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- (71) Applicant: **ARCELIK ANONIM SIRKETI** [TR/TR]; E5 Ankara Asfalti Uzeri, Tuzla, 34950 Istanbul (TR).
- (72) Inventors; and
- (71) Applicants : **OZYUKSEL, Faik Emre** [TR/TR]; E5 Ankara Asfalti Uzeri, Tuzla, 34950 Istanbul (TR). **KAYMAK, Mehmet Ercan** [TR/TR]; E5 Ankara Asfalti Uzeri, Tuzla, 34950 Istanbul (TR). **OZDEMIR, Behice Simge** [TR/TR]; E5 Ankara Asfalti Uzeri, Tuzla, 34950 Istanbul (TR). **CELIK, Kadir Ridvan** [TR/TR]; E5 Ankara Asfalti Uzeri, Tuzla, 34950 Istanbul (TR).

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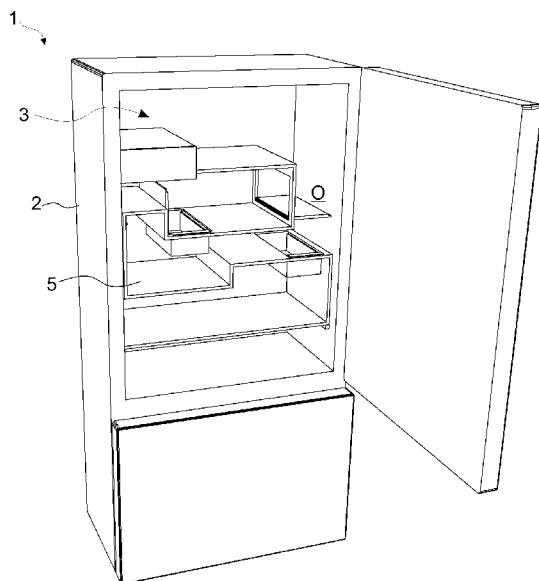
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(54) Title: REFRIGERATOR COMPRISING A SHELF ENABLING FLEXIBLE UTILIZATION FOR THE USER

Figure 1



(57) Abstract: The present invention relates to a refrigerator (1) comprising a body (2), at least one compartment (3) arranged inside the body (2) and at least one support surface (4) whereon the foodstuffs are placed, a shelf (5) formed as a single piece, having more than one support surface (4), wherein the distance of the support surfaces (4) to the walls of the body (2) is changed in four different positions whereto the shelf (5) is changed by being rotated around the horizontal and/or the vertical axis.

Description**REFRIGERATOR COMPRISING A SHELF ENABLING FLEXIBLE UTILIZATION
FOR THE USER**

- [0001] The present invention relates to a refrigerator comprising a shelf.
- [0002] In refrigerators, one or more than one shelf is used whereon the foodstuffs are placed. Foodstuffs having different properties are stored inside the refrigerator. While the tall foodstuffs are placed on the shelf, problems are encountered such as the foodstuff hitting the upper shelf and therefore not being able to be placed on the shelf or foodstuffs having different volumes overlapping on the shelf. Changing the distance between the shelves is limited by the positions of the shelf supports. Therefore, it is not possible for the user to utilize the interior of the compartment flexibly.
- [0003] In the state of the art European Patent Document No. EP1156290, a refrigerator is disclosed that comprises a shelf having a sloping form.
- [0004] The aim of the present invention is the realization of a refrigerator comprising a shelf which enables flexible utilization for the user.
- [0005] The refrigerator realized in order to attain the aim of the present invention, explicated in the first claim and the respective claims thereof, comprises a shelf configured as a single piece, having more than one support surface, dividing the compartment interior into more than two volumes when placed inside the compartment, and wherein the distance between the support surfaces and the body walls is changed when changed to the four different positions by being rotated upwards/downwards or right/left. Thus, the user is enabled to utilize the interior of the compartment flexibly. The user positions the shelf according to the volumes of the products to be stored and utilizes the interior volume of the compartment flexibly.
- [0006] In an embodiment of the present invention, the shelf has four different positions that provide different utilization volumes inside the compartment for the user. The user transforms the shelf into one of the four positions depending on the volume of the foodstuffs to be placed inside the compartment.
- [0007] In an embodiment of the present invention, the free ends of the shelf are connected to the same wall of the body. The support surfaces and the

connectors are arranged consecutively between the free ends of the shelf.

