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(54) Title: FOOD RECEIVING CONTAINER COMPRISING AN AIR CONDITIONING DEVICE WITH SPECIFIC OPTICAL OPERATING STATE INDICATOR, AS WELL AS HOUSEHOLD COOLING APPLIANCE

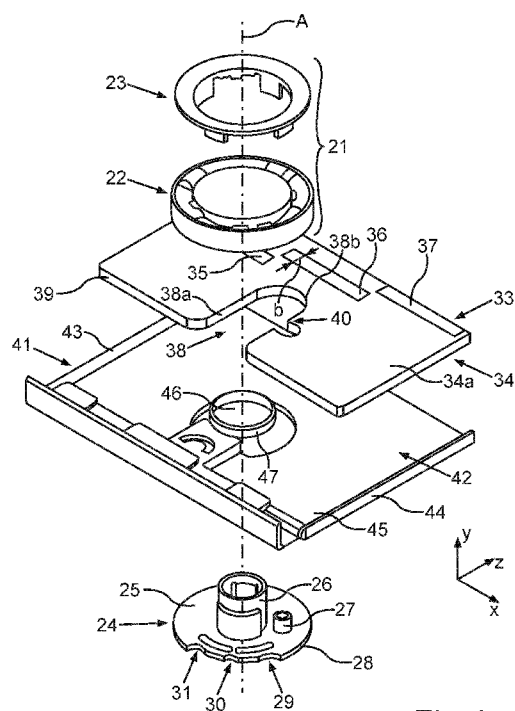


Fig. 4

(57) Abstract: The invention relates to a food receiving container (8, 8') for a household cooling appliance (1), the food receiving container comprising a bowl (10), comprising an air conditioning device (16), comprising a rotary element (13) as operating element, by which the operating states of the air conditioning device (16) can be set by rotating the rotary element (13) about a rotary axis (A), and comprising a display device (17), by which the operating states are optically signalled, wherein the display device (17) comprises a display mask (18) with windows (49, 50, 51), and comprises a signalling unit (33) that is separate from the display mask (18) and which is moved depending on the rotation of the rotary element (13) relative to the display mask (18) in the depth direction (z) so that in the first operating state a first signalling element (37) of the signalling unit (33) is arranged below the first window (51), and in the second operating state a second signalling element (35) of the signalling unit (33) that is different from the first signalling element (37) is arranged below the second window (49). The invention also relates to a household cooling appliance (1) with such a food receiving container.

SPECIFICATION

Food receiving container comprising an air conditioning device with specific optical operating state indicator, as well as household cooling appliance

Technical Field

One aspect of the invention relates to a food receiving container for a household cooling appliance, the food receiving container comprising a bowl for receiving food and comprising an air conditioning device, by which an air exchange between the environment and the interior of the food receiving container can be performed. A further aspect relates to a household cooling appliance.

Prior Art

Manifold food receiving containers for household cooling appliances are known. These commonly may be inserted into a receiving space for food of the household cooling appliance. This receiving space is bounded by walls of an inner liner of the household cooling appliance. The receiving space may be a cooling compartment or a freezer compartment.

Moreover, in known embodiments of food receiving containers it is envisaged that such a ventilation device or air conditioning device, respectively, is arranged in a lid configured and arranged separate from the bowl. This results in movement restrictions or, if applicable, constricted situations for the operation of the air conditioning device.

Brief Description of the Invention

It is the object of the present invention to provide a food receiving container in which the indication of an operating state of an air conditioning device is improved.

- 5 This object is solved by a food receiving container and a household cooling appliance according to the independent claims.

One aspect of the invention relates to a food receiving container for a household cooling appliance. The food receiving container comprises a bowl for receiving the food. The food
10 receiving container moreover comprises an air conditioning device.

This air conditioning device is intentionally provided for performing an air exchange between the environment and the interior of the food receiving container in a first operating state of the air conditioning device. The air conditioning device is therefore a
15 physically present component which in particular has at least two different operating states. The operating states can also be referred to as adjusting states. In this first operating state intentionally an air exchange between the environment and the interior of the bowl of the food receiving container is facilitated. In a second operating state of the air conditioning device it is in particular envisaged that such an air exchange at least in the
20 region of the air conditioning device in comparison with the first operating state is at least reduced. In particular the air exchange in this second operating state in the region of the air conditioning device is prevented or substantially prevented.

The food receiving container comprises at least one rotary element as an operating
25 element. By the rotary element the operating states can be adjusted by rotating the rotary element about a rotary axis. The rotary axis is in particular vertically oriented. The food receiving container moreover comprises a display device. By this display device the operating states of the air conditioning device are optically signaled. Thereby they can be easily recognized by a user. The display device comprises a display mask. The display
30 mask has a first window and at least one second window that is separate therefrom. Moreover the display device has a signaling unit that is separate from the display mask. This signaling unit is coupled to the operating element. The signaling unit is moved depending on the rotation of the rotary element relative to the display mask in the depth direction of the food receiving container. It is in particular moved only in the depth
35 direction. This movement in depth direction is a movement direction, in particular a linear movement direction. By this movement of the signaling unit in the first state a first signaling element of the signaling unit is arranged below the first window and is visible through the first window. Moreover, by this movement of the signaling unit in the second

5 operating state a second signaling element of the signaling unit, which is different from the first signaling element, is arranged below the second window and is visible through the second window. For setting the respective operating states different rotary positions of the rotary element are correlated. By such an embodiment the food receiving container is improved with regard to the optical signaling of the different operating states of the air conditioning device. In this regard a very simple concept is facilitated. By an operating element that is easy to handle, namely the rotary element, the initial movements for adjusting the air conditioning device can be easily performed by a user. A rotary movement in this regard is also a very ergonomic and user-friendly kind of movement. Advantageously this rotary element also automatically changes the optical signaling, when rotating. In the case of the food receiving container in a very simple mechanical coupling concept it is facilitated that the rotary movement is transformed into a linear movement of the signaling unit in a specific direction. This is also correspondingly concretized, namely in the depth direction of the food receiving container. Thereby also a simple and precise shifting of the signaling unit is facilitated. The indicating of the operating states by this very shifting of the signaling unit is thereby improved. This is because these signaling elements can be pushed in a targeted way in the depth direction into the respective window and can thereby be easily perceived. In an embodiment the signaling elements, viewed in the movement direction of the signaling unit, are arranged offset from each other. In a horizontal direction perpendicular to this movement direction the signaling elements are arranged spaced apart from each other.

In particular the signaling elements are arranged in a step-like profile. Such a stepped arrangement is advantageous with regard to the linear shifting of the signaling unit in the depth direction. The signaling elements in this step-like profile form the steps. By this very specific offset in this horizontal movement direction, namely the depth direction, to the rear and to the front, the optical signaling in the windows can be particularly advantageously achieved. This is because thereby it can also be facilitated that in the case of the change of the operating state of the air conditioning device the signaling elements do not simultaneously appear in the respective associated windows. Such an embodiment would mislead the observer or at least temporarily leave them in the dark as to which operating state is set. By this in this regard very specific linear movement direction of the signaling unit, namely in the depth direction, and by the very step-like arrangement of the signaling elements in this depth direction the in this regard optical

5 display can be improved. This is in particular achieved by the fact that a signaling element is displayed below a window and the other signaling element is arranged outside the further window associated therewith. Even if the signaling element is shifted out of the window, the other signaling element does not appear in the other window associated in this regard until the first signaling element has already completely left the first window.

10 Intermediate states, in which then both signaling elements are still present in the respective windows at least in part, can thereby be avoided in an improved way.

15 Nevertheless here a correspondingly compact setup of the display device can be achieved.

In an embodiment the two windows are arranged in the movement direction and thus in the depth direction without offset from each other. In the horizontal direction perpendicular to this movement direction the windows are arranged at a distance from each other amounting to between 80 % and 150 %, in particular between 90 % and 120 % of the distance between the signaling elements. In this regard, too, an advantageousness is given to the effect that quasi only one signaling element each is displayed in the associated window and intermediate states, as they are explained above, can be avoided. Moreover, by this arrangement of the windows also a compact setup of these window regions is facilitated. Particularly in interaction with the specific positioning of the signaling elements, this also allows a simple concept to be achieved that is space-saving yet highly functional. Simple motion sequences lead to intuitively very understandable and unambiguous states of the optical signaling.

30 In an embodiment these positionings of the windows are viewed in the width direction of the food receiving container. These are arranged in a straight row in this width direction.

In an embodiment the signaling elements in this movement direction and thus in the depth direction are offset from each other by a distance amounting to between 100 % of the width of a signaling element and 110 % of this width of the signaling element. The width in this connection is measured in the movement direction and thus in the depth direction. Also this particularly advantageously contributes to the above-named, improved optical signaling. In particular the avoiding of optical signalings, in which both signaling elements

5 are arranged simultaneously at least in part in the associated windows, can thereby be avoided in a once again improved way. Nevertheless, a compact and space-saving arrangement of these signaling elements is facilitated.

10 In an embodiment the signaling elements are configured as color stripes on the top side of the signaling unit. They are arranged in particular to be fixed in stationary position on this top side. This enables very simply constructed and permanently functional signaling elements. Such static signaling elements are also very simple, compactly constructed and wear-resistant.

15 They can be configured as a printing or painting or coating, for instance.

In an embodiment the signaling unit comprises a plate that is shiftable in this movement direction. On the top side of this plate the signaling elements are arranged. The plate is arranged flat in the plane, which is spanned by the width direction and the depth direction.

20 By such a specification of a subelement of the signaling unit as plate a certain size of the signaling elements can be achieved. Moreover such a plate is configured to be compact and thin. It can therefore be arranged in a space-saving way, viewed in the height direction. In particular by such a plate also the movement scenario can be very simply performed. The plate in this connection can be easily shifted linearly relative to other

25 components. Moreover a plate is a geometrically simple design. Thereby, on the one hand, the installation and the coupling to other components can equally be configured in a simple way.

