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EUROPEAN QUALIFYING EXAMINATION 1993

PAPER B
ELECTRICITY / MECHANICS

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INSTRUCTIONS TO CANDIDATES

In this paper, you should assume that a European patent application for all the Contracting States comprising the appended documents * has been filed and that the European Patent Office has issued the annexed official communication.

You should accept the facts given in the paper and base your answers upon such facts. Whether and to what extent these facts are used is your responsibility.

You should not use any special knowledge you may have of the subject-matter of the invention, but are to assume that the prior art given is in fact exhaustive.

Your task is now to draft a full response to the official communication. The response should be a letter to the EPO, accompanied, if appropriate, by an amended set of claims. No amendments to the description should, however, be made.

The claims should afford the broadest protection possible while meeting the requirements of the Convention. In your letter of response you should set out your arguments in support of the patentability of the independent claim(s).

If your response includes a proposal to make any part of the application the subject of one or more divisional applications, you should in a note, clearly identify the subject-matter of the independent claim of such divisional application(s) and the justification for this. However, it is not necessary to draft the wording of the independent claim for the or each divisional application.

In addition to your chosen solution, you may – but this is not mandatory – give, in a note, the reasons for your choice of solution, for example, why you selected a particular form of claim, a particular feature for an independent claim, a particular piece of prior art as starting point or why you rejected or preferred some piece of prior art. Any such note should however be brief.

It is assumed that you have studied the examination paper in the language in which you have given your answer. If this is not so, please indicate on the front page of your answer in which language you have studied the examination paper. This always applies to candidates who – after having filed such a request when enrolling for the examination – give their answer in a language other than German, English or French.

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* These documents do not necessarily constitute the only or best solution to the task set in Paper A (Electricity/Mechanics).

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Description of the Application

The invention relates to microwave heating appliances, especially microwave cooking appliances, which will be termed microwave ovens in what follows. In particular it relates to microwave ovens comprising an oven cavity for the goods to be heated and a microwave generator coupled to a rotational antenna adjacent a wall of the oven cavity for radiating the microwave energy generated by the microwave generator into the oven cavity.

A problem associated with microwave ovens is that the spatial distribution of the microwave energy in the oven cavity tends to be non-uniform. As a result "hot spots" and "cold spots" are produced at different locations in the oven cavity. This can lead to unsatisfactory cooking results because some portions of the food may be completely cooked while others are barely warmed. This problem becomes more severe with foods of low thermal conductivity.

One explanation for this non-uniform distribution of the microwave energy is that, due to reflections and superpositions of waves within the oven cavity, standing wave patterns are set up. Consequently, the microwave energy varies greatly with position within the oven cavity.

These patterns are moreover dependent upon the reflectivity, type, shape and quantity of the food which is placed in the oven cavity.

It is therefore desirable to alter the relative locations of the above-mentioned wave patterns and the food as a function of time. This can be achieved by the use of a rotational antenna within the oven cavity which generates a time-varying wave pattern in the oven cavity. An example of such a microwave oven is disclosed in Document I.

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The oven of Document I uses a fan which has two distinct functi in the conventional cooking mode of the oven (which plays no role in the present context) the fan, which is provided with two fan-blades, actually acts as a fan for stirring the air in the oven cavity; in the microwave cooking mode the fan acts as a rotational antenna. The rotational antenna is hence essentially T-shaped and is rotated about the axis of symmetry of the "T". The rotational antenna generates a rotating microwave field in the oven cavity while the food to be cooked remains stationary.

Although the results achieved in the microwave oven of Document I are quite satisfactory, some disadvantages remain. As in any microwave oven cavity, reflections of the microwaves occur inside it. Although, as explained above, the field is varied as a function of time, a relatively high percentage of the microwave energy does not directly reach the food to be heated, the single or multiple reflections on the side walls causing losses in the reflected waves, which results in a decreased efficiency of the heating process.

Attempts have been made to improve the efficiency of the heating process by using a directional rotational antenna as described in Document II in the cooking appliance of Document I. This antenna radiates the microwaves in a predominant direction, i.e. mainly towards the food to be heated.

However, the results were not very satisfactory, since again the reflections on the side walls caused losses of microwave energy.

It is hence an object of the invention to improve further the efficiency of the oven and also the microwave energy distribution within the oven cavity. The oven is also intended to be particularly suitable for the use of the antenna of Document II; the use of other antennas should however not be excluded.

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According to the invention this object is achieved by means of a microwave oven as set out above which is characterised in that said wall is provided with a concave reflector located behind said rotational antenna so as to direct microwave energy towards the goods to be heated.

This reflector has the advantage of uniformly reflecting that portion of the microwave energy which is not directly radiated from the antenna towards the goods to be heated. It also returns the microwaves reflected by the goods to be heated back towards an area in the centre of the oven cavity and thus back again towards the goods to be heated. Due to this concentration of microwave energy towards the centre of the oven cavity, a very efficient heating of the goods is obtained.

In order to protect the reflector and the rotational antenna from any unwanted substances, the rotational antenna and the reflector can be separated from the oven cavity by means of a microwave-transparent grease shield.

The rotational antenna is advantageously supported in a dielectric bushing provided in the reflector.

A very effective and cost-saving way of causing the rotational antenna to rotate is to guide directly an air flow towards the rotational antenna, which can be provided with turbine blades.

An advantageous way of supplying microwave energy to the rotational antenna is to couple the microwave generator to the rotational antenna by means of a waveguide. In this case the rotational antenna can be coupled to the waveguide by means of a coupling probe extending through the reflector into the waveguide.

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Advantageously, the coupling probe also constitutes a rotational axle for the rotational antenna in the dielectric bushing.

An even higher efficiency of the microwave oven can be obtained by the use of a rotational antenna having directional characteristics and producing a planar microwave field. Such an antenna is known per se from Document II.

The invention will now be described with reference to the appended drawings, where:

Fig. 1 is a front view of a microwave oven of the present invention;

Fig. 2 is a cross-sectional view of the oven taken along the line 2-2 of Fig. 1; and

Fig. 3 is a cross-sectional view taken along the line 3-3 of Fig. 2.