- [0008] In an embodiment of the present invention, the shelf is in form of a configured continuous plate.
- [0009] In an embodiment of the present invention, the refrigerator comprises at least one shelf support that provides the attachment of the shelf to the compartment. The shelf is provided to remain rigid inside the compartment in four different positions by means of the shelf supports disposed on the side walls of the body.
- [0010] In an embodiment of the present invention, the refrigerator comprises at least one flap disposed on the support surface, having a closed position and an open position obtained by being moved from the closed position, allowing the foodstuffs to be placed thereon. The flaps are mounted detachably on the shelf. The user can widen the usable area of the support surfaces and create additional storage space by means of the flaps.
- [0011] In an embodiment of the present invention, the refrigerator comprises at least one opening arranged on the support surface and at least one flap that enables the opening to be covered. The flap is changed to the open position if the height of the foodstuff to be stored inside the compartment is high.
- [0012] In an embodiment of the present invention, the refrigerator comprises at least one retainer that is disposed on the support surface. The retainer is situated in the vicinity of the support surface. The retainer allows items like string bag, hanger etc. to be hung from the support surface.
- [0013] In an embodiment of the present invention, the refrigerator comprises at least one spring that provides the flap to change from the closed position to the open position. The spring is situated between the support surface and the flap.
- [0014] By means of the present invention, a refrigerator is realized, comprising a shelf, the position of which can be changed, thereby allowing functional utilization.
- [0015] The model embodiments relating to the refrigerator realized in order to attain the aim of the present invention are illustrated in the attached

figures, where:

- [0016] Figure 1 – is the perspective view of a refrigerator while the shelf is mounted.
- [0017] Figure 2 – is the perspective view of the refrigerator while the shelf is not mounted.
- [0018] Figure 3 – is the perspective view of the refrigerator in a position of the shelf.
- [0019] Figure 4 – is the perspective view of the refrigerator in another position of the shelf.
- [0020] Figure 5 – is the perspective view of the refrigerator in yet another position of the shelf.
- [0021] Figure 6 – is the partial perspective view of the refrigerator in an embodiment of the present invention.
- [0022] Figure 7 – is the partial perspective view of the refrigerator in an embodiment of the present invention.
- [0023] Figure 8 – is the partial perspective view of the refrigerator in an embodiment of the present invention.
- [0024] The elements illustrated in the figures are numbered as follows:
 - 1. Refrigerator
 - 2. Body
 - 3. Compartment
 - 4. Support surface
 - 5. Shelf
 - 6. Spring
 - 7. Connector
 - 8. Shelf support
 - 9. Flap
 - 10. Opening
 - 11. Retainer
- [0025] The refrigerator (1) of the present invention comprises a body (2), at least one compartment (3) situated inside the body (2) and at least one support surface (4) whereon foodstuffs are placed, a shelf (5) formed as a single piece, having more than one support surface (4) and more than one

connector (7) extending between the support surfaces (4) and connecting the support surfaces (4) to one another, that divides the compartment (3) into more than two volumes when placed into the compartment (3) and wherein the distance of the support surfaces (4) to the walls of the body (2) changes in the different positions obtained by the shelf (5) being rotated around the horizontal and/or the vertical axis. The shelf (5) can be placed in a different position inside the compartment (3) by being rotated around the horizontal and/or the vertical axis. When the shelf (5) is rotated around the horizontal axis, the distance between the support surfaces (4) and the side walls of the body (2) changes. When the shelf (5) is rotated around the vertical axis, the distance of the support surface (4) to the base of the body (2) and to the ceiling of the body (2) changes. The shelf (5) enables formation of different carrying volumes depending on the size of the foodstuffs to be placed inside the compartment (3) (Figure 1, Figure 2, Figure 3, Figure 4, Figure 5, Figure 6).