In an embodiment the plate has a long-hole, straight recess. Same is intentionally

30 provided for the rotary element to extend in the direction of the rotary axis through the recess. The recess is in particular a recess that is open towards a front wheel of the plate. By such designs the setup can be facilitated in a compact way. Therefore, namely the surface area of this plate is used in order to be able to also position other components in the surface area in a projection view. Moreover by such an embodiment the rotary

35 element can be positioned not only adjacent, but quasi also in the surface area of the plate itself. Particularly short and simple mechanical coupling scenarios between the plate the rotary element can thereby be achieved. In particular by this design then also an advantageous operating principle for transferring the rotary movement of the rotary

5 element into the linear movement of the plate in the depth direction is facilitated. In particular thereby a very jam-free and continuous transferal of this movement is facilitated and a very constant movement of the plate is achieved. By the recess, which is open in this regard, also an individual movement path of the components relative to each other can be individually configured. The mounting of the components is thereby facilitated in a particularly simple way. Not least, thereby the manufacture of the plate is simplified. The plate in this connection can be configured as a single piece. It may for instance be configured to be made of plastic. The plate depending on the rotary movement of the rotary element about the rotary axis due to the long-hole recess is movable in the movement direction relative to the rotary element. The long-hole recess therefore
10 advantageously contributes to the transferal of the rotary movement into the linear sliding movement.

In an embodiment the rotary element has a coupling pin arranged off-center relative to the rotary axis. The plate has an engagement hole. The coupling pin projects into this
20 engagement hole. Depending on the rotary movement of the rotary element also the coupling pin is correspondingly rotated and by the coupling to the engagement hole thereby the plate is linearly shiftable in the depth direction and thus linearly movable in its movement direction. A very compact, simple, and highly functional mechanical operating principle is thereby achieved. The coupling pin is here a highly functional part, which
25 reliably engages this engagement hole and facilitates the safe movement. Upon rotating the rotary element about the rotary axis the coupling pin performs a movement on a circular path.

The rotary axis of the rotary element is oriented perpendicular to the plane in which the
30 plate extends with its planar dimensions.

In an embodiment the engagement hole is configured as bulge on the rim of the recess that is open on the rim side, in particular in a rim section of the rim, which is oriented straight, in particular in the depth direction. This supports the compact setup of the arrangement once more. Thereby however, also particularly advantageously the coupling
35 of the coupling pin to this engagement hole is facilitated. Therefore also very simple mounting scenarios of this arrangement are the result. By this engagement hole being quasi immediately adjacent to the rim of the recess and being configured to be open into

5 the recess, also minor tolerance movements and a slight slackness of the rotary element relative to the plate is facilitated. Thereby, on the one hand, a highly precise and steady movement is facilitated, on the other hand, a jam-free transferring of the rotary movement into the linear movement is supported. Moreover, by this embodiment it is also facilitated that the force transmissions are effected close to the rotary axis. This also leads to a
10 reduction of the required rotary forces and an in this regard smooth-running actuation of the rotary element.

In an embodiment, viewed in the depth direction of the food receiving container, the signaling elements are arranged farther spaced apart from a front rim of the plate than a
15 rear rim of the recess. Thus, the recess over its entire length extends in front of the signaling elements. Thereby also an arrangement of the signaling elements separated from this recess, viewed in the depth direction, on this plate is achieved. Undesired impairments or a surface reduction for the signaling elements are thereby avoided.

20 In an embodiment the display device comprises a carrier plate. The carrier plate has a trough-like portion. This trough-like portion is intentionally provided for receiving the plate or the signaling plate, respectively. This plate is a component that is separate from the carrier plate. The plate is received in the trough-like portion, in particular countersunk at least in part. This is a further very advantageous embodiment. This is because, on the one
25 hand, the plate thereby can be positioned in a mechanically stable way. On the other hand, it is also arranged to be protected at least in part. This embodiment is, however, also particularly advantageous to the effect that the movement of the plate is supported by the carrier plate at least in part. In particular thus also a certain guiding for the plate through the carrier plate is enabled.

30 In an embodiment the trough-like portion has lateral bounding walls. These project upward from a bottom wall of the trough-like portion in the height direction. Thereby a trough shape is formed. In particular these lateral bounding walls are functionally also guiding bars for linear guiding of the plate in the carrier plate in the depth direction. Thus by these
35 bounding walls not only the receiving space in the carrier plate for the plate is bounded and formed, but the guiding of the movement of the plate in the depth direction is particularly advantageously supported. An undesired tilting or other wobbling of the plate in a horizontal plane when moving the plate is thereby avoided.

5

In an embodiment the carrier plate has a ring-shaped collar. By this ring-shaped collar a hole in the carrier plate, through which the rotary element intentionally extends, is framed. Thereby also the positioning of the rotary element on the carrier plate in this hole region is supported. Not least, by this ring-shaped collar the carrier plate in this hole is also mechanically stabilized or stiffened. In an embodiment this collar extends into the plate. This means that in a direction perpendicular to the plane in which the plate extends planar an overlapping between the collar and the plate is configured. By the collar thereby also a guiding for the plate when linearly moving the plate in the depth direction is formed. Thus, in an embodiment the movement of the plate is guided by at least two separate guiding elements. This may be, on the one hand, the lateral bounding walls of the trough-like portion, on the other hand, this collar. The particularly constant linear movement of the plate in the carrier plate is thereby facilitated.

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Not least, thereby also a very smooth rotary movement of the rotary element about the rotary axis is enabled. A tilting of the rotary element during this rotary movement is thereby avoided. Thereby also a very smooth-running and jam-free rotating is supported.

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In an embodiment the display mask is configured as a printing or painting or coating on an add-on plate. The add-on plate can be integral part of the food receiving container. The add-on plate, viewed in height direction of the food receiving container, is arranged above the bowl. Additionally, the food receiving container may comprise a lid. The lid is in particular configured as lid plate. It is a component that is separate from the preferably present add-on plate. Viewed in the height direction, the lid is arranged in particular between the add-on plate and the bowl. The lid is in particular provided to be capable of being positioned relative to the bowl in at least two different positions. Each position in this connection is linked to an operating state of the air conditioning device. If the lid rests directly on the bowl from above, the second operating state of the air conditioning device is set. If the lid in this regard is positioned in such a way that at least an air gap is configured between the lid and the bowl and an air exchange between the food receiving container and the environment is thus facilitated, the first operating state of the air conditioning device is set. The lid can move in this connection in the height direction and/or in the depth direction relative to the bowl.

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5 In an embodiment the lid can be arranged on the add-on plate. In particular it can be arranged on this add-on plate to be movable relative to the add-on plate. Therefore it is also possible that the add-on plate during the movement of the lid is not changed in its position. The add-on plate in this connection can for instance be a shelf of a household cooling appliance.

10 In an embodiment the operating element is movably arranged on this add-on plate. The lid in this regard is free of such an operating element. Therefore the movement of the lid can then also be effected more individually and the positioning of the lid can be effected more individually. The accessibility of the operating element is thereby improved.

15 The rotary element is in particular configured as shifting element for the lid. Depending on the actuation of the rotary element and thus depending on the rotary position the lid can be brought into a first position, in which thereby at the same time also the first operating state of the air conditioning device is set. In this position then also simultaneously this first
20 operating state is optically signaled by the positioning sign of one of the signaling elements, for instance the first signaling element, in an associated window, for instance in the first window. Depending on the actuation of the rotary element and thus a setting of a further rotary position, the lid can be automatically brought into a second position. In this position at the same time then also the second operating state of the air conditioning
25 device is set. Simultaneously this second operating state is then also optically signaled by the positioning sign of the other signaling element, for instance the second signaling element, in another associated window, for instance in the second window.

30 The food receiving container in this connection can also be a keep-fresh container. In this regard different storage conditions in comparison with the remaining volume of the receiving space can be adjusted. In particular here a different air conditioning is facilitated. Different temperatures and/or air humidities can be adjusted.

35 A further aspect of the invention relates to a household cooling appliance. Same comprises at least one food receiving container according to the above-named aspect or an advantageous embodiment thereof. The household cooling appliance may be a refrigerating device or a freezer device or a fridge-freezer combination device. The household cooling appliance may comprise a housing. Same comprises an outer housing.

5 In the outer housing an inner liner is contained, which is separate thereto. The inner liner with its walls bounds at least one receiving space of the household cooling appliance. The receiving space can be a refrigerating space or a freezer space. The food receiving container is a component, which is separate thereto and which can be arranged in this receiving space. The food receiving container can also be removed as a whole from this receiving space. It is also possible that additionally or instead only the bowl of the food receiving container can be removed. Same, moreover, in the depth direction of the household cooling appliance can be pulled out and pushed in.

15 By the indications „top“, „bottom“, „front“, „rear“, „horizontal“, „vertical“, „depth direction“, „width direction“, „height direction“ the positions and orientations in the case of intentional use and intentional arrangement of the container or the device are indicated.

Further features of the invention derive from the claims, the figures, and the description of the figures. The features and feature combinations previously named in the description as well as the features and feature combinations named in the following in the description of the figures and/or shown in the figures alone can be used not only in the respective indicated combination but also in other combinations or taken alone, without leaving the scope of the invention. Thus also embodiments of the invention are to be considered as encompassed and disclosed which are not explicitly shown or explained in the figures, however, derived by separated feature combinations from the explained embodiments and can be generated therefrom. Also embodiments and feature combinations are to be regarded as disclosed, which thus do not comprise all features of an originally formulated independent claim.

30 **Explanation of Figures**

Embodiments of the invention are explained in more detail in the following by reference to schematic drawings. These show in:

35 Fig. 1 a perspective view of an embodiment of a household cooling appliance according to the invention;

Fig. 2 a vertical sectional view through an embodiment of a food receiving container;

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Fig. 3 a top view of an embodiment of a food receiving container according to the invention;

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Fig. 4 an exploded view of subcomponents of an embodiment of a food receiving container according to the invention;

Fig. 5 perspective views of three different positions of a signaling plate in a carrier plate;

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Fig. 6 a perspective view of a subcomponent of a rotary element of the food receiving container;

Fig. 7 a perspective sectional view of subcomponents of the food receiving container;

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Fig. 8 a partial view of an embodiment of a food receiving container according to the invention with a front, top corner portion and in a first operating state of an air conditioning device of the food receiving container; and

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Fig. 9 a representation according to Fig. 8 of a further embodiment of a food receiving container according to the invention, in which the second operating state of an air conditioning device of the food receiving container is set.

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In the figures same elements or elements having the same function are equipped with the same reference signs.

