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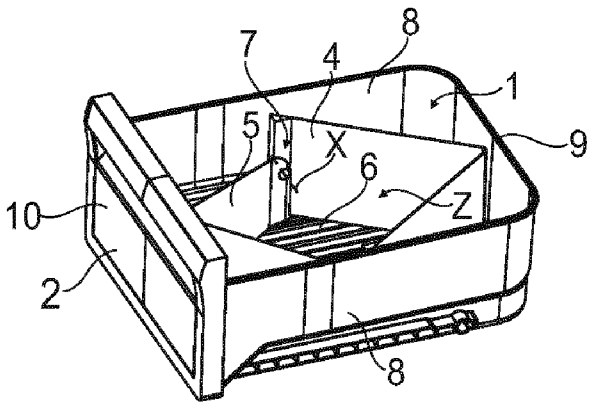
(54) Title: DIVIDER ASSEMBLY FOR USE IN THE VEGETABLE DRAWER OF A REFRIGERATOR

Fig. 4



(57) Abstract: The present invention provides a divider assembly (1) for use in the vegetable drawer (2) of a refrigerator (3). The divider assembly (1) of the present invention comprises a first bent wall (4) and a second bent wall (5) which extend across the width of the vegetable drawer (2) and are adapted to be installed onto the base (6) of the vegetable drawer (2) wherein the second bent wall (5) is adapted to be pivoted to an open position where the first bent wall (4) and the second bent wall (5) together enclose a separate zone (Z) of the vegetable drawer (2) and to a closed position where the first bent wall (4) and the second bent wall (5) become immediately adjacent.

Description

DIVIDER ASSEMBLY FOR USE IN THE VEGETABLE DRAWER OF A REFRIGERATOR

[0001] The present invention relates to the vegetable drawers of a refrigerator.

[0002] Refrigerators are commonly known in the art. A refrigerator generally comprises a fresh food compartment and a freezer compartment for respectively refrigerating the articles to different temperatures. In order to increase the user convenience, the fresh food compartment is generally provided with one or more vegetable drawers. The user stores various vegetables and various fruits by placing them side by side and one above the other into the vegetable drawer.

[0003] WO2015000525 (A1) discloses a refrigerator which comprises a fresh food compartment for accommodating a vegetable drawer.

[0004] A problem with the prior art refrigerator is that the various vegetables and the various fruits which are stored inside the vegetable drawer mix together, and become a mess. Thus, there are instances where the user cannot access a particular article at the bottom of the vegetable drawer when it is covered with other articles.

[0005] An objective of the present invention is to provide a divider assembly for use in the vegetable drawer of a refrigerator which overcomes the aforementioned problems of the prior art in a cost effective way and which enables the user to sort the various articles for quick and easy access and to use the space inside the vegetable drawer more efficiently and in accordance with his/her actual requirements.

[0006] This objective has been achieved by the divider assembly as defined in claim 1, and the refrigerator as defined in claim 11. Further achievements have been attained by the subject-matters respectively defined in the dependent claims.

[0007] The divider assembly of the present invention comprises a first bent wall and a second bent wall which extend across the width of the vegetable drawer and are adapted to be installed onto the base of the vegetable drawer; and an attachment means for pivotably connecting the first bent wall and the second bent wall, wherein the second bent wall is adapted to

be pivoted to an open position where the first bent wall and the second bent wall together enclose a separate zone of the vegetable drawer and to a closed position where the first bent wall and the second bent wall become immediately adjacent so as to release said separate zone.

[0008] A major advantageous effect of the present invention is that the user can use the space inside the vegetable drawer more efficiently and in accordance with his/her actual requirements by virtue of the divider assembly. For instance, the user can manipulate divider assembly to the open position when he/she needs at least one additional separate zone in order to sort the articles for quick and easy access and to avoid the mess. Conversely, the user can manipulate divider assembly to the closed position when he/she doesn't need the additional separate zone. Thereby, the usability of the vegetable drawer has been further improved. Thereby, also the appearance of the vegetable drawer has been improved. Another major advantageous effect of the present invention is that the divider assembly occupies relatively small space when it is in the closed position since the first and second bent walls become immediately adjacent. Thereby, the user satisfaction can be increased.