- [0026] In an embodiment of the present invention, the shelf (5) has four different positions whereto it is changed by being rotated. The shelf (5), after being taken out of the compartment (3) by the user, is rotated and placed into the compartment (3) and a different utilization volume is formed inside the compartment (3). The user changes the shelf (5) to one of the four positions inside the compartment (3) depending on the volume of the foodstuffs to be placed inside the compartment (3).
- [0027] In an embodiment of the present invention, the free ends of the shelf (5) are connected to the same wall of the body (2). The support surfaces (4) are arranged one over the other and the connectors (7) are situated between the free ends of the shelf (5). Inside the compartment (3), the shelf (5) is supported by the connectors (7) bearing against the side wall of the body (2) and remains rigid inside the compartment (3).
- [0028] In an embodiment of the present invention, the shelf (5) is in form of a configured continuous plate. The support surfaces (4) and the connectors (7) are formed by shaping the shelf (5). The support surfaces (4) and the connectors (7) stand consecutively. The connectors (7) stand almost perpendicular to the support surfaces (4).

- [0029] In an embodiment of the present invention, the refrigerator (1) comprises at least one shelf support (8) disposed on the inner wall of the body (2) and whereon the shelf (5) is mounted movably. The shelf (5) is provided to be placed into the compartment (3) by means of the shelf support (8). The shelf supports (8) enable the shelf (5) to be placed into the compartment (3) in four different positions (Figure 7, Figure 8). Furthermore, the connectors (7) bearing against the side wall of the body (2) are mounted on the shelf supports (8) as well.
- [0030] In an embodiment of the present invention, the refrigerator (1) comprises at least one flap (9) mounted on the support surface (4) and having a closed position (C) and an open position (O) obtained by being moved from the closed position (C), enabling foodstuffs to be placed thereon. The flaps (9) are changed to the open position (O) for the aim of creating additional storage space. The flaps (9) enable the user to utilize the interior of the compartment (3) flexibly. The flap (9) is changed to the closed position (C) by the user when not in use. The flap (9), while in the closed position (C), is located on the support surface (4) and occupies almost the same space that is occupied solely by the support surface (4) (Figure 8, Figure 9).
- [0031] In an embodiment of the present invention, the refrigerator (1) comprises at least one opening (10) arranged on the support surface (4) and at least one flap (9) that enables the opening (10) to be covered. The flap (9) is changed to the open position (O) and the front of the opening (10) is opened while placing a large volume foodstuff or item on the shelf (5). Consequently, the foodstuff or the item is provided to be placed on the shelf (5) (Figure 8, Figure 9).
- [0032] In an embodiment of the present invention, the refrigerator (1) comprises at least one retainer (11) that is situated on the support surface (4). The retainer (11) enables any foodstuff or item to be hung from the shelf (5). For example, by means of the retainer (11), a string bag or carrier bag can be hung to the opening (10), the front-side of which becomes open when the flap (9) is in the open position (O). The retainer (11) functions almost as a hanger (Figure 8).

- [0033] Furthermore, it becomes possible to place drawers, chambers etc. under the support surfaces (4) by means of the retainers (11) shaped as shelf supports (8) disposed below the support surface (4) (Figure 6).
- [0034] In an embodiment of the present invention, the refrigerator (1) comprises at least one spring (6) that provides the flap (9) to change from the open position (O) to the closed position (C). The spring (6) is compressed when the flap (9) is opened by the user. The flap (9) stays open when any kind of weight such as pot etc. is placed thereon. When the weight on the flap (9) is removed, the flap (9) changes to the closed position (C) as the compressed spring (6) stretches (Figure 9).
- [0035] By means of the present invention, a refrigerator (1) is realized, comprising a shelf (5) which enables the interior of the compartment (3) to be utilized flexibly by the user. The user changes the shelf (5) into any one of the four positions thereby creating different utilization volumes inside the compartment (3).
- [0036] It is to be understood that the present invention is not limited by the embodiments disclosed above and a person skilled in the art can easily introduce different embodiments. These should be considered within the scope of the protection postulated by the claims of the present invention.

