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(20) is arranged on the carrier unit (18) and is coupled to the receiving plate (19) and is movable relative thereto. The invention also relates to a household cooling appliance (1).

Storage container comprising an air conditioning device with specific operating device, as well as household cooling appliance

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

Manifold storage 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 storage containers it is envisaged that such a ventilation device or an air conditioning device is arranged in a lid, which is configured and arranged to be separate from the box. This results in movement restrictions or, if applicable, constricted situations for the operation of the air conditioning device.

Moreover, the optical signaling of operating states is restricted.

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

This task is solved by a storage container and a household cooling appliance according to the independent claims.

One aspect of the invention relates to a storage container for a household cooling appliance. The storage container comprises a box. Same is intentionally configured for receiving the food. The storage container moreover comprises an air conditioning device. The air conditioning device is intentionally configured for performing the air exchange between the environment and the interior of the storage container in a first operating state of the air conditioning device. The air conditioning device moreover has at least one

5 second operating state that is different from the first operating state. The operating states can also be referred to as setting states of the air conditioning device. The storage container moreover comprises an operating and display device. Same is intentionally provided for setting at least two different operating states of the air conditioning device and optically signaling the operating states. The operating and display device comprises
10 an operating element. Same is movably arranged on the carrier unit of the storage container for setting the operating states. The operating and display device moreover comprises a receiving plate. The receiving plate is motion-coupled to the operating element. The receiving plate is movably mounted on the carrier unit, which is separate thereto. The operating and display device comprises a display plate that is separate from
15 the carrier unit and from the receiving plate. By same the operating states are optically signaled depending on the position of the display plate. The display plate is arranged on the carrier unit. The display plate is mechanically coupled to the receiving plate and is movable relative to the receiving plate. By such a concept of an operating and display device, on the one hand, the actuation can be effected in a simple and user-friendly
20 manner. On the other hand, thereby the optical signaling of the respective operating states is facilitated to be precisely and intuitively perceivable. Therefore also a concept of simple design is achieved. This is because here a simple and little complex mechanical operating principle is achieved in order to effect, on the one hand, the exact adjusting of an operating state of the air conditioning device and, on the other hand, at the same time
25 also optically signal same precisely. By the operating and display device in this regard comprising several separate plates, these can be coupled to each other in a correspondingly simple manner. A particularly compact and space-saving concept is thereby achieved. The plates in this regard can be arranged in a compact manner relative to each other and can also be stacked. By an in this connection also parallel arrangement
30 between the display plate and the receiving plate a flat design is facilitated. Moreover these components can then also be moved in an improved way and in parallel to each other.

In an embodiment the carrier unit comprises a carrier ledge. On this carrier ledge the
35 operating element is movably mounted. Such carrier ledge provides the possibility to arrange the operating element in a very exposed manner. Thereby it is easily accessible and easy to handle for a user. Moreover, a carrier ledge in comparison with larger block-like or plate-like embodiments is of a delicate design. It commonly represents an

5 elongated rail or elongated rod. Thus, the operating element can also be arranged in a space-saving manner on the carrier unit. Nevertheless a carrier ledge is mechanically correspondingly stable and robust to receive the operating element and to facilitate a relative movability of the operating element on the carrier ledge. Precisely such embodiment also allows for such a carrier ledge to also additionally have a further
10 function. For instance it may be a front side profile part. It thus can also be an edge protection element. In this connection the carrier ledge can then also be integral part of an add-on plate or a lid. In this regard it can then also be used in a multifunctional manner.

In an embodiment the operating element is arranged to be shiftable in the direction of the
15 longitudinal axis of the carrier ledge. Thereby by the carrier ledge also a corresponding guiding element is provided. Thus, in a very precise way such directed movement of the operating element can be predetermined and guided.

The operating element in an embodiment can be configured to be hollow in part. In particular it is thereby facilitated that the operating element is arranged on the carrier
20 ledge and grips around the carrier ledge at least in part. Thereby an improved mechanical fixing of the operating element to the carrier ledge is facilitated. In particular, however, thereby also a compact setup is achieved. This is because the operating element by this also engaging arrangement with the carrier ledge is positioned in a space-saving manner.
25 A comprehensive protruding of the operating element beyond the carrier ledge is thereby equally avoided. In particular the operating element grips around the carrier ledge on the front side and from above.

In an embodiment the operating element can be configured as hollow profile rail. The
30 longitudinal axis of the operating element can be oriented in this connection in the direction of the longitudinal axis of the carrier ledge. This means that the operating element then extends in the direction of this longitudinal axis with larger dimensions than in the other spatial directions. Thereby also an advantageous slider element of the operating element is generated. A very smooth-running and jerk-free guiding of the
35 operating element on the carrier ledge is thereby supported.

In an embodiment the operating element and the receiving plate is configured as single-piece module. For instance they can be configured to be made of plastic. In this

5 connection they can also be manufactured as a single piece. For instance this can then be an injection-molded part. By such an integrated design the number of components of the storage container, in particular the operating and display device, can be reduced. The assembly effort is thereby reduced. Moreover, undesired position tolerances in comparison with an embodiment in which the operating element and the receiving plate
10 are separate components, can be reduced. In particular thus an interface between the operating element and the receiving plate can be avoided. In this regard also the respective movement forces can be transmitted immediately and directly to the receiving plate. The movement tolerances between the operating element and the receiving plate in comparison with in this regard separate components can thereby equally be avoided.

15 In an embodiment the single-piece module extends in a direction perpendicular to the longitudinal axis of the carrier ledge on both sides of this carrier ledge. In particular this module in the depth direction of the storage container is projecting beyond the carrier ledge both towards the front as well as towards the rear. On the one hand, thereby the free and exposed arrangement of the operating element on the front side on the carrier
20 ledge is supported. On the other hand, on the opposite side of the carrier ledge the receiving plate can be arranged to be exposed in order to be able to receive in this regard further components in an improved manner.

25 In an embodiment the receiving plate comprises a trough-like portion. In this trough-like portion the display plate is arranged to be countersunk at least in part. Thus, the display plate is positioned in a space-saving manner. Moreover, by this embodiment it is also arranged to be protected at least in part.

30 Not least, by this embodiment also the movement of the display plate relative to the receiving plate is facilitated in an improved and more precise way. In particular it can thereby be individually guided.

35 In an embodiment the trough-like portion laterally and on the side facing away from the carrier ledge and the operating element is bounded by bounding walls. In particular this means that in the width direction of the storage container on opposite sides of this receiving plate in each case corresponding bounding walls are arranged. The bounding walls with their longitudinal axes extend in the depth direction of the storage container.

5 This is an advantageous embodiment to the effect that the display plate in this regard is arranged to be protected from the side. Moreover, by this embodiment the receiving plate is also stabilized. It is thereby also configured to be more rigid.

10 In an embodiment these bounding walls additionally also serve as guide bars for the display plate. In particular when the display plate is intended to move linearly with respect to the receiving plate. Thereby the movement of the display plate, in particular in the depth direction of the storage container, is guided in a precise manner relative to the receiving plate.

15 In an embodiment the carrier unit comprises two carrier arms. The display plate is arranged between these two carrier arms. The carrier arms are arranged to be spaced apart from each other in the width direction of the storage container. They extend in an embodiment with their longitudinal axis in the depth direction of the storage container. A movement of the display plate in the movement direction of the operating element is prevented by these carrier arms in an embodiment. Additionally or instead, an in particular
20 linear movement of the display plate perpendicular to the movement direction of the operating element is freely facilitated. The carrier arms in this connection thus are space-saving and relatively delicate parts, which, however, are mechanically particularly advantageous. In the clearance between the carrier arms thus the display plate can be
25 advantageously positioned. The linear guiding of the movement of the display plate is supported by these carrier arms and also additionally guided. The lateral movement in the width direction is thereby prevented.

30 In an embodiment the carrier unit comprises two carrier arms comprising coupling elements. By these coupling elements a direct mechanical coupling to the receiving plate is facilitated or configured, respectively. The receiving plate is thereby held to the carrier unit. This is a further very advantageous concept. This is because thereby multiple couplings of the operating element and the receiving plate to the carrier unit are facilitated. Precisely when the operating element and the receiving plate, in particular as single-piece
35 module, extend in the depth direction on both sides of the carrier ledge, thereby a mechanically stable fixing can be achieved. This is because, on the one hand, thereby the operating element can be arranged on the carrier ledge, in particular grip around same in part. On the other hand, the free cantilevering of the receiving plate to the rear can be

5 mechanically held. This is because the receiving plate by this specific design of the carrier arms is quasi also suspended from these carrier arms. Thus, weight forces of this receiving plate, in particular when the display plate is arranged thereon, can be absorbed in an improved manner. A downward tilting or downward pivoting of this freely cantilevering receiving plate is thereby improved.

10 In an embodiment these carrier arms with the coupling elements are those two carrier arms which enclose the display plate on the rim side. The carrier arms in this connection can then, on the one hand, also be guide brackets, on the other hand, carrier brackets. The coupling elements formed on the respective free front end of the carrier arms can be
15 stepped plug elements. They can in this connection engage receivers, in particular through holes, in the bottom of the receiving plate, in particular also reach through. The coupling elements in an embodiment thus can then also be arranged in part below the receiving plate, in particular on the bottom side of the receiving plate.

