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(54) Built-in kitchen appliance

(57) The invention relates to a built-in kitchen appliance (1) for multi purpose meal preparing usage mountable in a standard kitchen oven niche, comprising, a main cavity (2) having first radiant heating means for generating radiant heat and/or fan heating means comprising second radiant heating means in combination with a fan for supplying circulating heat, a secondary cavity (3) having secondary heating means for the secondary cavity. This built-in kitchen appliance is to be improved to allow its user to perform a variety of meal preparing processes while at the same time saving space and costs in the home kitchen. For achieving this object the steam oven device is characterised in that the main cavity further comprises means for microwave cooking and/or means for steam cooking.

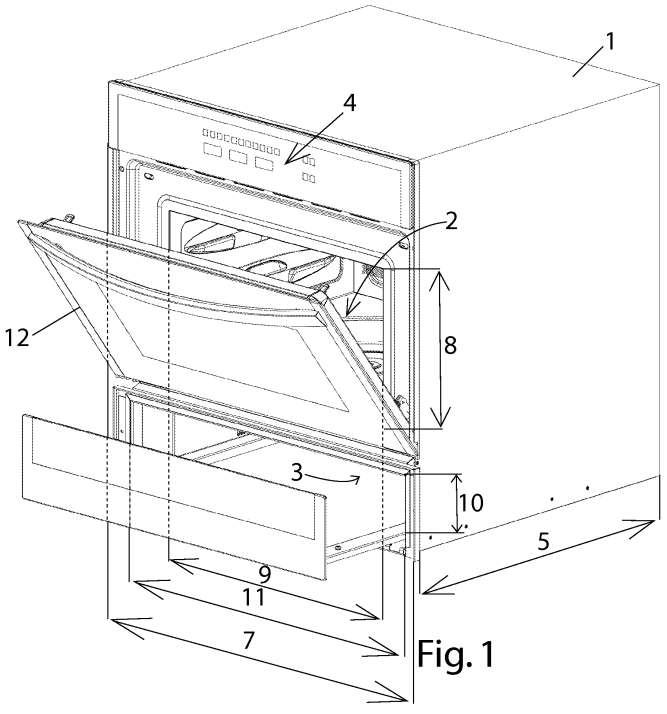

Fig. 1

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Description

I. Technical Field

[0001] The invention relates to a built-in kitchen appliance for multi purpose meal preparing usage.

II. Background Art

[0002] Currently available microwave or steam heating built-in appliances have only one single cavity in which several types of heating means are combined, e.g. microwaves and conventional heaters, microwaves and grill, microwaves and steam, etc.

[0003] Other functionalities that are not provided by conventional microwave or steam heating built-in appliances like warming the crockery before serving the meal or like food processing taking place after the meal cooking can currently be provided by additional special devices only.

[0004] Additional devices for home kitchens need to be stored and require a new investment additionally to the expenses that came with the microwave or steam heating built-in appliance.

[0005] Other known built-in appliances have two separate cavities in the same appliance but each cavity is provided with conventional resistance heaters only, i.e. radiant means for generating radiant heat and fan heating means for supplying circulating heat. Thus, these appliances do not allow the performance of microwave or steam cooking.

[0006] It is therefore desirable to have built-in kitchen appliances that are compatible with standard furniture and provide a variety of functions of meal preparing processes.

III. Disclosure of the invention

a) Technical object

[0007] It is therefore the object of the present invention to provide a built-in appliance for home kitchens that allows its user to perform a variety of meal preparing processes while at the same time saving space and costs in the home kitchen.

b) Achievement of the object

[0008] This object is achieved by a built-in kitchen appliance having the features of claim 1. Further features of the present invention are set forth in the subclaims.

[0009] The present invention provides a built-in multiusage kitchen appliance which is applicable in standard kitchen furniture. The appliance is designed to be installed into an oven niche of standard kitchen furniture.

[0010] The appliance of the present invention has a main cavity and a secondary cavity placed adjacent to each other. Each cavity can be used independently from the other one and thus can carry out different meal preparing processes under different conditions. Besides of the high functional flexibility the appliance according to the invention is capable to accomplish meal preparation jobs in parallel or in a predetermined time delaying the main and secondary cavity.

[0011] The main cavity is provided with the functions of a conventional oven having the functions as commonly applied in conventional ovens. In particular the main cavity is provided with means for preparing meals like radiant heating means, means for circulating heat, grills or the like. According to the invention the main cavity additionally has means to provide microwave functionality and/or means to provide steam cooking functionality.

