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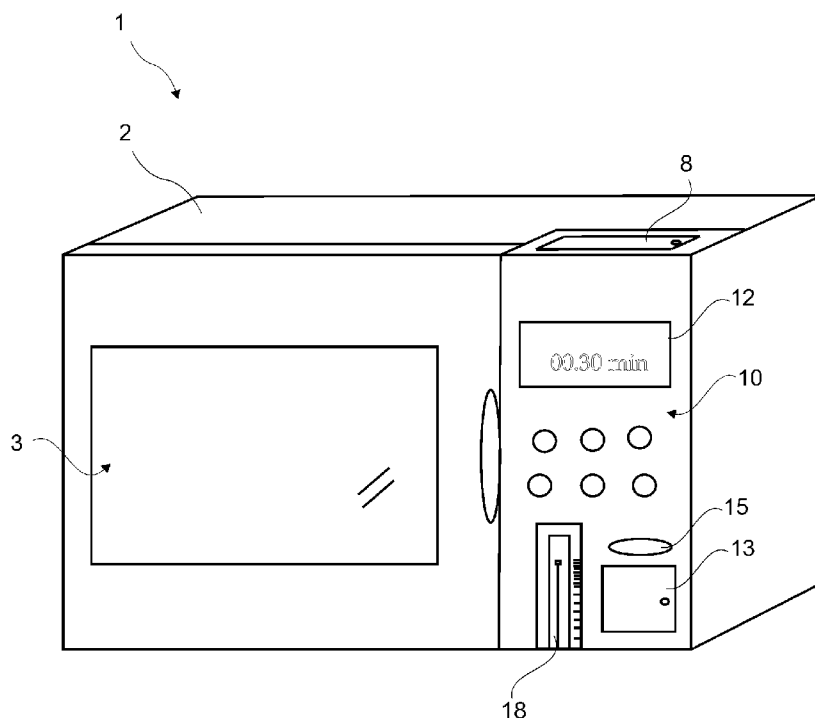
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(54) Title: A MICROWAVE OVEN WITH INCREASED COOKING EFFICIENCY

Figure 1



(57) Abstract: The present invention relates to a microwave oven (1) comprising a body (2); a cooking chamber (3) that is disposed on the body (2) and wherein the foods to be cooked are placed; and a cooking tray (4) that is placed into the cooking chamber (3), wherein homogenous cooking is realized.



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Description**A MICROWAVE OVEN WITH INCREASED COOKING EFFICIENCY**

- [0001] The present invention relates to a microwave oven with increased cooking efficiency.
- [0002] Heating with a microwave oven is different from conventional heating. When a meal in a pan is heated with a cooker using natural gas, first the pan is heated and then the heat is transferred from the wall of the pan to the meal. Temperature decreases from the wall of the pan toward the center. In this method, heating is slow and is not efficient. Heating with a microwave oven, on the other hand, provides faster heating than the conventional methods. In the heating process with a microwave oven, electromagnetic waves having equal frequency with the resonance frequencies of water molecules are used. Therefore, radiation is mostly absorbed by water molecules. Since almost all foods contain water molecules, first the food is heated and the tray is not heated as it does not contain water molecules. Due to lack of heating of the tray, the parts of the food in contact with the tray remain raw and cold. In order to be cooked homogeneously, the food must be turned over often by the user. This discourages users to use microwave oven to cook meal, despite the fact that the microwave oven cooks meals faster.
- [0003] In the state of the art International Patent Application Document No. WO2009105398, an apparatus is disclosed, that provides the cooking of a meal uniformly in a microwave oven.
- [0004] The aim of the present invention is the realization of a microwave oven that provides homogeneous cooking with increased cooking efficiency.
- [0005] The microwave oven realized in order to attain the aim of the present invention, explicated in the first claim and the respective claims thereof comprises a body and a cooking chamber disposed on the body. Foods are placed together with the tray into the cooking chamber.
- [0006] The microwave oven of the present invention comprises a solution receptacle that almost entirely covers the cooking tray. The solution added to the solution receptacle is activated by the microwave, thus providing the heating of the tray.