20 In an embodiment the receiving plate comprises engagement receptacles. In an embodiment these may be long holes. The coupling elements engage these engagement receptacles. In the coupled state depending on the movement of the operating element a relative movement between the coupling elements and the engagement receptacles in the movement direction of the operating element is facilitated. Thereby a highly functional and
25 simple mechanical operating principle is provided in order to not only hold and support the receiving plate in the best possible way but also to facilitate in this connection a relative movement of the components relative to each other. An operating principle for guiding the receiving plate on these carrier arms is thereby additionally achieved. By the engagement receptacles also a very precise guide rail is provided. Thereby the guiding of the
30 movement of the receiving plate relative to the carrier arms is possible in a particularly precise manner.

The long holes are straight long holes. They are oriented with their longitudinal axis in particular in the width direction of the storage container. The engagement receptacles,
35 viewed in the depth direction, are configured in a rear half of the depth of the receiving plate. Thereby a very advantageous carrying effect by the carrier arms is achieved. Undesired lever forces and a tilting of the carrier plate can thereby be avoided.

5 In an embodiment the coupling elements are configured on the free ends of the carrier arms. In particular they are configured as engagement hooks. They are configured to be integrally formed with the carrier arms. In particular the carrier arms are equally configured as single pieces.

10 It can be envisaged in an embodiment that the carrier ledge and the carrier arms are integrally formed with each other, in particular manufactured as a single piece. For instance this can be a plastic component.

In an embodiment the receiving plate comprises at least one guiding element. The display
15 plate on its bottom side comprises at least one guiding counter element. This guiding counter element is coupled to the guiding element. By the guiding element and the guiding counter element a guiding device of the storage container is formed. By the guiding device a shifting path for the display plate relative to the receiving plate is provided in a defined way. This shifting path is oriented at an angle to the movement direction of the operating
20 element. In particular this shifting path and the movement direction of the operating element are configured in a common plane. This plane can in particular be the horizontal plane. By such an orientation of the longitudinal axes of the shifting path and the movement path of the operating element the straight line movement of the operating element can be converted into a different movement. In the very effective connection with
25 the carrier arms, which with their longitudinal axes are oriented in a straight line in the depth direction, thereby a movement of the display plate can be generated, which is oriented in a straight line and at an angle of 90° with respect to the movement direction of the operating element.

30 In an embodiment the receiving plate comprises a bottom wall. It is envisaged in an embodiment that the guiding element is configured in this bottom wall. In particular in this bottom wall also the at least one engagement receptacle for the coupling element is configured. The engagement receptacle and the guiding element, however, are portions of this bottom wall that are configured to be separate and spaced apart from each other.

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In an embodiment a guiding element is a guide rail. In particular this can be a long hole. The guiding counter element in an embodiment is a guide block. Same in the coupled

5 state engages the guide rail. A simple, yet very functional coupling principle is thereby provided.

In an embodiment the receiving plate on its bottom side comprises a coupling element. Same is intentionally configured for coupling to a lid of the storage container. The lid of the
10 storage container is a component that is separate from the box. It is intentionally arranged for resting on the box. In a first position of the lid relative to the box in this connection the first operating state of the air conditioning device is set. In this regard it may be envisaged that on the interface between the lid and the box an air gap is configured. The lid and the box in this regard are arranged on their rims facing each other to be at least in part
15 spaced apart from each other. Thereby the air gap is formed and an exchange of air can take place. In a second position of the lid relative to the box that is different from the first position then intentionally the second operating state of the air conditioning device is set. In this second operating state of the air conditioning device the lid is resting directly on the box. The air gap at this interface is then not formed. An air exchange in comparison with
20 the first operating state can then not be performed or only in a reduced manner.

In an embodiment the carrier unit can be integral part of an add-on plate. An add-on plate can for instance be a cover from above. This add-on plate can be a component that is separate from the box. If the storage container comprises a lid, the add-on plate can be a
25 component that is separate from the lid. This add-on plate, viewed in the height direction, is arranged above the lid. It is possible in an embodiment that the lid is arranged on the add-on plate. In particular it can be suspended therefrom. It is possible that the lid is arranged on this add-on plate to be movable relative to this add-on plate. Thus, it is also achieved that this add-on plate serves as carrier for the lid. In the case of the change in
30 position of the lid in an embodiment it is envisaged that the add-on plate remains unchanged in its position. The carrier unit can be arranged on the front side of the add-on plate. The add-on plate can comprise a base plate. Same can at least in part be transparent. For instance the base plate can be a glass plate. The carrier unit in particular with its carrier ledge can be arranged on the front side of the base plate.

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In an embodiment the operating element is coupled to the lid by a coupling pin. For this purpose the lid can comprise a receptacle, in particular a guide rail. Same is engaged by the coupling pin. In the movement of the operating element thus the coupling pin can

- 5 move in this guide rail of the lid. Thereby a movement of the operating element is translated into a corresponding movement of the lid.

In an embodiment the operating and display device comprises a display mask. Same comprises a first window and at least one second window that is separate therefrom. The operating and display device in an embodiment comprises signal elements that are
10 separate from the display mask. Same can be arranged on a top side of the display plate. For instance these signaling elements can be color stripes on this top side. They can be applied by a printing or coating or painting or the like. These signaling elements are applied to be fixed in stationary position. They are static. They cannot change their optical
15 signaling function, in particular their coloring. The display plate depending on the movement of the operating element is movable, in particular moved, relative to the display mask. This to the effect that in the first operating state of the air conditioning device an, in particular first, signaling element of the signaling unit is arranged below an, in particular first, window. This signaling element then is visible through the window. In the second
20 operating state a further, in particular second, signaling element of the signaling unit that is different from the signaling element is then arranged below the further, in particular second, window. The further signaling element is then visible through the further window. The signaling elements are arranged to be offset from each other in the movement direction of the display plate and thus in particular in the depth direction of the storage
25 container in an embodiment. In a direction perpendicular to the movement direction of the operating element these signaling elements in an embodiment are arranged to be spaced apart from each other. The signaling elements are arranged in a step-like profile. The signaling elements in this regard form the steps of this step-like profile. The at least two windows in the display mask are arranged in the movement direction of the operating
30 element in particular in a row relative to each other. They are positioned spaced apart from each other. In a direction perpendicular to this movement direction they are configured without offset from each other. It is possible that the two windows are arranged in the movement direction of the operating element without offset from each other and in the direction perpendicular to the movement direction at a distance from each other
35 amounting to between 80 % and 150 %, in particular between 90 % and 120 % of the distance between the signaling elements. The signaling elements in an embodiment can be offset from each other in the movement direction of the display plate by a distance amounting to between 100 % of the width of a signaling element in this movement

5 direction and 110 % of this width. Thereby it is facilitated that the signaling elements appear highly precisely under the respective windows if a relative movement between the display plate and the display mask is effected. In the case of a change in the operating state of the air conditioning device it is then avoided that at least in phases both signaling elements are in part visible at the same time in their windows. Thus, incomprehensible or
10 irritating optical signaling can be avoided.

The storage 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 set. In particular here a different air conditioning is facilitated. Different
15 temperatures and/or air humidities can be set.

A further aspect of the invention relates to a household cooling appliance. Same comprises at least one storage container according to the above-named aspect or an advantageous embodiment thereof. The household cooling appliance may be a
20 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. In the outer housing an inner liner is contained that 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 storage container is
25 a component, which is separate thereto and which can be arranged in this receiving space. The storage container can also be removed as a whole from this receiving space. It is also possible that additionally or instead only the box of the storage container can be removed. Same, moreover, can be pulled out and pushed in in the depth direction of the household cooling appliance.

30 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.

35 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

5 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
10 regarded as disclosed, which thus do not comprise all features of an originally formulated independent claim.

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

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

20 Fig. 2 an exploded view of an embodiment of a storage container according to the invention;

Fig. 3 a perspective view of an embodiment of the operating element and a receiving plate of an operating and display device of the storage container according to Fig. 2;

25 Fig. 4 a further perspective view of the components according to Fig. 3;

Fig. 5 a lateral view of the arrangement according to Fig. 3 and Fig. 4;

30 Fig. 6 a perspective view of an embodiment of a display plate of the operating and display device;

Fig. 7 the display plate according to Fig. 6 in a perspective view that is different from Fig. 6;

35 Fig. 8 a perspective view of a carrier unit of the storage container;

Fig. 9 an enlarged view of a subportion of the carrier unit according to Fig. 8;

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Fig. 10 a perspective view of an assembled state of subcomponents of the storage container according to Fig. 2;

Fig. 11 a sectional view through a mounted state of the module according to Fig. 3 to
10 Fig. 5 on the carrier unit according to Fig. 8; and

Fig. 12 a top view of the mounted state of the storage container according to Fig. 2.

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

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, amongst other elements, has
20 two opposite vertical side walls 3a and 3b. The inner liner 3 bounds with its walls a first interior or receiving space 4, respectively, which is a refrigerating space, and a second interior or receiving space 5, arranged exemplarily below and separated therefrom, which is a freezer space. The receiving space 4 in general serves for frost-free cooling of cooling goods preferably at temperatures of between +4 °C and +8 °C. The receiving space 4,
25 however, can also be configured as zero degree compartment, in particular for keeping fruit and vegetable fresh. The receiving space 4 is accessible when the door 6 closing the receiving space 4 on the front side is open.

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

In the top receiving space 4 a chilled good or keep fresh container, respectively, is mounted in such a way that it can be pulled out. The keep fresh container represents a
35 storage container 8. The storage container 8 has a drawer or box 10. In an embodiment the storage container 8 also has a lid 9. Same is separate from the box 10. The lid 9 can now be provided only for closing the box 10 from above. It can be placed directly on the box 10. It can also be envisaged in an embodiment that the lid 9 is configured at the same

5 time as shelf or partition. It can then mounted in particular directly on the side walls 3a and 3b. In an embodiment it is then not directly resting on the box 10 but is arranged in particular minimally offset upward therefrom.

