

DESCRIPTION

TITLE OF INVENTION

Cooking Device

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TECHNICAL FIELD

[0001] The present invention relates to a cooking device.

10 BACKGROUND ART

[0002] A conventional cooking device is known from JP 2007-327676 A (PTL 1), which has a heating compartment for heating an object to be cooked, with a front-side opening of the heating compartment being openable and closable by a door.

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[0003] Provided on a rear side of the heating compartment is a light source including a lamp which is able to deliver visible light. The light source is mounted to a rear part of the heating compartment so as to face a plurality of through holes provided at the rear part of the heating compartment. The light source is thereby allowed to apply the light through the through holes into the heating compartment for illumination of the inside of the heating compartment.

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[0004] In the above-mentioned conventional cooking device, when an object to be cooked is put in or out of the heating compartment, the door is opened and shut. At that moment, if the door is shut forcefully, vibration and/or shock caused thereby is transferred to the lamp of the light source. This, disadvantageously, leads to a problem that the filament of the lamp breaks.

[0005] This problem tends to take place more easily when the light source is mounted at a ceiling or a lateral side wall of the heating compartment, due to a shortened distance between the light source and the door.

[0006] Besides, a larger door to cope with an increased capacity of the heating compartment would increase the vibration and shock caused by the operation of the door, and the heating compartment would also be prone to the above problem.

[0007] The lamp may have little clearance to the heating compartment due to variations in manufacturing of the cooking device. In such a case, the vibration and shock caused by the operation of the door would bring the lamp into contact with the heating compartment, with the result that glass of the lamp is broken.

[0008] Also, when supplying superheated vapor (i.e., vapor of higher than 100°C) into the heating compartment to heat an object to be cooked, it is necessary to prevent

leakage of the superheated vapor, which has a high pressure, through the opening at the front side of the heating compartment by forcefully pressing the door against a front surface of the heating compartment with a spring  
5 having a large spring constant urged toward the front surface of the heating compartment.

[0009] Urging the door toward the front surface of the heating compartment with the spring having a large spring constant causes the door to strongly collide with the  
10 heating compartment, thus producing increased vibration and shock of the heating compartment. As a result, the lamp is prone to the breakage of the filament.

#### CITATION LIST

##### 15 Patent Literature

[0010] PTL1: JP 2007-327676 A (Figures 1-3)

#### SUMMARY OF INVENTION

##### Technical Problem

20 [0011] An object of the invention is, therefore, to provide a cooking device having a light emission device for illuminating the inside of a heating compartment thereof wherein the light emission device can be prevented from being damaged.

Solution to Problem

[0012] A cooking device according to the present invention includes:

a casing;

5 a heating compartment provided in the casing and having an opening on a front face side thereof;

a door configured and arranged to open and close the opening of the heating compartment;

10 a light emitting device configured and arranged to illuminate inside of the heating compartment; and

an elastic member directly or indirectly mounted on the heating compartment,

the light emitting device being mounted on a free end part of the elastic member.

15 [0013] According to the cooking device having the above configuration, upon closure of the door with a great momentum, vibrations and impact are caused in the heating compartment by the door but are absorbed by the elastic member because the light emitting device is mounted on the  
20 free end part of the elastic member. Accordingly, the vibrations and impact the light emitting device receives can be reduced, so that the light emitting device is prevented from being broken.

[0014] In one embodiment, the elastic member elastically supports the light emitting device such that the light emitting device is swingable in to-and-fro directions.

[0015] According to the cooking device of the  
5 embodiment, upon closure of the door, the vibrations and impact caused by the door are propagated from a front part of the heating compartment to a rear part of the heating compartment. That is, the vibrations and impact caused by the door are transmitted in the to-and-fro direction.  
10 Accordingly, the elastic member elastically supports the light emitting device so that the light emitting device is swingable in the to-and-fro direction, and thus energy of the vibrations and impact that are caused by the door is consumed for the fluctuation of the light emitting device  
15 in the to-and-fro direction and can be prevented from being consumed for deformation of the light emitting device.

[0016] In one embodiment, the elastic member is mounted on the heating compartment through a mount frame.

[0017] According to the cooking device of the  
20 embodiment, because the elastic member is mounted on the heating compartment through the mount frame, the vibrations and impact caused by the door are attenuated by the mount frame and thus the vibrations and impact the light emitting device receives can be made extremely small.

[0018] Also, because the elastic member is mounted on the heating compartment through the mount frame, a great clearance can be ensured between the heating compartment and the light emitting device. Accordingly, the light emitting device is prevented from being broken by being brought into contact with the heating compartment.

[0019] In one embodiment, the elastic member is the plate that has a smaller thickness than the mount frame has.

[0020] According to the cooking device of the embodiment, the plate which is the elastic member is thinner than the mount frame, and thus an elastic effect of the elastic member can be increased.

[0021] In one embodiment, the light emitting device includes a main body, and a support mounted on the free end part of the elastic member to support the main body, and the elastic member is the plate, the thickness of which is smaller than a thickness of the support.

[0022] According to the cooking device of the embodiment, the elastic member is the plate which is thinner than the support and thus has flex and resilience. Accordingly, the elastic member is capable of reliably returning to a position in which the light emitting device is to illuminate inside of the heating

compartment even if the elastic member is deformed by the vibrations and impact caused by the door.

[0023] In one embodiment, the elastic member is provided so as to surround the light emitting device.