[0012] In a first embodiment the main cavity is provided with radiant heating means and/or fan heating means and means for microwave cooking methods. It is preferred that the main cavity has both radiant heating means and fan heating means. In an example of the first embodiment of the invention the radiant heating means is formed as a tubular heating element situated in the ceiling of the main cavity. Alternatively or additionally a resistance-wire heating element can be used as radiant heating element. The radiant heating means can be used for meal preparing processes like food browning, toasting or the like.

[0013] Preferably the fan heating means provided in the main cavity are formed by second radiant heating means situated in the rear of the main cavity in combination with a fan. The fan heating means within the main cavity can be used for meal preparing processes like to bake and roast food.

[0014] Additionally, means for microwave cooking such as used in microwave ovens are installed in the main cavity. The means for microwave cooking can be used for meal preparing processes like quickly defrosting, heating and cooking of food for instance.

[0015] The appliance provides high functional flexibility in the meal preparation processes in the main cavity by controlling the means for radiant heating, fan heating and for microwave cooking in a way that the several means can operate exclusively or in combination with each other.

[0016] In a second embodiment the main cavity is provided with radiant heating means and/or fan heating means and means for steam cooking methods. It is preferred that the main cavity has both radiant heating means and fan heating means. The means for radiant heating and fan heating used in the second embodiment of the invention are equal to the above described means for radiant heating and fan heating in the first embodiment of the invention.

[0017] The main cavity in the second embodiment of the invention is additionally provided with means to enable steam cooking methods.

[0018] Likewise the first embodiment in the second embodiment the main cavity provides high flexibility in meal preparation processes by controlling the means for

radiant heating, fan heating and for steam cooking methods in a way that the several means can operate exclusively or in combination with each other.

[0019] Depending on the cooking methods provided by the appliance the main cavity can be made of different materials and coating that are promising corrosion resistance, heat resistance or durability in general. Stainless steel or enamelled steel have proven to be proper materials for such devices.

[0020] In a third embodiment the functionalities of the first and second embodiment may be provided - besides radiant heating means and fan heating means - with both means for microwave cooking and means for steam cooking.

[0021] Adjacent to the main cavity a secondary cavity is formed in the appliance. The secondary cavity is provided with secondary heating means for heating the secondary cavity. In addition to the meal preparing processes that may be performed in the main cavity the secondary cavity provides further meal preparing processes like keeping food already cooked on a predetermined temperature, warming crockery, proving dough, defrosting or the like.

[0022] Therefore the secondary cavity is equipped with secondary heating means for heating the secondary cavity. Heating elements like tubular or resistant-wire heating elements can be used as the secondary heating means in order to generate heat. Preferably a fan like a tangential blower is installed into the secondary cavity and combined with the secondary heating elements to provide circulating heat.

[0023] Preferably the secondary cavity is in contrast to the main cavity not used for cooking food but used for food processing not related to the cooking process itself and for warming crockery like plates and the like. For that purpose the secondary heating means are dimensioned to generate temperatures that range from 30°C to 80°C within the secondary cavity.

[0024] In a preferred embodiment of the invention the secondary cavity can be accessed by the user by a sliding drawer mechanism that is moveable between an open and closed position. That is, the objects to be placed into or taken from the secondary cavity are placed inside the drawer and move together with the drawer into and out of the secondary cavity. To ensure a safe and comfortable access to the secondary cavity a handle may be mounted on the front side of the drawer.

[0025] In another preferred embodiment of the invention the sliding drawer is provided with a latching mechanism. To close the drawer the user pushes it to the closed position thereby engaging the latching mechanism that seizes the drawer. The door is opened by slightly pushing it once again thereby disengaging the latching mechanism which releases the drawer.

[0026] Preferably, holding means for holding the crockery are mountable within the secondary cavity. The holding means are formed on the one hand to hold the crockery in a position to ensure that most of the surfaces of the crockery are exposed to heated air within the secondary cavity and get warmed effectively and on the other hand to hold the crockery to avoid crockery damages when the secondary cavity is opened or closed.

[0027] In a preferred embodiment of the appliance the main cavity is situated above the secondary cavity. Preferably the widths of both cavities extend substantially over the overall width of the kitchen appliance. That is that the available cavity width defined by the inner distance of the side walls of the cavities is only little smaller than the horizontal extension of the overall appliance.

[0028] It is preferred that common control means are used to control the radiant heating means, the fan heating means, the means for microwave cooking and/or the means for steam cooking within the main cavity and the secondary heating means in the secondary cavity based on the inputs of a control panel. An advantage of the appliance according to the invention is that the main cavity and the secondary cavity can be controlled by only one combined control panel linked to one combined control means.