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

Also a further or other storage container 8' can be provided.

15 At least by the cover 11 the storage container 8 is separated from the remaining rest of the subvolume of the receiving space 4.

The storage container 8 can be removed from the receiving space 4 in a non-destructively detachable manner. Also in the inserted state in the receiving space 4 it is envisaged that
20 the box 10 in the depth direction and thus in z direction can be moved back and forth in the state still mounted in the receiving space 4 in order to reach the interior of the box 10. The same can also be envisaged in analogy in the case of the storage container 8'. This can also be configured with a box 10 and in particular also with a lid 9. Then also a cover 11 can be arranged directly above the lid 9. Same is then for instance arranged directly
25 below the box 10 of the storage container 8. The box 10 of the storage container 8 can then be placed on this cover 11 of the storage container 8'.

The storage container 8', viewed in the depth direction, in an embodiment can be longer than the components arranged directly above. It may therefore be configured to be longer
30 towards the front in this depth direction than the storage container 8 arranged for instance above. In this case the storage container 8 may also be only a simple box. It may then also be configured to be different and need not necessarily be a keep fresh container. In general, a storage container 8, 8' intentionally can be provided for storing specific food. In this connection also different storage conditions in such a storage container 8, 8' in
35 comparison with the remaining receiving space 4 can be set.

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

In one embodiment it is also possible that two separate storage containers 8' are arranged
10 in the width direction (x direction) next to each other. This is schematically shown in Fig. 1. In such an embodiment it may be envisaged that a common cover 11 is arranged above the preferably present respective separate lids 9.

It is also possible for a box 10 of a storage container 8', viewed in the width direction, to
15 extend only in part over the entire clear width of the receiving space 4. For instance over a width of between 30 % and 70 % of this width. A lid 9 of such a storage container 8' can then be dimensioned accordingly.

The cover 11 is an embodiment for an add-on plate.

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In Fig. 2 in an exploded view an embodiment of a storage container 8' is shown. The box
10 is here schematically shown. The lid 9 is here equally shown. Moreover, an embodiment of a cover 11 is represented. In the embodiment shown here the storage container 8' with the box 10 and the lid 9 extends only over a subportion of the width of
25 the cover 11. In particular the box 10 and the lid 9 are about half as wide as the cover 11. Therefore in the embodiment two boxes 10 and two lids 9 could be positioned next to each other in the width direction, and covered by the cover 11 from above.

In the embodiment the lid 9 is configured to comprise a base plate 12. Thereon side walls
30 13 are integrally formed towards the bottom. The lid 9 in this context is therefore designed to be trough-like. Moreover, the lid 9 has coupling elements 14. By these coupling elements 14 the lid 9 is connected to the cover 11. It is in this regard suspended from the cover 11 from below. It is mounted thereon to be movable in the depth direction (z direction) and in the height direction (y direction) relative to the cover 11.

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The storage container 8' moreover comprises an air conditioning device 15. Same has at least two operating states. In a first operating state an air gap between the box 10 and the lid 9 is configured. In particular in this regard then an air gap between a top rim 10a of the

5 box 10 and a bottom rim 9a of the lid 9 is formed. For this purpose the lid 9 then is positioned accordingly relative to the box 10 in the height direction and/or in the depth direction relative to the box.

10 In a second operating state of the air conditioning device 15 the lid 9 rests immediately on the box 10. An air gap in this regard then is not formed here.

By the air conditioning device 15 an air exchange and thus also an exchange of humidity between the interior of the box 10 and the environment can be performed.

15 The storage container 8' moreover comprises an operating and display device 16. With this operating and display device 16 the at least two operating states of the air conditioning device 15 can be set and the operating states thus can also be optically signaled. The operating and display device 16 comprises an operating element 17. Same is intentionally movably arranged on a carrier unit 18 of the storage container 8' for setting
20 the operating states. Moreover, the operating and display device 16 comprises a receiving plate 19. This receiving plate 19 is directly coupled to the operating element 17, in particular motion-coupled. Moreover, this receiving plate 19 is movably mounted on the carrier unit 18. The operating element 17 is movably mounted on this carrier unit 18. The operating and display device 16 comprises a display plate 20 that is separate from the
25 carrier unit 18 and from the receiving plate 19. By this display plate 20 the operating states are optically signaled depending on the position of this display plate 20. The display plate 20 is equally arranged on the carrier unit 18. The display plate 20 is directly coupled to the receiving plate 19 and is movable relative to the receiving plate 19.

30 In the embodiment the carrier unit 18 comprises a carrier ledge 21. On this carrier ledge 21 the operating element 17 is arranged. The operating element 17 is mounted to be movable, in particular slidable, on the carrier ledge 21. In particular here a shifting movement in the width direction is facilitated. In particular in this regard only this linear shifting movement is facilitated. This also means that the operating element in the
35 direction of a longitudinal axis A of this carrier ledge 21 is slidably arranged thereon.

The cover 11 comprises a base plate 22. Same can at least in part be transparent. The base plate 22 can for instance be a glass plate. In the embodiment the carrier ledge 21 is

5 arranged on this base plate 22. In particular it is arranged on a front side rim 23. The carrier ledge 21 in the embodiment also serves as front side edge protection for the base plate 22. In an embodiment a further ledge 24 is envisaged. Same is equally integral part of the cover 11. It is arranged on a rear rim 25 of the base plate 22. Thereby a rear edge protection for the base plate 22 is provided.

10 In Fig. 3 in an enlarged view the operating element 17 and the receiving plate 19 is shown. These two components are here configured as single-piece module 26. As can be recognized in Fig. 3, the operating element 17 has the shape of an elongated rail. The operating element 17 in this regard is configured to be hollow in part. In the cross-section and thus transversely to the longitudinal axis B the operating element 17 is configured to be U-shaped. On a front wall 27 it has a handle part 28. Moreover, the operating element 17 has a roof wall 29. Moreover, a bottom wall 30 is provided. The roof wall 29 and the bottom wall 30 can be freely cantilevering legs of the U-shape.

20 The receiving plate 19 comprises a bottom wall 31. On the rim side on this bottom wall 31 bounding walls 32, 33, and 34 are configured. These extend from the bottom wall 31 upward. Thereby a trough-shaped portion 35 of the receiving plate 19 is formed.

25 As can be recognized in the further perspective view in Fig. 4, the operating element 17 is integrally formed with the receiving plate 19 via connecting webs 36, 37, and 38.

Moreover it can also be recognized that in the bottom wall 31 engagement recesses 39 and 40 are configured. The number of these separate engagement recesses 39 and 40 is to be understood merely exemplarily. These engagement recesses 39 and 40 in the embodiment are configured as long holes. They are oriented in a straight line. In particular they are oriented with their longitudinal axis in the width direction.

30 Moreover, in this bottom wall 31 guide rails 41 and 42 are configured. These guide rails 41 and 42 in the shown number are equally to be understood exemplarily. The guide rails 41 and 42 represent guiding elements. They are in particular also configured as long holes in the embodiment. As can be recognized, the longitudinal axes of these guide rails 41 and 42 are configured at an acute angle relative to the longitudinal axes of the engagement receptacles 39 and 40 that are separate thereto.

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Moreover, in Fig. 4 it can also be recognized that on a bottom side of the bottom wall 31 of this receiving plate 19 a coupling pin 43 is formed. This coupling pin 43 intentionally is configured for engaging a guide rail 44 (Fig. 2). This guide rail 44 is configured on the roof wall 12 of the lid 9. As can be recognized, the guide rail 44 is oriented at an angle relative
10 to the width direction.

If the operating element 17 during actuation is linearly shifted in the width direction, the coupling pin 43 slides along in the guide rail 44. Since this guide rail 44 is oriented at an acute angle relative to the movement direction of the operating element 17, this linear
15 movement of the operating element 17 is converted. Thereby the lid 9 is then moved in the depth direction and/or in the height direction. Depending on the corresponding shifting position of the operating element 17, therefore also a correlated movement of the lid 9 is entailed. Thereby the different positions of the lid 9 can be set and the corresponding different operating states of the air conditioning device 15 can be set.

20
In Fig. 5 the module 26 is shown in a lateral view. It can be recognized that on a bottom side of the roof wall 29 the operating element 17 an engagement element 45 is integrally formed. This engagement element 45 engages an engagement receptacle 46 (Fig. 2). This engagement receptacle 46 is arranged on the carrier ledge 21. Thereby, the mounted
25 state of the operating element 17 on the carrier ledge 21 is supported. On the other hand, thereby also the linear relative movement of the operating element 17 on the carrier ledge 19 is supported. By the corresponding length of this engagement receptacle 46 also the entire movement path of the operating element 17 is correspondingly predetermined and limited.

30
In Fig. 6 in a perspective view the display plate 20 is shown. On a top side 20a of this rectangular display plate 20 in the embodiment two signaling elements 47 and 48 are configured. The signaling elements 47 and 48 are here color stripes. They are applied fixed in stationary position on the top side 20a. They are configured in the embodiment as
35 elongated, in particular rectangular stripes.