- [0007] In an embodiment of the present invention, the user can add solutions with different concentrations to the solution receptacle easily by means of the inlet opening arranged on the solution receptacle. The solutions are activated with the microwave, thus providing the heating of the cooking tray. Any solution remaining in the solution receptacle can be easily drained from the outlet opening.
- [0008] In an embodiment of the present invention, the microwave oven comprises a solution receptacle that is produced as integrated with the cooking tray.
- [0009] In an embodiment of the present invention, the microwave oven comprises a cover disposed on the body. On the body a solution duct is disposed, that enables the solution to be delivered to the solution receptacle. One end of the solution duct opens to the cover and the other end to the solution receptacle. By means of the cover, the solution duct is insulated from the external environment.
- [0010] In an embodiment of the present invention, the microwave oven comprises a valve disposed on the solution duct. On the control panel, the user sets the time he/she wants the valve to open, and the valve opens and closes by the timing set by the user. Thus, even if the user adds solution, the solution reaches the solution receptacle at the desired time.
- [0011] In an embodiment of the present invention, the microwave oven comprises a control unit that provides the opening and closing of the valve by the timing set by the user.
- [0012] In an embodiment of the present invention, the microwave oven comprises a discharge lid disposed on the body and a pump disposed on the outlet opening. To activate the pump, the user triggers a control button disposed on the control panel. The solution drawn by means of the pump from the solution receptacle is delivered to the outside of the body via a discharge duct of which one end is connected to the outlet opening and the other end to the discharge lid.
- [0013] In an embodiment of the present invention, a level sensor is disposed on the solution receptacle. The data from the level sensor is transmitted via an indicator panel disposed on the body to the user.
- [0014] The microwave oven realized in order to attain the aim of the present

invention is illustrated in the attached figures, where:

- [0015] Figure 1 - is the schematic view of the microwave oven.
- [0016] Figure 2 - is the top view of the cooking tray and the solution receptacle.
- [0017] Figure 3 - is the sideways view of the cooking tray and the solution receptacle.
- [0018] Figure 4 - is the schematic view of the body, the cooking tray, the cover, the solution duct and the valve.
- [0019] Figure 5 - is the schematic view of the body, the cooking tray, the discharge lid, the discharge duct and the pump
- [0020] The elements illustrated in the figures are numbered as follows:
1. Microwave oven
 2. Body
 3. Cooking chamber
 4. Cooking tray
 5. Inlet opening
 6. Outlet opening
 7. Solution receptacle
 8. Cover
 9. Solution duct
 10. Control panel
 11. Valve
 12. Control unit
 13. Discharge lid
 14. Pump
 15. Control button
 16. Discharge duct
 17. Level sensor
 18. Indicator panel
- [0021] The microwave oven (1) comprises a body (2); a cooking chamber (3) disposed on the body (2) and wherein foods to be cooked are placed, and a cooking tray (4) placed into the cooking chamber (3). The foods are cooked by placing them on the cooking tray (4).
- [0022] The microwave oven (1) of the present invention comprises a solution

receptacle (7) that is disposed under the cooking tray (4) so as to almost entirely cover the cooking tray (4) and wherein the solution that is activated by microwaves and that ensures heating of the cooking tray (4) is filled. The solutions with different consistencies in the solution receptacle (7) absorb the microwave rays and provide the heating of the cooking tray (4). Thus, the parts of the food in contact with the tray (4) are cooked, thus providing a homogenous cooking.

[0023] In an embodiment of the invention, the microwave oven (1) comprises a solution receptacle (7) having an inlet opening (5) that provides the adding of the solution and an outlet opening (6) that provides the draining of the solution. The solution can be added by the user into the solution receptacle (7) easily by means of the inlet opening (5). The solution remaining in the solution receptacle (7) at the end of the cooking process can be easily drained via the outlet opening (6).

[0024] In an embodiment of the invention, the microwave oven (1) comprises a solution receptacle (7) that is produced as integrated with the cooking tray (4). Thus, no extra element is disposed inside the microwave oven (1) and the solution receptacle (7) produced as integrated with the cooking tray (4) provides convenience of use.

[0025] In an embodiment of the present invention, the microwave oven (1) comprises a cover (8) disposed on the body (2) and a solution duct (9) with one end connected to the cover (8) and the other end to the inlet opening (5), the solution duct (9) providing the transfer of the solution added by the user to the solution receptacle (7) when the cover (8) is opened. The user can place the food on the cooking tray (4) and place the cooking tray (4) into the cooking chamber (3) with the solution receptacle (7) being empty. Even in this case the cooking process starts. The solution is added by opening the cover (8) by the user. The added solution moves via the solution duct (9) and reaches the solution receptacle (7).

