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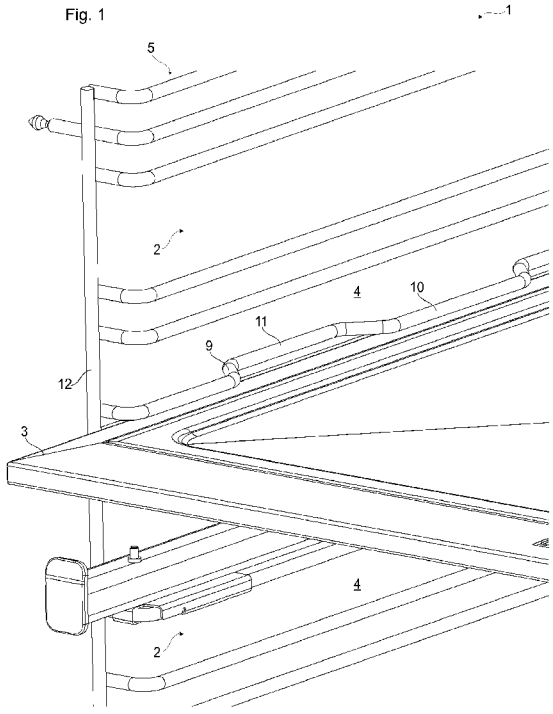
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(54) Title: DIVIDE-AND-COOK OVEN WITH IMPROVED OPERABILITY

Fig. 1



(57) Abstract: The present invention relates to an oven (1) comprising: a cavity (2) for cooking the food; a partition (3) for dividing the cavity (2) into two cavity parts (4) each for separately cooking the food, wherein the partition (3) is removably disposed into the cavity (2); two side wire racks (5) which are disposed on the side walls (6) of the cavity (2) for supporting one or more trays; and a heating unit for selectively and separately heating the two cavity parts (4).

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Description

DIVIDE-AND-COOK OVEN WITH IMPROVED OPERABILITY

[0001] The present invention relates to an oven, in particular to a divide-and-cook oven with the dual cooking function.

[0002] Divide-and-cook ovens with the dual cooking functions are commonly known in the art. Such an oven generally comprises: a cavity for cooking the food: a partition for dividing the cavity into two cavity parts each for separately cooking the food, wherein the partition is removably disposed into the cavity; two side wire racks which are disposed on the side walls of the cavity for supporting one or more trays, wherein the side wire racks are provided with u-shaped rails for removably supporting the partition between the two cavity parts; a heating unit for selectively and separately heating the two cavity parts; and a control unit for controlling the heating unit, wherein the control unit has the dual cooking function. In the divide-and-cook oven with the dual cooking function, the user can mount the partition into the u-shaped rails, and separately adjust the temperatures for the selected cavity parts to the desired temperatures. Thereby, the user is allowed to cook only in one selected cavity part or simultaneously in both cavity parts at the desired temperatures.

[0003] WO2016034191(A) discloses a prior art oven with the dual cooking function as specified above.

[0004] A problem with the prior art oven is that when user mounts the partition into the cavity, the partition is rubbed against the lower, upper and side surfaces of the u-shaped rail, and thus unpleasant noises are produced. In such instances the customers complain about the quality. Another problem with the prior art oven is that when user mounts the partition into the cavity, the partition gets from time to time wedged or jammed inside the u-shaped rails due to the heat strain and/or the structural defects. In general, such structural defects are caused through manufacturing errors during the spot welding of the u-shaped rails to the side wire racks. In such instances the customers complain about the structural defects and also about the wedging/jamming of the partition, and thus a service person must be commissioned.

[0005] An objective of the present invention is to provide a divide-and-cook oven which solves the aforementioned problems of the prior art in a cost-effective way and which enables an improved operability.

[0006] This objective has been achieved by the oven as defined in claim 1. Further achievements have been attained by the subject-matters respectively defined in the dependent claims.