As can be recognized in Fig. 6 and also in Fig. 2, these signaling elements 47 and 48 are arranged to be offset from each other in the depth direction (z direction). They are in this

5 connection each configured with a width b in this depth direction. The offset in this depth direction between the two signaling elements 47 and 48 amounts to between 100 % of this width b and 110 % of this width b . In the width direction the two signaling elements 47 and 48 are arranged to be spaced apart from each other. The display plate 20 with the signaling elements 47 and 48 is integral part of a signaling unit 49 (Fig. 2) of the storage
10 container 8'. This signaling unit 49 is intentionally provided for optically signaling the respective operating state of the air conditioning device 15. The signaling unit 49 is integral part of the operating and display device 16. The signaling unit 49 in addition also comprises a display mask 50. The display mask 50 is arranged in the embodiment on the cover 11, in particular the base plate 22. In an embodiment this display mask 50 is
15 configured as a printing or coating or the like on a bottom side of the base plate 22. This display mask 50 except for in the embodiment two separate windows 51 and 52 is configured to be opaque. These windows 51 and 52 by contrast are transparent. The windows 51 and 52 are here formed as elongated slots. They are arranged spaced apart from each other in the width direction. They are arranged in this regard in a row relative to
20 each other. In the depth direction the windows 51 and 52 are arranged without offset from each other. The optical signaling unit 49 is configured to the effect that the signaling elements 47 and 48 are arranged below the windows 51 und 52. Depending on which operating state of the air conditioning device 15 is set, one of the signaling elements 47 and 48 in each case is arranged below the associated window 51 and 52 and is visible
25 through the respective window 51 and 52. For instance in a first operating state of the air conditioning device 15 a signaling element, in particular the signaling element 48 is arranged in the window 52. The other signaling element 47 is then not arranged in the other window 51. In the case of a change of the operating state then also a change occurs to the effect that the signaling element 48 disappears from the window 52 and the
30 signaling element 47 enters the window 51. By the stepped offset or the stepped profile of the signaling elements 47 and 48 it is prevented that the signaling elements 47 and 48 do not, not even temporarily, appear simultaneously in the windows 51 and 52.

In Fig. 7 the display plate 20 is shown in a perspective view presenting a bottom side 20b.
35 On this bottom side 20b in the embodiment two coupling elements as embodiments for guiding counter elements 53 and 54 are integrally formed. These are intentionally provided for engaging the guide rails 41 and 42 of the receiving plate 19. This means that if the display plate 20 is inserted into the trough-like portion 35 of the receiving plate 19,

5 these guiding counter elements 53 and 54 engage these guide rails 41 and 42. These guiding counter elements 53 and 54 are in particular guide blocks. As can be recognized moreover in Fig. 2, a width of the display plate 20 measured in the width direction is clearly smaller than a clear width of the trough-like portion 35 in this width direction. Thereby a relative movement between the display plate 20 in this trough-like portion 35 is
10 facilitated. By the orientation of the guide rails 41 and 42 moreover a relative movement between the display plate 20 and the receiving plate 19 also in the depth direction is facilitated.

In Fig. 8 in a perspective view an embodiment of the carrier unit 18 is shown. The carrier
15 ledge 21 is shown. It is at least in part configured as hollow profile. The carrier ledge 21 has a front rim 21a. Same faces away from the base plate 22. A rear rim 21b faces the base plate 22. In particular this carrier ledge 21 is attached to the front rim 23.

In Fig. 8 it can also be recognized that the carrier unit 18 comprises two carrier arms 55
20 and 56. These are integrally formed on the carrier ledge 21. They extend freely cantilevering. They extend with their longitudinal axes in this regard in the depth direction of the storage container 8'. The carrier arms 55 and 56 are arranged on the rear rim 21b. The carrier arms 55 and 56 have free ends 57 and 58. On these free ends 57 and 58 coupling elements are configured.

25 In this regard in an enlarged view in Fig. 9 the carrier arm 56 is shown. On the free end 58 such a coupling element 59 is formed. Same is here an engagement hook. Same is intentionally provided for engaging an engagement receptacle 39, 40, here the engagement receptacle 39. In this regard a corresponding coupling element on the free
30 end 57 of the other carrier arm 55 intentionally engages the engagement receptacle 40. Thus the receiving plate 19 is quasi suspended from this carrier ledge 21, in particular from the carrier arms 55 and 56.

In Fig. 10 in a perspective view the mounted state between the carrier unit 18, the
35 operating element 17, the receiving plate 19, and the display plate 20 is shown.

The at least in part countersunk state of the display plate 20 in the trough-like portion 35 is shown. As can moreover be recognized, the operating element 17 encompasses around

5 the carrier ledge 21 at least in part. On the other hand, the receiving plate 19 extends rearwardly with respect to the carrier ledge 21. The operating element 17 and the receiving plate 19 are arranged in this regard on both sides of the carrier ledge 21. Moreover it can also be recognized that the display plate 20 substantially is arranged to fit precisely between the carrier arms 55 and 56. These carrier arms 55 and 56 thus also
10 form a guiding for this display plate 20. By these carrier arms 55 and 56, which are arranged fixed in stationary position, it is held in position in the width direction. Therefore, if by this embodiment the operating element 17 is shifted in the width direction on the carrier ledge 21, the receiving plate 19 moves accordingly. This is because same is motion-coupled with the operating element 17, in particular integrally formed with it. Due
15 to the state of the display plate 20 coupled to the receiving plate 19 and the arrangement between the carrier arms 55 and 56, the display plate 20 then moves only in the depth direction. This then is also additionally guided by the guiding counter elements 53 and 54 engaging the guide rails 41 and 42.

20 In Fig. 11 a sectional view of the arrangement in Fig. 10 is shown. Here a section along the section line XI-XI is shown. In contrast to Fig. 10 in Fig. 11, however, the display plate 20 is removed. Here a coupling element 60 of the carrier arm 55 engaging the engagement receptacle 40 can be recognized. The engagement receptacle 40 in this connection is configured to be stepped.

25 Thereby it can be envisaged that the coupling element 60 in the height direction does not extend out downwardly and does not project downwardly beyond the bottom wall 31. Nevertheless in this regard a hooked-in state is facilitated and a safe coupling is achieved. The encompassing around the carrier ledge 21 by the operating element 17 can equally
30 be recognized.

In Fig. 12 a top view of the storage container 8' in the assembled state is shown. Here a top view of the cover 11 can be recognized. The lid 9 arranged below the cover 11 is shown through the transparent portion of the base plate 22.

5

List of Reference Signs

	1	household cooling appliance
	2	body
	3	inner liner
10	3a	vertical side wall
	3b	vertical side wall
	4	receiving space
	5	receiving space
	6	door
15	7	freezer compartment door
	8	storage container
	8'	storage container
	9	lid
	10	box
20	10a	rim
	11	cover
	12	base plate
	13	side wall
	14	coupling element
25	15	air conditioning device
	16	operating and display device
	17	operating element
	18	carrier unit
	19	receiving plate
30	20	display plate
	20a	top side
	20b	bottom side
	21	carrier ledge
	21a	front rim
35	21b	rear rim
	22	base plate
	23	rim
	24	ledge

5	25	end
	26	module
	27	front wall
	28	handle part
	29	roof wall
10	30	bottom wall
	31	bottom wall
	32	bounding wall
	35	bottom wall
	36	connecting web
15	37	connecting web
	38	connecting web
	39	engagement receptacle
	40	engagement receptacle
	41	guide rail
20	42	guide rail
	43	coupling pin
	44	guide rail
	45	engagement element
	46	engagement receptacle
25	47	signaling element
	48	signaling element
	49	signaling unit
	50	display mask
	51	window
30	52	window
	53	guiding counter element
	54	guiding counter element
	55	carrier arm
	56	carrier arm
35	57	end
	58	end
	59	coupling element
	60	coupling element

5

CLAIMS

1. Storage container (8, 8') for a household cooling appliance (1), the storage container comprising a box (10) for receiving the food and comprising an air conditioning device (15), by which an air exchange between the environment and the interior of the storage container (8, 8') can be performed in a first operating state of the air conditioning device (15), wherein the air conditioning device (15) has a second operating state that is different from the first operating state, comprising an operating and display device (16), by which the operating states can be set and by which the operating states are optically signaled, wherein the operating and display device (16) comprises an operating element (17), which for setting the operating states is movably arranged on a carrier unit (18) of the storage container (8, 8'), and the operating and display device (16) comprises a receiving plate (19), which is motion-coupled to the operating element (17) and which is movably mounted on the carrier unit (18), wherein the operating and display device (16) comprises a display plate (20) that is separate from the carrier unit (18) and from the receiving plate (19), by which the operating states depending on the position of the display plate (20) are optically signaled, wherein the display plate (20) is arranged on the carrier unit (18) and is coupled to the receiving plate (19) and is movable relative to the receiving plate (19).
2. Storage container (8, 8') according to claim 1, wherein the carrier unit (18) comprises a carrier ledge (21), on which the operating element (17) is movably mounted.
3. Storage container (8, 8') according to claim 2, wherein the operating element (17) is arranged to be shiftable in the direction of the longitudinal axis (A) of the carrier ledge (21).
4. Storage container (8, 8') according to any one of the preceding claims, wherein the operating element (17) and the receiving plate (19) are configured as single-piece module (26).
5. Storage container (8, 8') according to claim 2 or 3 and according to claim 4, wherein the single-piece module (26) extends in a direction perpendicular to the longitudinal axis (A) of the carrier ledge (21) on both sides of the carrier ledge (21).

5

6. Storage container (8, 8') according to any one of the preceding claims, wherein the receiving plate (19) comprises a trough-like portion (35), in which the display plate (20) is arranged to be countersunk at least in part.