[0009] In alternative embodiments, the first bent wall and the second bent wall may have various shapes, including curved shapes and/or angled shapes such that they already divide the vegetable drawer into two or more separate zones in the closed position. In these alternative embodiments, the first bent wall and the second bent wall further divide the vegetable drawer into three or more separate zones in the open position. These embodiments are particularly advantageous as the user can already sort the various articles even when the divider assembly is in the closed position. Furthermore, the user can increase the number of separate zones through manipulating the divider to the open position in case of need.

[0010] In another embodiment, the divider assembly is portable and can be removably installed onto the base of the vegetable drawer. This embodiment is particularly advantageous as the divider assembly can be removed for the vegetable drawer for maintenance, repair or cleaning.

[0011] In another embodiment, the first bent wall tightly fits between the side walls of the vegetable drawer whereas the second bent wall can be freely pivoted to the closed position or the open position. This embodiment is particularly advantageous as the divider assembly can be reliably secured in place, and thus the need for providing any auxiliary fixing means onto the side walls of the vegetable drawer can be obviated, and thus the costs can be further reduced. Thereby, also the inner surface of the vegetable drawer can be smoothly cleaned when the divider assembly has been removed.

[0012] In other alternative embodiment, the first bent wall and the second bent wall may be v-shaped, u-shaped, w-shaped, or c-shaped. In these alternative embodiments, the first bent wall and the second bent wall respectively establish in the open position a structure which resembles a rhombus, a rectangle, a polygon or a circle. These embodiments are particularly advantageous as the separate zones which are enclosed by the divider assembly in the closed position or in the open position can assume various shapes that optimally fit the shapes of the vegetables and the fruits.

[0013] In other alternative embodiments, the tip of the first bent wall may be arranged to come into contact with the rear wall or the front wall of the vegetable drawer, and the tip of the second bent wall may be arranged to come in close proximity to the front wall or the rear wall in the open position. This embodiment is particularly advantageous as the divider assembly can be installed in various different alignments into the vegetable drawer.

[0014] In another embodiment, the first bent wall and the second bent wall are pivotally connected at two points, particularly at their opposing ends. This embodiment is particularly advantageous as the mechanical strength of divider assembly can be improved.

[0015] In another embodiment, the second bent wall pivots about about a horizontal axis. This embodiment is particularly advantageous as the user can easily pivot the second bent wall by flipping it over.

[0016] In another embodiment, the divider assembly is manipulated to the open

position by pivoting the second bent wall outwards. This embodiment is particularly advantageous as the user can more easily open and close the divider assembly.

[0017] Additional features and additional advantageous effects of the divider assembly and the refrigerator of the present invention will become more apparent with the detailed description of the embodiments with reference to the accompanying drawings in which:

[0018] Figure 1 - is a schematic partial perspective view of a refrigerator according to an embodiment of the present invention;

[0019] Figure 2 - is another schematic partial perspective view of the refrigerator of Fig. 1, wherein the vegetable drawers have been pulled out;

[0020] Figure 3 - is a schematic perspective view of the vegetable drawer of Fig. 1 including a divider assembly in the closed position according to an embodiment of the present invention;

[0021] Figure 4 - is another schematic perspective view of the vegetable drawer of Fig. 3, wherein the divider assembly is in the open position;

[0022] Figure 5 - is a schematic exploded perspective view of the vegetable drawer and the divider assembly of Fig. 3;

[0023] Figure 6 - is a schematic exploded side view of the vegetable drawer and the divider assembly of Fig. 3;

[0024] Figures 7 to 10 - are schematic perspective views of the vegetable drawer and the divider assembly of Fig. 3, wherein the divider assembly is respectively being manipulated from the closed position to the open position;

[0025] Figures 11 to 14 - are schematic top views of the vegetable drawer and the divider assembly of Fig. 7 to Fig. 10 respectively;

[0026] Figures 15 to 18 - are schematic sectional views of the vegetable drawer and the divider assembly of Fig. 11 to Fig.14, taken along the line A-A respectively.

[0027] The reference signs appearing on the drawings relate to the following technical features.

