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(54) **TRIM PIECE FOR REFRIGERATOR SHELVES**

(57) A trim piece for a refrigerator shelf comprises a body extending in a longitudinal direction and a longitudinal cavity or channel having a U-shaped cross section, wherein the longitudinal cavity or channel has an upper wall and a lower wall formed along one of the longitudinal sides of the trim piece. The upper and lower walls are spaced apart from each other so as to receive a front

edge of a refrigerator shelf by press fitting. Protruding portions in the form of tabs (15) are formed on the inner surfaces of either or both the upper and lower walls (13, 14) of the longitudinal cavity (12). Further tabs (16) are formed in the longitudinal cavity (12) at end portions (17, 18) of the body (11).

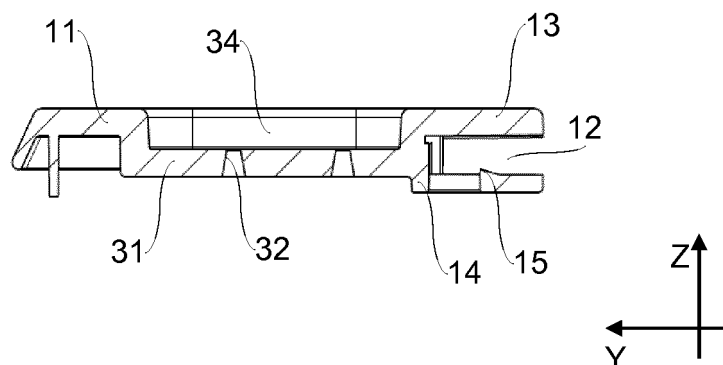


Fig.6

Description

Technical field of the invention

[0001] The present invention generally relates to the field of refrigerator appliances and in particular to a trim piece for a refrigerator shelf such as e.g. a glass shelf covering one or more crisper drawers.

Background

[0002] Refrigerator shelves are typically provided with trim pieces mounted on their front edges, i.e. the edges intended to face the door of a refrigerator appliance in an assembled configuration. Trim pieces allow to have a better grip on the shelves when assembling them into a cabinet of the refrigerator, as well as when extracting them the cabinet for e.g. cleaning purposes, while improving their aesthetics.

[0003] A trim piece generally has a body extending in a longitudinal direction. A longitudinal cavity or channel having a U-shaped cross section is formed along one of the longitudinal sides of the body. The longitudinal cavity allows assembly of the trim piece on the front edge of a shelf typically by press fitting. Once a trim piece is assembled on a shelf, an upper and a lower wall thereof, which define the longitudinal cavity, contact and press against an upper and a lower surface of the shelf, respectively, while the front edge of the shelf abuts an inner wall of the cavity.

[0004] In order to improve assembly on the front edges of the shelves, trim pieces are known wherein protruding portions in the form of tabs are formed in the longitudinal cavity on either or both its upper and lower walls. The tabs cause a slight deflection of these walls during press fitting, thus improving the grip of the trim piece on the upper and lower surfaces of the shelf. An example of a trim piece of this type is described by the European patent EP1985205B1.

[0005] Trim pieces configured to be assembled by snap fit in a direction perpendicular to the front edge of the shelf are also known. To this aim, the tabs are aligned in the longitudinal direction and the refrigerator shelf comprises a groove formed parallel to the front edge on the surface intended to contact the tabs. The tabs formed in the longitudinal cavity and the groove formed on the refrigerator shelf are arranged such that the tabs are received into the groove during assembly, this achieving a snap fit.

[0006] In order to position a trim piece on a refrigerator shelf such that they are centered relative to each other and do not penalize assembly into the cabinet of a refrigerator assembly, side walls are formed at the ends of the trim piece.

[0007] On the one hand, the side walls allow to restrict lateral movements of the trim piece along the front edge of the shelf. However, such constraints make removal of the trim piece from the shelf difficult, which penalizes

cleaning operations. When the trim piece is assembled on the shelf by snap fit, use of tools is required to disengage the tabs from the groove, which involves manual skills and may damage the surface of the shelf.

Summary of the invention

[0008] The technical problem underlying and solved by the present invention is therefore to provide a trim piece that allows to overcome the drawbacks mentioned above with reference to the prior art.