Detailed Description of the Figures

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In Fig. 1 in an exemplary view a household cooling appliance 1 is shown, which is configured as fridge-freezer combination device. The household cooling appliance 1 comprises a body 2 with an inner liner 3. The inner liner 3 comprises amongst other elements two opposite vertical side walls 3a and 3b. The inner liner 3 with its walls bounds a first interior space or first receiving space 4, which is a cooling space, and a second

5 interior space or second receiving space 5, respectively, exemplarily arranged below and separated therefrom, which is a freezer space. The first receiving space 4 in general serves for frost-free cooling of refrigerated goods, preferably at temperatures of between +4 °C and +8 °C. The first receiving space 4, however, can also be configured as zero-degree compartment, in particular for keeping fruit and vegetable fresh. The first receiving
10 space 4 is accessible when the door 6 closing the first receiving space 4 on the front side is open.

The second receiving space 5 in general serves for deep-freezing frozen goods, for instance at -18 °C. The second receiving space 5 is accessible when the freezer
15 compartment door 7 is open.

In the top first receiving space 4 a refrigerated goods container or keep fresh container is mounted in a manner allowing to be pulled out. The keep fresh container represents a food receiving container 8. The food receiving container 8 comprises a drawer or bowl 10.
20 In an embodiment the food receiving container 8 also comprises a lid 9. Same is separate from the bowl 10. The lid 9 may be envisaged only for closing the bowl 10. It may then be placed directly on the bowl 10. In an embodiment it may also be envisaged that the lid 9 is configured as shelf or partition at the same time. It is then in particular mounted directly on the vertical side walls 3a and 3b. In an embodiment it is then not directly resting on the
25 bowl 10 but in particular minimally offset upward therefrom.

It may also be envisaged, as shown, that an additional, separate add-on plate 11 for instance in the form of a partition, for instance a glass shelf, is arranged. Same is immediately and minimally spaced apart from the lid 9 above the lid 9.

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Also a further or other food receiving container 8' may be envisaged.

At least by the add-on plate 11 the food receiving container 8 is separated from the remaining rest of the subvolume of the first receiving space 4.

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The food receiving container 8 can be removed from the first receiving space 4 in a non-destructively detachable manner. Also in the inserted state in the first receiving space 4 it is envisaged that the bowl 10 in the depth direction and thus in the z direction can be

5 moved back and forth in the state still mounted in the first receiving space 4 in order to reach the interior of the bowl 10. The same may also be envisaged in analogy in the case of the food receiving container 8'. Same may also be configured with a bowl 10 and in particular also with a lid 9. Then also an add-on plate 11 may be arranged directly above the lid 9. Same may also be configured with a bowl 10 and in particular also with a lid 9.
10 Then also an add-on plate 11 can be directly arranged above the lid 9. Same is then for instance arranged directly below the bowl 10 of the food receiving container 8. The bowl 10 of the food receiving container 8 can then be placed on this add-on plate 11 of the food receiving container 8'.

15 The food receiving container 8', viewed in the depth direction, in an embodiment may be longer than the components arranged directly above. It may therefore be configured to be longer towards the front than the components arranged directly above. It may therefore be configured to be longer in this depth direction towards the front than the food receiving container 8 arranged for instance above. In this case the food receiving container 8 may
20 also be only a simple bowl. It may then also be configured differently and does not necessarily have to be a keep fresh container. Generally, a food receiving container 8, 8' can be intentionally provided for storing specific food. In this context also different storage conditions in such a food receiving container 8, 8' can be set in comparison with the remaining first receiving space 4.

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In particular storage conditions, such as individual temperature and/or air humidity, can thereby be set in the interior of the food receiving container 8' or 8, respectively. An individual air conditioning is thereby facilitated.

30 In Fig. 2 in a vertical sectional view an embodiment of the food receiving container 8' is shown. The bowl 10 is shown here. Same has a front wall 12, a rear wall 13, a first bottom wall 14, and a side wall 15 extending vertically shown here. The opposite further side wall cannot be recognized here.

35 The food receiving container 8' in Fig. 2 also shows the add-on plate 11 present here.

Moreover, the food receiving container 8' here also comprises the lid 9. The lid 9 is movably arranged on the add-on plate 11. In particular in this connection it can be moved

5 in height direction (y direction) and in the depth direction (z direction) relative to the add-on plate 11. The lid 9 in this regard is suspended from the add-on plate 11 from below.

As can be recognized in the state shown in Fig. 2, here the lid 9 rests with a bottom edge 9a on a top edge or a second top rim 15a of the bowl 10. In particular the lid 9 rests on the
10 second top rim 15a of the side wall 15, on a first top rim 13a of the rear wall 13, as well as on a second top rim of the opposite side wall. In this position also the second operating state or a second setting of an air conditioning device 16 of the food receiving container 8' is set. The air conditioning device 16 intentionally is envisaged to facilitate in a first operating state that is different from the second operating state an air exchange at this
15 interface between the bowl 10 and the lid 9. In the first operating state in this regard the lid 9 is then at least in part lifted from the bowl 10 so that between the bottom rim 9a and the top rims 15a and/or 13a and/or the top rim of the further vertical side wall a ventilation gap is configured. Then an air exchange between the interior of the food receiving container 8', in particular the bowl 10 and the environment of the food receiving container 8' can be
20 effected.

The lid 9 can be configured as plate. It can, however, also be configured in the form of a trough and in this regard be arranged as inverted trough. Thereby it then comprises a top plate-like roof wall and laterally and on the rear side a vertically oriented wall so that
25 thereby the trough shape is formed. For instance in Fig. 2 such a trough-shaped design of the lid 9 is shown.

The food receiving container 8' moreover comprises an operating element. Same is here a rotary element 13. The rotary element 13 can be rotated about a rotary axis A in order to
30 set operating states of the air conditioning device 16 in a defined way. The rotary axis A is oriented in the height direction. Depending on the respective rotary position the at least two different operating states of the air conditioning device 16 can be set. In particular by the rotary element 13 it is facilitated to change the position of the lid 9 relative to the bowl 10 depending on the rotary position. This individual position of the lid 9 relative to the bowl
35 10 also is accompanied by this respective operating state of the air conditioning device 16. In particular it is envisaged that the add-on plate 11 in at least these two operating states of the lid 9 and thus also in these at least two operating states of the air conditioning device 16 remains unchanged in its position.

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The food receiving container 8' moreover comprises a display device 17. By this display device 17 intentionally the first operating state and the second operating state, which is at least possible and different therefrom, can be optically signaled. In this connection it is envisaged that the display device 17 comprises a display mask 18, as it is shown in Fig. 3.

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In this connection in Fig. 3 a top view of an embodiment of a food receiving container 8' is shown. In this embodiment under the common add-on plate 11 two separate bowls 10 can be arranged. These can each be individually operated by an operating device of their own with a rotary element 13 of their own. It is, however, also possible that in a different embodiment only one single bowl 10 is present. Same then extends in particular in the width direction (x direction) substantially over the entire width of the add-on plate 11. The add-on plate 11, however, can also comprise only a rotary element 13, in particular centrally arranged in the width direction, if only one bowl 10 is arranged underneath. This bowl 10 then extends in the width direction substantially over the width of the add-on plate 11.

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In an embodiment the add-on plate 11 comprises a transparent plate 19. Same can be enclosed or framed by a frame 20 of the add-on plate 11. On this transparent plate 19, which may be a glass plate, the display mask 18 is arranged. The display mask 18 can for instance be arranged on a bottom side of this transparent plate 19. The display mask 18 can for instance be a printing or a coating.

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The display mask 18 is here configured in a front portion of the transparent plate 19, viewed in the depth direction. The frame 20 can here be a fully circumferential frame.

30

As can be recognized in this top view in Fig. 3, the rotary element 13 is arranged within the area of the display mask 18, in particular fully arranged within this area.

35

In Fig. 4 in an exploded view subcomponents of the rotary element 13 and the display device 17 are represented. The rotary element 13 is here configured in multiple parts. In this connection it has a rotary part 21. This rotary part 21 is the one that is exposed and intentionally is arranged for direct gripping by a user. This rotary part 21 here in the embodiment is configured in two parts. It comprises a rotary part socket 22 and a cover 23. Same may be latched to the rotary part socket 22. In the assembled state the rotary

5 part 21 is configured in the form of a flat cylinder. Moreover, the rotary element 13 comprises a socket 24. The socket 24 is connected to the rotary part 21 in the mounted state. The socket 24 comprises a disk 25. On the disk 25 a centrally arranged coupling nozzle 26 projecting upward is formed. By this coupling nozzle 26 the socket 24 is connected to the rotary part 21. Moreover, the socket 24 comprises a coupling pin 27.

10 Same is equally arranged upwardly projecting on the disk 25. It is arranged radially offset outward from the rotary axis A. By contrast, the coupling nozzle 26 is positioned centrally and thus also in particular coaxially to the rotary axis A. The socket 24 moreover on a rim of the disk 28 comprises discrete recesses. These are thus open towards the outside on the rim side. In the embodiment, in this connection three different bulges 29, 30, and 31
15 are formed. These represent discrete rotary positions in the circumferential direction of the rotary axis A. By these first bulge 29, second bulge 30 and third bulge 31 an in this regard latching setting of the respective rotary position is possible. For this purpose this socket 24 can latch into engagement with a counter latching element 32 (Fig. 7). Thereby the discrete rotary positions can also be held and can be haptically perceived.

20 Moreover in Fig. 4 an embodiment of a signaling unit 33 is shown. The signaling unit 33 is integral part of the display device 17.

In the embodiment the signaling unit 33 comprises a plate 34. Same can also be referred
25 to as signaling plate. The plate 34 on a top side 34a comprises at least two separate signaling elements 35 and 36. In the embodiment three separate signaling elements 35, 36, and 37 are configured. In the embodiment these are configured as color stripes. They are for instance applied by printing or coating on the top side 34a. The first signaling element 37, the second signaling element 35 and the third signaling element 36, viewed in
30 the depth direction, are configured in a rear half of the length of the plate 34. They are arranged offset from each other in this depth direction. This means that here in the embodiment they arranged according to a step-like profile. In this regard the signaling elements 35, 36, and 37 are steps of this step-like profile. In particular it is envisaged that the distance or offset formed in the depth direction (z direction) between two adjacent
35 signaling elements 35 and 37 amounts to between 100 % and 110 % of its width b of a signaling element 35 to 37. This also means that adjacent signaling elements 35 to 37 in this depth direction are arranged without mutual overlap. However, in this context they can then also connect directly one to each other. They can in this connection, however, then

5 also directly connecting to each other. In the width direction (x direction) the signaling elements 35 to 37 are equally arranged without overlap. In particular the signaling elements 35 to 37 are identical in their form and their area size.