Claims

1. A refrigerator (1) **comprising** a body (2), at least one compartment (3) situated inside the body (2) and at least one support surface (4) whereon the foodstuffs are placed, **characterized by** a shelf (5) configured as a single piece, having more than one support surface (4) and more than one connector (7) extending between the support surfaces (4) and connecting the support surfaces (4) to one another, dividing the compartment (3) into more than two volumes when placed into the compartment (3) and wherein the distance of the support surfaces (4) to the walls of the body (2) is changed in different positions thereof whereto the shelf (5) is changed by being rotated around the horizontal and/or the vertical axis.
2. The refrigerator (1) as in Claim 1, **characterized by** the shelf (5) having four different positions whereto it is changed by being rotated.
3. The refrigerator (1) as in Claim 1 or 2, **characterized by** the shelf (5), the free ends of which are connected to the same wall of the body (2).
4. The refrigerator (1) as in any one of the above claims, **characterized by** the shelf (5) that is in form of a configured continuous plate.
5. The refrigerator (1) as in any one of the above claims, **characterized by** at least one shelf support (8) situated on the inner wall of the body (2) and whereon the shelf (5) is mounted movably.
6. The refrigerator (1) as in any one of the above claims, **characterized by** at least one flap (9) mounted on the support surface (4) and having a closed position (C) and an open position (O) obtained by being moved from the closed position (C), enabling the foodstuffs to be placed thereon.
7. The refrigerator (1) as in Claim 6, **characterized by** at least one opening (10) arranged on the support surface (4) and at least one flap (9) that enables the opening (10) to be covered.
8. The refrigerator (1) as in any one of the above claims, **characterized by** at least one retainer (11) that is disposed on the support surface (4).
9. The refrigerator (1) as in any one of the Claims 6 to 8, **characterized by** at least one spring (6) that provides the flap (9) to change from the open position (O) to

the closed position (C).