[0009] This problem is solved by a trim piece according to the independent claim 1. Preferred features of the present invention are set forth in the dependent claims.

[0010] The trim piece according to the invention comprises a body extending in a longitudinal direction and a longitudinal cavity or channel having a U-shaped cross section, wherein the longitudinal cavity or channel has an upper wall and a lower wall formed along one of the longitudinal sides of the trim piece. The upper and lower walls are spaced apart from each other so as to receive a front edge of a refrigerator shelf and define a press fitting.

[0011] Protruding portions in the form of tabs are formed on the inner surfaces of either or both the upper and lower walls of the longitudinal cavity. This allows to improve assembly of the trim piece on the front edge of a refrigerator shelf by press fitting.

[0012] According to the invention, the trim piece is configured to be assembled by snap fit in a direction perpendicular to the front edge of the shelf and to be removed by making it to slide along the front edge.

[0013] To this aim, the tabs are aligned along the longitudinal cavity and the refrigerator shelf comprises a groove formed parallel to the front edge on the surface intended to contact the tabs. The tabs formed in the longitudinal cavity and the groove formed on the refrigerator shelf are arranged such that the tabs are received by snap fit into the groove during assembly. This improves assembly and prevents removal of the trim piece from the shelf by pulling in a transverse direction perpendicularly to the trim piece itself. The trim piece can only be removed by making it to slide along the front edge until all tabs are disengaged from the groove. This can be easily made without resorting to the use of tools when the assembly made up of the trim piece and the shelf is extracted from a refrigerator cabinet.

[0014] Further tabs are formed in the longitudinal cavity proximate the end portions of the trim piece. In assembled configuration of the trim piece, the tabs exert a force on the surface of the shelf proximate its side edges, thereby allowing to counteract possible movements of the trim piece relative to the shelf caused by forces acting in the longitudinal direction. Hence, the trim piece can be properly maintained centered on the shelf without resorting to side walls as in the trim pieces of the prior art.

[0015] Moreover, these tabs do not prevent a user from making the trim piece to slide relative to the shelf in order

to disassemble it for cleaning purposes, thus improving ergonomics of the assembly.

[0016] According to an embodiment of the invention, the trim piece may comprise a humidity control device configured to adjust the humidity rate in a refrigerator cavity, such as a crisper drawer, when the refrigerator shelf to which the trim piece is assembled is used as a cover for such cavity. The humidity control device comprises at least one perforated portion formed in the body of the trim piece and having a plurality of holes allowing passage of a flow of air through the body. The humidity control device may advantageously comprise a slider movable on the body relative to the perforated portion in order to adjust the air flow.

[0017] Further advantages, features and operation modes of the present invention will become clear from the following detailed description of embodiments thereof, which are given for illustrative and not-limiting purposes.

Brief description of the drawings

[0018] Reference will be made to the figures of the accompanying drawings, in which:

- figure 1 is a top perspective view showing a trim piece according to the present invention;
- figure 2 is an exploded, top perspective view of the trim piece according to the present invention;
- figure 3 shows a detail III of figure 2;
- figure 4 is a bottom perspective view of the trim piece according to the present invention;
- figure 5 shows a detail V of figure 3;
- figure 6 shows a cross section of the trim piece according to the present invention taken along a plane passing through line VI-VI of figure 1;
- figure 7 is a top perspective view of an assembly comprising the trim piece according to the present invention and a refrigerator shelf on which the trim piece is mounted.

Detailed description of preferred embodiments

[0019] With reference to the drawings, a trim piece for a refrigerator shelf is generally indicated at reference number 10.

[0020] The trim piece 10 is intended to be assembled on a refrigerator shelf such as e.g. a glass shelf intended to cover one or more crisper drawers in the cabinet of a refrigerator appliance. It will be appreciated that the type of shelf and the material of which it is made are not limiting features of the invention. Figure 7 schematically shows

the trim piece 10 assembled on a refrigerator shelf 20.

[0021] Particularly referring to figures 1 to 6, the trim piece 10 is shown in a three-dimensional reference system wherein a longitudinal direction X and a transverse direction Y that are mutually perpendicular define a horizontal plane on which the trim piece 10 lies, while a Z direction perpendicular to said horizontal plane defines a vertical direction along which the force of gravity acts.