Moreover, the plate 34 has a recess 38. The recess 38, viewed in the depth direction,
10 takes the form of a long hole. It is configured to be open only towards a front rim 39 of the plate 34. The recess 38 is intentionally provided for the rotary element 13 to extend through it in the direction of the rotary axis A. In particular the socket 24 extends through this recess 38.

15 As can moreover be recognized, the plate 34 has an engagement hole 40. This engagement hole 40 is directly adjacent to the recess 38. It is a bulge that is outwardly formed in this regard. The engagement hole 40 is arranged on a rim section of the rim 38a of the recess 38, which is oriented in a straight line in the depth direction. This engagement hole 40 is open on the rim side. This means that it is configured to be open
20 towards the recess 38. The engagement hole 40 is intentionally envisaged to be engaged by the coupling pin 27.

The engagement hole 40 is configured as a bulge on the rim 38a of the recess 38, the bulge being open on the rim side. As can be recognized moreover in Fig. 4, the signaling
25 elements 35 to 37, viewed in the depth direction, are arranged spaced farther apart from the front rim 39 than a rear end 38b of the recess 38.

Moreover, the display device 17 also comprises a carrier plate 41. The carrier plate 41 is a component that is separate from the plate 34. The carrier plate 41 is configured in an
30 embodiment with a trough-like portion 42. In the mounted state the plate 34, viewed in the height direction, is received at least in part in the trough-like portion 42. Thus, it is at least in part positioned to be capable of being countersunk. The trough-like portion 42 is here bounded by lateral bounding walls 43 and 44. These are bounding walls 43 and 44 oriented opposite and in parallel to each other. The first and second bounding walls 43
35 and 44 at the same time are also guide bars for linear guiding of the plate 34 in the carrier plate 41. In particular thus a linear guiding in the depth direction of the plate 34 relative to the carrier plate 41 is facilitated.

5 As can moreover be recognized, a second bottom wall 45 of the carrier plate 41 has a hole 46. This hole 46 in the embodiment is framed by a ring-shaped collar 47. This ring-shaped collar 47 extends from the second bottom wall 45 upward. It is dimensioned in such a way that in the mounted state of the shown components this collar 47 also projects into the recess 38. It is thus arranged in the height direction to overlap at least in part with
10 the plate 34. By the collar 47 in an embodiment also a guiding for the plate 34 is formed. Thereby the linear movement of the plate 34 in the depth direction can be guided in a once again improved way. The carrier plate 41 is configured as a single piece.

In an embodiment the rotary element 13, in particular the socket 24, comprises a further
15 coupling pin element 48 (Fig. 6). This further coupling pin element 48 is molded onto the disk 25. It is arranged off-center. It protrudes from the disk 25 in the opposite direction than the coupling nozzle 26 and the coupling pin 27 from the disk 25. In particular the further coupling pin element 48 is envisaged for engaging a corresponding guide rail in the lid 9. Thus the operating element or the rotary element 13 in an embodiment is also
20 directly mechanically coupled to the lid 9. It may then be envisaged that a rotary movement of the rotary element 13 immediately also initiates the movement of the lid 9. For this purpose it is envisaged that in an embodiment guide rails 11a and 11b are configured in the add-on plate 11, as this is shown in Fig. 2. The lid 9 is movable along these guide rails 11a and 11b relative to the add-on plate 11. The rotary movement of the
25 rotary element 13 about the vertically oriented rotary axis A is thus converted into a diagonal movement of the lid 9. Thus by the rotating of the rotary element 13 also the change of the operating state of the air conditioning device 16 can be performed.

When rotating this rotary element 13 due to the coupled state of the rotary element 13 to
30 the plate 34 also the plate 34 is moved. In particular therein it is envisaged that this rotary movement of the rotary element 13 is converted into a linear movement of the plate 34. In particular this plate 34 moves when rotating the rotary element 13 in a linear movement direction. This linear movement direction is here the depth direction. The plate 34 is therefore moved back and forth in the horizontal direction.

35 In this connection in Fig. 5 in an embodiment three different positions of the plate 34 on the carrier plate 41 are shown. For instance in the left perspective view, in which the components according to Fig. 4 apart from the rotary part 21 are shown and assembled, a

5 second operating state of the air conditioning device 16 is shown. In this operating state the air conditioning device 16 is quasi closed. An air exchange at the interface between the lid 9 and the bowl 10 is here prevented or substantially prevented. For optically signaling this second operating state also the second operating state of the plate 34 along the movement direction is represented. This second operating state is here in the
10 embodiment, viewed in the depth direction, an outermost front position of the plate 34 relative to the carrier plate 41. In this state the second signaling element 35 is arranged below a second window 49 (Fig. 3). This means that the second signaling element 35 in this second operating state can be recognized in the second window 49.

15 Moreover in Fig. 5 a state is shown, in which the plate 34 is moved to the rear in the depth direction in comparison with the carrier plate 41. In the embodiment this may be an intermediate state. Same can be referred to as third operating state of the air conditioning device 16. In this intermediate state the air conditioning device 16 can be open already at least in part and thus an air exchange be facilitated between the lid 9 and the bowl 10. In
20 this third operating state a third signaling element 36, which here is for instance the middle signaling element, can be recognized in a third window 50 (Fig. 3). In the second window 49 and in a first window 51, which is present here in the embodiment, then no signaling elements 35 and 37 are present.

25 If a first operating state is set, as this is shown in Fig. 5 as example in the right image, the plate 34 is shown in a further shifting position relative to the carrier plate 41. This is here in the embodiment the shifting position that is shifted furthest to the rear. This first position of the plate 34 is then set when the first operating state of the air conditioning device 16 is set. In this position the lid 9 is lifted from the bowl 10 and accordingly a corresponding air
30 exchange can be comprehensively effected at this interface.

In this first operating state the first signaling element 37 is arranged in the here first window 51. The two other signaling elements 35 and 36 then are not present in the associated second and third windows 49 and 50 and in this regard thus are pushed out of
35 the viewing area.

As can be recognized in Fig. 3, here in the embodiment three windows 49, 50, and 51 are arranged in the width direction in a row relative to each other. In this regard they are

5 positioned slightly spaced apart from each other. In the depth direction they are arranged without offset from each other. Thereby it is also achieved that by the specific arrangement of the signaling elements 35 to 37 in each case only one signaling element 35 to 37, depending on the shifting position of the plate 34, is present in one of the associated windows 49 to 51. An at least in phases simultaneous presence of at least two
10 separate signaling elements in 35 to 37 in the associated windows 49 to 51 is thereby avoided. In particular a signaling element 35 to 37 cannot be recognized in the associated window 49 to 51 at least in part until the respective other signaling elements 35 to 37 each are completely pushed out of their associated windows. As can be seen here, the windows 49 to 51 are configured in the display mask 18. They are configured in the depth
15 direction immediately behind the rotary element 13. It may be envisaged that in the display mask 18 additional symbols are configured, which are arranged in local association with the windows 49 to 51. By these symbols specific food can be characterized. Thus, it can also be signaled to a user which food can be advantageously stored in the respective operating states of the air conditioning device 16 in the bowl 10.
20 These symbols are represented in Fig. 3 by the exemplary rectangles immediately adjacent to the respective windows 49 to 51.

By the carrier plate 41, in particular the bounding walls 43 and 44 and/or the collar 47, this linear movement of the plate 34 in the depth direction is guided particularly
25 advantageously. Thus the transmission of the rotary movement of the rotary element 13 in this specific movement direction can be effected particularly advantageously.

In the representations in Fig. 5 it can also be recognized how the coupling pin 27 engages the engagement hole 40. Due to the in this regard lateral arrangement on a particularly
30 straight portion of the bounding wall of the recess 38 with the rotary movement of the socket 24 also the linear shifting of this plate 34 in this horizontal depth direction results. Equally it can be recognized how the plate 34 is guided by the bounding walls 43 and 44 and/or the collar 47 in this linear movement.

35 As already briefly set out in the above, in Fig. 6 a perspective view of the socket 24 is shown.

5 In Fig. 7 a perspective sectional view the socket 24 arranged on the carrier plate 41 is shown. Here the reverse state of that in Fig. 6 is shown. For setting these optical signaling states the plate 34 is also movable relative to the stationary display mask 18.

10 In Fig. 8 in a vertical sectional view a partial section of the food receiving container 8' is shown. In particular here a front top corner portion is shown. Here the first operating state of the air conditioning device 16 is shown. In this connection an ventilation gap 52 between the top rim of the bowl 10 and the bottom rim of the lid 9 is formed.

15 In Fig. 9 in a view corresponding to that in Fig. 8 the arrangement of the lid 9 with the add-on plate 11 is shown. Here the second operating state of the air conditioning device 16 is shown. Here a corresponding vertical sectional view is shown. It can be recognized how the further coupling pin element 48 engages the guide rail 53 in the lid 9. The mechanical coupling in this regard is such that upon a rotary movement of the off-center further coupling pin 48 and by the relative movement of the further coupling pin 48 in the guide rail
20 53 the lid is moved. In this regard and due to the guide rails 11a and 11b the lid 9 is moved at an angle towards the rear and the top relative to the add-on plate 11 and to the bowl 10. In a transition from the second operating state into the first operating state of the air conditioning device 16 in this regard the reverse movement of the lid 9 is effected.