[0007] In the oven of the present invention the side wire racks are provided without the aforementioned u-shaped rails for the partition. In the oven of the present invention each side wire rack comprises a lower wire rod which is adapted to directly support the partition from below between the two cavity parts.

[0008] A major advantageous effect of the present invention is that the aforementioned unpleasant noises due to the rubbing of the partition against the u-shape rails have been eliminated by omitting the u-shaped rails. Another major advantageous effect of the present invention is that the noise generated during the mounting/unmounting of the partition has been reduced as much as possible due to the point contacts between the lower wire rods and the partition. Thereby, the user satisfaction can be increased. Another major advantageous effect of the present invention is that the aforementioned wedging/jamming of the partition in the u-shape rails has also been eliminated by omitting the u-shaped rails. Another major advantageous effect of the present invention is that the mounting/unmounting of the partition can be smoothly conducted by the user due to the point contacts between the lower wire rods and the partition. Thereby the customer complaints can be eliminated. Thereby also the safety of the oven has been improved, and thus the user satisfaction can be increased. Another major advantageous effect of the present invention is that the operability of the oven has been improved.

[0009] In an embodiment, the partition is aligned between the side walls from its left and right sides through two side wire rods which are disposed on the side wire racks respectively. This embodiment is particularly advantageous as the partition can be smoothly mounted/unmounted by the user, and thus the partition can be prevented from wedging and jamming between

the side wire racks.

[0010] In an embodiment, the partition is retained between the two cavity parts from above through two upper wire rods which are disposed on the side wire racks respectively. This embodiment is particularly advantageous as the partition can be securely kept in place, and thus the safety of the oven has been further improved.

[0011] In an embodiment, the lower wire rod, the side wire rod, and the upper wire rod each has a circular cross section. In this embodiment, the lower wire rod, the side wire rod, and the upper wire rod constitute a partition holder with three wire rods that contact the partition at three points on each side respectively. This embodiment is particularly advantageous as the noise generated during the mounting/unmounting of the partition has been reduced to a great extend in comparison to the oven with the u-shaped rails. This embodiment is also particularly advantageous as the partition can be prevented from wedging and jamming.

[0012] This embodiment is also particularly advantageous as the heat transfer between the partition and the side wire racks can be reduced due to the point contacts. This embodiment is also particularly advantageous as the lower wire rod, the side wire rod, and the upper wire rod can be easily and correctly assembled with the side wire racks, and thus manufacturing errors during the welding can be reduced as much as possible.

[0013] In an embodiment, the upper wire rod has inwardly and outwardly bending sections which are alternatingly arranged and follow a meandering course. Unlike the inwardly bending sections, the outwardly bending sections are located off the partition. Thereby, the heat transfer from the partition to the side wire racks can be comparatively reduced. This embodiment is particularly advantageous as the thermal losses can be reduced, and thus the energy efficiency and the cooking performance of the oven can be further improved.

[0014] In an embodiment, the lower wire rod has a u-shaped form, and the side wire rod has a straight form, and the upper wire rod has a meandering form. The lower wire rod, the side wire rod, and the upper wire rod extend paralel between the two vertical wire rods of the side wire rack that are

located at the front side and the rear side of the cavity respectively. This embodiment is particularly advantageous as the partition can be easily and securely mounted/unmounted by the user.

[0015] In an embodiment, the oven has two removable lining walls which are disposed between the side wire racks and the side walls respectively in the upper half of the cavity. This embodiment is particularly advantageous as the heat transfer between the two cavity parts can be reduced during the divided cooking. Thereby, the cooking performance can be improved.

[0016] Additional features and additional advantageous effects of the oven of the present invention will become more apparent with the detailed description of an embodiment with reference to the accompanying drawings in which:

[0017] Figure 1 – is a schematic partial perspective view of an oven according to an embodiment of the present invention, wherein the partition is supported by the lower wire rods of the side wire racks;

[0018] Figure 2 – is a schematic perspective view of the side wire rack of Fig. 1;

[0019] Figure 3 – is a schematic side view of the side wire rack of Fig. 1;

[0020] Figure 4 – is a schematic front view of the side wire rack of Fig. 1;

[0021] Figure 5 – is a schematic sectional view of the oven of Fig. 1.