[0022] The trim piece 10 has a body 11 extending in the longitudinal direction X, which serves as a grip for handling the refrigerator shelf 20. The body 11 of the trim piece 10 also has an aesthetical function, because it forms an end portion of the shelf 20 in an assembled configuration.

[0023] A longitudinal cavity or channel 12 having a U-shaped cross section is formed along one of the longitudinal sides of the trim piece 10.

[0024] The longitudinal cavity 12 allows assembly of the trim piece 10 on a front edge of the shelf 20, namely the edge intended to face a door of a refrigerator appliance in an assembled configuration thereof. With reference to the vertical direction Z, the longitudinal cavity 12 is defined by an upper wall 13 and a lower wall 14 that protrude from the body 11 in the transverse direction Y.

The upper and lower walls 13, 14 are spaced apart from each other in the vertical direction Z so as to receive the front edge of the shelf. The distance between the upper and lower walls 13, 14 is such that they contact the upper and lower surfaces of the shelf 20, respectively, thus generating friction and thereby achieving an interference or press fit.

[0025] In order to improve assembly of the trim piece 10 on the front edge of the shelf 20 by press fitting, protruding portions in the form of tabs 15 may advantageously be formed on the inner surfaces of either or both the upper and lower walls 13, 14 of the longitudinal cavity 12. In the embodiment shown in the drawings, five tabs 15 are formed e.g. on the lower wall 14. It will be appreciated that the number of tabs is not a limiting feature of the invention.

[0026] As shown in the cross section of figure 6, the tabs 15 have a ramp shape in the transverse direction Y. More particularly, the height of the tabs 15 increases in the assembly direction of the trim piece 10, thereby progressively increasing friction between the cavity walls 13, 14 and the surfaces of the shelf 20 when the trim piece is assembled thereto. Thanks to this feature, when grabbing or more generally handling a shelf 20 where the trim piece 10 according to the invention is assembled, the latter is more firmly held in position compared to a design where no tabs are present.

[0027] According to the invention, the tabs 15 are aligned along the longitudinal cavity 12, which facilitates manufacturing of the trim piece 10.

[0028] The provision of ramp-shaped tabs 15 aligned along the cavity 12 also allows to achieve a snap fit with the shelf 20. To this aim, a longitudinal groove is formed parallel to the front edge on the shelf surface intended

to contact the tabs 15 of the trim piece 10. The groove is so spaced from the front edge as to receive the ramp-shaped tabs in an assembled configuration of the trim piece 10. More particularly, when the trim piece 10 is fitted on the front edge of the shelf 20, the tabs 15 slide along its upper or lower surface and are received into the groove, thus achieving the snap fit. Thanks to the snap fit assembly, the trim piece 10 cannot be removed from the shelf 20 by pulling it in the transverse direction Y and can only be disassembled by causing it to slide parallel to the front edge, thereby setting the tabs 15 free from the groove.

[0029] It will be appreciated that this movement of the trim piece 10 is obstructed when the shelf 20 is mounted in the cabinet of a refrigerator. In other words, the trim piece 10 cannot be inadvertently removed by a user.

[0030] Now referring to figures 4 and 5, according to the invention further tabs 16 are formed in the longitudinal cavity 12 proximate the end portions 17, 18 of the body 11 of the trim piece 10. In the embodiment shown in the drawings the tabs 16 are e.g. formed under the upper wall 13 of the longitudinal cavity 12.

[0031] In assembled configuration of the trim piece 10, the tabs 16 exert a force on the surface of the shelf 20 proximate its side edges, thereby allowing to counteract possible movements of the trim piece 10 relative to the shelf 20 caused by forces acting in the longitudinal direction X. Hence, the trim piece 10 can be properly maintained centered on the shelf 20 without resorting to side walls as in the trim pieces of the prior art.

[0032] Moreover, the tabs 16 do not prevent a user from making the trim piece 10 to slide relative to the shelf 20 in order to disassemble it for cleaning purposes, thus improving ergonomics of the assembly.