Fig. 1, which illustrates a front view of a microwave cooking appliance of the present invention, shows the microwave oven 10 having a housing 12, which houses the internal components of the oven 10. The oven cavity 14, as illustrated in Fig. 3, has five conductive metallic sides, of which a top wall 14a, a left side wall 14c (Fig. 2), a right side wall 14d, and a rear wall 14e are shown. A door 16 pivotably hinged at the bottom forms a front wall of the oven cavity. The door 16 is provided with a door gasket to prevent any leakage of microwave energy between the walls 14a, c and d and the outer perimeter of the door 16.

The door 16 is provided with a see-through window and a handle 16a. The window is provided with a conventional microwave energy reflecting structure. Food 17 to be cooked is shown in Fig. 1. A control panel 18 features a plurality of control keys connected to

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suitable control circuitry for setting cooking times, temperatures and power levels. The control circuitry is connected to a microwave generator such as a magnetron 28. An exhaust vent 20 is provided in the upper front right corner of the oven 10 to allow cooking vapours and moisture to be expelled from the oven cavity 14.

Reference will now be made to Figs. 2 and 3. A dome-shaped reflecting element 22 having essentially the form of a truncated cone is provided in the top wall 14a of the oven cavity. The dome has a periphery 22a of a large diameter at the base of the cone, a curved sloping section 22b including a planar rectangular transition section 24 to be described later and a periphery 22c of a small diameter where the cone is truncated. The dome is provided with a planar top wall 22d parallel to the top wall 14a of the oven cavity.

The rectangular transition section 24 included in the sloping section 22b of the dome includes a straight lower and a straight upper transition junction 24a and 24b respectively. The transition section 24 forms part of a waveguide 26 of generally rectangular cross-section and constitutes a transition between a length of waveguide having a larger cross-sectional area and a length of waveguide having a smaller cross-sectional area.

The waveguide 26 has side walls 26b and 26c, a plane top wall 26a and end walls 26e and 26d. The side and end walls of the waveguide are mounted by means of flanges 30 to the top wall 14a of the oven cavity, to the sloping section 22b and to the top wall 22d of the dome.

A coupling probe 28a connected to the magnetron 28 extends into the waveguide 26 at its one end and couples microwave energy into the waveguide. A directional rotational antenna 32 known per se from the above-mentioned Document II can be seen in Fig. 3 and is also shown in dashed lines in Fig. 2. A microwave-transparent grease

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shield 46 separates the antenna 32 from the portion of the oven cavity 14 in which the food to be heated is placed. The antenna 32 is connected to a coupling probe 34 which also constitutes a rotational axle of the antenna and extends into the waveguide 26. Microwave energy is thus transmitted from the magnetron 28 via the coupling probe 28a into the waveguide 26, and from there via the coupling probe 34 to the rotational antenna 32 from which it is radiated into the oven cavity 14.

The transition section 24 of the waveguide 26 serves to optimize the transfer of microwave energy from the magnetron 28 to the rotational antenna 32, such a measure being common in microwave appliances.

It should be noted that the provision of the waveguide 26 directly along the top wall 14a of the oven cavity, the sloping section 22b and the top wall 22d of the dome is particularly advantageous since in this way the manufacture of the oven is considerably simplified. During manufacture the upper portion of the waveguide, which consists of the top wall 26a, the side walls 26b and c and the end walls 26d and e, is spot-welded to the top wall 14a of the oven cavity and to the dome by means of the flanges 30 provided along the side and end walls 26b to e. Thus only two punched sheet-metal components are needed to obtain the essential parts of the microwave conveying system of the oven: the first one comprises the top wall 14a of the oven cavity including the dome 22 and the second one comprises the upper portion of the waveguide mentioned above.

The coupling probe 34 supplying microwave energy to the antenna 32 is mounted in a microwave-transparent dielectric bushing 36 located in an opening 22e in the top wall 22d of the dome. The X-shaped base element of the antenna 32 (see Document II) is provided with small, angled turbine blades 33 (see Fig. 3) which are rotated by a forced air flow which will be explained later.

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The shape of the dome described above provides the following advantages as compared with the oven disclosed in Document I: the dome uniformly reflects that portion of the microwave energy which is not directly radiated from the antenna towards the food to be heated. This portion of the microwave energy, which also exists for directional antennas (which ought to predominantly radiate directly towards the food to be heated), is hence efficiently concentrated towards a centre region of the oven cavity. The dome also returns the microwaves reflected by the food to be heated back towards an area in the centre of the oven cavity and thus back again towards the food to be heated. The resulting rotating microwave field is thus not dependent upon the side walls of the oven cavity 14 for the distribution of microwave energy. It may therefore be said that the dome concentrates the microwave energy on the food to be heated by keeping the radiation away from the side walls of the oven cavity. Due to the concentration of the microwave energy towards the centre of the oven cavity, a very efficient heating of the food, in particular when it is heavy and bulky, is obtained. Such food in particular requires a higher concentration of microwave energy in the centre than in the peripheral regions of the food.

Moreover, the symmetry of the dome, which is essentially not disturbed by the planar transition section 24, ensures uniform radiation conditions for the antenna during rotation.

Turning to the geometry of the dome, it should be appreciated that the dome can basically be designed in a manner analogous to an optical reflector. The angle of inclination α (see Fig. 3) of the sloping section of the dome therefore mainly depends upon the geometry of the oven cavity and upon the position of the rotational antenna within the oven cavity. A useful range of angles of inclination α for typical cavity geometries (e.g. such as that shown in Figs. 1 and 2) is about 25 to 40 degrees.

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The air flow mentioned above will now be described. A blower 40 shown schematically in Fig. 2 draws air through a plurality of holes (not shown) in the bottom of the oven 10. The air is then blown over the inside of the control panel 18 and heat-dissipating fins of the magnetron 28 in order to cool them.