[0022] The reference signs appearing on the drawings relate to the following technical features.

1. Oven
2. Cavity
3. Partition
4. Cavity part
5. Side wire rack
6. Side wall
7. Lower wire rod
8. Side wire rod
9. Upper wire rod
10. Inwardly bending section
11. Outwardly bending section
12. Vertical wire rod
13. Lining wall

[0023] The oven (1) comprises: a cavity (2) for cooking the food; a partition (3) for dividing the cavity (2) into two cavity parts (4) each for separately cooking the food, wherein the partition (3) is removably disposed into the cavity (2); two side wire racks (5) which are disposed on the side walls (6) of the cavity (2) for supporting one or more trays (not shown); a heating unit (not shown) for selectively and separately heating the two cavity parts (4) (Fig. 1 and Fig. 5).

[0024] In the oven (1) of the present invention, each side wire rack (5) comprises a lower wire rod (7) which is adapted to directly support the partition (3) from below between the two cavity parts (4) (Fig. 5). In the oven (1) of the present invention, the side wire racks (5) are provided without u-shaped rails for the partition (3) (Fig. 2).

[0025] In an embodiment, the side wire racks (5) each comprises a side wire rod (8) for aligning the partition (3) from its sides between the side walls (6) (Fig. 2 and Fig. 5).

[0026] In an embodiment, the side wire racks (5) each comprises an upper wire rod (9) for retaining the partition (3) from above between the two cavity parts (4) (Fig. 2 and Fig. 5).

[0027] In an embodiment, the lower wire rod (7), the side wire rod (8), and the upper wire rod (9) each has a circular cross section (Fig. 5).

[0028] In an embodiment, the upper wire rod (9) has one or more inwardly bending sections (10) which are located over the partition (3), and one or more outwardly bending sections (11) which are located off the partition (3) (Fig. 1 and Fig. 2). The inwardly bending section (10) and the outwardly bending sections (11) are alternatingly arranged and follow a meandering course (Fig. 2).

[0029] In an embodiment, the upper wire rod (9) has three inwardly bending sections (10) and two outwardly bending sections (11) (Fig. 2).

[0030] In an embodiment, each side wire rack (5) has two vertical wire rods (12) which are disposed at the rear side and the front side of the cavity (2) (Fig. 1 and Fig. 2). In this embodiment, the lower wire rod (7) has a u-shaped form and extends paralel between two vertical wire rods (12) (Fig. 3 and Fig. 4).

[0031] In an embodiment, the side wire rod **(8)** has a straight form and extends paralel between two vertical wire rods **(12)** (Fig. 3 and Fig. 4).

[0032] In an embodiment, the upper wire rod **(9)** has a meandering form and extends paralel between the two vertical wire rods **(12)** (Fig. 3 and Fig. 4).

[0033] In an embodiment, the oven **(1)** further comprises: heat protective lining walls **(13)** which are disposed into the cavity part **(4)** in the upper half of the cavity **(2)** (Fig. 5). In this embodiment, the lining walls **(13)** are detachably attachable between the side wire racks **(5)** and the side walls **(6)** respectively.

[0034] A major advantageous effect of the present invention is that the aforementioned unpleasant noises due to the rubbing of the partition **(3)** against the u-shape rails have been eliminated by omitting the u-shaped rails. Another major advantageous effect of the present invention is that the noise generated during the mounting/unmounting of the partition **(3)** has been reduced as much as possible due to the point contacts between the lower wire rods **(7)** and the partition **(3)**. Thereby, the user satisfaction can be increased. Another major advantageous effect of the present invention is that the aforementioned wedging/jamming of the partition **(3)** in the u-shaped rails has also been eliminated by omitting the u-shaped rails. Another major advantageous effect of the present invention is that the mounting/unmounting of the partition **(3)** can be smoothly conducted by the user due to the point contacts between the lower wire rods **(7)** and the partition **(3)**. Thereby the customer complaints can be eliminated. Thereby also the safety of the oven has been improved, and thus the user satisfaction can be increased. Another major advantageous effect of the present invention is that the operability of the oven has been improved. Other advantageous effects of the present invention can be taken from the above described embodiments.