10

7. Storage container (8, 8') according to any one of the preceding claims, wherein the carrier unit (18) comprises two carrier arms (55, 56), between which the display plate (20) is arranged in such a way that a movement of the display plate (20) in the movement direction (x) of the operating element (17) is prevented and/or an, in particular horizontal linear, movement of the display plate (20) is facilitated perpendicular to the movement direction (x) of the operating element (17).

15

8. Storage container (8, 8') according to any one of the preceding claims, wherein the carrier unit (18) comprises at least one carrier arm (55, 56) comprising at least one coupling element (59, 60), by which a direct mechanical coupling to the receiving plate (19) is configured so that the receiving plate (19) is held to the carrier unit (18), in particular suspended from it.

20

9. Storage container (8, 8') according to claim 8, wherein the receiving plate (19) comprises at least one engagement receptacle (39, 40), in particular a long hole, which the coupling element (59, 60) engages, wherein in the coupled state depending on the movement of the operating element (17) a relative movement between the coupling element (59, 60) and the engagement receptacle (39, 40) can be performed in the movement direction (x) of the operating element (17).

25

10. Storage container (8, 8') according to claim 8 or 9, wherein the coupling element (59, 60) is configured on the free end (57, 58) of the carrier arm (55, 56), in particular as engagement hook.

30

11. Storage container (8, 8') according to claim 9 or 10, wherein the receiving plate (19) comprises at least one guiding element, and the display plate (20) on its bottom side (20b) at least one guiding counter element (53, 54), which is coupled to the guiding element, wherein by the guiding element and the guiding counter element (53, 54) a guiding device is formed, by which a shifting path for the display plate (20) is provided relative to the

35

5 receiving plate (19), which is oriented inclined relative to the movement direction (x) of the operating element (17).

12. Storage container (8, 8') according to claim 11, wherein the guiding element is a
guide rail (41, 42), in particular a long hole, and the guiding counter element (53, 54) is a
10 guide block.

13. Storage container (8, 8') according to any one of the preceding claims, wherein the
receiving plate (19) on its bottom side comprises a coupling element (43), which is
configured for coupling to a lid (9) of the storage container (8, 8'), wherein the lid (9) is
15 separate from the box (10) and is arranged for being placed on the box (10), wherein in a
first position of the lid (9) relative to the box (10) the first operating state of the air
conditioning device (15) is set and in a second position of the lid (9) relative to the box
(10) the second operating state of the air conditioning device (15) is set.

20 14. Storage container (8, 8') according to any one of the preceding claims, wherein the
operating and display device (16) comprises a display mask (50) comprising a first
window (51, 52) and at least one second window (51, 52) that is separate therefrom, and
signaling elements (47, 48), which are separate from the display mask (50) and which are
arranged on the top side (20a) of the display plate (20), wherein the display plate (20)
25 depending on the movement of the operating element (17) is moved relative to the display
mask (50) so that in the first operating state a first signaling element (47, 48) is arranged
below the first window (51, 52) and is visible through the first window (51, 52), and in the
second operating state a second signaling element (47, 48) that is different from the first
signaling element (47, 48) is arranged below the second window (51, 52) and is visible
30 through the second window (51, 52), wherein the signaling elements (47, 48) are arranged
offset from each other in the movement direction (z) of the display plate (20), and in a
movement direction (z) of the operating element (17) are arranged spaced apart from
each other so that the signaling elements (47, 48) are arranged in a step-like profile,
and/or the storage container (8, 8') comprises an add-on plate (11), which in the height
35 direction (y) of the storage container (8, 8') is arranged above the box (10), in particular
above an additional lid (9) of the storage container (8, 8'), wherein the carrier unit (18) is
integral part of the add-on plate (11).

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

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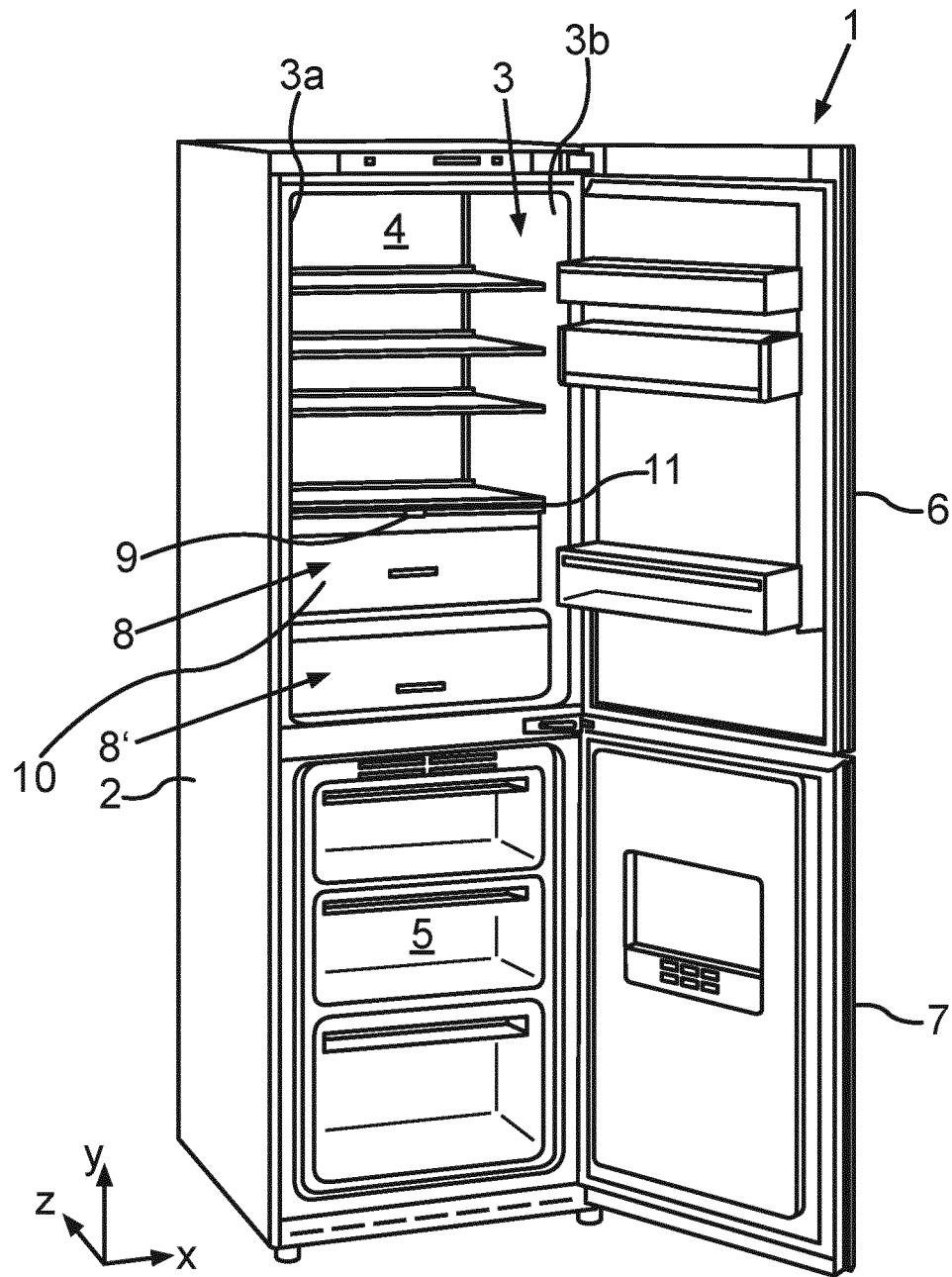