[0029] However it should be noted that embodiments of the invention using separate control panels or separate control means not providing the aforementioned advantage are still within the scope of the invention, too.

[0030] According to the invention the outer dimensions of the appliance should be chosen to fit into oven niches of standard kitchen furniture. That is, the built-in kitchen appliance is preferably formed substantially like a cuboid with outer dimension of preferably

- not less than 575 mm and preferably not more than 600 mm in height,
- preferably not less than 540 mm and not more than 600 mm in width and
- preferably not less than 440 mm and not more than 540 mm in depth.

[0031] In embodiments having the cavities situated on top of each other and if the main and secondary cavities extend over substantially the overall width of the appliance, the relation of the inner heights of the main cavity and the secondary cavity is chosen such that the height of the main cavity preferably is not less than two and preferably not more than four times as high as the height of the secondary cavity.

[0032] Preferably, the height of the secondary cavity is not less than 100 mm and preferably not more than 200 mm.

c) Exemplary embodiment

[0033] One embodiment of the present invention will now be described in more detail with reference to the appended drawings in which:

Fig. 1: shows a perspective view of a kitchen appliance according to the invention,

Fig. 2: shows a front plan view of the kitchen appliance according to Fig. 1.

[0034] Fig. 1 shows a kitchen appliance 1 having a main cavity 2 and a secondary cavity 3 wherein the main cavity 2 is situated above the secondary cavity 3. The kitchen appliance 1 substantially has the form of a cuboid and dimensions in width 7, height 6 and depth 5 that are proper to install the kitchen appliance into an oven niche of conventional kitchen furniture. The kitchen appliance 1 has a front side shown in Fig. 2 directed to the user when the kitchen appliance 1 is installed in the oven niche. The openings of the main cavity 2 and the secondary cavity 3 and a control panel 4 are situated at the front side of the kitchen appliance 1. The main cavity may be closed by a pivotable door 12.

[0035] The main cavity 2 is provided with radiant heating elements (not shown), a second radiant heating element in combination with a fan to generate a circulating heat (not shown) and a microwave emitting element (not shown). The main cavity 2 substantially has the form of a cuboid and a size that provides enough space to perform the meal preparing processes. The opening of the main cavity 2 that is directed to the user has an inner height 8 and an inner width 9.

[0036] The secondary cavity 3 receives a sliding drawer that may be pushed into a closed and pulled into an open position in a telescope like manner. For the practical handling of the secondary cavity 3 the objects that have to be heated - food or crockery - are placed on the bottom of the sliding drawer so that they can be moved in and out of the secondary cavity 3. The opening of the secondary cavity 3 that is directed to the user has an inner height 10 and an inner width 11.

[0037] In the upper region of the front side a control panel 4 having a plurality of control elements and displays to control the meal preparing processes in the main cavity 2 and the secondary cavity 3. Optionally a hob can be provided on the top surface of the appliance and may be controlled by the control panel 4, too.

LIST OF REFERENCE NUMBERS

[0038]

1	kitchen appliance
2	main cavity
3.	secondary cavity
4	control panel
5	depth of the appliance
6	height of the appliance
7	width of the appliance
8	inner height of the main cavity
9	inner width of the main cavity
10	inner height of the secondary cavity
11	inner width of the secondary cavity
12	pivotable door

Claims

1. A built-in kitchen appliance (1) for multi purpose meal preparing usage mountable in a standard kitchen oven niche, comprising,

- a main cavity (2) having
  - o first radiant heating means for generating radiant heat and/or
  - o fan heating means comprising second radiant heating means in combination with a fan for supplying circulating heat,
- a secondary cavity (3) having secondary heating means for the secondary cavity,

characterized in that
the main cavity further comprises at least one means selected from the group consisting of means for microwave cooking and means for steam cooking.

2. Kitchen appliance (1) according to claim 1,
characterized in that
within the secondary cavity (3) a sliding drawer is moveable into and out of the secondary cavity (3) to place and remove the objects that are to be heated.

3. Kitchen appliance (1) according to claim 2,
characterized in that
the sliding drawer is provided with a handle which is mounted on a front side of the kitchen appliance (1).

4. Kitchen appliance (1) according to one of the preceding claims,
characterized in that
the widths (9, 11) of the main and the secondary cavities (2, 3) substantially extend over the overall width (7) of the kitchen appliance (1).

5. Kitchen appliance (1) according to one of the preceding claims,
characterized in that
the main cavity (2) is arranged above the secondary cavity (3).

6. Kitchen appliance (1) according to one of the preceding claims,
characterized in that
the kitchen appliance (1) has an overall height (6) and width (7) of not less than 500 mm and not more than 700 mm.