[0026] In an embodiment of the invention, the microwave oven (1) comprises a control panel (10) disposed on the body (2) and a valve (11) that is disposed on the solution duct (9) and that controls the transmission of the solution to the solution receptacle (7) by opening and closing by the timing

as set by the user on the control panel (10). The solution can be transferred to the solution duct (9) before the start of the cooking process. The valve (11) disposed on the solution duct (9) is in the closed position at the beginning as per the preference of the user. The user sets the time on the control panel (1) and the valve (11) opens at the set time and allows movement of the solution to the solution receptacle (7). Thus, the solution activated by microwave rays provides the heating of the tray (4) as well and thus ensures cooking of the underside of the food.

[0027] In an embodiment of the invention, the microwave oven (1) comprises a control unit (12) that provides the opening and closing of the valve (11) by the timing as set by the user on the control panel (10).

[0028] In an embodiment of the invention, the microwave oven (1) comprises a discharge lid (13) disposed on the body; a pump (14) that is disposed on the outlet opening (6) and that provides the discharge of the water in the solution receptacle (7); a control button (15) that is disposed on the control panel (10) and that enables the pump (14) to be operated when triggered by the user; and a discharge duct (16), with one end connected to the outlet opening (6) and the other end to the discharge lid (13), that provides the delivery of the solution discharged from the cooking tray (4) to outside of the body (2). Any solution remaining in the solution receptacle (7) at the end of the cooking process can also be discharged from the outlet opening (6) arranged on the cooking tray (4). However, by means of the pump (14) disposed on the outlet opening (6), the solution can be discharged without removing the cooking tray (4) from the cooking chamber (3).

[0029] In an embodiment of the invention, the microwave oven (1) comprises a level sensor (17) that is disposed on the solution receptacle (7) and an indicator panel (18) that is disposed on the body (2). Thus, the user is informed about the amount of solution remaining in the solution receptacle (7).

[0030] In the microwave oven (1) of the present invention, homogenous cooking is provided by means of the cooking tray (4) containing a solution which is activated by microwave rays. The cooking tray (4) easily heated by microwaves by means of the solution added to the solution receptacle (4)

provides the homogeneous cooking of the food thereon.

Claims

1. A microwave oven (1) **comprising** a body (2); a cooking chamber (3) that is disposed on the body and wherein the foods to be cooked are placed; a cooking tray (4) placed inside the cooking chamber (3), **characterized by** a solution receptacle (7) that is disposed under the cooking tray (4) so as to almost entirely cover the cooking tray (4) and wherein the solution that is activated by microwaves and that ensures heating of the cooking tray (4) is filled.
2. A microwave oven (1) as in Claim 1, **characterized by** the solution receptacle (7) having an inlet opening (5) that provides the adding of the solution and an outlet opening (6) that provides the draining of the solution.
3. A microwave oven (1) as in Claim 1 or Claim 2, **characterized by** the solution receptacle (7) that is produced as integrated with the cooking tray (4).
4. A microwave oven (1) as in any one of the above claims, **characterized by** a cover (8) disposed on the body (2) and a solution duct (9) that provides the transfer of the solution added by the user to the solution receptacle (7) when the cover (8) is opened.
5. A microwave oven (1) as in any one of the above claims, **characterized by** a control panel (10) disposed on the body (2) and a valve (11) that is disposed on the solution duct (9) and that controls the transmission of the solution to the solution receptacle (7) by opening and closing by the timing as set by the user on the control panel (10).
6. A microwave oven (1) as in any one of the above claims, **characterized by** a control unit (12) that provides the opening and closing of the valve (11) by the timing set by the user on the control panel (10).
7. A microwave oven (1) as in any one of the above claims, **characterized by** a discharge lid (13) disposed on the body; a pump (14) that is disposed on the outlet opening (6) and that provides the discharge of the water in the solution receptacle (7); a control button (15) that is disposed on the control panel (10) and that enables the pump (14) to be operated when triggered by the user; and a discharge duct (16), with one end connected to the outlet opening (6) and the other end to the discharge lid (13), that provides the delivery of the solution discharged from the cooking tray (4) to outside of the body (2).