Figure 1

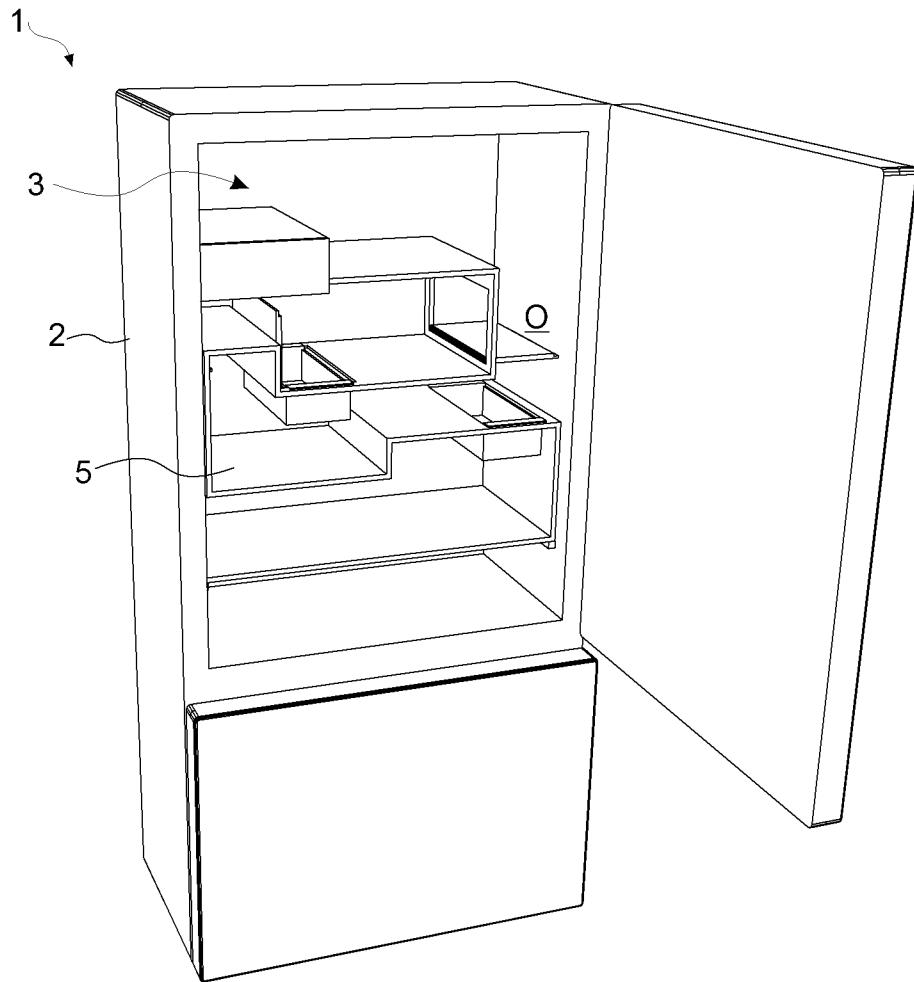


Figure 2

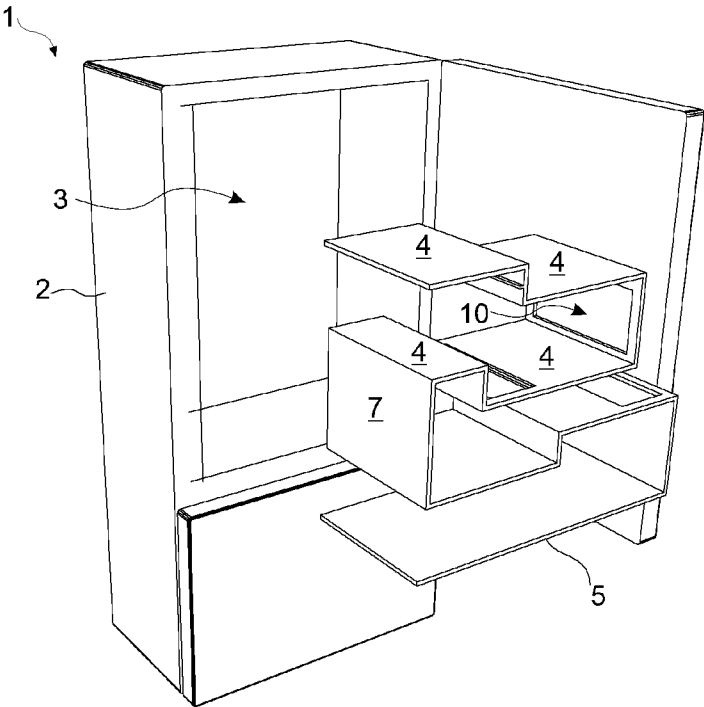


