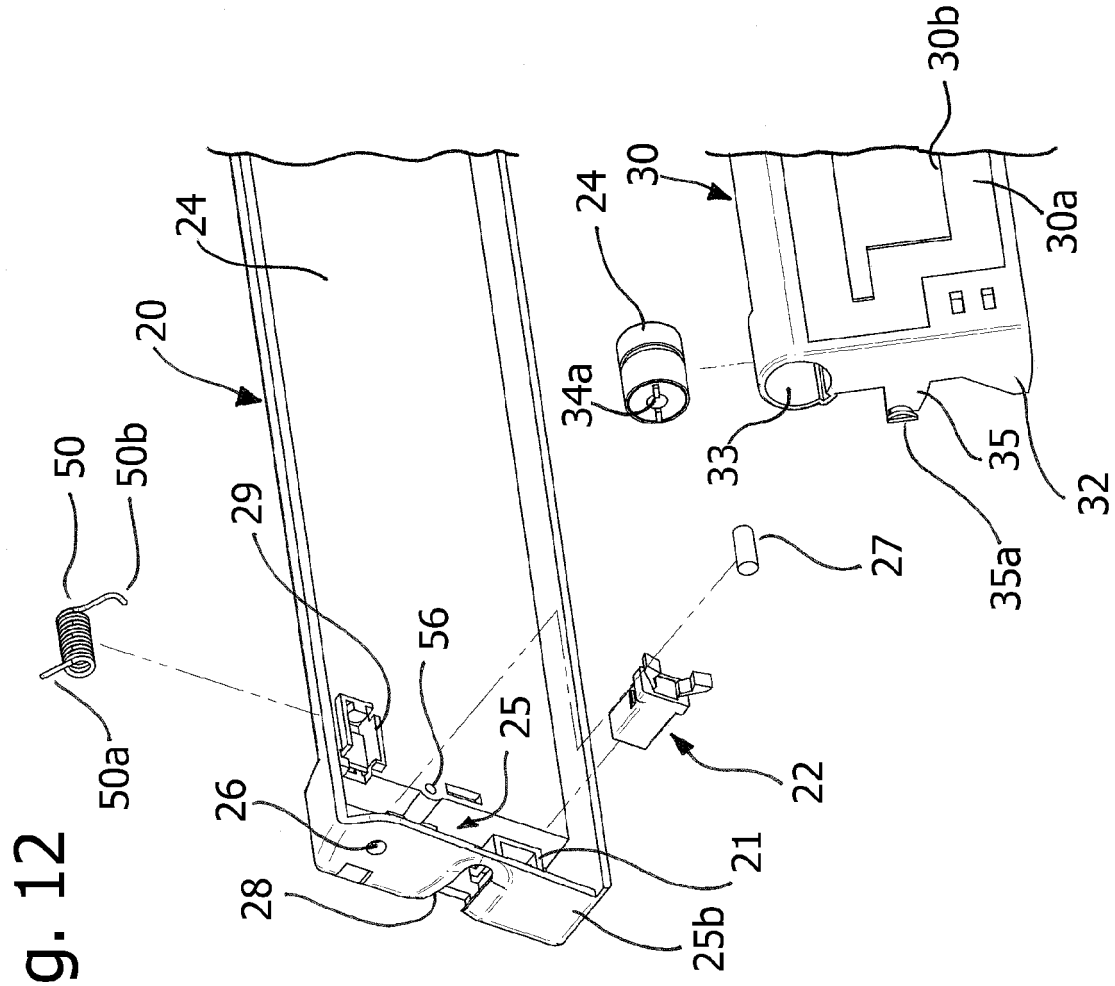

24
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22b
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Fig. 12


30b
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30a
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34a
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50a
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25b