All of the air is then forced up through small openings 29 in the top wall 14a of the oven cavity. The air is thus introduced into the waveguide 26. The provision of the small openings 29 in the waveguide does not have any influence upon the propagation of the microwaves therein. The air leaves the waveguide downwardly through holes 22f around the bushing 36 and thus drives the antenna 32 by means of the angled turbine blades 33. Instead of being provided directly with turbine blades, the antenna 32 can support a microwave-transparent dielectric disc carrying the necessary turbine blades for driving the antenna by means of the air flow.

The air then flows out of the space between the grease shield 46 and the top wall 14a through openings 47 (Fig. 3) in the grease shield and flows into the oven cavity 14 from where it expels cooking vapours. The air finally leaves the oven cavity via openings 14f in the side wall 14d (Fig. 2) and an air duct 19 which directs it to the exhaust vent 20.

The air flow has only been described schematically, since many variants can be provided. It permits only one blower to be used to cool the control panel 18 and the magnetron 28, to drive the antenna 32 and finally to expel cooking vapours from the oven cavity 14.

It should be noted that the transition section 24 has the additional advantage of reducing the cross-sectional area of the air flow in the waveguide. This results, in combination with suitable diameters of the holes 22f, in a considerable increase in the air speed which ensures a reliable rotation of the antenna 32.

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Claims

1. A microwave oven (10) comprising an oven cavity (14) for the goods (17) to be heated and a microwave generator (28) coupled to a rotational antenna (32) adjacent a wall (14a) of the oven cavity for radiating the microwave energy generated by the microwave generator (28) into the oven cavity (14), characterised in that said wall (14a) is provided with a concave reflector (22) located behind said rotational antenna (32) so as to direct microwave energy towards the goods (17) to be heated.

2. A microwave oven as claimed in Claim 1, characterised in that the rotational antenna (32) and the reflector (22) are separated from the oven cavity (14) by means of a microwave-transparent grease shield (46).

3. A microwave oven as claimed in Claims 1 or 2, characterised in that the rotational antenna (32) is supported in a dielectric bushing (36) provided in the reflector (22).

4. A microwave oven as claimed in any of Claims 1 to 3, characterised in that the rotational antenna (32) is rotated by means of an air flow which is guided directly towards the rotational antenna (32).

5. A microwave oven as claimed in Claim 4, characterised in that the rotational antenna (32) is provided with turbine blades (33).

6. A microwave oven as claimed in any of Claims 1 to 5, characterised in that the microwave generator (28) is coupled to the rotational antenna (32) by means of a waveguide (26).

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7. A microwave oven as claimed in Claim 6, characterised in that the rotational antenna (32) is coupled to the waveguide (26) by means of a coupling probe (34) extending through the reflector (22) into the waveguide (26).

8. A microwave oven as claimed in Claim 7 when dependent on Claim 3, characterised in that the coupling probe (34) also constitutes a rotational axle for the rotational antenna (32) in the dielectric bushing (36).

9. A microwave oven as claimed in any of Claims 1 to 8, characterised in that the rotational antenna (32) has directional characteristics and produces a planar microwave field.