[0033] Still with reference to figures 4 and 5, in the embodiment shown in the drawings, the wall of the longitudinal cavity 12 opposite to the wall where the tabs 16 are formed, in this case the lower wall 14, is designed shorter than the latter in the longitudinal direction X, such that the tabs 16 are fully visible from below.

[0034] This configuration is advantageous in that manufacturing of the tabs 16 is simplified due to the absence of undercut features in the vertical direction. Moreover, when moving the trim piece 10 in the longitudinal direction X to remove it from the shelf 20, either one of the end portions can be easily grabbed by a user and possibly also slightly bent away from the shelf 20 in order to facilitate pulling of the trim piece 10 to set it free. During this operation either one of the tabs 16 can effectively act as handle contributing to ease removal of the trim piece 10 from the shelf 20.

[0035] According to an embodiment of the invention, the trim piece 10 may advantageously comprise a humidity control device allowing to adjust the humidity rate in a cavity underlying the shelf 20, for example a crisper drawer.

[0036] The humidity control device is generally indicated by reference number 30 and comprises at least one

perforated portion 31 formed in the body 11 of the trim piece 10 e.g. at an intermediate portion thereof.

[0037] The perforated portion 31 comprises a plurality of holes 32 allowing passage of a flow of air through the body 11 of the trim piece 10. The humidity control device 30 also comprises a slider 33, e.g. in the form of a plate, movable on the body 11 of the trim piece 10 relative to the perforated portion 31, e.g. in the longitudinal direction X, so as to adjust the number of holes 32 through which air may flow.

[0038] The holes 32 are spread out on the perforated portion 31 and have diameters of a size that is progressively lower in the longitudinal direction X, which allows to improve adjustment of the air flow in addition to the slider 33.

[0039] According to an embodiment of the invention, the perforated portion 31 is formed in a recess 34 of the body 11 of the trim piece 10 and extends in the longitudinal direction X. The slider 33 is housed in the recess 34. This configuration is advantageous in that the slider 33 can be designed in order not to protrude from the body 11, thereby not affecting the overall thickness of the trim piece 10.

[0040] In order to ease handling of the slider 33, a window, or more generally a recessed portion, 35 may advantageously be formed e.g. at one end thereof. A user may thus move the slider 33 along the recess 34 by simply placing a finger in the window 35 and pulling or pushing in the longitudinal direction X.

[0041] According to an embodiment of the invention, the recess 34 may comprise a plurality of bumps 36 slightly protruding from its longitudinal sides of and the slider 33 may comprise tongues 37 formed at its longitudinal sides. By making the slider 33 to move along the recess 34 the tongues 37 are bent inwards when contacting the bumps 36 and recover their original position between consecutive bumps 36. Hence, a plurality of stable rest positions are defined, at which a number of discrete adjustment positions of the slider 33 are defined.

[0042] It will be appreciated that the movement of the slider 33 relative to the body 11 may cause the trim piece 10 to move relative to the front edge of the shelf 20, thus penalizing ergonomics of the humidity control device 30 and more generally causing discomfort to a user. The provision of the tabs 16 formed at the end portions 17, 18 of the body 11 of the trim piece 10 is particularly useful in this embodiment, because they react to the longitudinal forces generated upon movement of the slider 33 and firmly maintain the trim piece 10 in place.

[0043] It will be appreciated that in the case of multiple crisper drawers arranged side by side, the humidity control device 30 may comprise more perforated portions 31 and related sliders 33 so arranged on the body 11 to be located above each drawer.

[0044] The present invention has hereto been disclosed with reference to preferred embodiments thereof. It will be appreciated that there may be other embodiments relating to the same inventive idea, all of which

are included in the scope of protection defined by the claims set out below.

Claims

1. A trim piece (10) for a refrigerator shelf (20), said trim piece (10) having:

- a. a body (11) extending in a longitudinal direction (X);
- b. a longitudinal cavity or channel (12) having a U-shaped cross section, said longitudinal cavity or channel (12) having an upper wall (13) and a lower wall (14) formed along one of the longitudinal sides of the trim piece (10);

wherein said upper and lower walls (13, 14) are spaced apart from each other in a vertical direction (Z) perpendicular to said longitudinal direction (X) so as to receive a front edge of a shelf (20) and define a press fitting;

wherein protruding portions in the form of tabs (15) are formed on the inner surfaces of either or both the upper and lower walls (13, 14) of the longitudinal cavity (12);

and wherein further tabs (16) are formed in the longitudinal cavity (12) at end portions (17, 18) of the body (11).