Figure 3

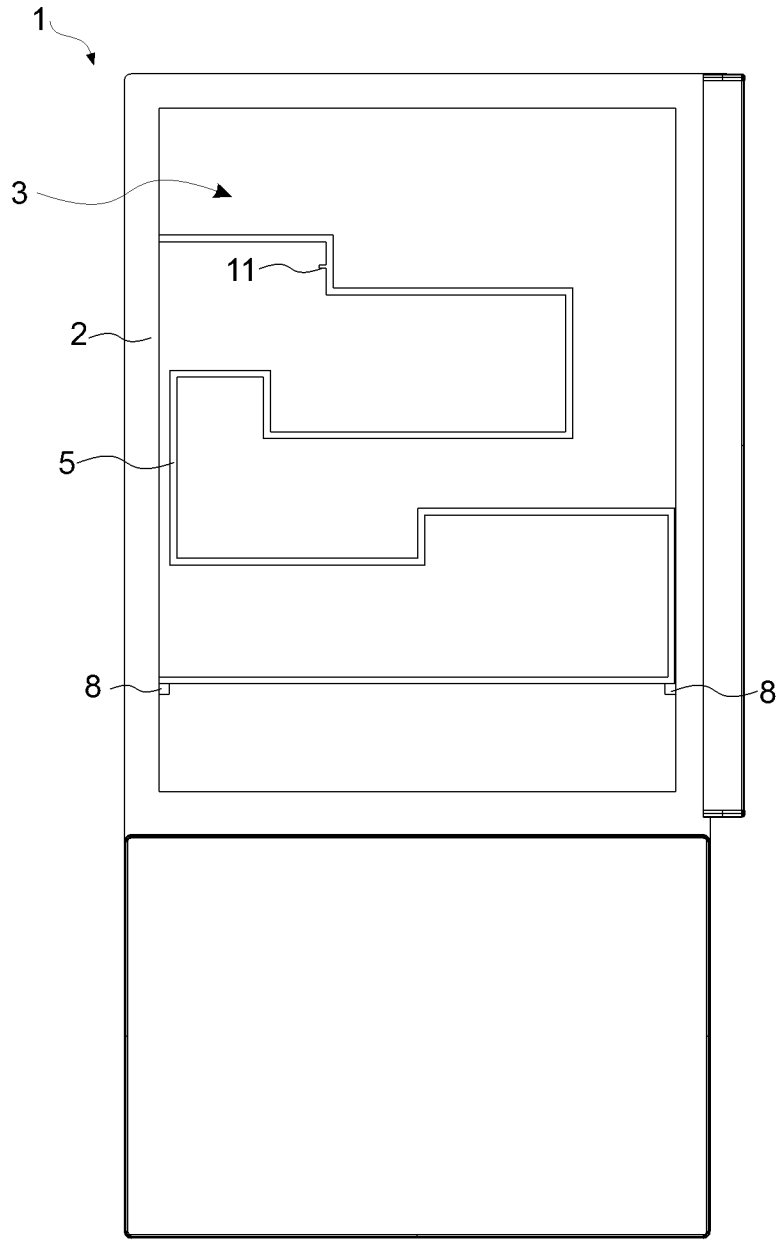


Figure 4