Fig.1

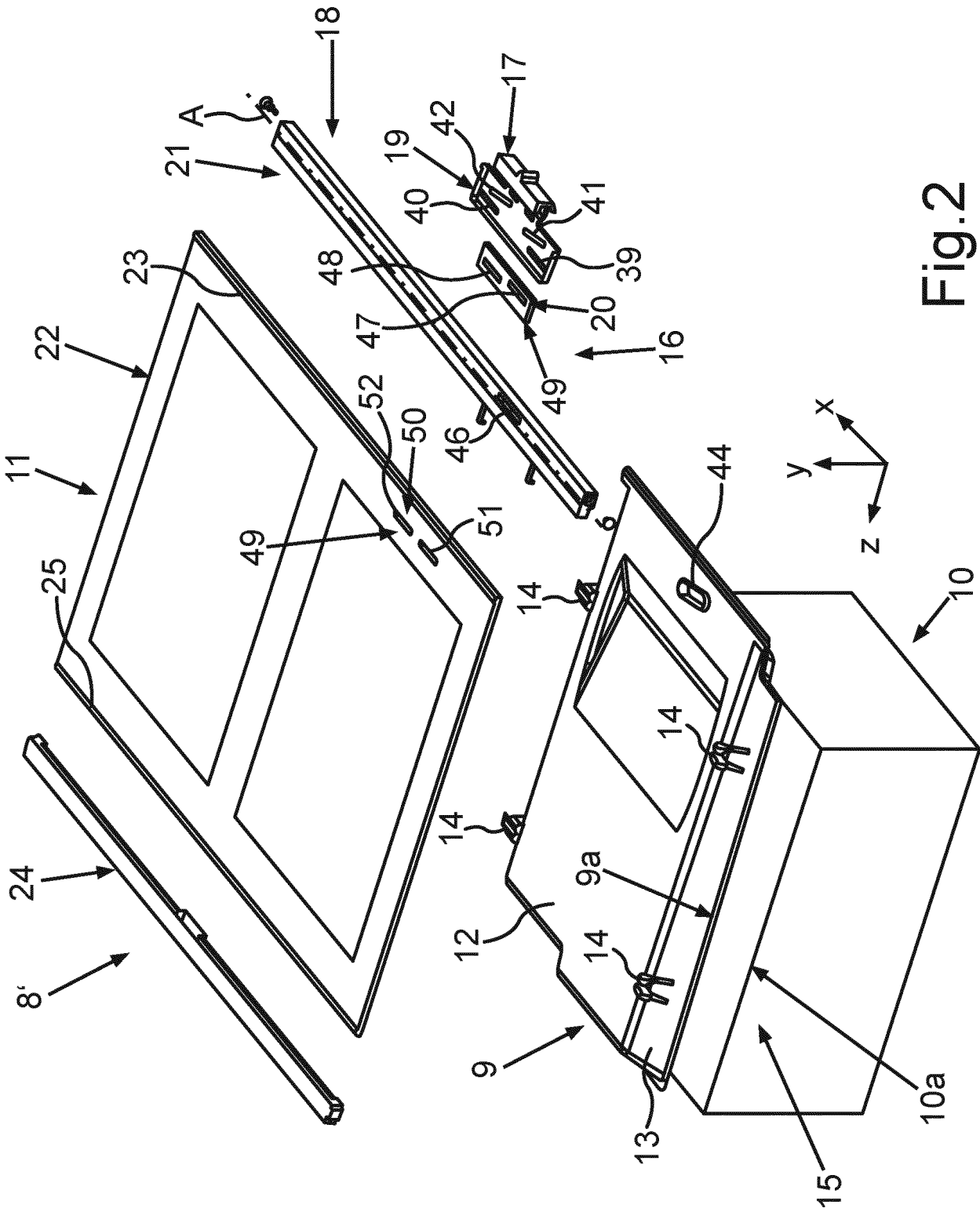


Fig.2

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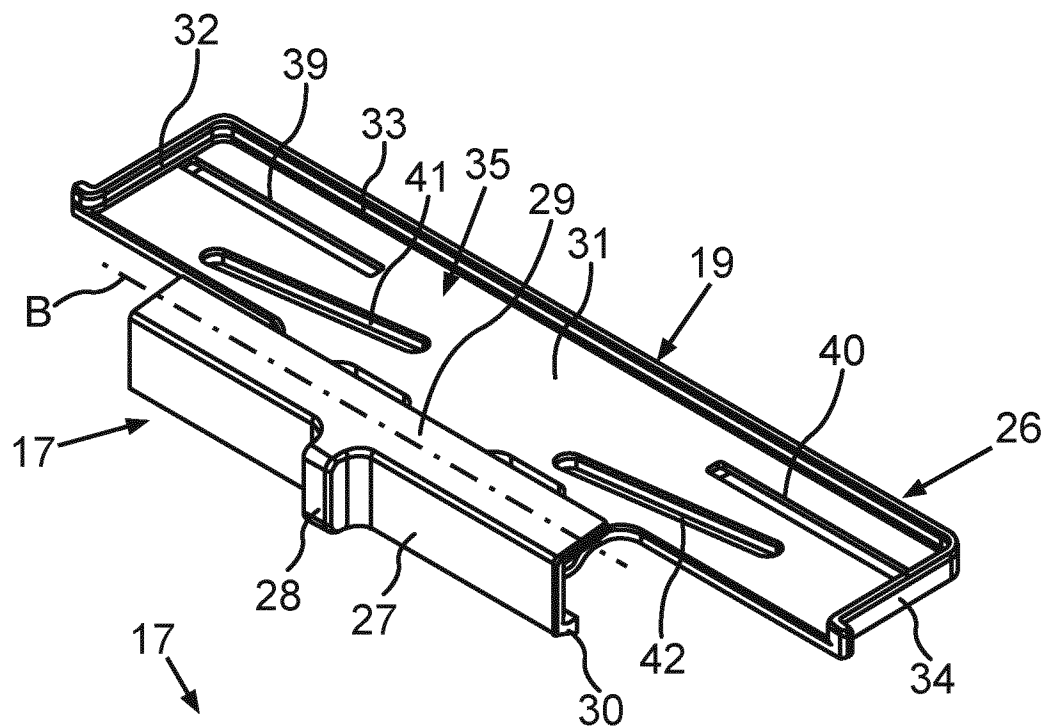


Fig.3

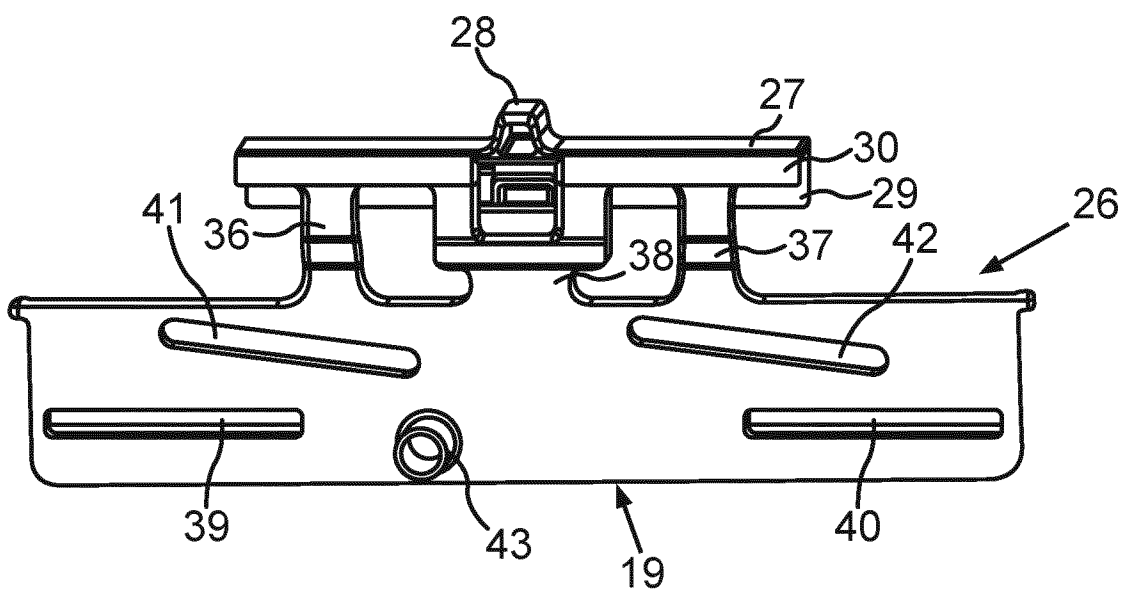


Fig.4

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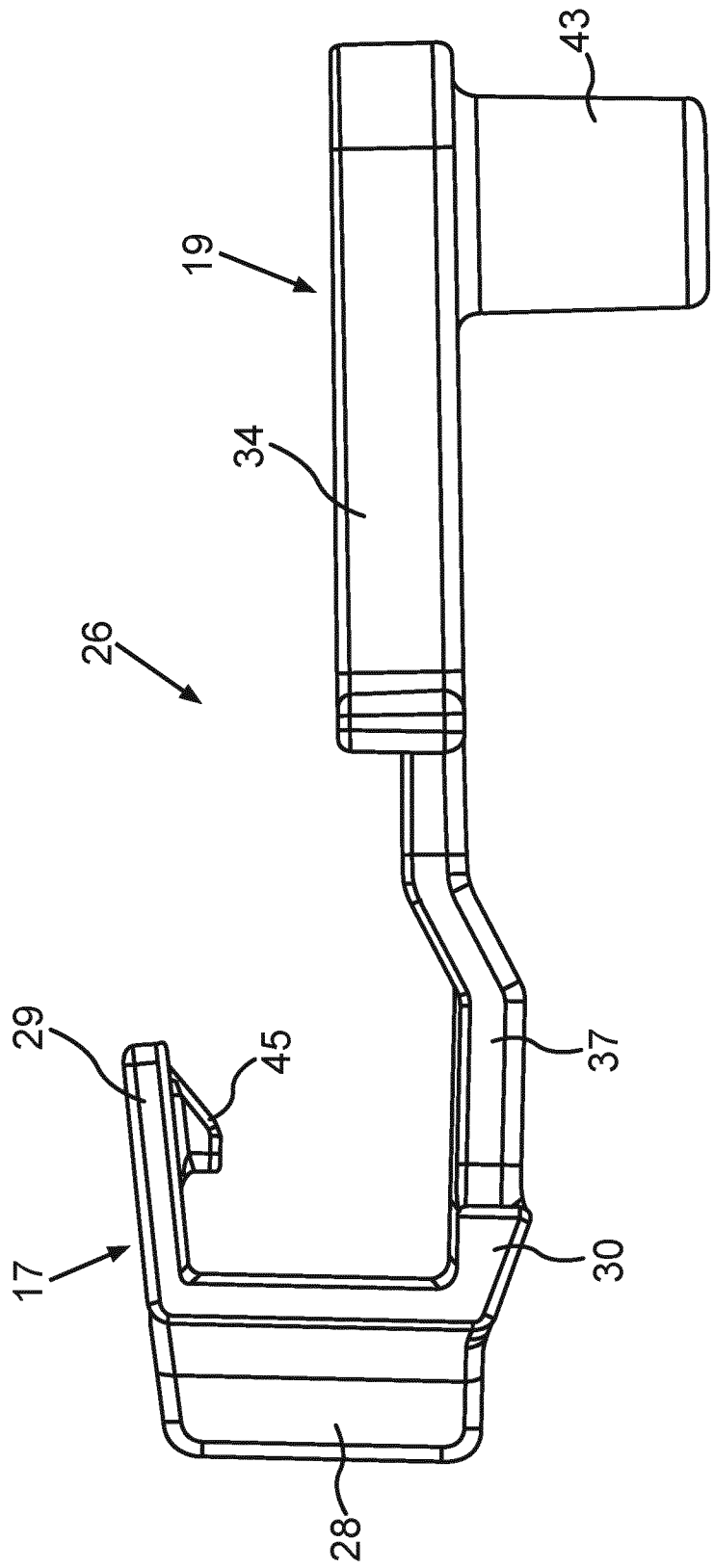