Claims

1. An oven (1) comprising: a cavity (2) for cooking the food; a partition (3) for dividing the cavity (2) into two cavity parts (4) each for separately cooking the food, wherein the partition (3) is removably disposed into the cavity (2); two side wire racks (5) which are disposed on the side walls (6) of the cavity (2) for supporting one or more trays; a heating unit for selectively and separately heating the two cavity parts (4), characterized in that each side wire rack (5) comprises a lower wire rod (7) which is adapted to directly support the partition (3) from below between the two cavity parts (4), and wherein the side wire racks (5) are provided without u-shaped rails for the partition (3).
2. The oven (1) according to claim 1, characterized in that the lower wire rod (7) has a circular cross section.
3. The oven (1) according to claim 1 or 2, characterized in that the side wire racks (5) each comprises a side wire rod (8) for aligning the partition (3) from its sides between the side walls (6).
4. The oven (1) according to claim 3, characterized in that the side wire rod (8) has a circular cross section.
5. The oven (1) according to any one of claims 1 to 4, characterized in that the side wire racks (5) each comprises an upper wire rod (9) for retaining the partition (3) from above between the two cavity parts (4).
6. The oven (1) according to claim 5, characterized in that the upper wire rod (9) has a circular cross section.
7. The oven (1) according to claim 5 or 6, characterized in that the upper wire rod (9) has one or more inwardly bending sections (10) which are located over the partition (3), and one or more outwardly bending sections (11) which are located off the partition (3), wherein the inwardly bending section (10) and the outwardly bending sections (11) are alternatingly arranged and follow a meandering course.
8. The oven (1) according to claim 7, characterized in that the upper wire rod (9) has three inwardly bending sections (10) and two outwardly bending sections (11).
9. The oven (1) according to any one of claims 1 to 8, characterized in that each side wire rack (5) has two vertical wire rods (12) which are disposed at the rear

side and the front side of the cavity (2), and wherein the lower wire rod (7) has a u-shaped form and extends parallel between the two vertical wire rods (12).

10. The oven (1) according to claim 9, where dependent on claim 3, characterized in that the side wire rod (8) has a straight form and extends parallel between the two vertical wire rods (12).
11. The oven (1) according to claim 8 or 9, where dependent on claim 5, characterized in that the upper wire rod (9) has a meandering form and extends parallel between the two vertical wire rods (12).
12. The oven (1) according to any one of claims 1 to 11, characterized by further comprising: lining walls (13) which are disposed into the cavity part (4) in the upper half of the cavity (2), wherein the lining walls (13) are detachably attachable between the side wire racks (5) and the side walls (6) respectively.