5

List of Reference Signs

	1	household cooling appliance
	2	body
10	3	inner liner
	3a	first vertical side wall
	3b	second vertical side wall
	4	first receiving space
	5	second receiving space
15	6	door
	7	freezer compartment door
	8	first food receiving container
	8'	second food receiving container
	9	lid
20	9a	bottom rim
	10	bowl
	11	add-on plate
	11a	first guide rail
	11b	second guide rail
25	12	front wall
	13	rotary element
	13a	first top rim
	14	first bottom wall
	15	side wall
30	15a	second top rim
	16	air conditioning device
	17	display device
	18	display mask
	19	transparent plate
35	20	frame
	21	rotary part
	22	rotary part socket
	23	cover

5	24	socket
	25	disk
	26	coupling nozzle
	27	coupling pin
	28	rim of the disk
10	29	first bulge
	30	second bulge
	31	third bulge
	32	counter latch element
	33	signaling unit
15	34	plate
	34a	top side
	35	second signaling element
	36	third signaling element
	37	first signaling element
20	38	recess
	38a	rim
	38b	end
	39	front rim
	40	engagement hole
25	41	carrier plate
	42	trough-like portion
	43	first bounding wall
	44	second bounding wall
	45	second bottom wall
30	46	hole
	47	collar
	48	coupling pin element
	49	second window
	50	third window
35	51	first window
	52	ventilation gap
	53	guide rail
	A	rotary axis

5	b	width
	x	width direction
	y	height direction
	z	depth direction

5

CLAIMS

1. Food receiving container (8, 8') for a household cooling appliance (1), the food
10 receiving container comprising a bowl (10) for receiving the food and comprising an air
conditioning device (16), by which an air exchange between the environment and the
interior of the food receiving container (8, 8') in a first operating state of the air
conditioning device (16) can be performed, wherein the air conditioning device (16) has a
second operating state that is different from the first operating state, comprising a rotary
15 element (13) as operating element, by which the operating states are adjustable by
rotating the rotary element (13) about a rotary axis (A), and comprising a display device
(17), by which the operating states are optically signaled, wherein the display device (17)
comprises a display mask (18), which comprises a first window (51) and at least a second
window (49) that is separate therefrom, and a signaling unit (33) which is separate from
20 the display mask (18) and which is coupled to the rotary element (13), wherein the
signaling unit (33) depending on the rotation of the rotary element (13) is, in particular
linearly, moved relative to the display mask (18), in particular only, in the depth direction
(z) of the food receiving container (8, 8') as a movement direction (z) so that in the first
operating state a first signaling element (37) of the signaling unit (33) is arranged below
25 the first window (51) and is visible through the first window (51), and in the second
operating state a second signaling element (35) of the signaling unit (33), which is
different from the first signaling element (37), is arranged below the second window (49)
and is visible through the second window (49).
- 30 2. Food receiving container (8, 8') according to claim 1, wherein the first signaling
element (37) and second signaling element (35)) in the movement direction (z) of the
signaling unit (33) are arranged offset from each other, and in a direction perpendicular to
the movement direction (z) are arranged spaced apart from each other so that the first
signaling element (37) and second signaling element (35) are arranged in a step-like
35 profile.

3. Food receiving container (8, 8') according to claim 1, wherein the first window (51) and the second window (49) in the movement direction (z) are arranged without offset from each other and in the direction perpendicular to the movement direction (z), in particular in the width direction (x) of the food receiving container (8, 8'), are arranged at a distance from each other amounting to between 80% and 150%, in particular between 90% and 120% of the distance between the first signaling element (37) and second signaling element (35).

4. Food receiving container (8, 8') according to any one of the preceding claims, wherein the first signaling element (37) and second signaling element (35) in the movement direction (z) are offset from each other by a distance amounting to between 100% of the width (b) of a signaling element in this movement direction (z) and 110% of this width.

5. Food receiving container (8, 8') according to any one of the preceding claims, wherein the first signaling element (37) and second signaling element (35) are configured as color stripes on a top side (34a) of the signaling unit (33) and/or are arranged fixed in stationary position on the top side (34a).

6. Food receiving container (8, 8') according to any one of the preceding claims, wherein the signaling unit (33) comprises a plate (34) which is movable in movement direction (z) and on the top side (34a) of which the first signaling element (37) and second signaling element (35) are arranged.

7. Food receiving container (8, 8') according to claim 6, wherein the plate (34) has a long-hole recess (38), in particular a recess (38) which is open towards a front rim (39) of the plate (34), through which the rotary element (13) extends in the direction of the rotary axis (A), wherein the plate (34) depending on the rotary movement of the rotary element (13) about the rotary axis (A) due to the long-hole recess (38) is moved in the movement direction (z).

8. Food receiving container (8, 8') according to claim 6 or 7, wherein the rotary element (13) comprises a coupling pin (27) arranged off-center, and the plate (34) has an engagement hole (40), which the coupling pin (27) engages so that depending on the

5 rotary movement of the rotary element (13) the coupling pin (27) is rotated and thereby the plate (34) is linearly shiftable in the movement direction (z).

9. Food receiving container (8, 8') according to claim 7 and 8, wherein the engagement hole (40) is configured as bulge on the rim (38a) of the recess (38), which is open on the rim side.

10. Food receiving container (8, 8') according to any one of the preceding claims 7 to 9, wherein, viewed in the depth direction (z), the the first signaling element (37), the second signaling element (35) and the third signaling element (36) are arranged farther spaced apart from a front rim (39) of the plate (34) than a rear end (38b) of the recess (38).

11. Food receiving container (8, 8') according to any one of claims 6 to 10, wherein the display device (17) comprises a carrier plate (41), which has a trough-like portion (42), wherein the plate (34), which is a component separate from the carrier plate (41), is received in the trough-like portion (42) to be countersunk at least in part.

12. Food receiving container (8, 8') according to claim 11, wherein lateral bounding walls (43, 44) of the trough-like portion (42) are guide bars for linear guiding of the plate (34) in the carrier plate (41) in the depth direction (z).

13. Food receiving container (8, 8') according to claim 11 or 12, wherein the carrier plate (41) comprises a ring-shaped collar (47), by which a hole (46) in the carrier plate (41), through which the rotary element (13) extends, is framed, wherein the collar (47) extends into the recess (38), and by the collar (47) a guiding for the plate (34) when linearly moving the plate (34) in the depth direction (z) is formed.

14. Food receiving container (8, 8') according to any one of the preceding claims, wherein the display mask (18) is configured as a printing, painting, or coating on an add-on plate (11), wherein the add-on plate (11) is arranged in the height direction (y) above the bowl (10) and/or the rotary element (13) is movably arranged on the add-on plate (11), and/or the food receiving container (8, 8') comprises a lid (9), by which the bowl (10) can be covered directly from above, in particular the rotary element (13) is configured as shifting element for the lid (9) so that depending on the actuation of the rotary element

5 (13) the lid (9) can be brought into a first position, in which thereby simultaneously also
the first operating state of the air conditioning device (16) is set and in which
simultaneously this first operating state is optically signaled by the positioning of the first
signaling element (37) in the first window (51), and depending on the actuation of the
rotary element (13) the lid (9) can be brought into a second position, in which thereby
10 simultaneously also the second operating state of the air conditioning device (16) is set
and in which simultaneously this second operating state is optically signaled by the
positioning of the second signaling element (35) in the second window (49).

15 15. Household cooling appliance (1), comprising a food receiving container (8, 8')
according to any one of the preceding claims.

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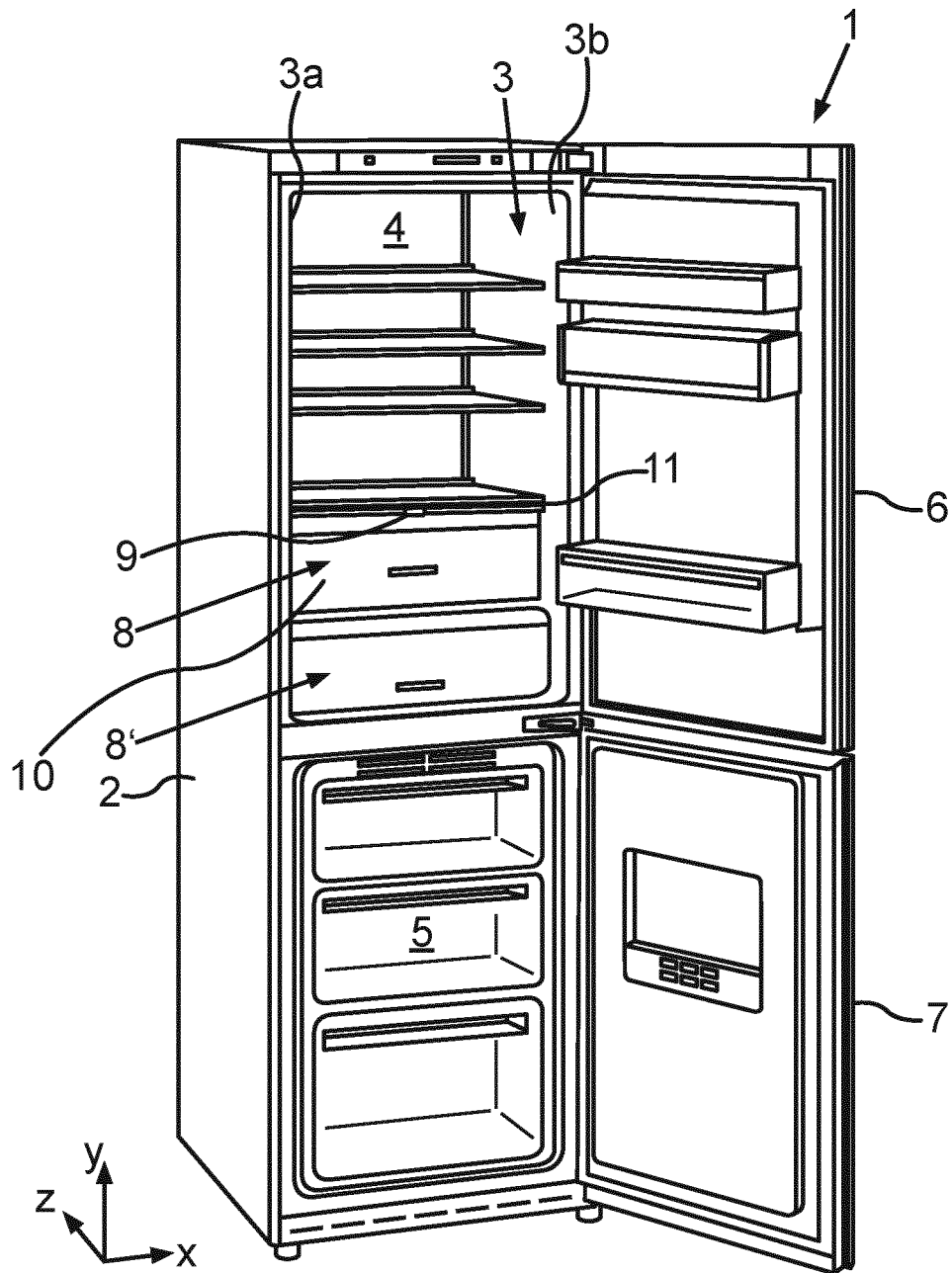