1. Divider assembly
2. Vegetable drawer

3. Refrigerator
4. First bent wall
5. Second bent wall
6. Base
7. Attachment means

[0028] 7a. Bearing

[0029] 7b. Shaft

[0030] 8. Side wall

[0031] 9. Rear wall

[0032] 10. Front wall

[0033] 11. Fresh food compartment

[0034] Z: The separate zone of the vegetable drawer (2) which is together enclosed by the first bent wall (4) and the second bent wall (5) in the open position;

[0035] Z1: Each separate zone of the vegetable drawer (2) when the second bent wall (5) is the closed position;

[0036] Z2: Each separate zone of the vegetable drawer (2) when the second bent wall (5) is the open position;

[0037] The divider assembly (1) is suitable for use in the vegetable drawer (2) of the refrigerator (3) (Fig. 1 to 4).

[0038] The refrigerator (3) comprises a fresh food compartment (11) for refrigerating fresh food and one or more vegetable drawers (2) which are extendably disposed into the fresh food compartment (11) (Fig. 1 and Fig. 2).

[0039] The divider assembly (1) of the present invention comprises a first bent wall (4) and a second bent wall (5) which extend across the width of the vegetable drawer (2) and are adapted to be installed onto the base (6) of the vegetable drawer (2) and an attachment means (7) for pivotally connecting the first bent wall (4) and the second bent wall (5) (Fig. 5 and Fig. 6). The second bent wall (5) is adapted to be pivoted to an open position where the first bent wall (4) and the second bent wall (5) together enclose a separate zone (Z) of the vegetable drawer (2) and to a closed

position where the first bent wall (4) and the second bent wall (5) become immediately adjacent so as to release said separate zone (Z) (Fig. 3 and Fig. 4).

[0040] The refrigerator (3) of the present invention further comprises: one or more divider assemblies (1). Each divider assembly (1) is installed onto the base (6) of the respective vegetable drawer (2) (Fig. 5 and Fig. 6).

[0041] In an embodiment, in the closed position the first bent wall (4) and the second bent wall (5) are adapted to divide the vegetable drawer (2) totally into a first predetermined plural number of separate zones (Z1) (Fig. 7). In this embodiment, in the open position the first bent wall (4) and the second bent wall (5) are adapted to divide the vegetable drawer (2) totally into a second predetermined plural number of separate zones (Z2) which is greater than the first predetermined plural number of separate zones (Z1) (Fig. 10).

[0042] In another embodiment, the first predetermined plural number is three whereas the second predetermined plural number is five (Fig. 7 and Fig. 10).

[0043] In another embodiment, the first bent wall (4) and the second bent wall (5), including the attachments means (7) are portable and adapted to be removably installed onto the base (6) of the vegetable drawer (2) (Fig. 5 and Fig. 6).

[0044] In another embodiment, the first bent wall (4) is adapted to tightly fit between the side walls (8) of the vegetable drawer (2) (Fig. 11 to 14).

[0045] In another embodiment, the first bent wall (4) and the second bent wall (5) are each v-shaped (Fig. 11 and Fig. 14). In this embodiment, the first bent wall (4) and the second bent wall (5) establish a rhombus like structure in the open position, and establish a v-shaped structure in the closed position (Fig. 11 and Fig. 14).

[0046] In another embodiment, the tip of the first bent wall (4) is adapted to contact the rear wall (9) of the vegetable drawer (2) (Fig. 15 to Fig. 18). In this embodiment, the tip of the second bent wall (5) is adapted to come in close proximity to the front wall (10) of the vegetable drawer (2) in the open position (Fig. 15 to Fig. 18).

[0047] In another embodiment, the attachment means (7) is further adapted to pivotally connect the opposing ends of the first bent wall (4) and the second bent wall (5) respectively with each other (Fig. 5 and Fig. 6).

[0048] In another embodiment, the first bent wall (4) and the second bent wall (5) each has bearings (7a) at its opposing ends which respectively receive the shafts (7b) (Fig. 5 and Fig 6.)

[0049] In another embodiment, the attachment means (7) is adapted to allow pivoting of the second bent wall (5) about a horizontal axis (X) which is parallel to the front of the respective vegetable drawer (2) (Fig. 3 and Fig. 4).

[0050] In another embodiment, the second bent wall (5) is pivoted outwards to the open position and inwards to the closed position respectively (Fig. 15 to Fig. 18).