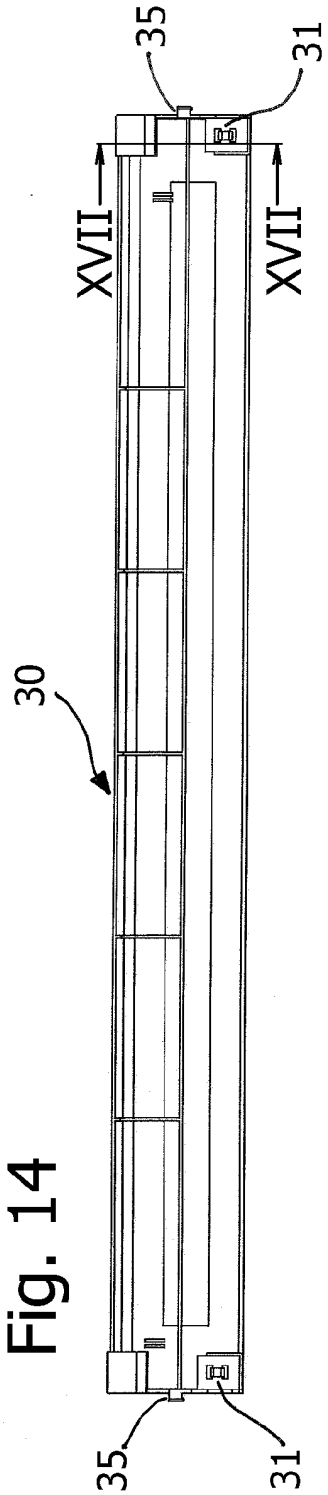


Fig. 14

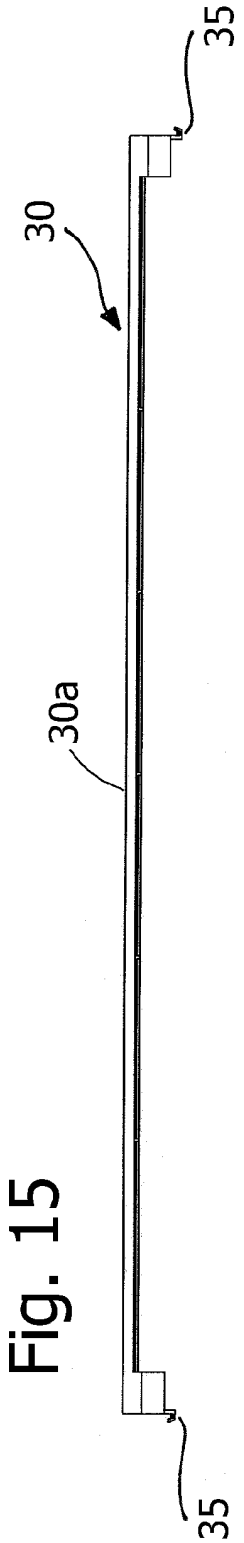


Fig. 15

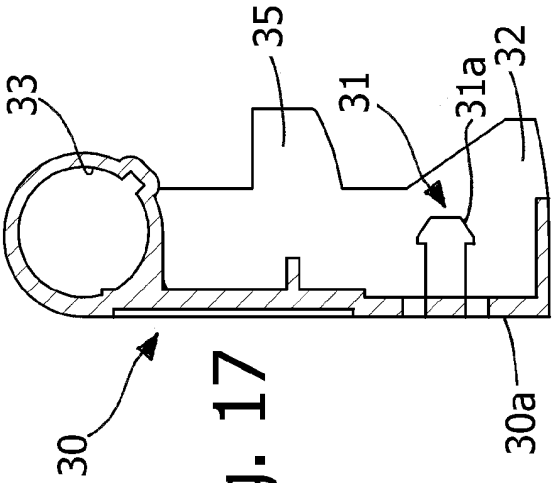


Fig. 17

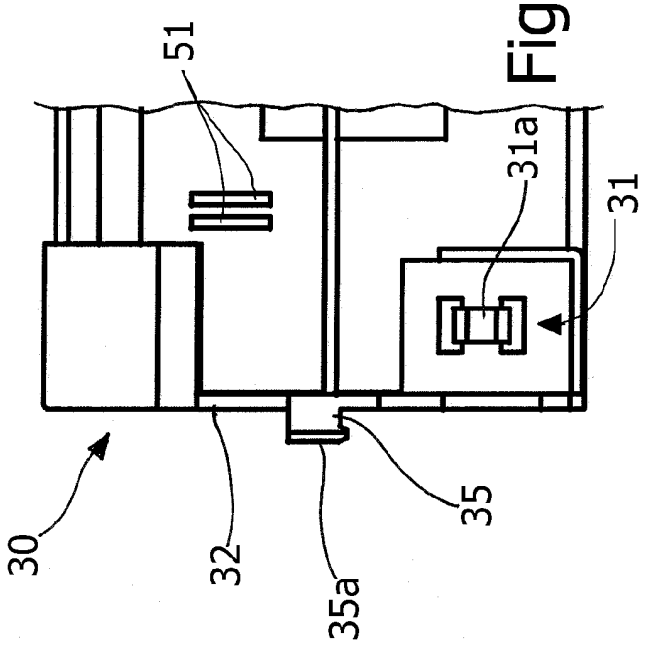


Fig. 16

REFERENCES CITED IN THE DESCRIPTION

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