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Drawings of the Application

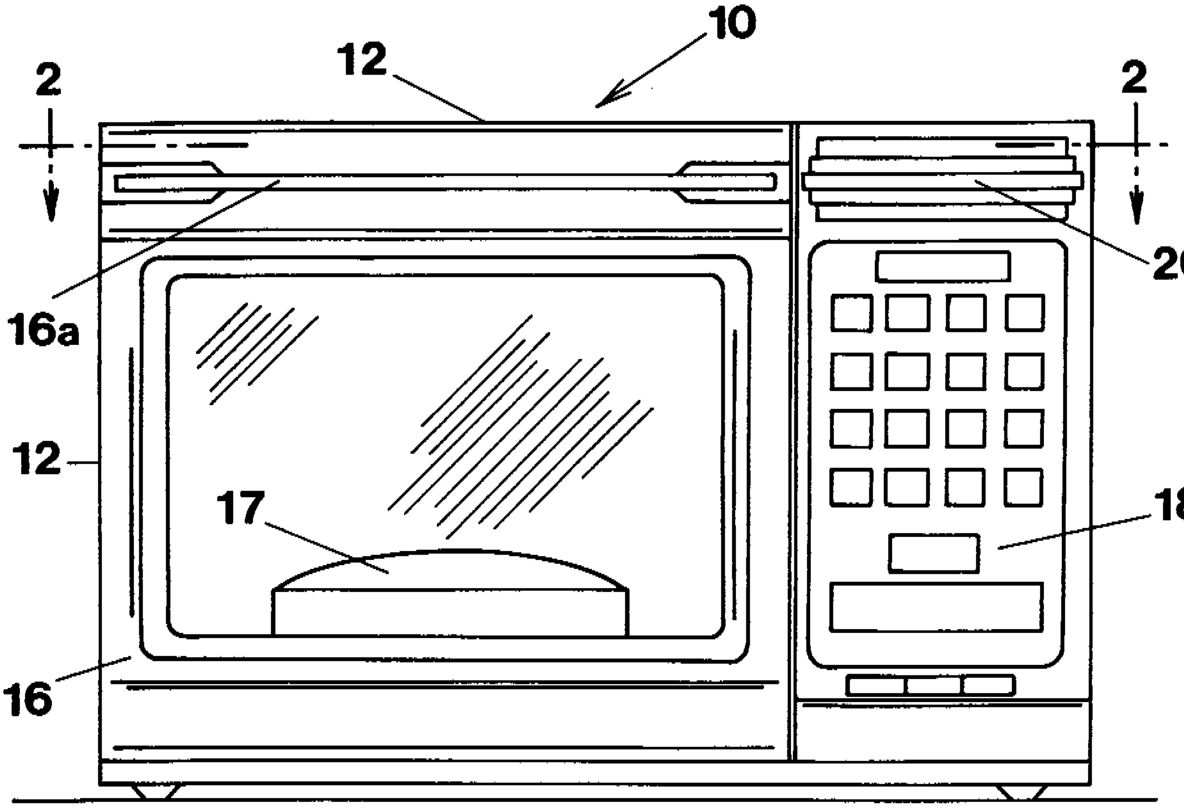

Fig. 1

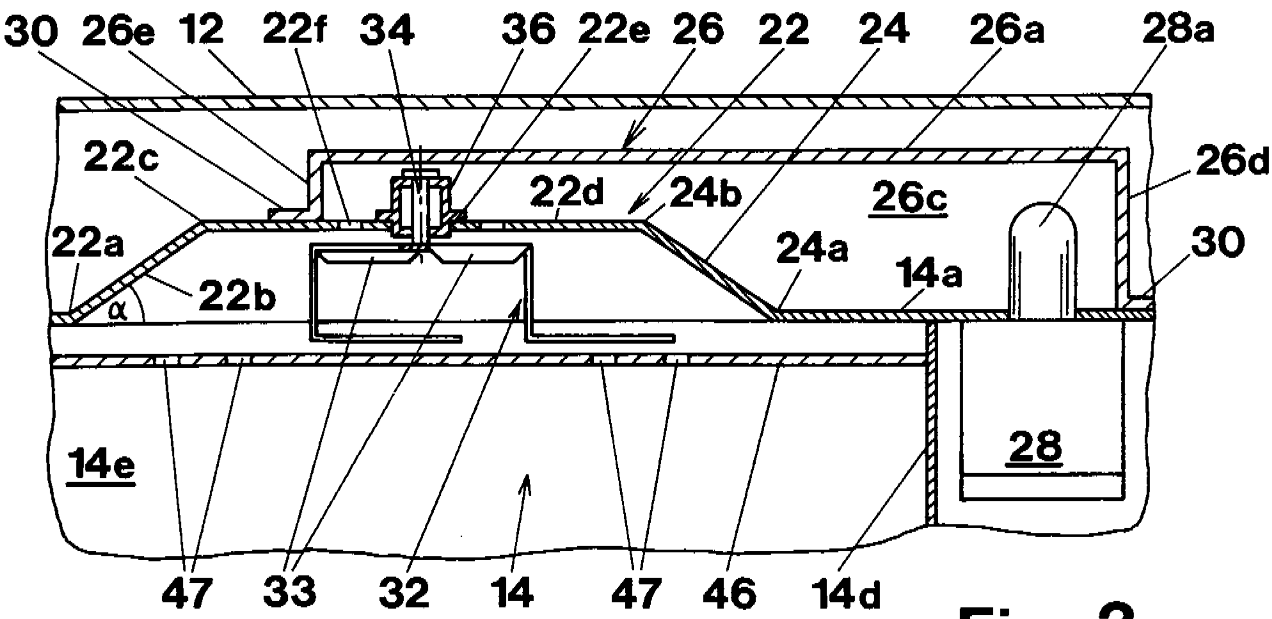

Fig. 3

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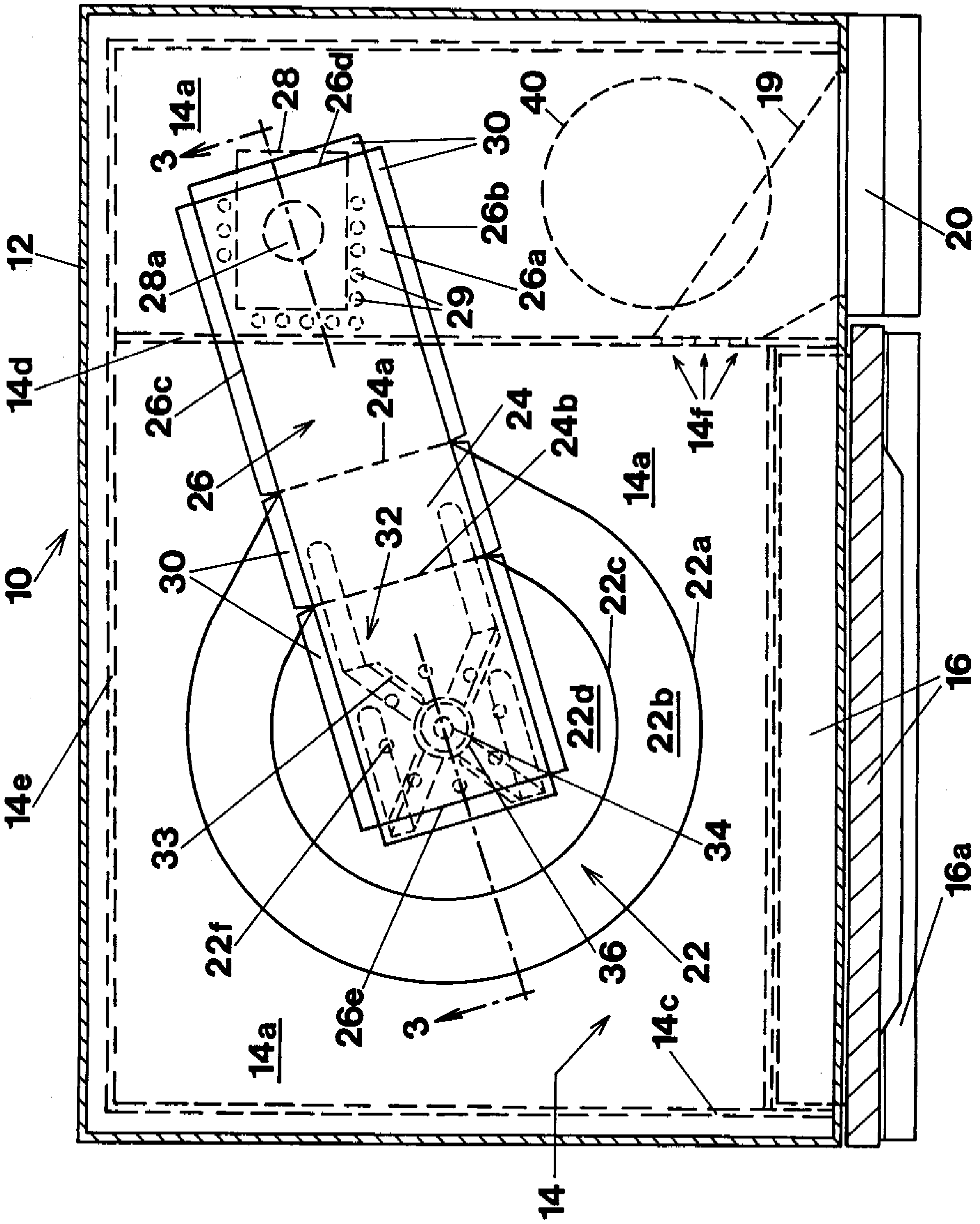
Drawings of the Application

Fig. 2



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Communication

1. Citations used in the present Communication:

   Document II, cited in the present Application and

   Document III, cited for the first time in this Communication.