Fig. 5

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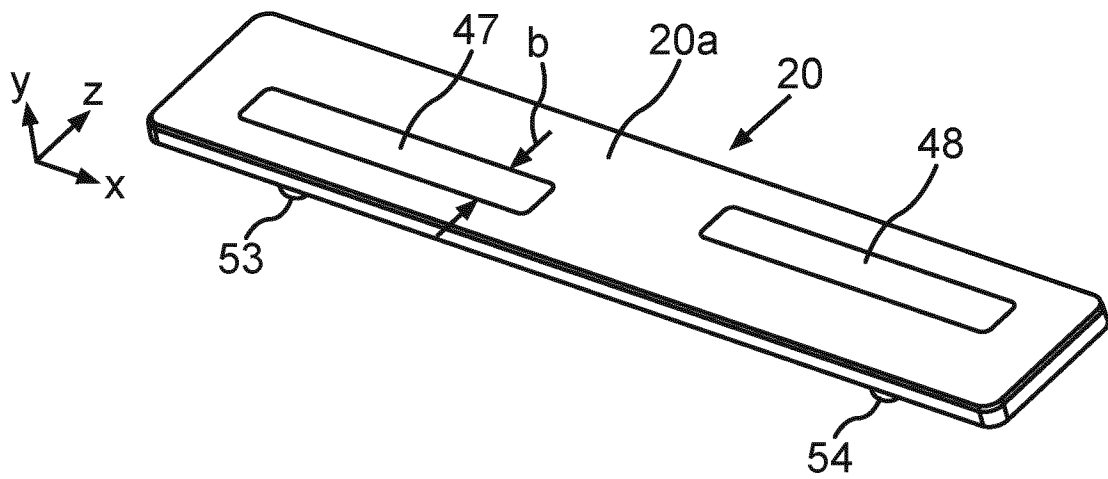