Fig.1

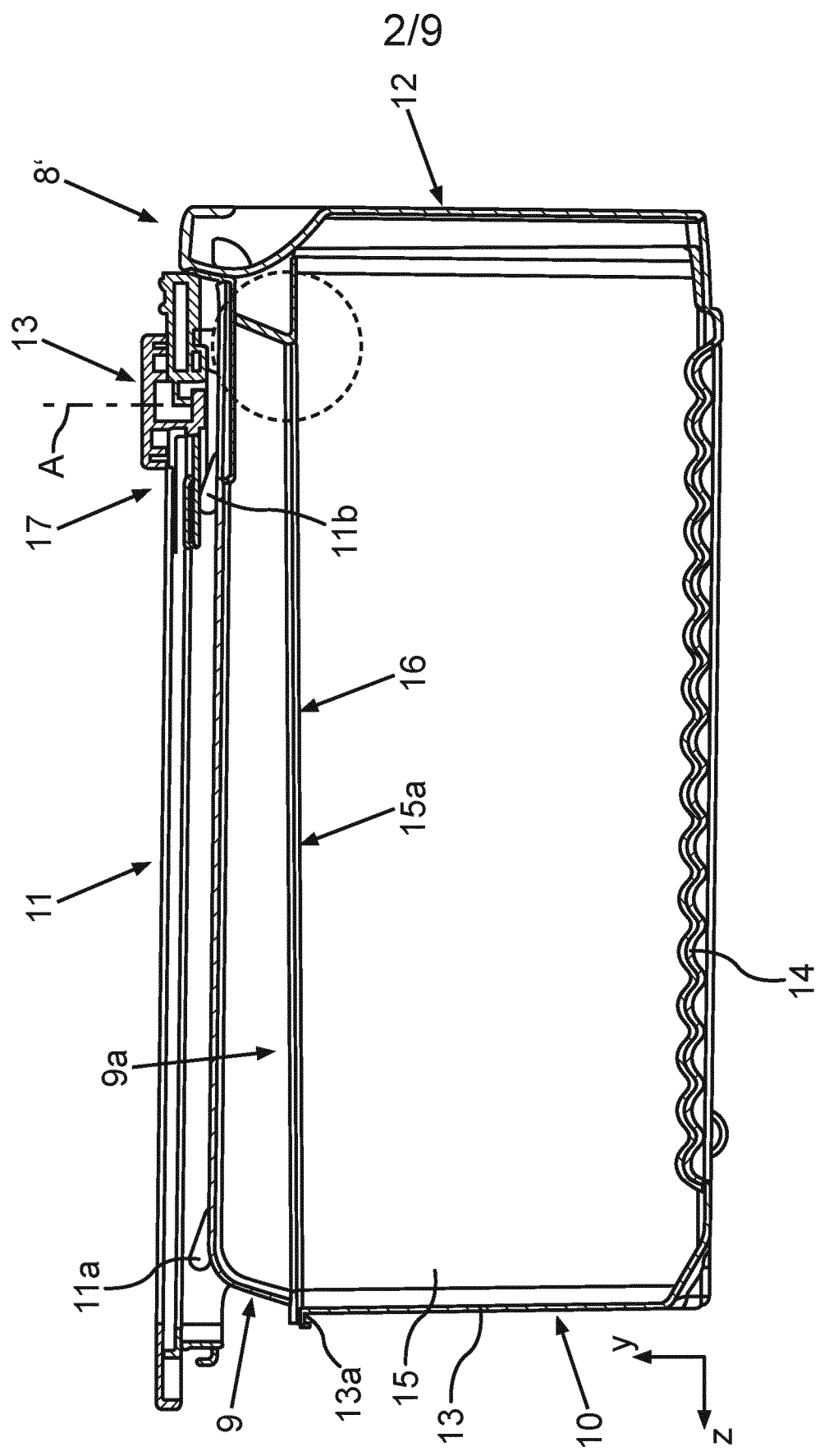


Fig.2

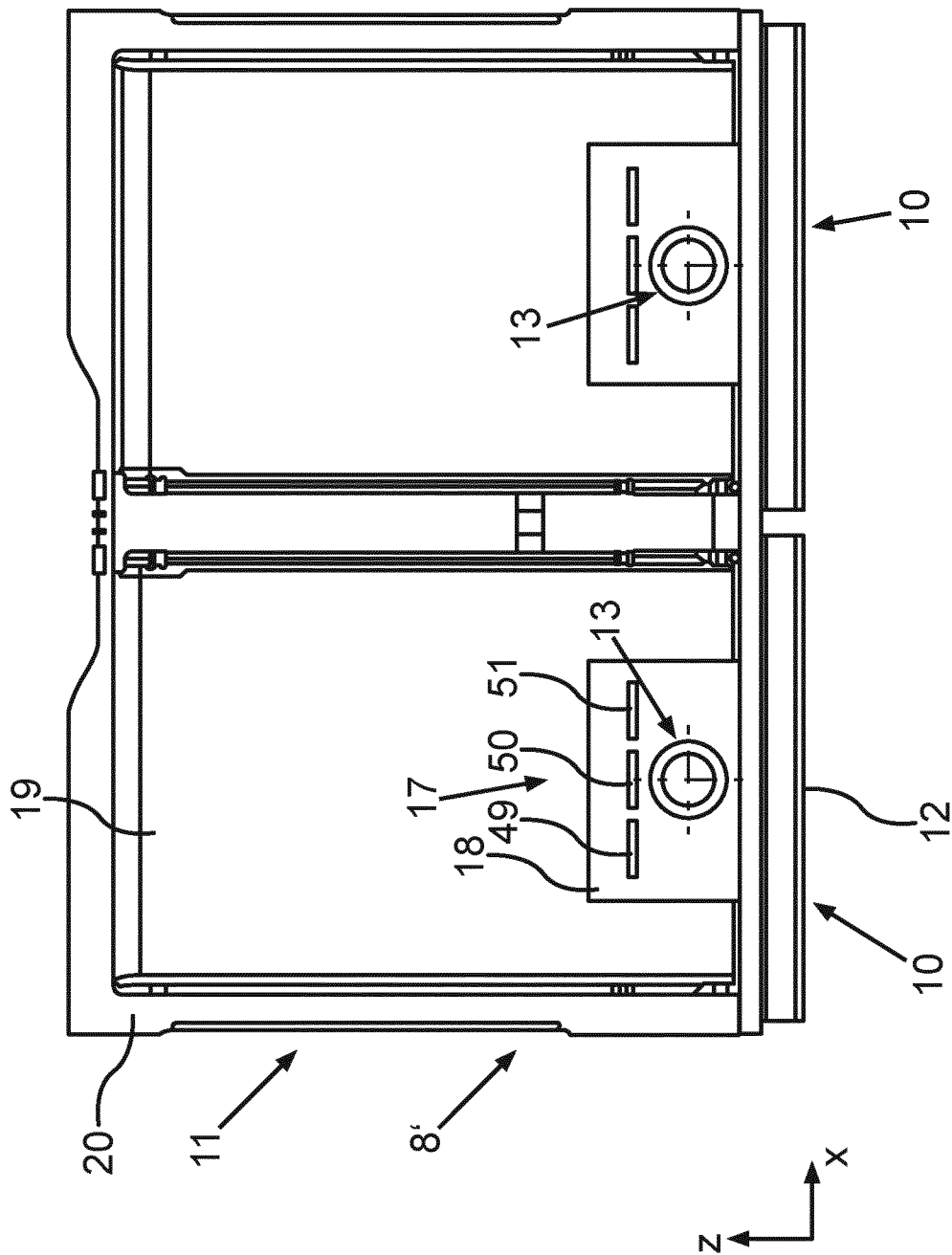


Fig. 3

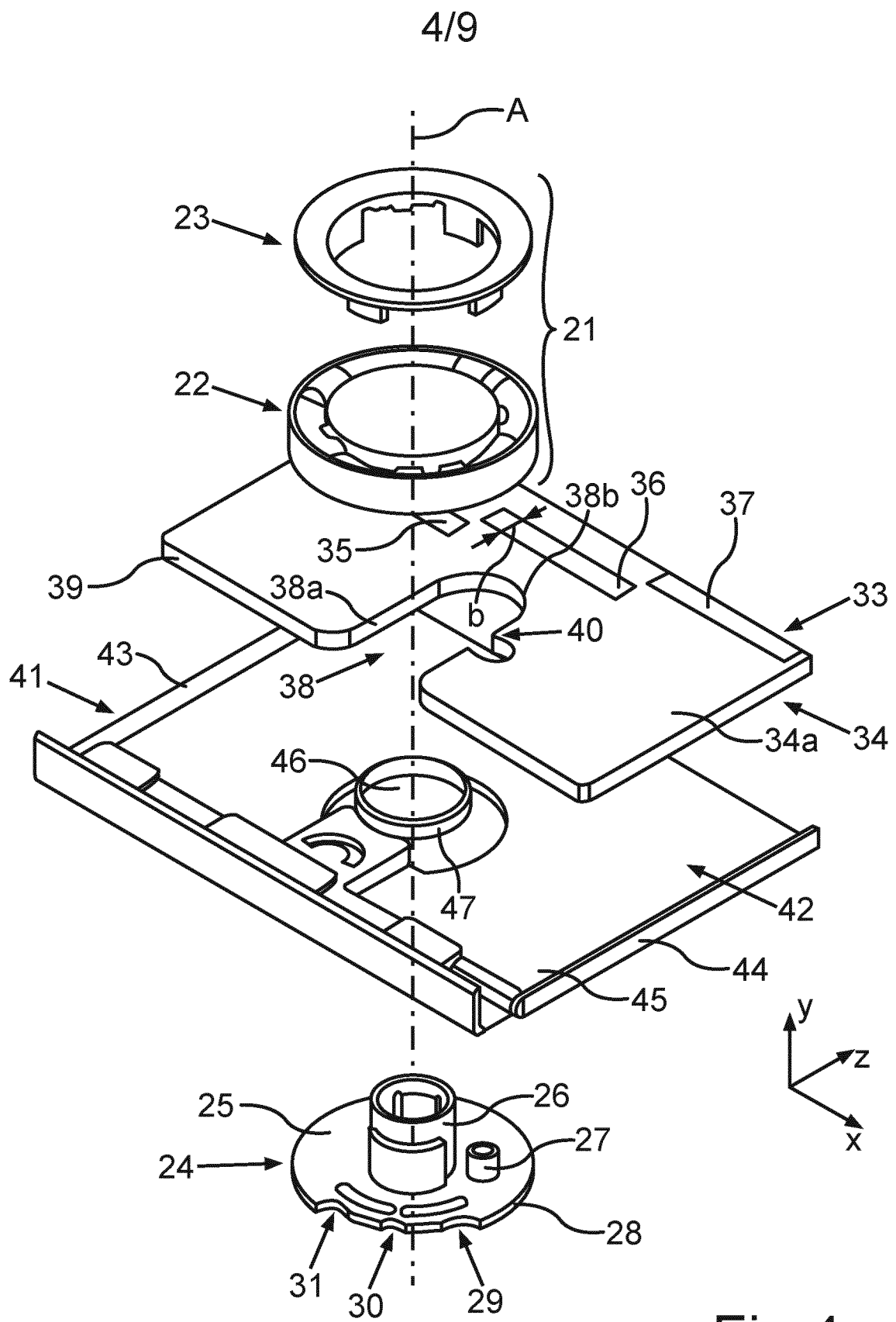


Fig.4