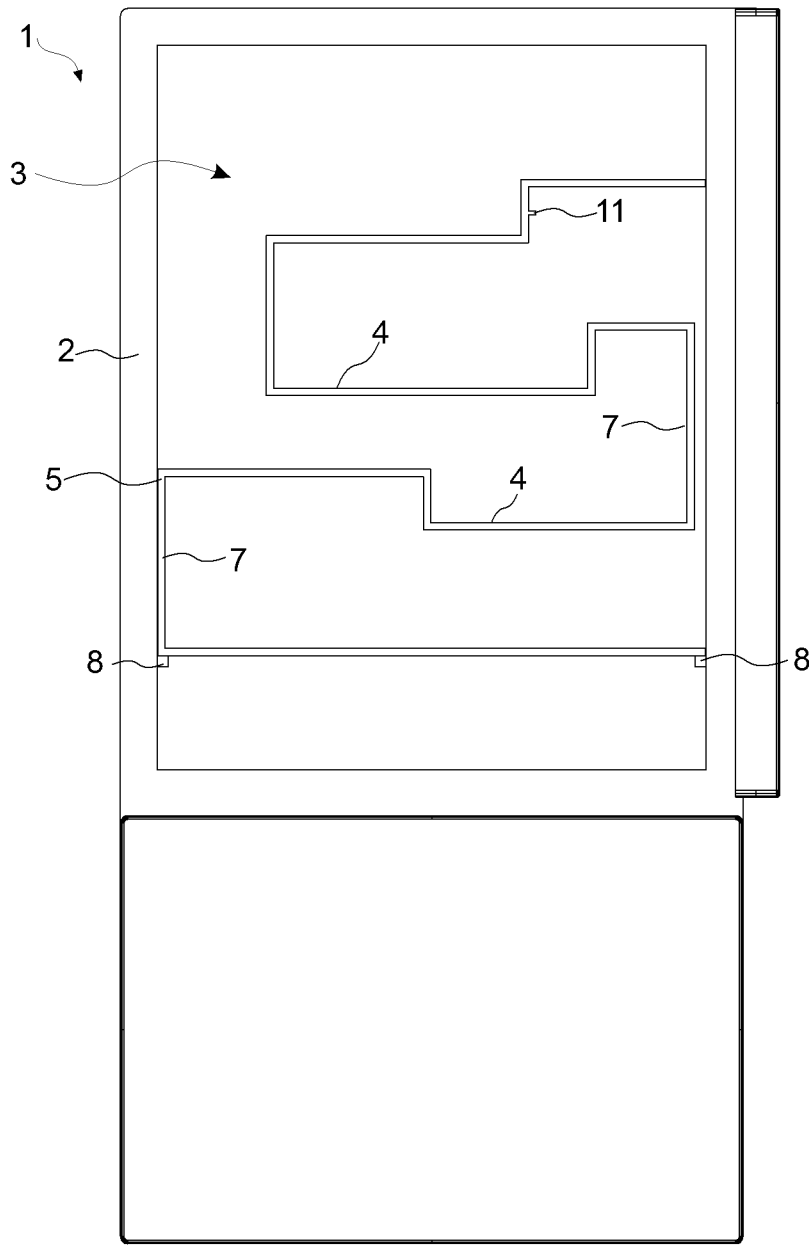
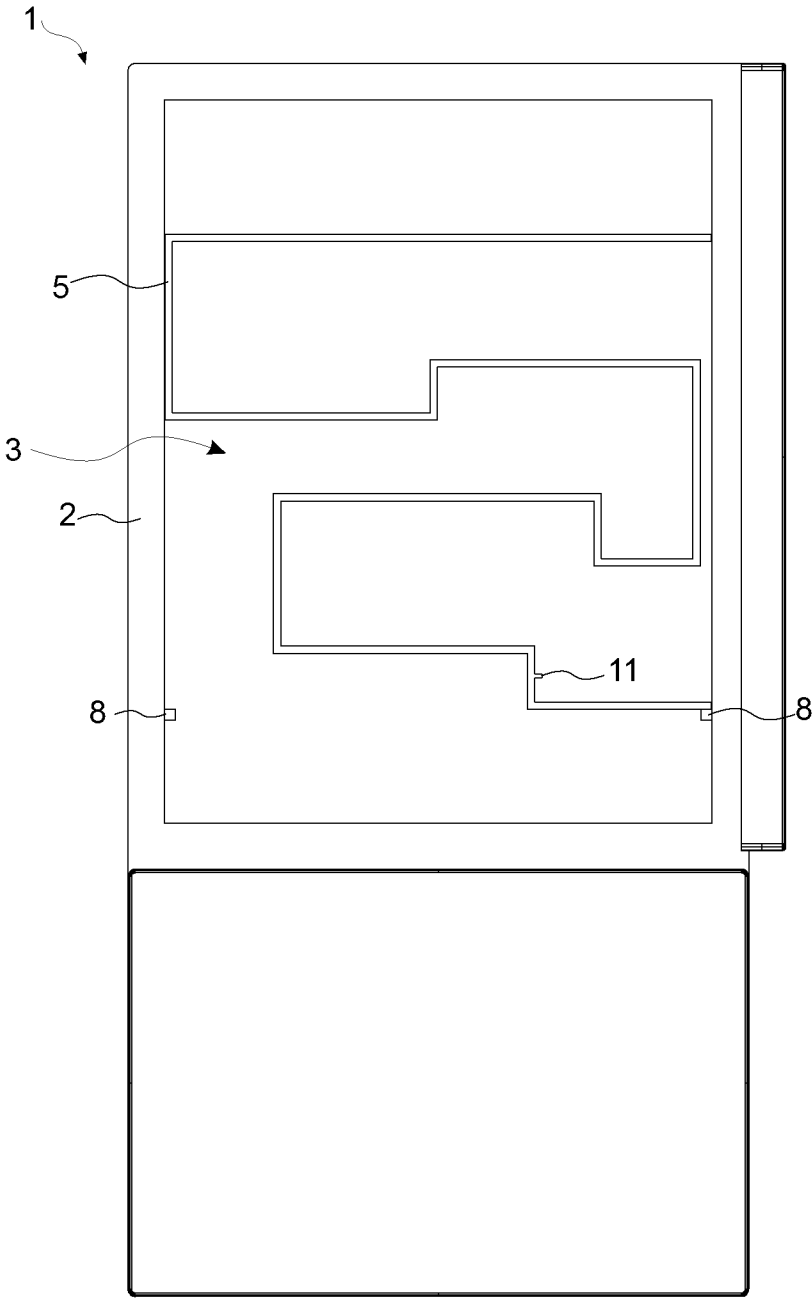