[0051] A major advantageous effect of the present invention is that the user can use the space inside the vegetable drawer (2) more efficiently and in accordance with his/her actual requirements by virtue of the divider assembly (1). For instance, the user can manipulate divider assembly (1) to the open position when he/she needs at least one additional separate zone (Z) in order to sort the articles for quick and easy access and to avoid the mess. Conversely, the user can manipulate divider assembly (1) to the closed position when he/she doesn't need the additional separate zone (Z). Thereby, the usability of the vegetable drawer (2) has been further improved. Thereby, also the appearance of the vegetable drawer (2) has been improved. Another major advantageous effect of the present invention is that the divider assembly (1) occupies relatively small space when it is in the closed position since the first bent wall (4) and the second bent walls (5) become immediately adjacent. Other advantageous effects of the present invention can be taken from the above described embodiments.

Claims

1. A divider assembly (1) for use in the vegetable drawer (2) of a refrigerator (3), the divider assembly (1) **characterized in that** a first bent wall (4) and a second bent wall (5) which extend across the width of the vegetable drawer (2) and are adapted to be installed onto the base (6) of the vegetable drawer (2) and an attachment means (7) for pivotally connecting the first bent wall (4) and the second bent wall (5), wherein the second bent wall (5) is adapted to be pivoted to an open position where the first bent wall (4) and the second bent wall (5) together enclose a separate zone (Z) of the vegetable drawer (2) and to a closed position where the first bent wall (4) and the second bent wall (5) become immediately adjacent so as to release said separate zone (Z).
2. The divider assembly (1) according to claim 1, **characterized in that** in the closed position the first bent wall (4) and the second bent wall (5) are adapted to divide the vegetable drawer (2) totally into a first predetermined plural number of separate zones (Z1), and in the open position the first bent wall (4) and the second bent wall (5) are adapted to divide the vegetable drawer (2) totally into a second predetermined plural number of separate zones (Z2) which is greater than the first predetermined plural number of separate zones (Z1).
3. The divider assembly (1) according to claim 2, **characterized in that** the first predetermined number is three, and the second predetermined number is five.
4. The divider assembly (1) according to any one of claims 1 to 3, **characterized in that** the first bent wall (4) and the second bent wall (5), including the attachments means (7) are portable and adapted to be removably installed onto the base (6) of the vegetable drawer (2).
5. The divider assembly (1) according to claim 4, **characterized in that** the first bent wall (4) is adapted to tightly fit between the side walls (8) of the vegetable drawer (2).
6. The divider assembly (1) according to claim 1, **characterized in that** the first bent wall (4) and the second bent wall (5) are each v-shaped, and establish a rhombus like structure in the open position, and a establish v-shaped structure in the closed position.
7. The divider assembly (1) according to claim 1, **characterized in that** the tip of

the first bent wall (4) is adapted to contact the rear wall (9) of the vegetable drawer (2); and the tip of the second bent wall (5) is adapted to come in close proximity to the front wall (10) of the vegetable drawer (2) in the open position.

8. The divider assembly (1) according to claim 1, **characterized in that** the attachment means (7) is further adapted to pivotally connect the opposing ends of the first bent wall (4) and the second bent wall (5) respectively with each other.
9. The divider assembly (1) according to claim 1, **characterized in that** the attachment means (7) is adapted to allow pivoting of the second bent wall (5) about a horizontal axis (X) which is parallel to the front of the respective vegetable drawer (2).
10. The divider assembly (1) according to claim 1, **characterized in that** the second bent wall (5) is pivoted outwards to the open position and inwards to the closed position respectively.
11. A refrigerator (3) comprising a fresh food compartment (11) for refrigerating fresh food and one or more vegetable drawers (2) which are extendably disposed into the fresh food compartment (11), **characterized in that** one or more divider assemblies (1) each as defined in any one of claims 1 to 10, wherein the divider assembly (1) is installed onto the base (6) of the respective vegetable drawer (2).