7. Kitchen appliance (1) according to one of the preceding claims,
characterized in that
the secondary cavity (3) has a height (10) of not less than 100 mm and not more than 200 mm.

8. Kitchen appliance (1) according to one of the preceding claims,
characterized in that
the secondary heating means is formed as a tubular heating means.

9. Kitchen appliance (1) according to one of the preceding claims,
characterized in that
a secondary fan for generating circulating heat is arranged in the secondary cavity (3).

11. Kitchen appliance (1) according to one of the preceding claims,
characterized in that
means for holding crockery are mountable within the secondary cavity (3).

12. Kitchen appliance (1) according to one of the preceding claims,
characterized in that
it has a common control means for controlling the first radiant heating means, the fan heating means and at least one means selected from the group consisting of means for microwave cooking and means for steam cooking in the main cavity (2) and the secondary heating means in the secondary cavity (3).

13. Kitchen appliance (1) according to claim 3 to 12 in connection with claim 2,
characterised in that
it has a latching mechanism for seizing the sliding drawer in its closed position, said latching mechanism allowing the user to disengage the latching mechanism by pushing the sliding drawer.

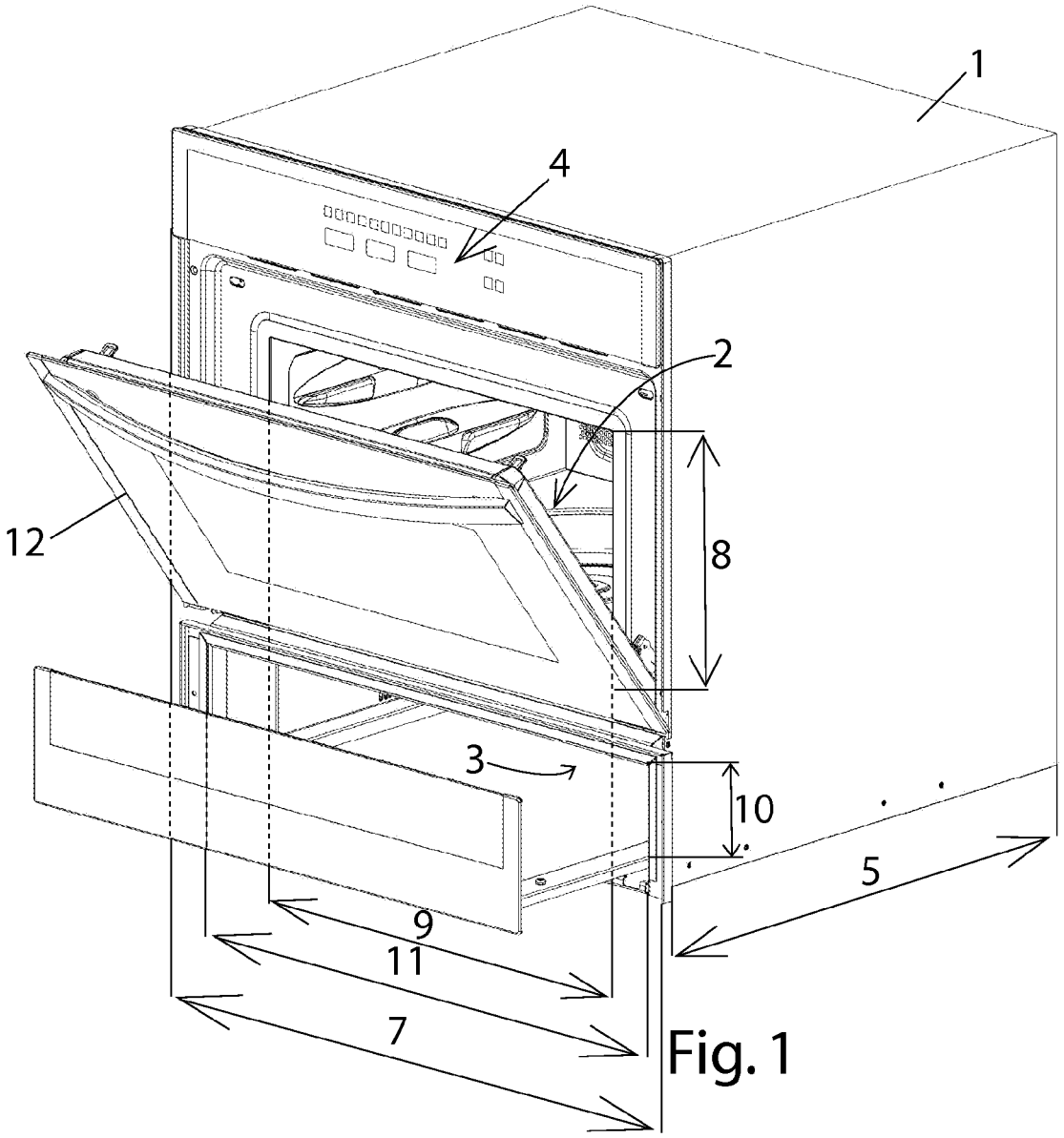

Fig. 1

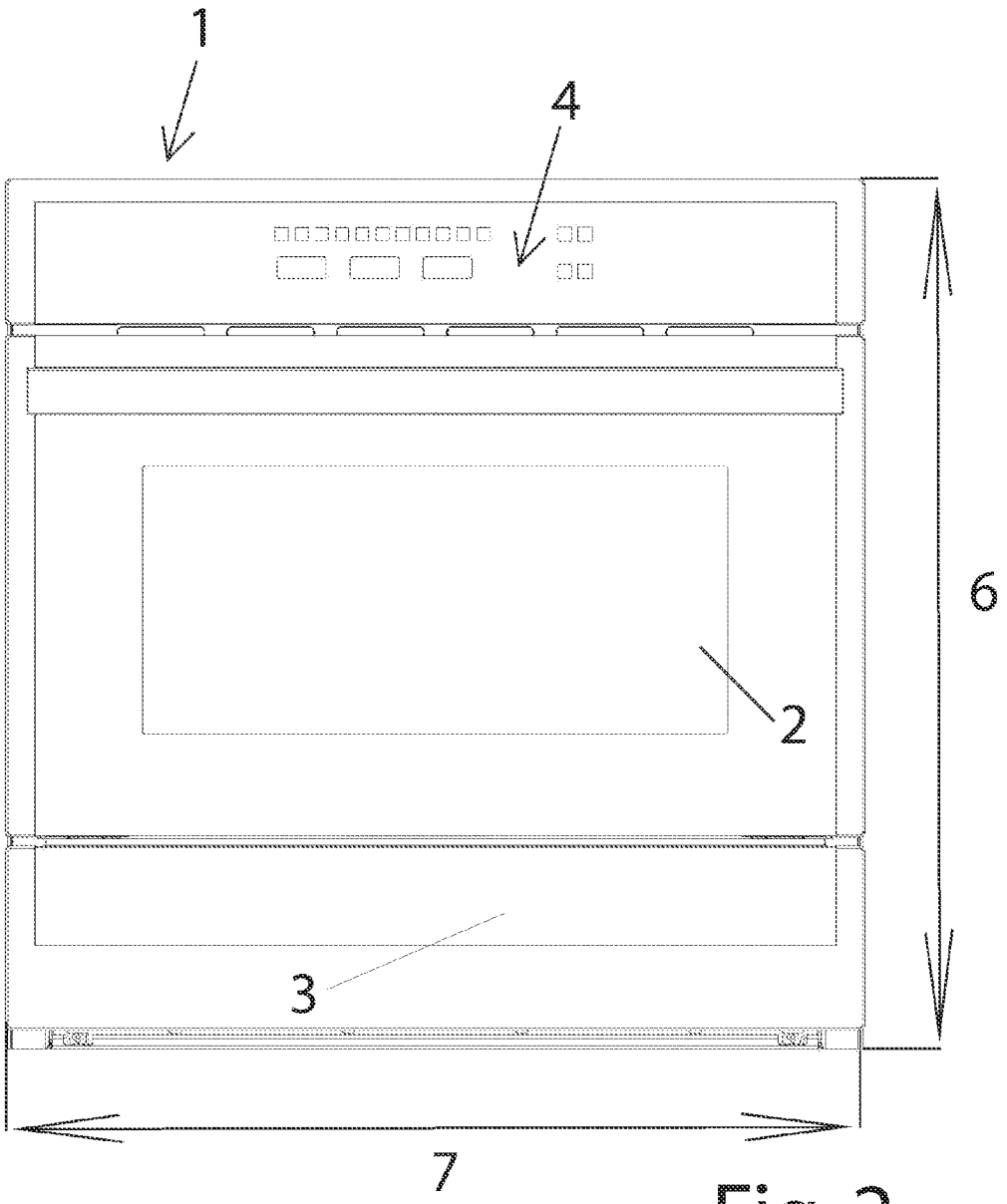

Fig. 2

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 07 11 6522

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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	1 July 2008	von Mittelstaedt, A

CATEGORY OF CITED DOCUMENTS

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