Fig. 1

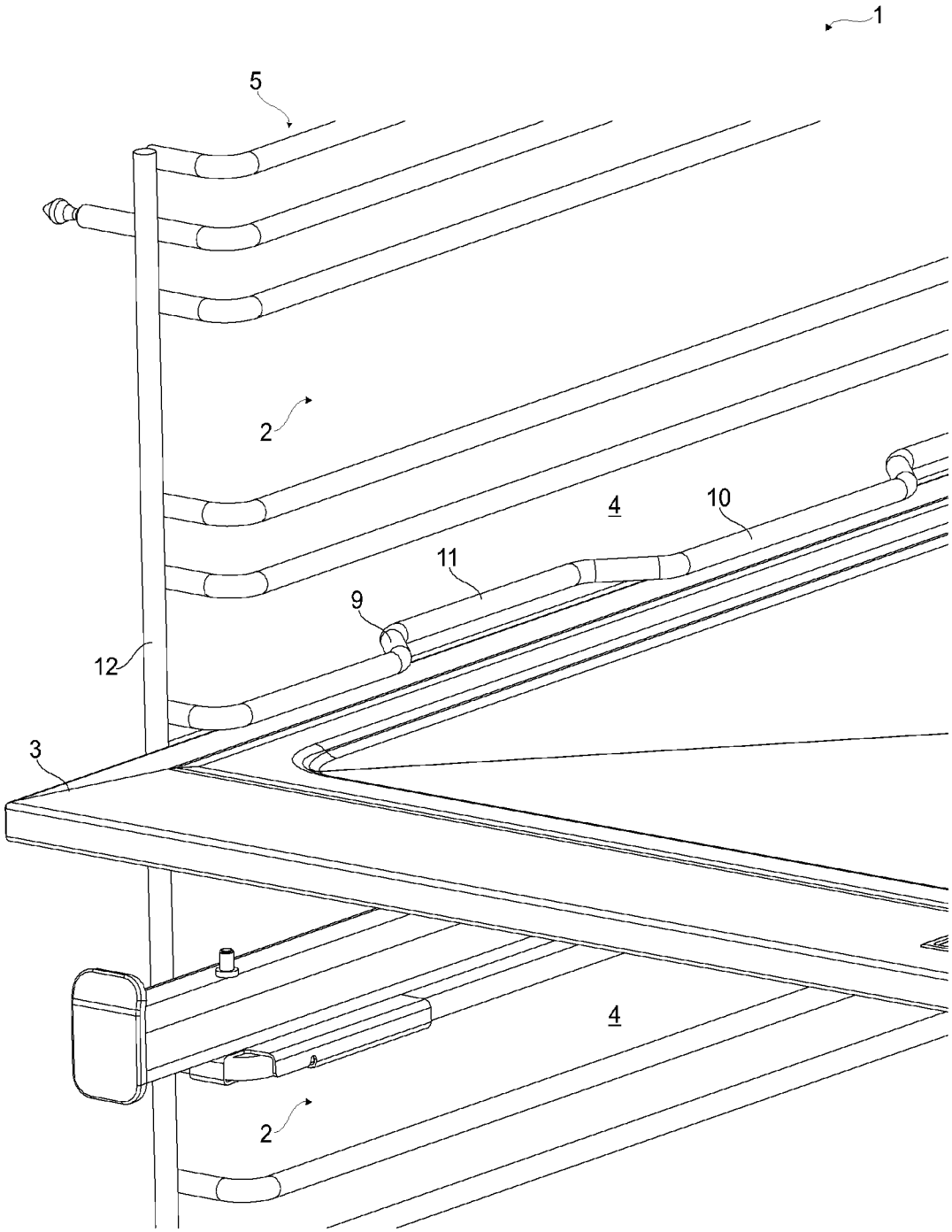


Fig. 2

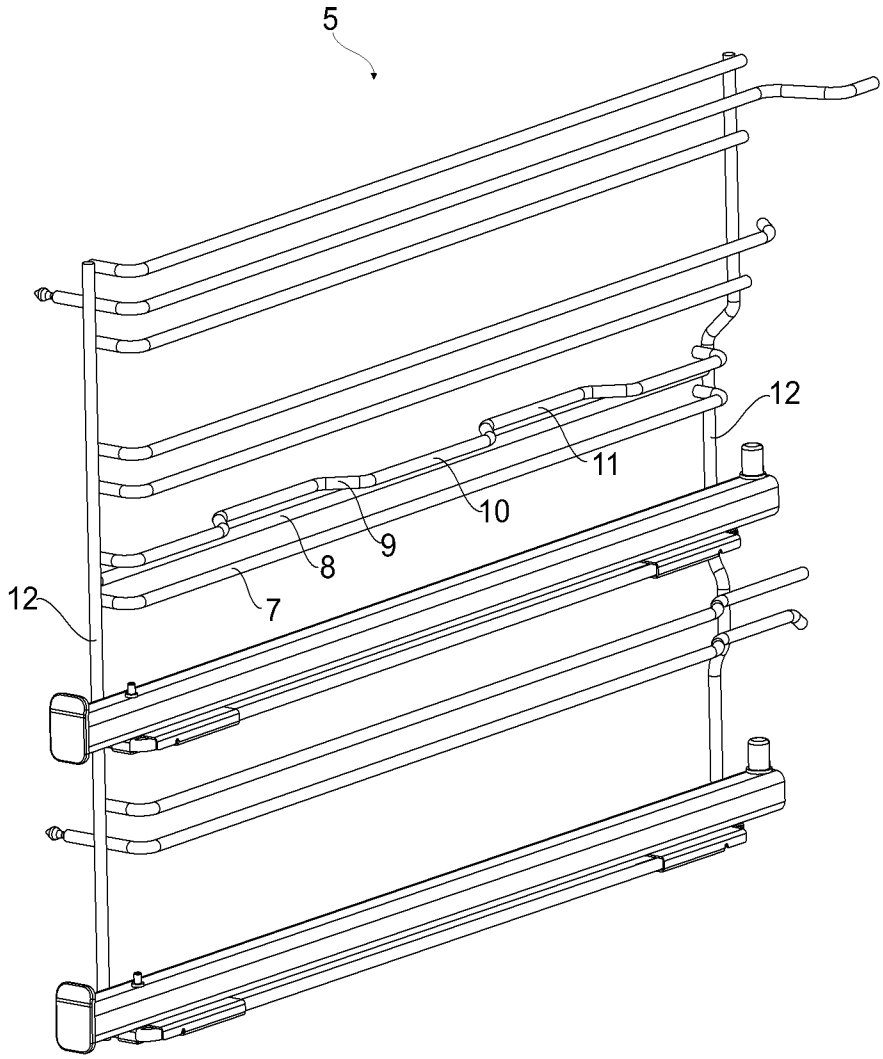


Fig. 3

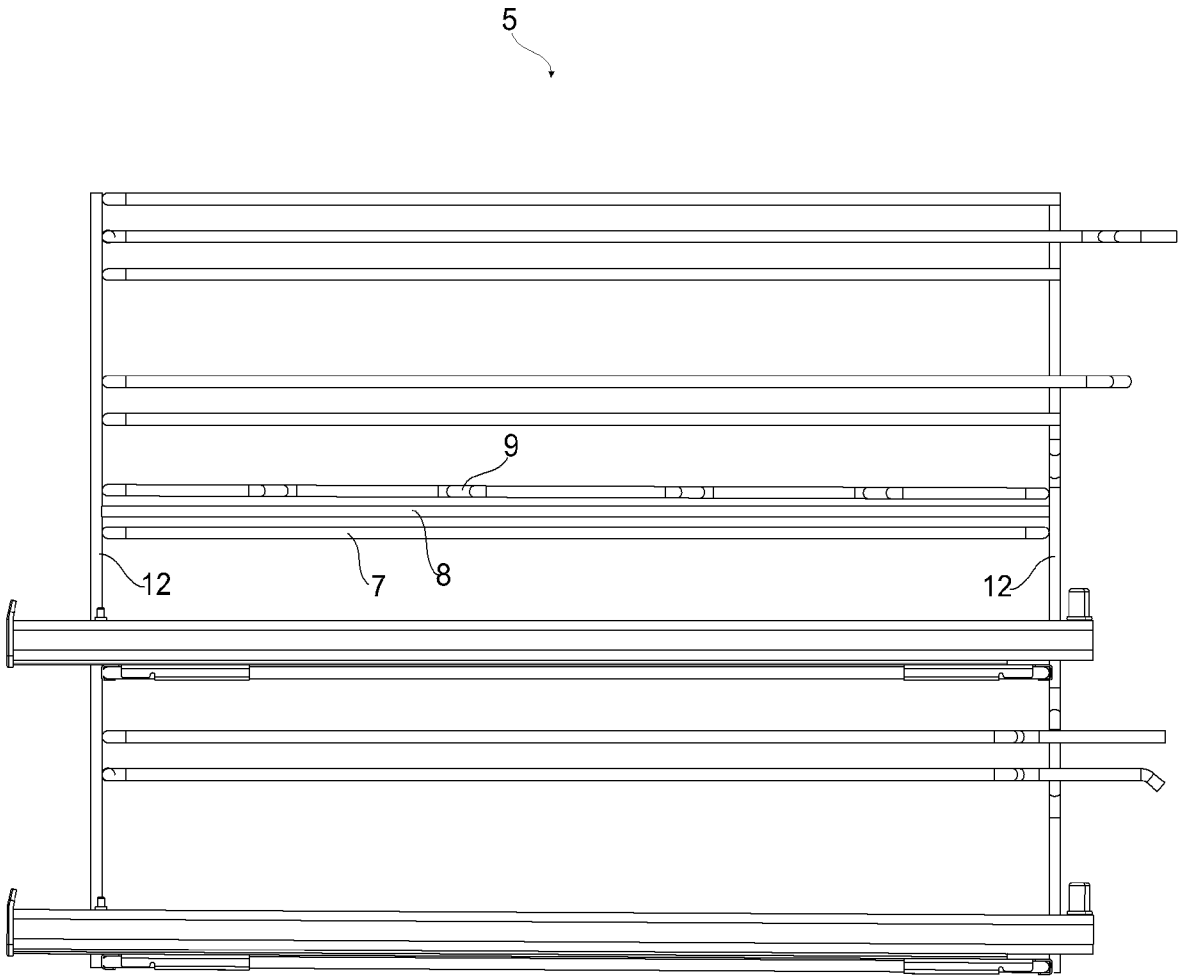


Fig. 4

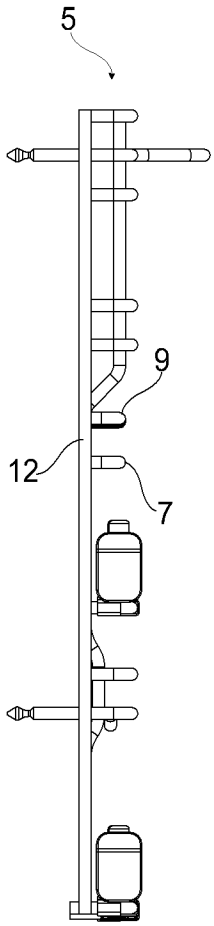
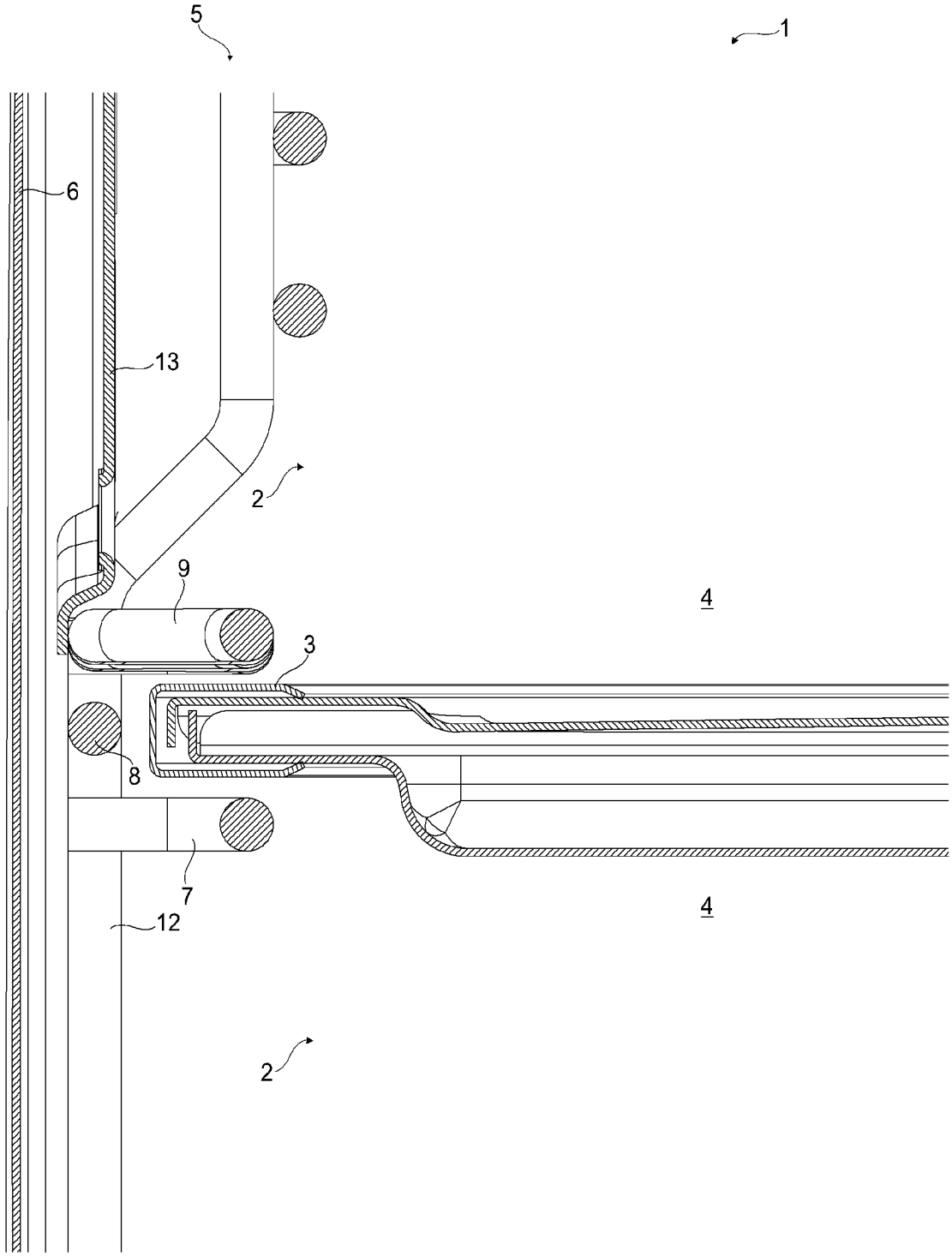


Fig. 5



INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2017/060459

A. CLASSIFICATION OF SUBJECT MATTER
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ADD. F24C15/00