2. The trim piece (10) of claim 1, wherein said tabs (15) have a ramp shape in a transverse direction (Y) perpendicular to the longitudinal direction (X) and to said vertical direction (Z), the height of the tabs (15) increasing in the assembly direction.

3. The trim piece (10) of claim 1 or 2, wherein said tabs (15) are aligned along the longitudinal cavity (12) in the longitudinal direction (X).

4. The trim piece (10) according to any one of claims 1 to 3, wherein the wall (14) of the longitudinal cavity (12) opposite to the wall (13) where the further tabs (16) are formed is shorter than the latter in the longitudinal direction (X) such that the further tabs (16) are fully visible from below.

5. The trim piece (10) according to any one of claims 1 to 4, wherein the trim piece (10) further comprises a humidity control device (30), said humidity control device (30) having at least one perforated portion (31) formed in the body (11), said perforated portion (31) having a plurality of holes (32) allowing passage of a flow of air through the body (11).

6. The trim piece (10) of claim 5, wherein the humidity control device (30) further comprises a slider (33) movable on the body (11) relative to the perforated

portion (31) so as to adjust the number of holes (32) through which air may flow.

7. The trim piece of claim 5 or 6, wherein the holes (32) of the humidity control device (30) are spread out on the perforated portion (31) and have diameters of a size progressively lower in the longitudinal direction (X).

8. The trim piece of claim 6 or 7, wherein the perforated portion (31) is formed in a recess (34) formed in the body (11) of the trim piece (10) along the longitudinal direction (X), and wherein the slider (33) is housed in said recess (34).

9. The trim piece of claim 8, wherein the recess (34) comprises a plurality of bumps (36) formed on its longitudinal sides and slightly protruding from them, and wherein the slider (33) comprises tongues (37) formed at its longitudinal sides, the overall configuration being such that said bumps (36) contact said tongues (37) and cause deflection thereof in an assembled configuration of the slider (33).

10. A shelf assembly for a refrigerator appliance, said shelf assembly comprising a refrigerator shelf (20) and a trim piece (10) according to any one of claims 1 to 9, said trim piece (10) being assembled on a front edge of said refrigerator shelf (20).

11. The shelf assembly of claim 10, wherein the ramp-shaped tabs (15) of the trim piece (10) are aligned along the longitudinal cavity (12) in the longitudinal direction (X) and said shelf (20) comprises a groove formed on an upper or lower surface thereof parallel to said front edge, said groove being so spaced from the front edge as to receive the ramp-shaped tabs (15) and achieve a snap fit.