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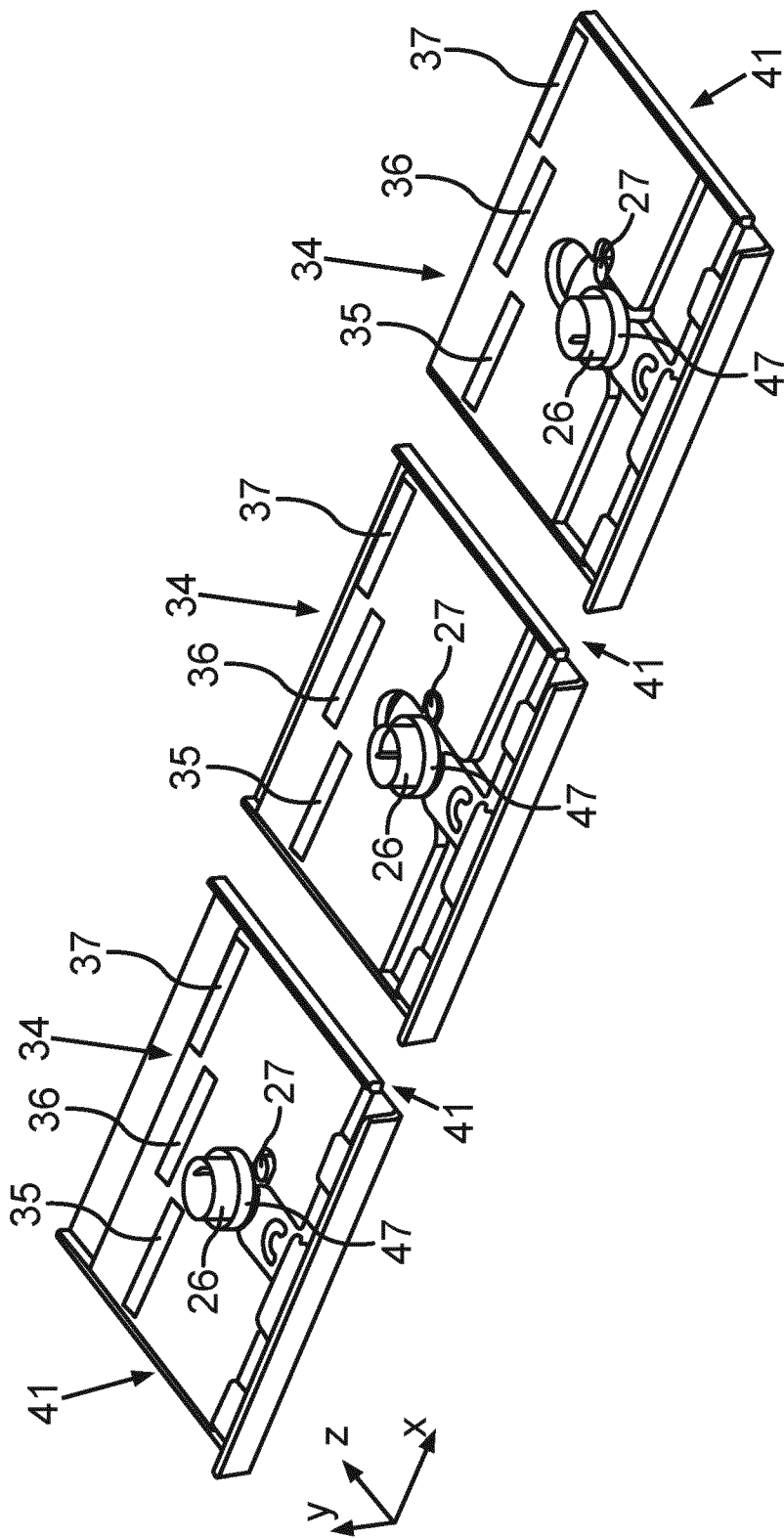


Fig.5

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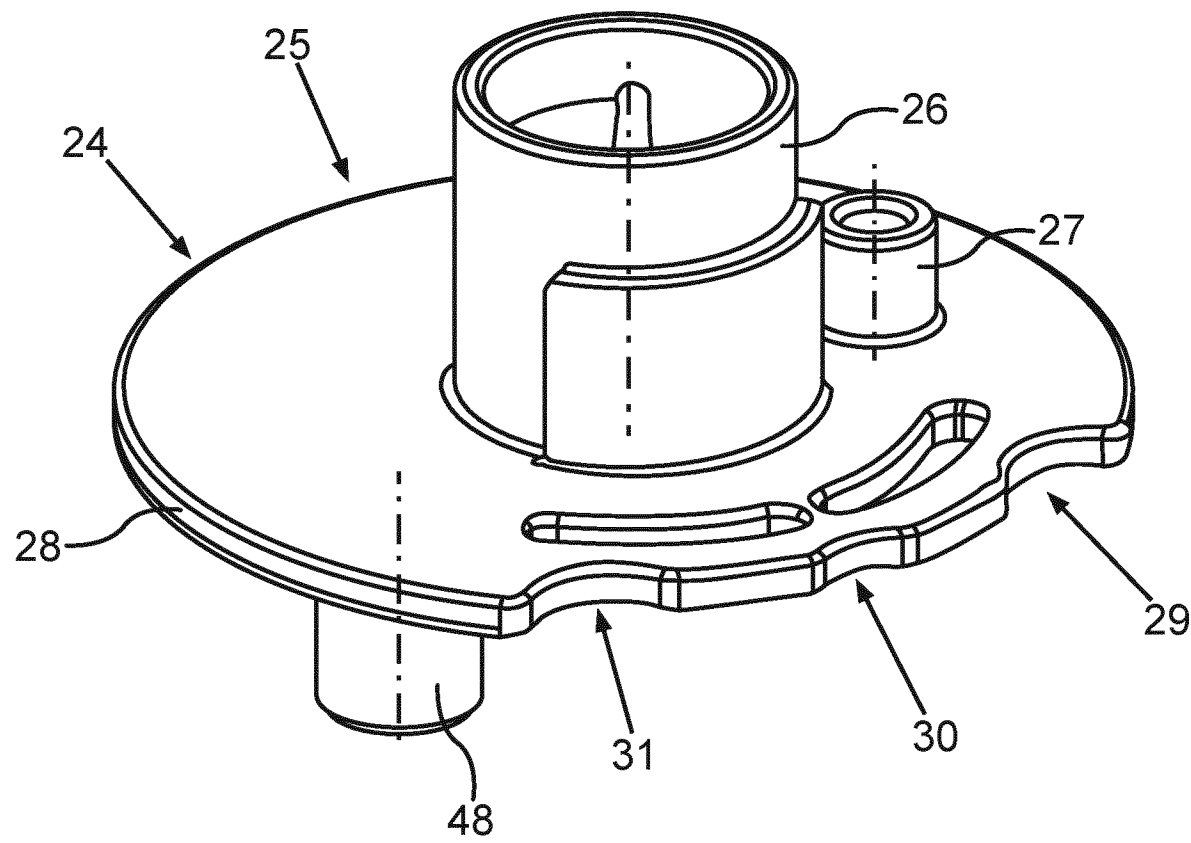