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)
F24C

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 Y	EP 2 913 593 A1 (BSH BOSCH UND SIEMENS HAUSGERÄTE GMBH [DE]) 2 September 2015 (2015-09-02) paragraphs [0001], [0014], [0043]; figures 4, 6	1,2,5-9, 11 3,4,10, 12
X	EP 2 908 056 A2 (BSH HAUSGERÄTE GMBH [DE]) 19 August 2015 (2015-08-19) paragraphs [0001], [0044], [0046], [0062]; figures 4, 8, 9	1,2,5-7, 9,11
Y	WO 2016/034191 A1 (ARCELIK AS [TR]) 10 March 2016 (2016-03-10) cited in the application paragraphs [0004], [0005], [0007], [0008], [0040], [0047]	12

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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
10 October 2017	17/10/2017

Name and mailing address of the ISA/	Authorized officer
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INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2017/060459

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 1 989 275 A (HATCH CHARLES T) 29 January 1935 (1935-01-29) column 1, line 2 - column 1, line 3 column 2, line 13 - column 2, line 21 column 2, line 25 - column 2, line 30 figures 2, 3	3,4,10
A	EP 3 031 328 A2 (STADLER MARION [DE]) 15 June 2016 (2016-06-15) paragraphs [0015], [0041]; figure 2	3,4,10

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/EP2017/060459

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