12. A refrigerator appliance comprising at least one shelf assembly according to claim 10 or 11.

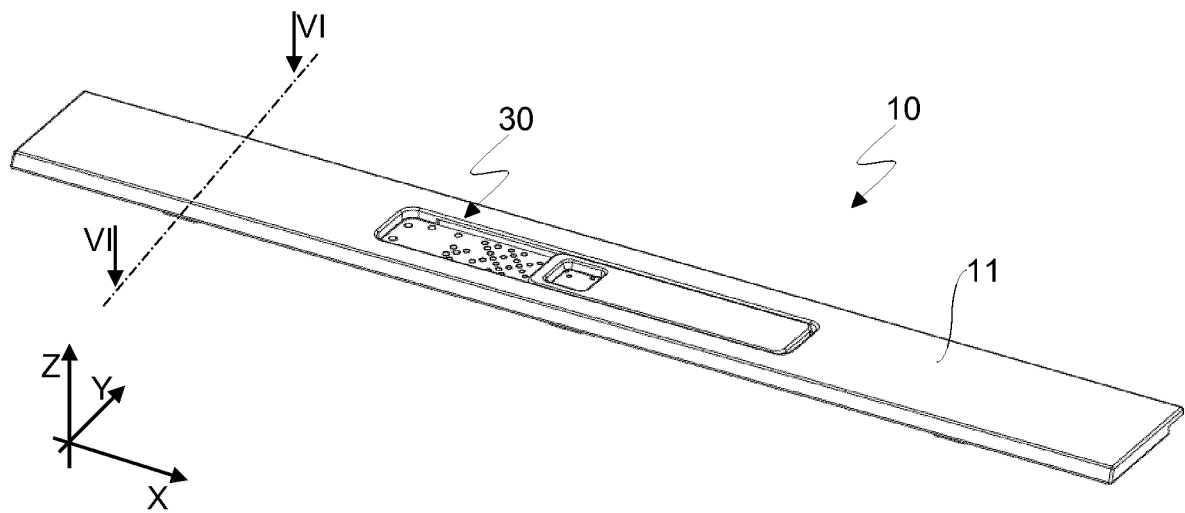


Fig.1