Fig.6

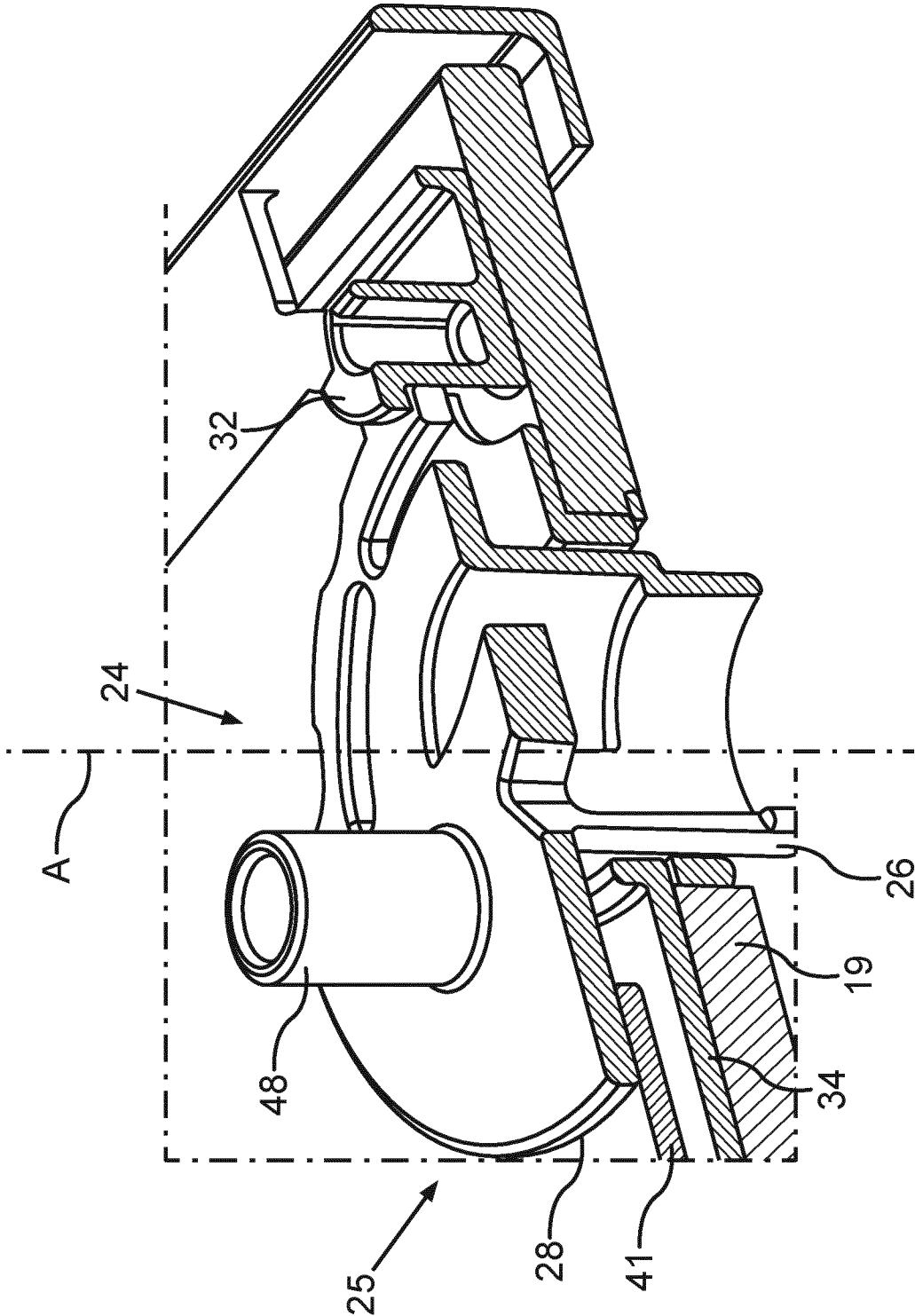


Fig. 7

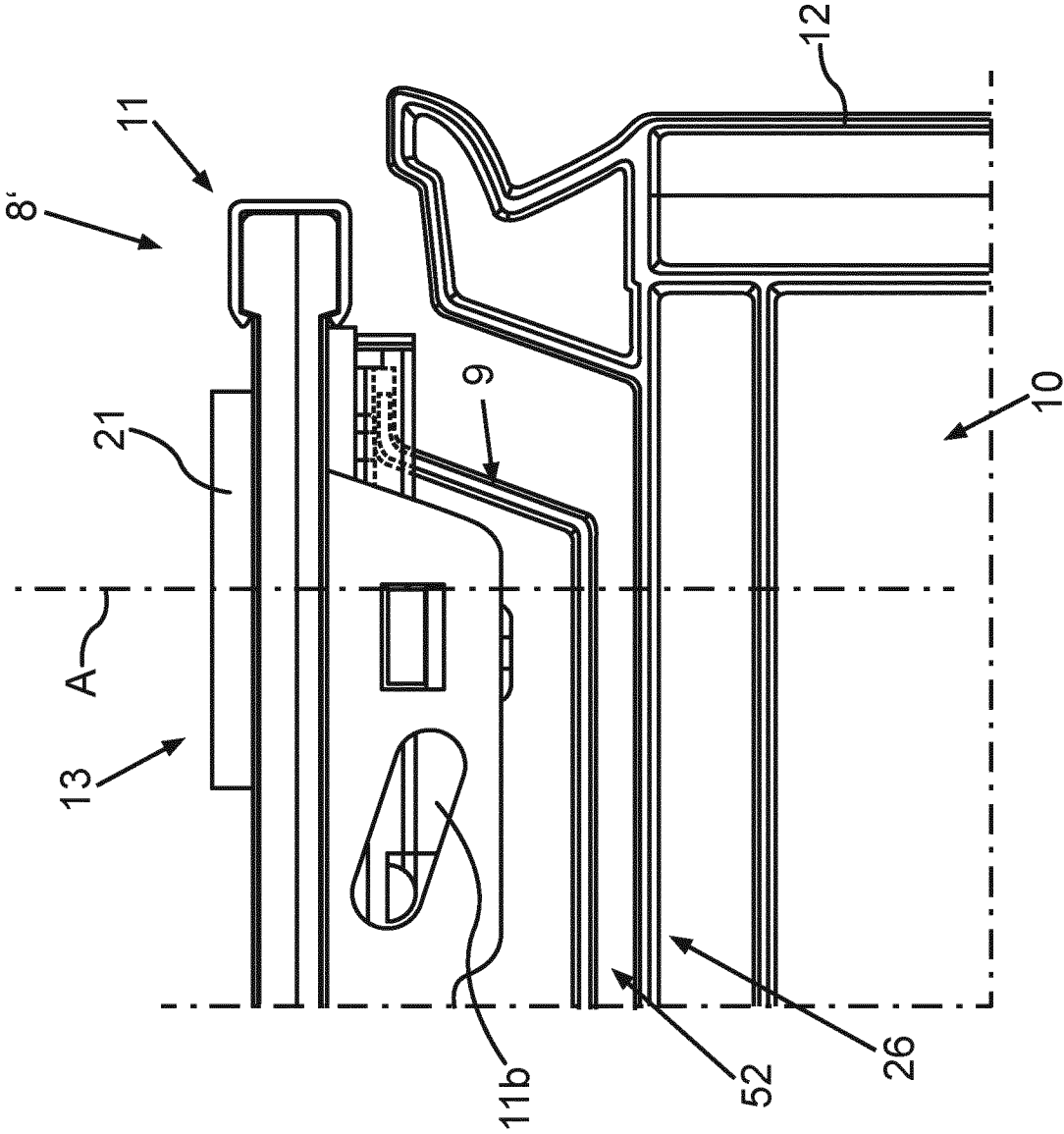


Fig. 8

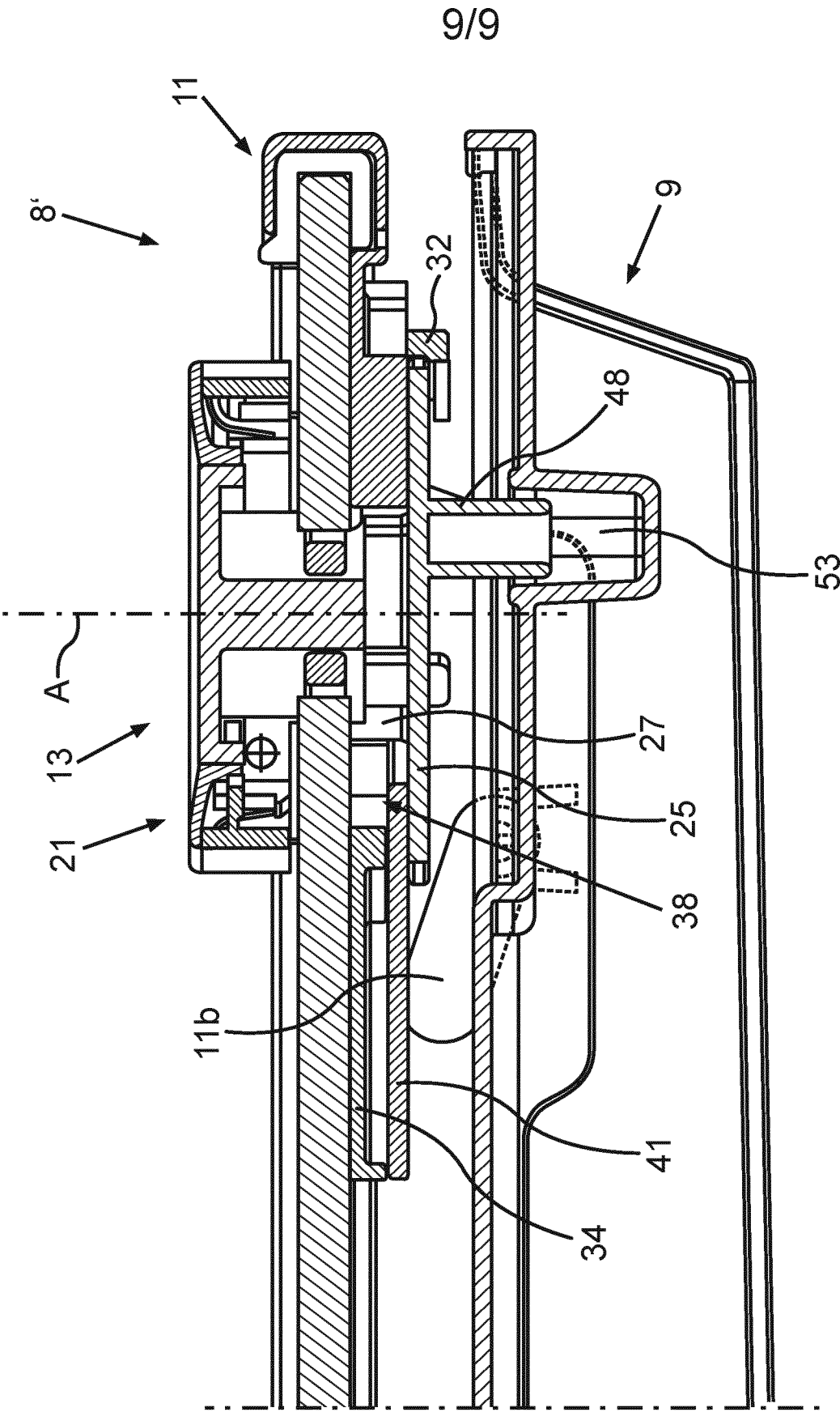


Fig. 9

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2022/064176

A. CLASSIFICATION OF SUBJECT MATTER INV. F25D17/04 F25D25/02 ADD.		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols) F25D		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) EPO-Internal, WPI Data		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 10 2013 225095 A1 (BSH HAUSGERAETE GMBH [DE]) 11 June 2015 (2015-06-11) the whole document -----	1-15
X	DE 10 2013 225091 A1 (BSH HAUSGERAETE GMBH [DE]) 11 June 2015 (2015-06-11) the whole document -----	1-15
A	DE 10 2014 218274 A1 (BSH HAUSGERAETE GMBH [DE]) 17 March 2016 (2016-03-17) the whole document -----	1-15
A	DE 10 2013 212383 A1 (BSH BOSCH UND SIEMENS HAUSGERÄTE GMBH [DE]) 31 December 2014 (2014-12-31) the whole document -----	1-15
☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.		
* Special categories of cited documents : "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance;; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance;; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search 25 August 2022		Date of mailing of the international search report 08/09/2022
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016		Authorized officer Kolev, Ivelin

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2022/064176

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