Fig. 1

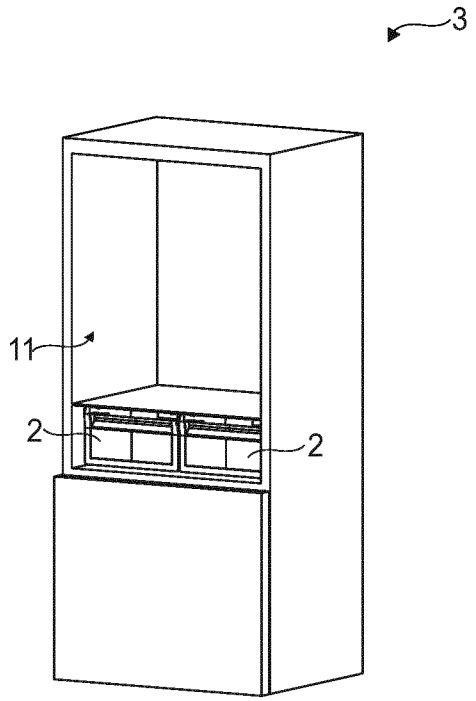


Fig. 2

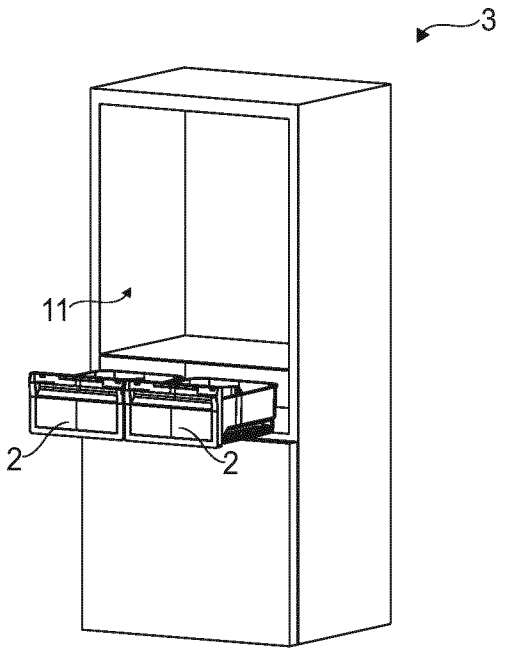


Fig. 3

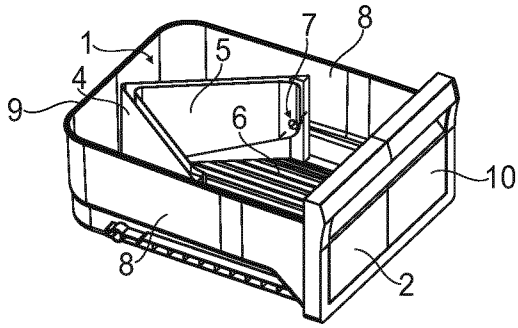


Fig. 4

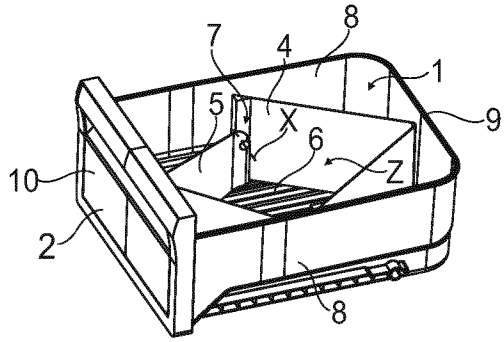


Fig. 5

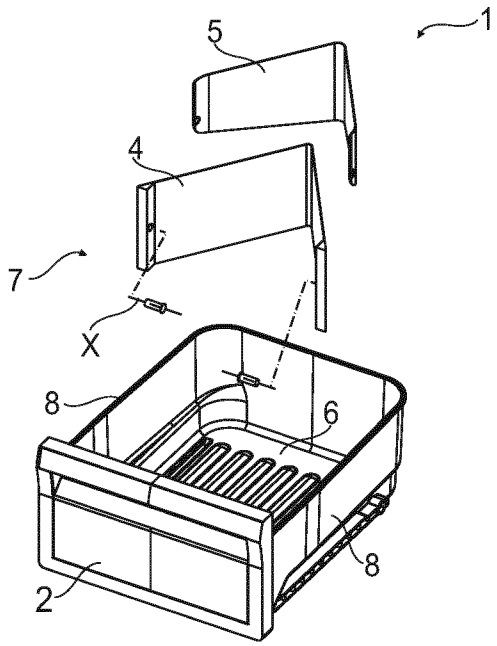


Fig. 6

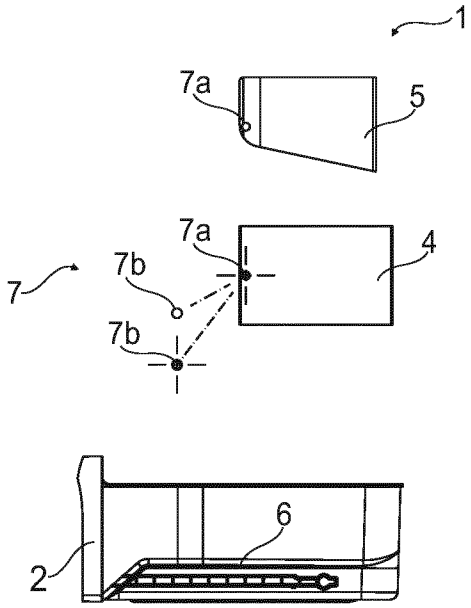


Fig. 7

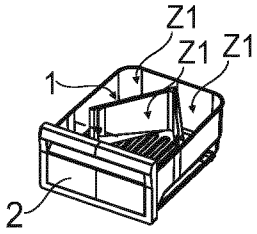


Fig. 11

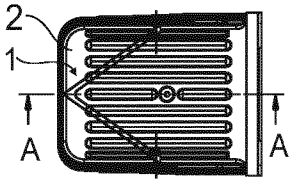


Fig. 15

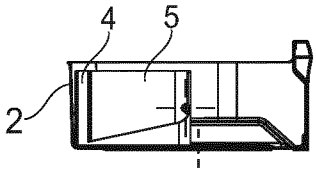


Fig. 8

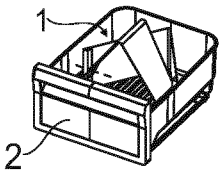


Fig. 12

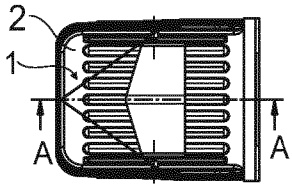


Fig. 16

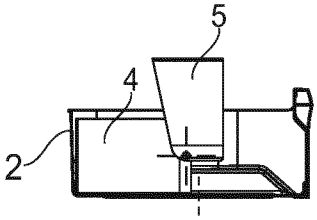


Fig. 9

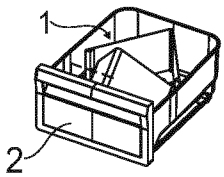


Fig. 13

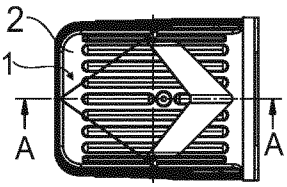


Fig. 17

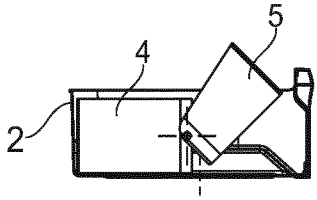


Fig. 10

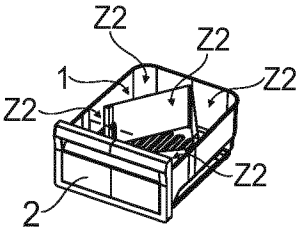


Fig. 14

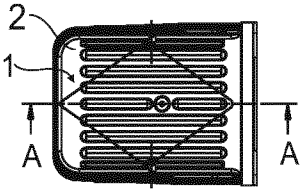
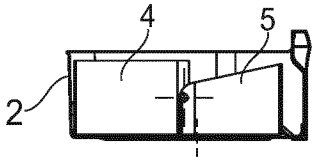


Fig. 18



INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2015/078840

A. CLASSIFICATION OF SUBJECT MATTER
INV. F25D25/02
ADD. A47B88/20 B65D25/06

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 B65D 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	EP 2 364 422 A2 (ARCELIK AS [TR]) 14 September 2011 (2011-09-14) paragraph [0027]; figures -----	1-11
X	KR 2013 0043517 A (RA HYUN JIN [KR]; JUNG BYEONG HYEON [KR]; MUN BU GYEONG [KR]) 30 April 2013 (2013-04-30) figures 4,5 -----	1,2,4,11
X	JP S55 41783 U (-) 18 March 1980 (1980-03-18) figures 5,6 -----	1,2,4,11
A	US 2012/181910 A1 (KIM SEONGTAIK [KR]) 19 July 2012 (2012-07-19) figure 2 -----	1
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[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
11 August 2016	22/08/2016

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Canköy, Necdet

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