Fig.6

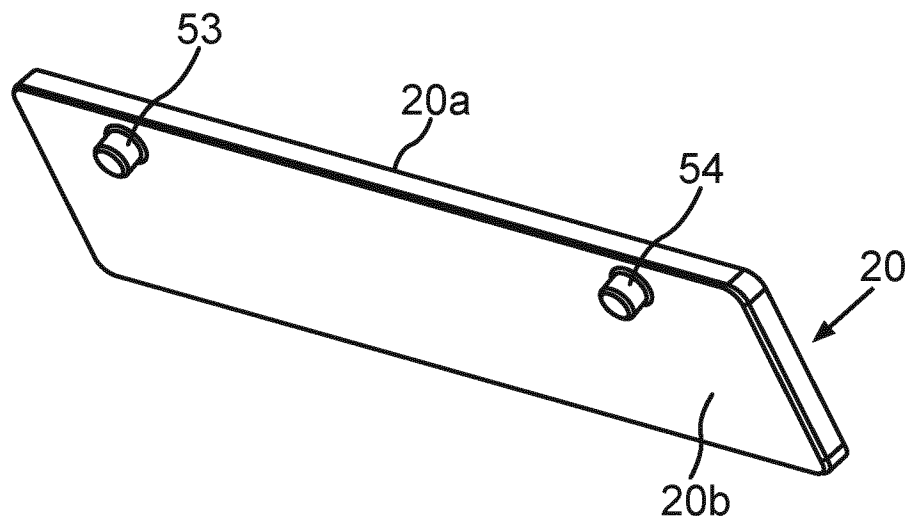


Fig.7

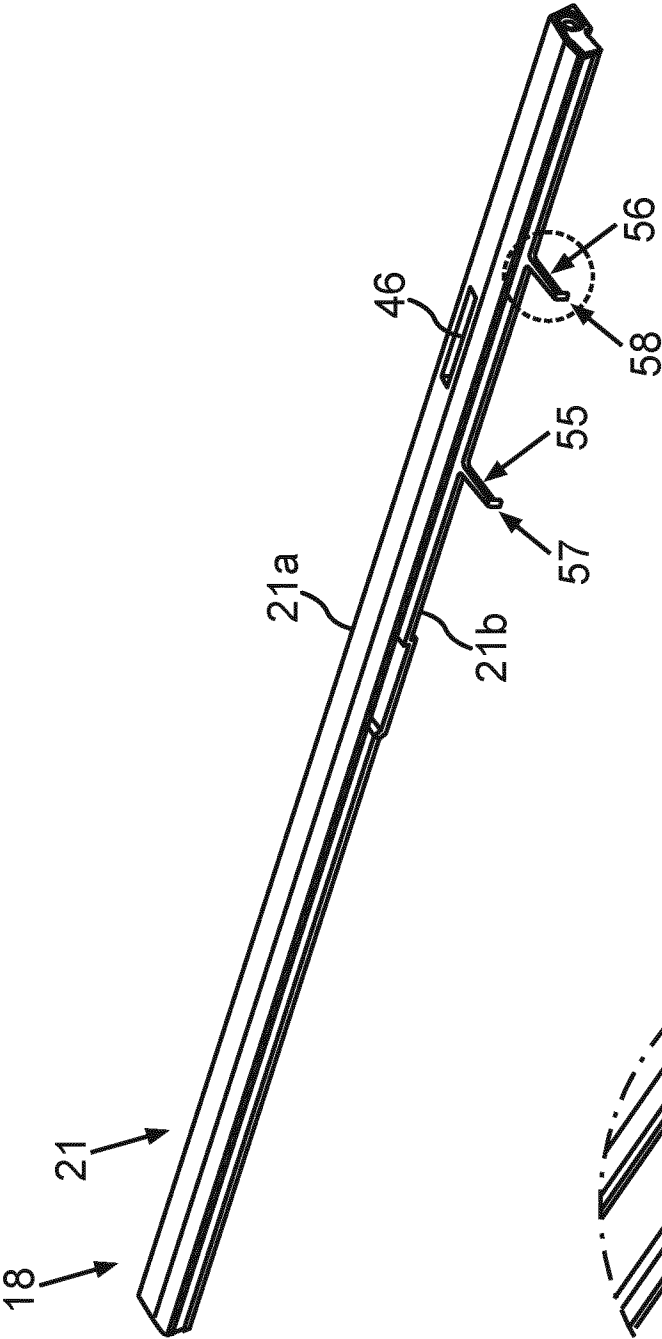


Fig. 8

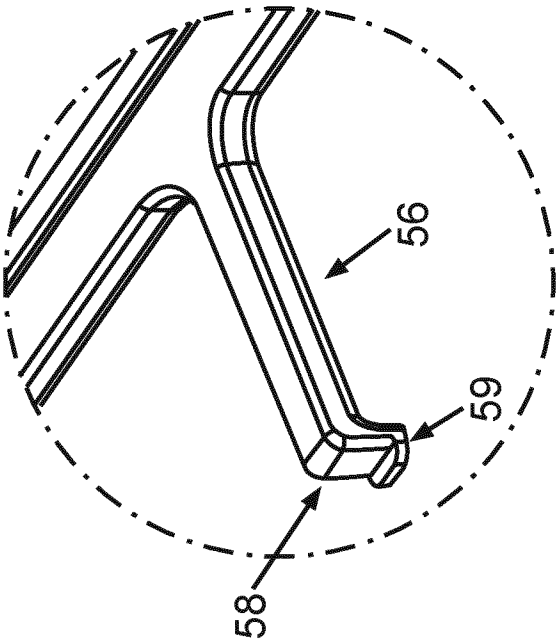


Fig. 9

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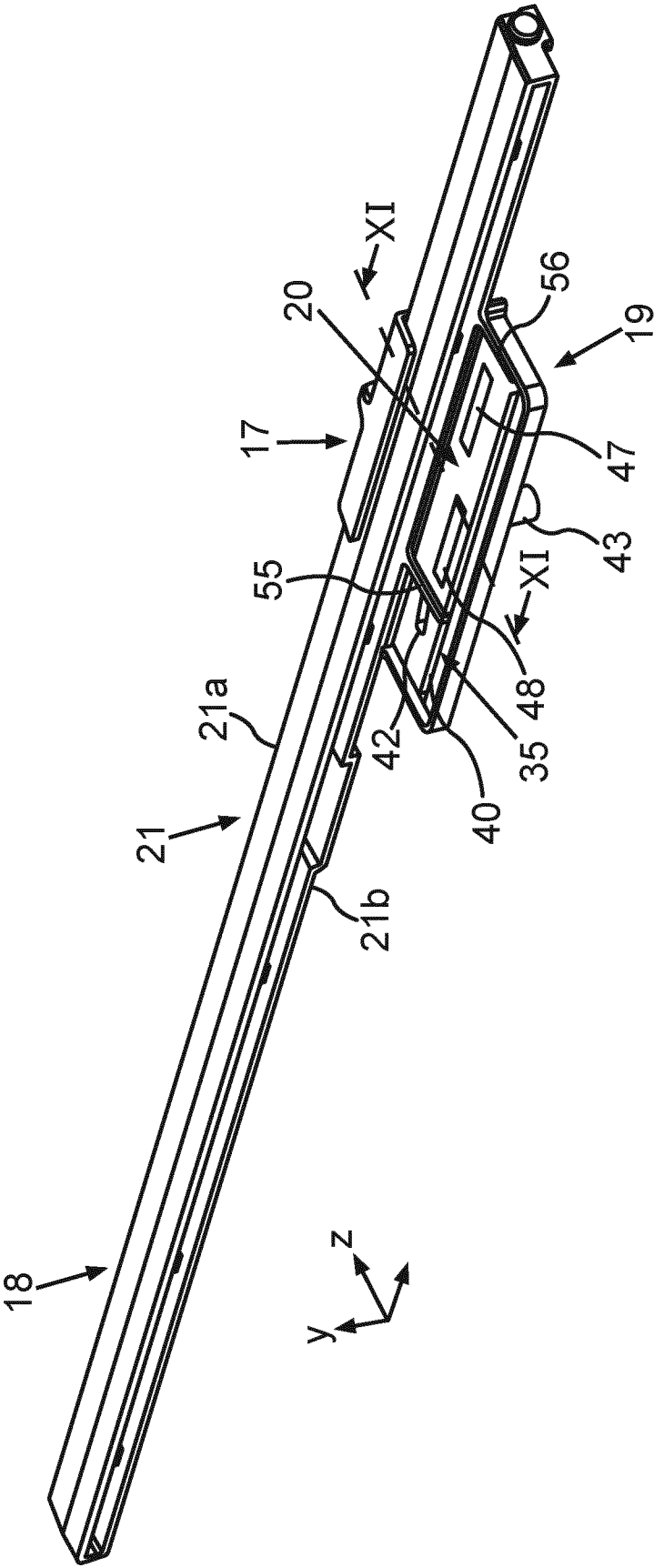


Fig.10

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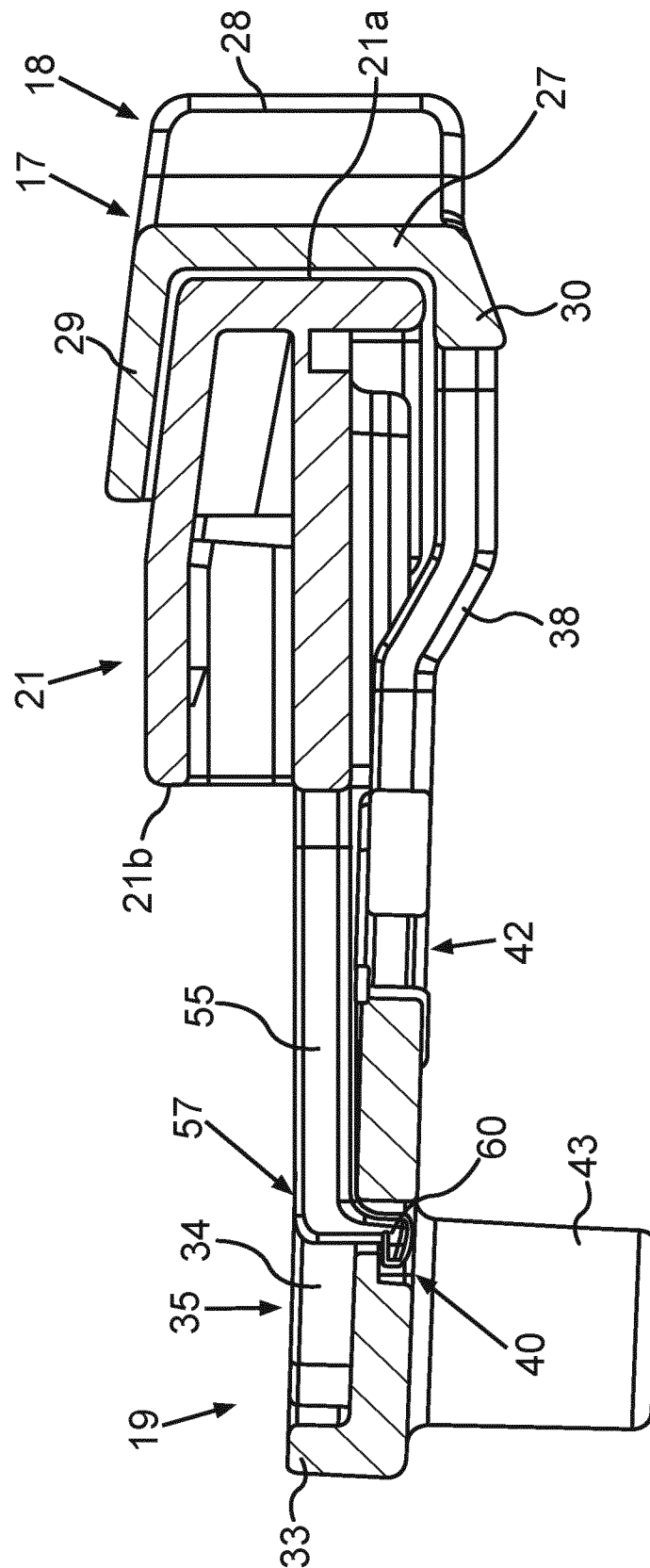


Fig. 11

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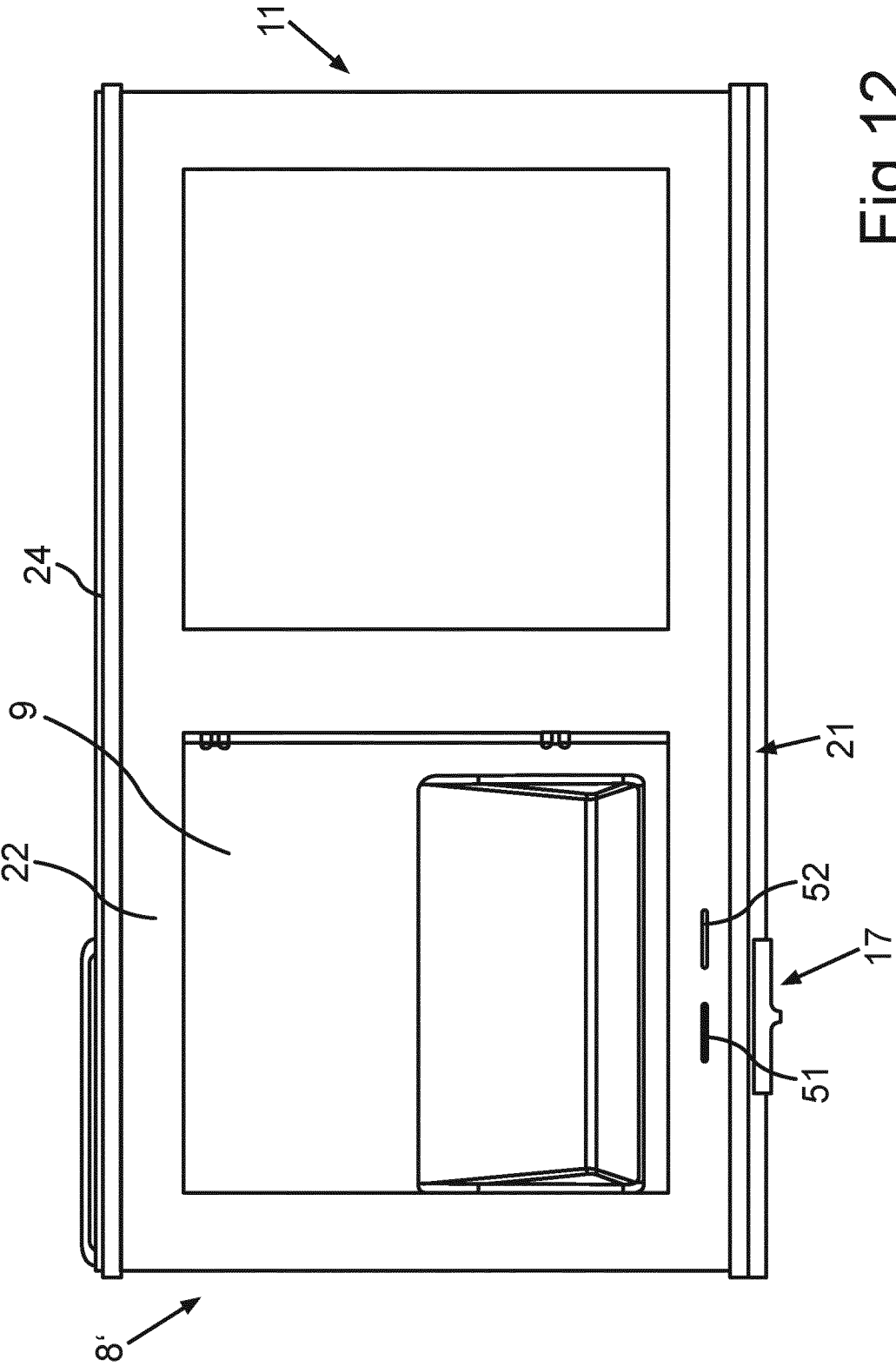


Fig. 12

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2022/064172

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

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☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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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/
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INTERNATIONAL SEARCH REPORT

International application No

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