   Both documents were published before the filing date of the present application.

2. The prior art most relevant to Claim 1 appears to be Document III. Using the terminology of Claim 1, Document III discloses (the reference numerals refer to Document III) a microwave oven (10) comprising an oven cavity (12) for the goods to be heated and a microwave generator (40) coupled to a rotational antenna (30) adjacent a wall (the bottom wall 12b) of the oven cavity (12) for radiating the microwave energy generated by the microwave generator (40) into the oven cavity (12).

   Moreover, the said (bottom) wall shown in Document III is provided with a concave reflector (the reflective recess 20) located behind said rotational antenna (30) and which directs microwave energy towards the goods to be heated.

   In view of the above, the subject-matter of Claim 1 lacks novelty with respect to Document III. Claim 1 is hence not allowable under Art. 52 (1) and 54 (1, 2) EPC.

3. The features set out in Claim 2 are also disclosed in Document III (see Figs. 2 and 3, in particular the antenna 30, the reflective recess 20 and the plate 23).

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Document III also discloses a dielectric bushing, as set out Claim 3 (see Fig. 3, grommet 36), which is provided in the reflective recess (20).

In view of the above, the subject-matter of Claims 2 and 3 also lacks novelty with respect to Document III. These Claims are hence not allowable under Art. 52 (1) and 54 (1, 2) EPC.

4. With respect to the subject-matter of Claim 4, it should be noted that Document II discloses the concept of driving the rotational antenna by means of an air flow guided directly towards the antenna (see last paragraph of Document II). The skilled person would readily consider the use of this concept in an oven as disclosed in Document III in order to avoid the cost of the electric motor (45) of Document III. This is underlined by Document III itself which mentions that the antenna can be driven "by any suitable means" (see the second paragraph from the end of Document III).

   The features set out in Claim 5 are also disclosed in Document II (see the last paragraph).

   The subject-matter of Claims 4 and 5 therefore does not involve an inventive step. Claims 4 and 5 are hence not allowable under Art. 52 (1) and 56 EPC.

5. The subject-matter of Claims 6 to 8 is disclosed in Document III (see in particular the waveguide 41, the coupling probe 43 also constituting a rotational axle for the antenna 30 and the grommet 36).

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The subject-matter of Claims 6 to 8 therefore also lacks novelty when these claims are exclusively appended to any of Claims 1 to 3 and does not involve an inventive step otherwise. Claims 6 to 8 are hence not allowable under Art. 52 (1), 54 (1, 2) and 56 EPC, respectively.

6. Finally, the use of a directional antenna producing a planar microwave field as set out in Claim 9 is merely a matter of usual design competence for the skilled person since Document II suggests the use of such an antenna in microwave ovens (see the whole document, in particular the first paragraph).

   The subject-matter of Claim 9 therefore does not involve an inventive step. Claim 9 is hence not allowable under Art. 52 (1) and 56 EPC.

7. If you are of the opinion that the present Application includes patentable subject-matter you are invited to file your observations and arguments together with any amendments to the claims.

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<u>DOCUMENT I</u> (State of the Art)

The invention relates to a combination convection and microwave oven in which cooking can be carried out by means of conventional electric heating or by means of microwaves. In the microwave cooking mode the problem arises of guaranteeing a homogeneous distribution of the microwave field averaged over time. One way to solve this problem without moving the food to be cooked is to use a rotational antenna radiating microwaves into the oven cavity.

In order to allow a more homogenous heat distribution in the oven cavity in the conventional electric heating mode, the oven has a motor-driven fan which stirs the air within the oven cavity.

The invention solves the problem of providing and suitably positioning all the elements necessary for proper operation of the oven in both operating modes. The invention is illustrated by means of the drawing which is a schematic cross-sectional view of the oven in a vertical plane.

The oven comprises a housing 19 enclosing an oven cavity 17. The oven cavity 17 is surrounded by an insulating jacket 7 and has a door 18 with a handle 16. The lower portion of the housing 19 contains a microwave generator, e.g. a magnetron 3, and a mains supply transformer 4 therefor. A fan 2 takes in cooling air for the magnetron 3 from an inlet 1.

The microwaves generated by the magnetron 3 are coupled by means of a coupling probe 3a into a conventional waveguide 5 of rectangular cross-section. The complete waveguide is secured to the rear wall of the oven cavity 17 and extends to about half the height thereof. A metallic two-blade fan 11 having a shaft 12 is mounted inside the oven cavity . The two blades and the shaft also serve as an

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essentially T-shaped rotational antenna. The part of the shaft which extends into the waveguide 5 serves as a coupling probe and couples the microwaves out of the waveguide into the antenna. The shaft 12 is supported in a dielectric bearing (not shown) extending through a wall of the waveguide 5 and the rear wall of the oven cavity 17.

The antenna is driven by means of an electric motor 6 via a shaft extension 21 made of an insulating material transparent to microwaves. The reason for this is that, in order to serve as a coupling probe, the shaft 12 must not extend completely across the waveguide 5. Within the oven cavity 17 the fan 11 is surrounded by conventional electric heater elements 10 (shown schematically) and an electric grill 14 may additionally be mounted in the upper portion of the cavity 17.

In front of the fan 11 and the heater elements 10 there is a protective panel 13 made of heat-resistant material transparent to microwaves, e.g. a vitreous ceramic material. The protective panel 13 has openings permitting air to be circulated within the cavity 17 by the action of the fan 11. The air is drawn behind the panel 13 through the openings and expelled radially.