Figure 5



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Figure 6

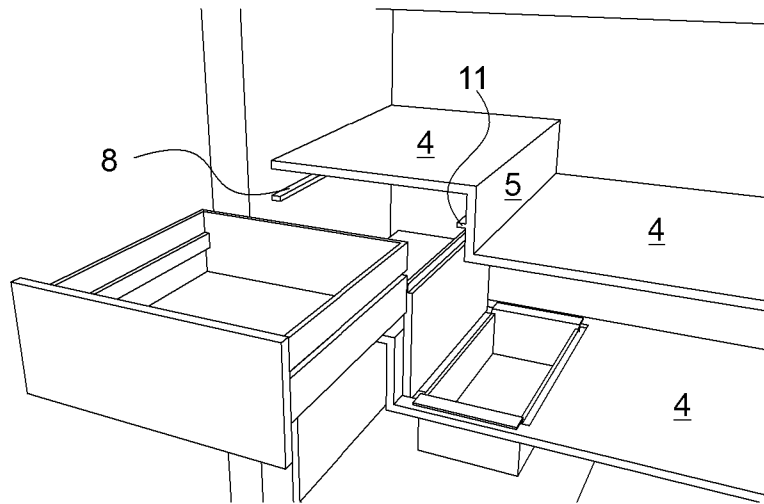


Figure 7

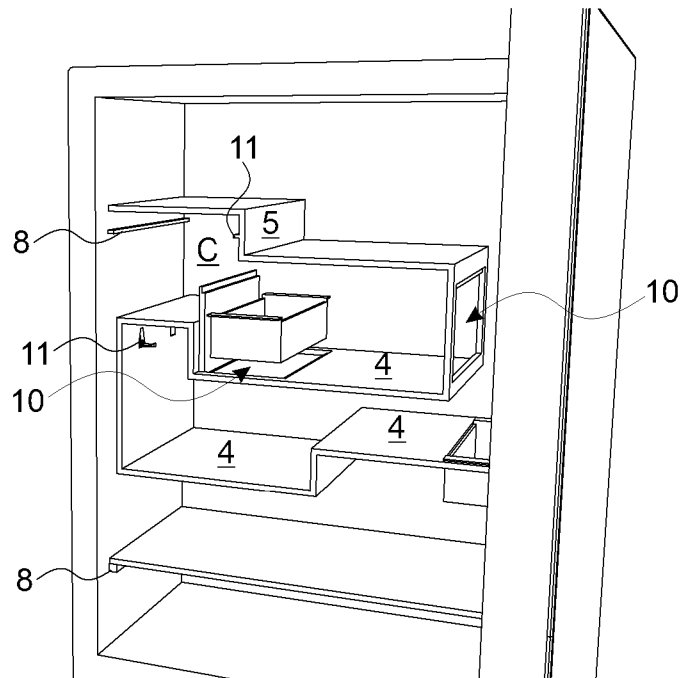
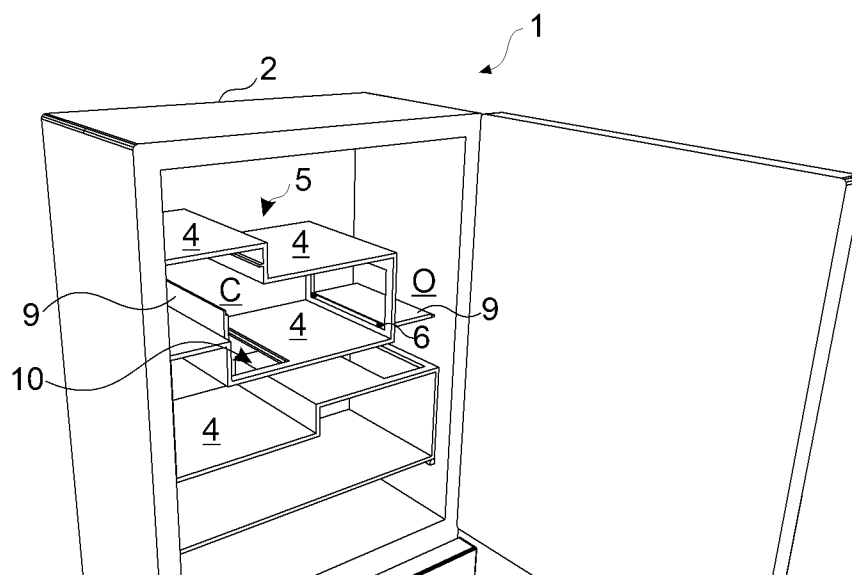


Figure 8



INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2013/073389

A. CLASSIFICATION OF SUBJECT MATTER
INV. F25D25/02 A47B96/02
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 A47B

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	WO 2009/083353 A2 (ARCELIK AS [TR]; CELIK RIDVAN [TR]; ERTURK DERYA [TR]) 9 July 2009 (2009-07-09) figures 1-10 -----	1,3,5-9
X	US 3 165 150 A (HURST ARNOLD U ET AL) 12 January 1965 (1965-01-12) the whole document -----	1-4
A	JP 2009 019793 A (TOSHIBA CORP; TOSHIBA CONSUMER ELECT HOLDING; TOSHIBA HOME APPLIANCES) 29 January 2009 (2009-01-29) figures 4-6 -----	1-9
A	US 4 472 009 A (BELL JOSEPH M [US]) 18 September 1984 (1984-09-18) figures 2-5 ----- -/-	1-9



Further documents are listed in the continuation of Box C.



See patent family annex.

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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

Léandre, Arnaud

INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2013/073389

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DE 201 18 491 U1 (ALWARDT SWEN [DE]; FIEDLER SVEN KJEL [DE]) 11 April 2002 (2002-04-11) the whole document -----	1-9

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2013/073389

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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