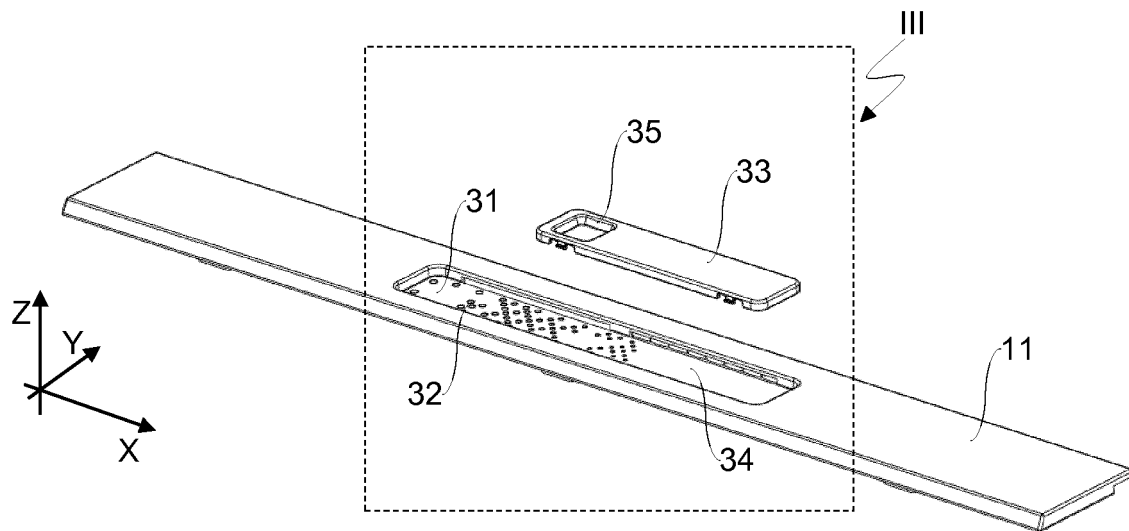


Fig.2

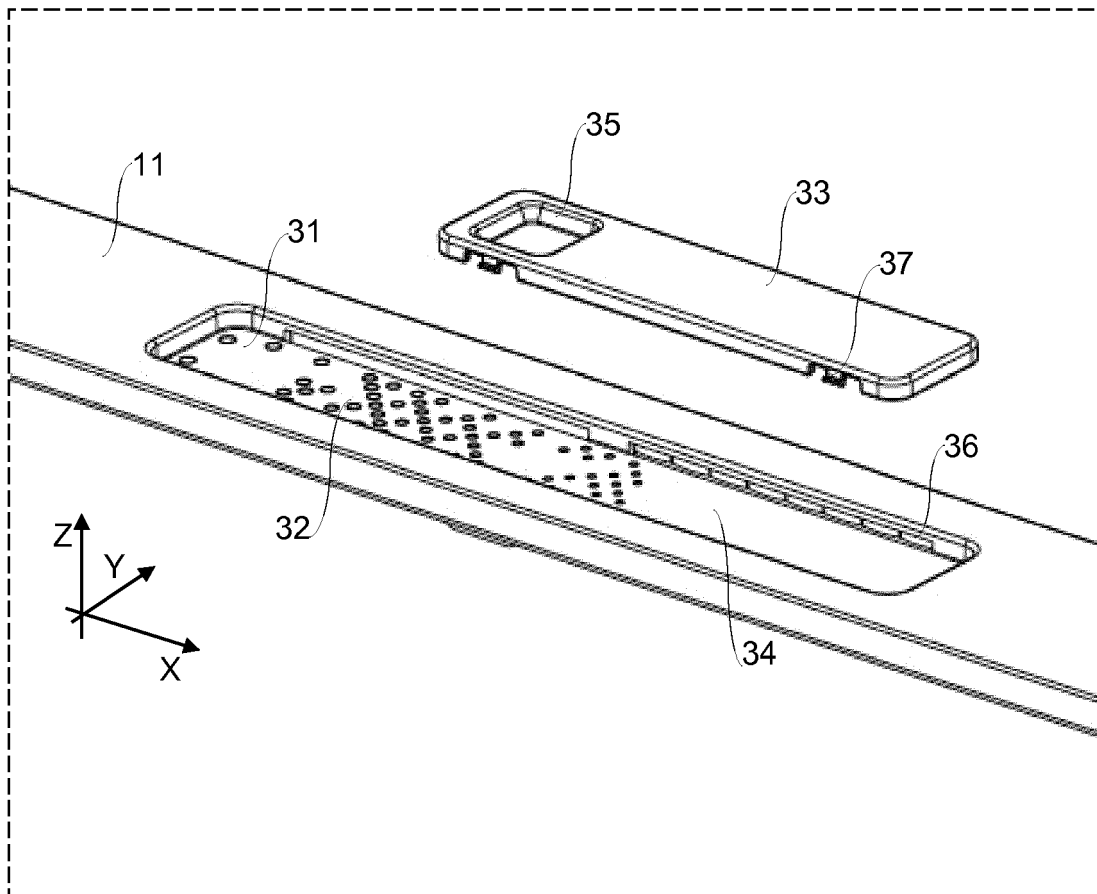
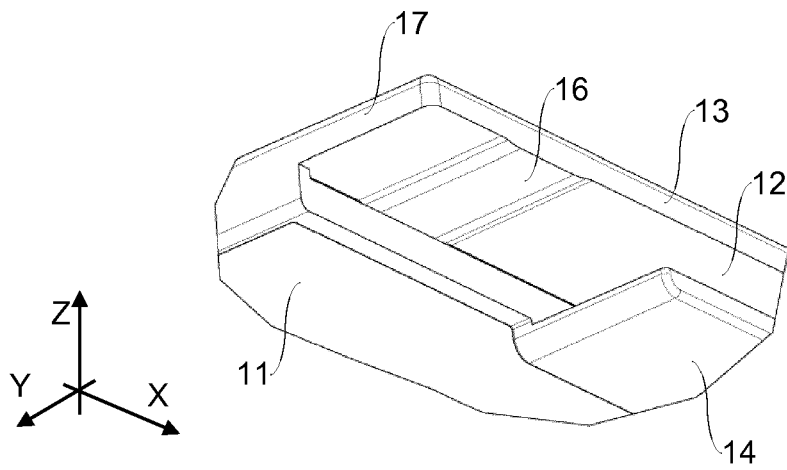
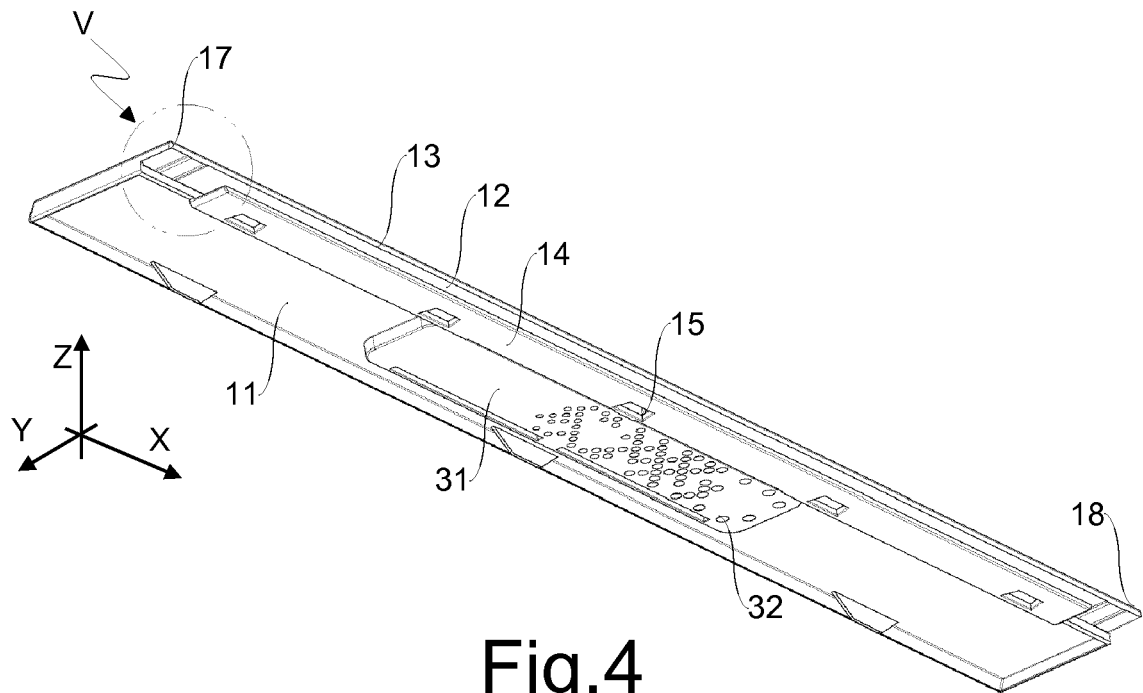