8. A microwave oven (1) as in any one of the above claims, **characterized by** a level sensor (17) disposed on the solution receptacle (7) and an indicator panel (18) disposed on the body (2).

Figure 1

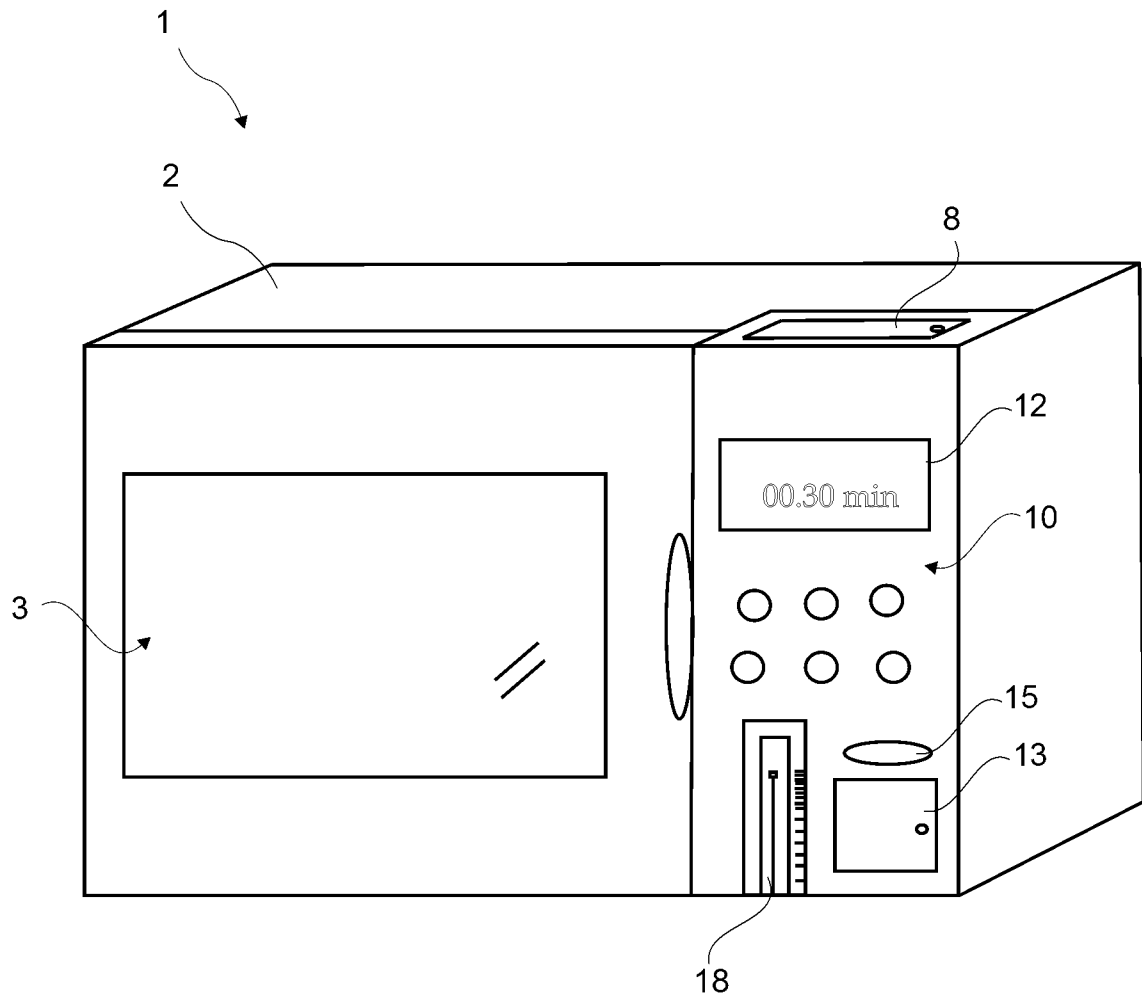


Figure 2

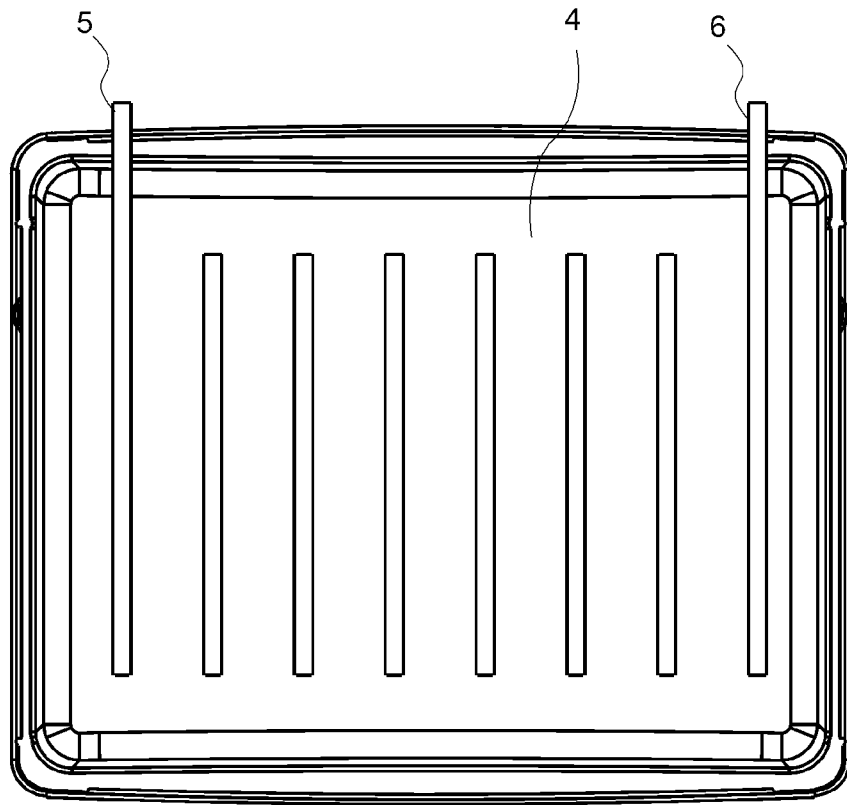


Figure 3

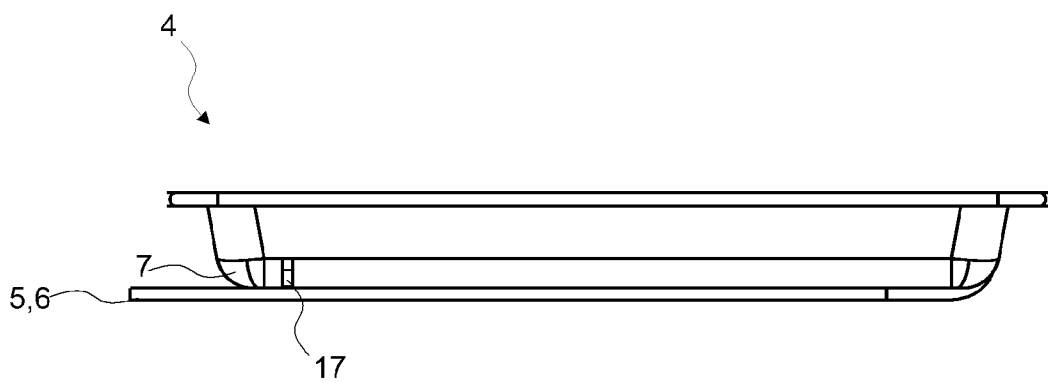


Figure 4

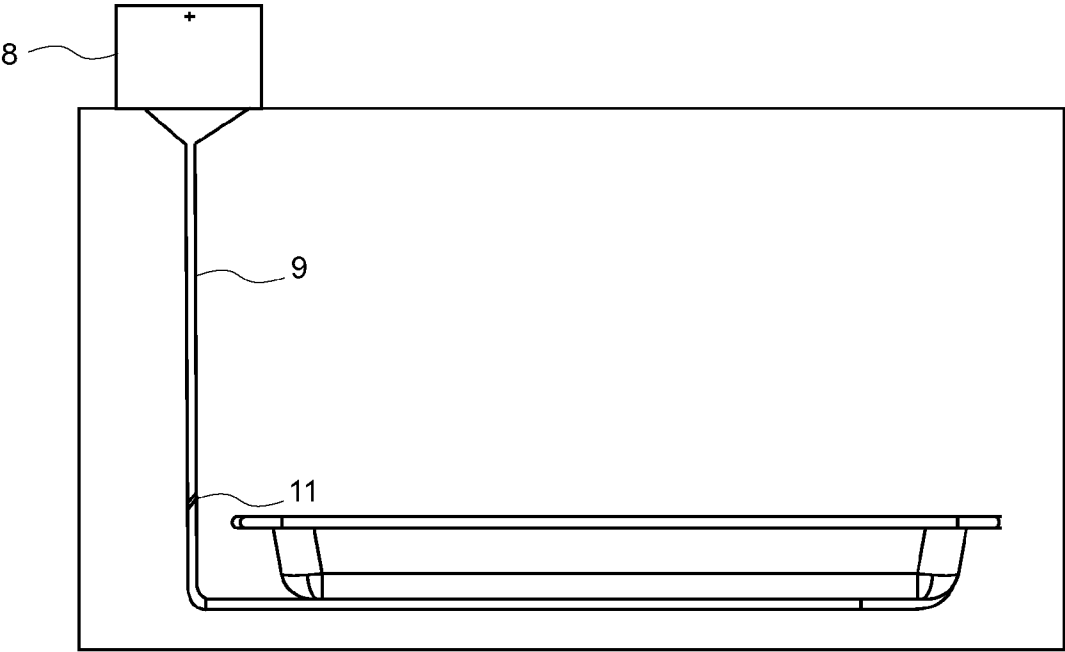
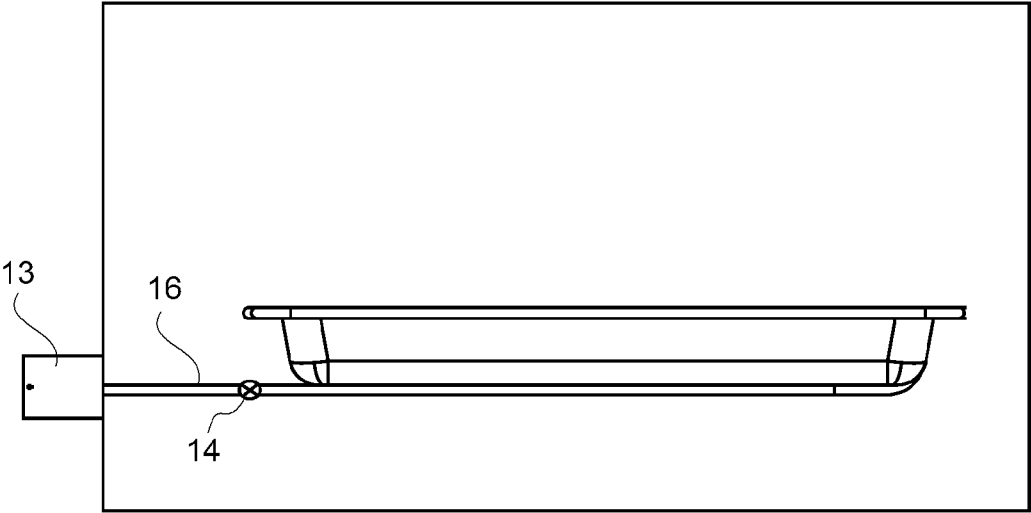


Figure 5



INTERNATIONAL SEARCH REPORT

International application No

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A. CLASSIFICATION OF SUBJECT MATTER

INV. H05B6/64

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)

H05B A47J

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	US 4 795 649 A (KEARNS JOYCE M [US] ET AL) 3 January 1989 (1989-01-03)	1-3
A	column 1, lines 6-12; figures 1-4 column 5, lines 17-33 column 6, lines 1-10 column 7, lines 15-27	4-8
X	US 4 439 656 A (PELEG YIGAL [US]) 27 March 1984 (1984-03-27) figures 2,3 abstract	1,2
A	WO 2009/105398 A2 (GRAPHIC PACKAGING INT INC [US]; LAFFERTY TERENCE P [US]) 27 August 2009 (2009-08-27) cited in the application abstract figure 1a	1-8



Further documents are listed in the continuation of Box C.



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Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2016/060977

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 4795649	A	03-01-1989	NONE

US 4439656	A	27-03-1984	NONE

WO 2009105398	A2	27-08-2009	CA 2715627 A1 27-08-2009
			EP 2245376 A2 03-11-2010
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