The motor 6 can operate at two different speeds. When driven at low speed, the fan 11 and the shaft 12 function as a rotational antenna transmitting the microwave energy from the waveguide 5 into the oven cavity. Due to the rotation of the antenna, the microwave energy is evenly distributed throughout the oven cavity. It is therefore not necessary to provide means for rotating the food to be cooked, such as a rotating plate, in order to obtain a good microwave energy distribution in the oven cavity.

In the conventional electric heating mode (in which the magnetron 3 is switched off and the heater elements 10 are switched on), the fan 11 is driven at high speed so that the oven functions as a hot air convection oven.

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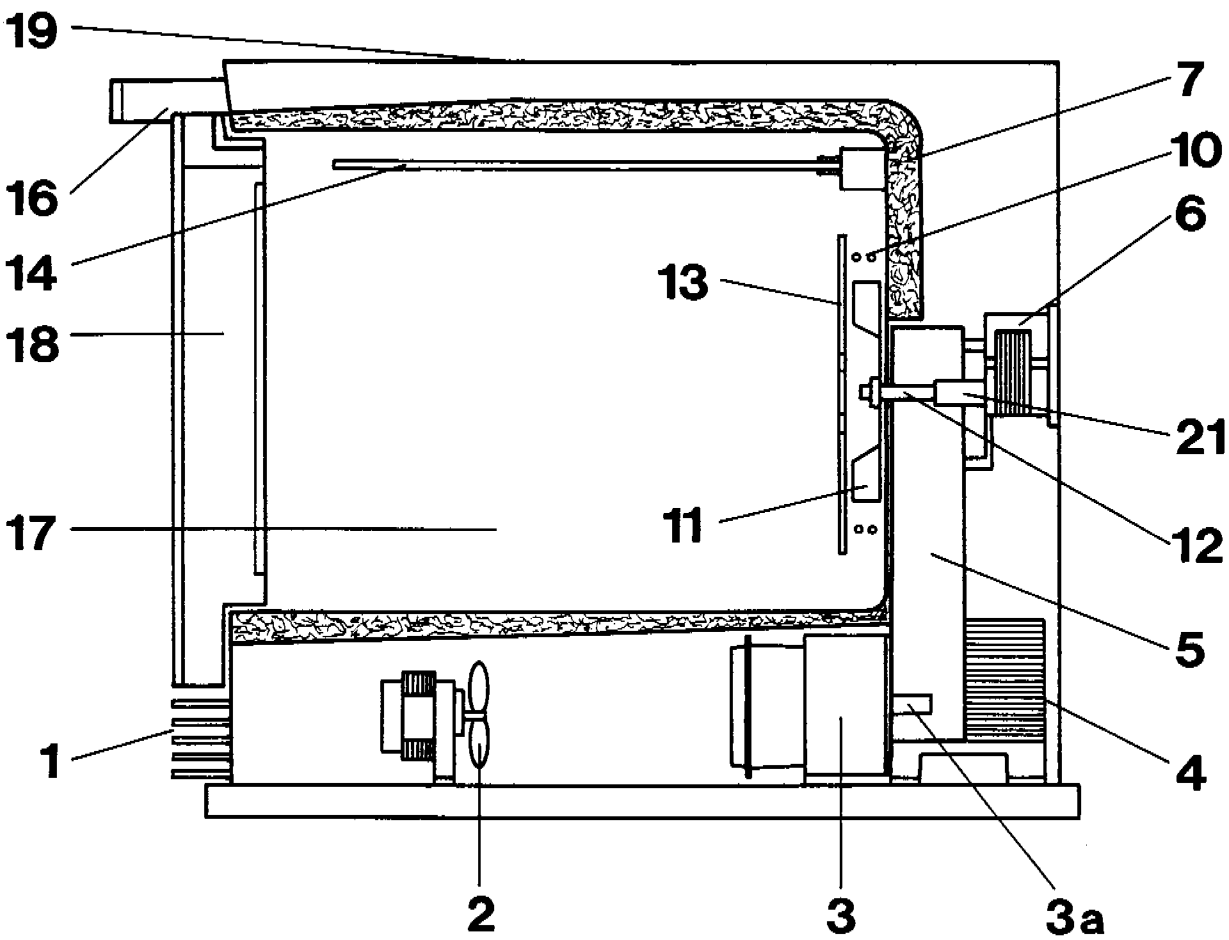
Drawing of Document I (State of the Art)



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DOCUMENT II (State of the Art)

This document relates to a directional microwave antenna which can be advantageously used in microwave cooking appliances equipped with rotational antennas.

The antenna is shown in Figs. 1 and 2, which are top and side views respectively.

The antenna A is made of a punched sheet of conductive material, such as copper, brass or aluminium and consists of a planar X-shaped base element 1 having four support members 2 (see Fig. 2) perpendicular thereto. Each of the support members 2 carries an antenna element 3.

The base element 1 is provided with an axle 4 about which the antenna A is rotated in an appropriate bearing during use. The axle 4 also serves as a coupling probe by extending into a waveguide (not shown) supplying microwave energy.

The antenna has a directional radiation characteristic. The generated microwave field is substantially planar and extends along the plane of symmetry S of the antenna A of Fig. 1, since the antenna elements 3 are arranged such that undesired field components in directions perpendicular to the axis cancel each other out.

The antenna, in particular the X-shaped base element, can be equipped with means such as turbine blades (either directly or on additional support means) to rotate the antenna by means of an air flow within the oven cavity.