Fig.3



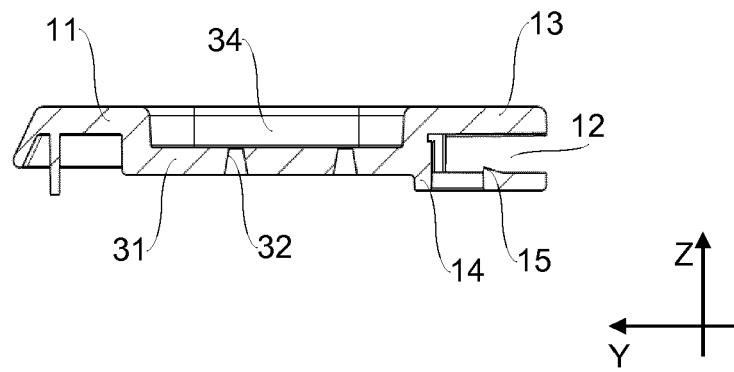


Fig.6

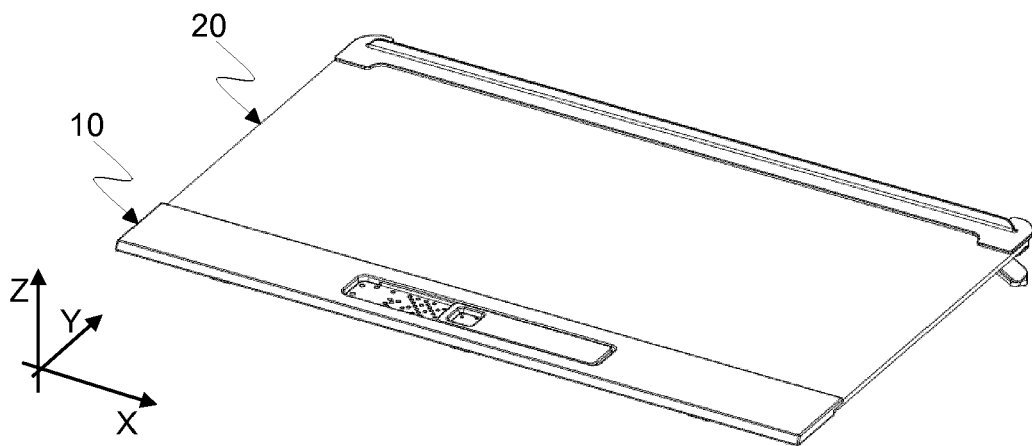


Fig.7



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Application Number
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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 28 August 2019	Examiner Vigilante, Marco
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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