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Drawings of Document II (State of the Art)

Fig.1

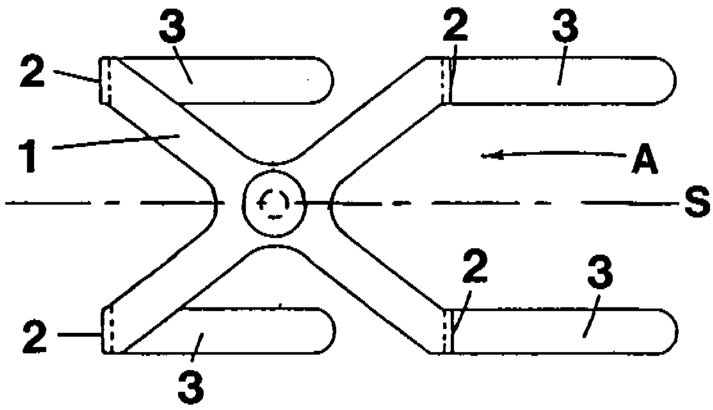
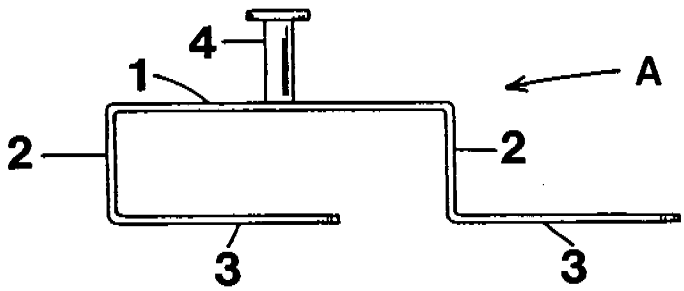


Fig.2



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DOCUMENT III (State of the Art)

The invention relates to a microwave supply system for a microwave oven and more specifically to a system which couples a rotating microwave field into the oven. This results in an improved uniformity of the time-averaged field distribution within the oven and guarantees a homogeneous heating of the products being heated.

The invention is explained by means of the attached drawings, where:

Fig. 1 is a perspective view of an electric range having a microwave supply system according to the invention;

Fig. 2 is a top view, partially cut away, of the microwave supply system used in the electric range of Fig. 1; and

Fig. 3 is an enlarged side view, partially in cross-section, of the system of Fig. 2.

Fig. 1 shows a free-standing electric range 10, which is basically of conventional construction. It includes heating plates 11, an oven cavity 12 and related controls 13 mounted on a back panel 14. On the bottom 12b of the oven cavity 12 there is provided a microwave supply aperture 21 (the aperture could however be provided in another wall of the oven cavity). The oven cavity 12 can be closed by means of a door 15 with a microwave-tight gasket 16. The oven cavity 12 can be provided with a ventilation system (not shown).

Referring now to Figs. 2 and 3, the microwave supply system includes a concave recess 20 of generally circular-cylindrical shape with a reflective side wall and a reflective bottom wall. The recess 20 is made from a metal sheet by a deep drawing process. For

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ease of manufacturing the recess 20 may have a slight truncated conical shape. The upper end of the recess 20 is closed by means a microwave-transparent plate 23 made of glass ceramic. The plate 23, which acts as a grease shield, is held in place by means of a frame 24 attached to the bottom 12b of the oven cavity 12 by means of screws 25 screwed into screw holes 26. Seals 27 are provided between the frame 24 and the plate 23 and between the frame 24 and the bottom 12b of the oven cavity 12 respectively.

A rotatable L-shaped antenna 30 is mounted within the recess 20, the antenna 30 having a vertical segment 31 arranged along the axis 22 of the recess 20 and an arm 32 arranged perpendicularly to the axis 22. The vertical segment 31 of the antenna 30 forms part of an electrically conductive rod 35, whilst the lower part of the rod 35 forms a coupling probe 43 extending into a rectangular waveguide 41. A grommet 36 made of a nonconductive dielectric material holds the rod 35 in place. The fit between the rod 35 and the grommet 36 is sufficiently loose to allow rotation of the rod 35.

A magnetron 40 is coupled to the rectangular waveguide 41 by means of a coupling probe 42 in a conventional manner. Microwaves propagate from the magnetron 40 via the coupling probe 42 into the waveguide 41, and are coupled by means of the coupling probe 43 to the antenna 30.

The coupling probe 43 is provided with a drive rod 47 made of electrically nonconductive material with a low dielectric constant. The drive rod 47 is rotated by any suitable means, in the example shown by an electric motor 45.

The described system functions as follows: although the supply aperture 21 is relatively small to save space, a microwave field is obtained in the oven cavity 12 which, due to the reflections on the side and bottom walls of the recess 20, is a widely spread rotating microwave field which reaches practically the entire oven cavity 12 and thus provides very uniform cooking results.

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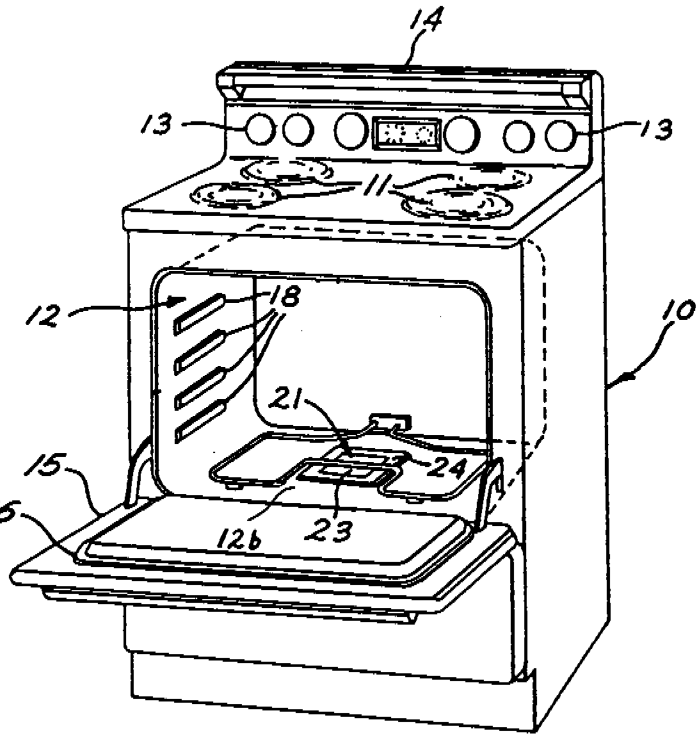
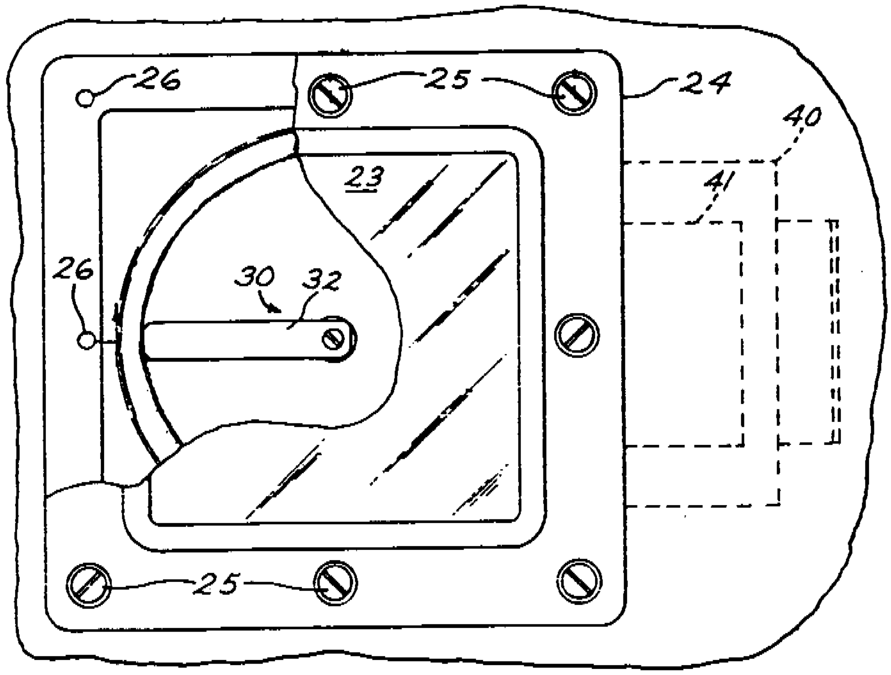
Drawings of Document III (State of the Art)

1/2

F/G.1



F/G. 2



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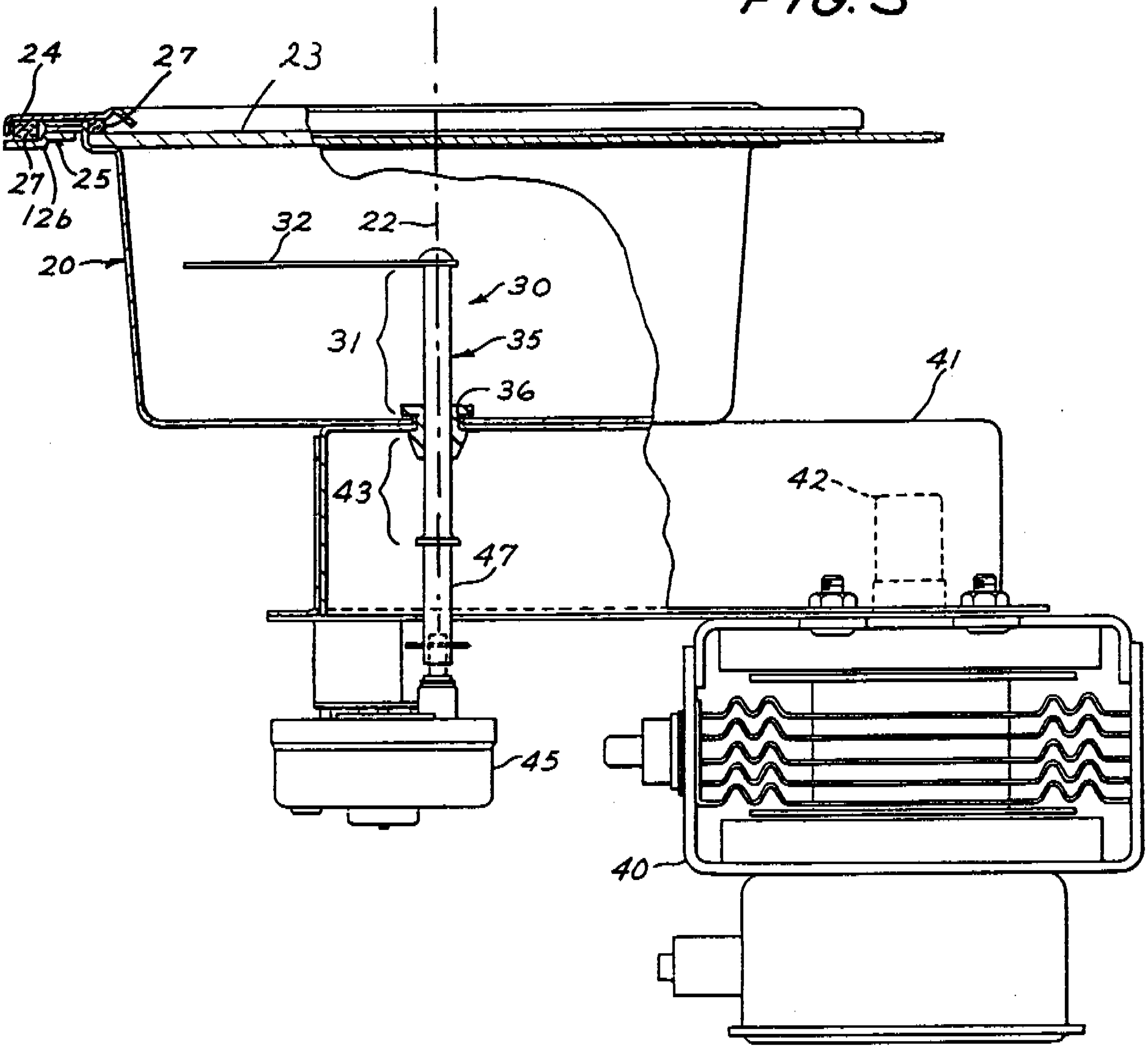

FIG. 3

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