5 [0024] According to the cooking device of the embodiment, because the elastic member is provided so as to surround the light emitting device, an adequate strength can be given to the elastic member. Thus the elastic member can be prevented from suffering damages (such as  
10 tear), a warp and/or the like.

[0025] In case that the elastic member suffers damages, a warp and/or the like, the light emitting device may deviate from a specified position and an illuminance in the heating compartment may thereby decrease.

15 [0026] In one embodiment, portions of the elastic member that face a front face, a rear face and both side surfaces of the light emitting device, respectively, have generally same surface areas.

[0027] According to the cooking device of the  
20 embodiment, because the portions of the elastic member that face the front face, the rear face and both the side surfaces of the light emitting device, respectively, have generally same surface areas, an adequate strength can be given to the elastic member. Thus the elastic member can

be prevented from suffering damages (such as tear), a warp and/or the like.

[0028] In case that the elastic member suffers damages, a warp and/or the like, the light emitting device may deviate from a specified position and an illuminance in the heating compartment may thereby decrease.

[0029] In one embodiment, the elastic member is directly or indirectly mounted on a top part or a side part of the heating compartment.

[0030] Upon closure of the door, the top part and the side part of the heating compartment undergo vibrations and impact greater than a rear part of the heating compartment does. According to the cooking device of the embodiment, however, the vibrations and impact the light emitting device would undergo can be reduced because the elastic member is directly or indirectly mounted on the top part or the side part of the heating compartment and because the light emitting device is mounted on a free end part of the elastic member.

[0031] Accordingly, the light emitting device can be mounted on the top part or the side part of the heating compartment without fear of the light emitting device being broken.

[0032] In one embodiment, a steam producing device is provided in the casing to produce steam to be supplied into the heating compartment.

[0033] In the cooking device of the embodiment, measures  
5 are required to prevent steam from leaking through the opening on the front face side of the heating compartment on condition that the steam is supplied from the steam producing device into the heating compartment. An example of possible measures is to bring packing on the door into  
10 intense and intimate contact with a peripheral part of the opening on the front face side of the heating compartment.

[0034] Provided that the measure is employed in which the door is brought into intense and intimate contact with the peripheral part of the opening on the front face side  
15 of the heating compartment, the vibrations and impact the heating compartment receives from the door are increased, whereas the vibrations and impact the light emitting device receives can be reduced because the light emitting device is mounted on the heating compartment through the elastic  
20 member.

[0035] Accordingly, the measure can be employed in which the door is brought into intense and intimate contact with the peripheral part of the opening on the front face side of the heating compartment, without fear of the light  
25 emitting device being broken.

### Advantageous Effects of Invention

[0036] According to the cooking device of the invention in which the elastic member is directly or indirectly mounted on the heating compartment and in which the light emitting device is mounted on the free end part of the elastic member, the vibrations and impact caused by the door can be absorbed by the elastic member and thus the light emitting device can be prevented from being broken.

### BRIEF DESCRIPTION OF DRAWINGS

[0037]

Fig. 1 is a schematic perspective view of a cooking device in accordance with an embodiment of the invention;

Fig. 2 is a schematic sectional view of the cooking device;

Fig. 3 is a schematic sectional view of the cooking device;

Fig. 4 is a schematic illustration of a right side wall of a heating compartment;

Fig. 5 is a schematic perspective view of a lamp and a steel plate;

Fig. 6 is a schematic plan view of the steel plate;

Fig. 7 is a schematic illustration of the lamp and neighboring elements as seen looking from underside;

Fig. 8 is a schematic illustration of the lamp and neighboring elements as seen looking from a right side;

5 Fig. 9 is a schematic illustration of only the lamp as seen looking from the underside;

Fig. 10 is a schematic illustration of a lamp and neighboring elements of a cooking device of a comparative example, as seen looking from underside;

10 Fig. 11 is a schematic illustration of the lamp and the neighboring elements of the cooking device of the comparative example, as seen looking from a right side; and

Fig. 12 is a schematic plan view of a modification of the steel plate.

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#### DESCRIPTION OF EMBODIMENTS

[0038] Embodiments of the cooking device according to the present invention will be described in detail below in conjunction with the attached drawings.

20 [0039] Fig. 1 is a schematic diagram of a cooking device in accordance with an embodiment of the invention, in which a door 103 is opened, as seen looking from front side. Fig. 2 is a schematic section of front part of the cooking device in which the door 103 is closed.

[0040] As shown in Figs. 1 and 2, the cooking device includes a casing 101 shaped like a rectangular parallelepiped, a heating compartment 102 provided in the casing 101, the door 103 that is pivotably mounted on a front face of the casing 101, and a lamp 104 for irradiating inside of the heating compartment 102. The lamp 104 is an example of a light emitting device.

[0041] An operation panel 105 is provided on a right side on the front face of the casing 101. The operation panel 105 has a liquid crystal display part 106, a knob 107, and a plurality of buttons 108. A tank attachment opening 105a is provided under the knob 107, and a front face of a water supply tank 113 is exposed on the tank attachment opening 105a.

[0042] The water supply tank 113 can be attached to and detached from the casing 101 through the front face side of the casing 101.

[0043] The heating compartment 102 has an opening 102a through which an object to be cooked 109 (see Fig. 3) and/or the like are put in and taken out, on front face side thereof. A light introducing opening 102b is provided on an upper front part of a right side wall of the heating compartment 102, and the lamp 104 faces the light introducing opening 102b from outside of the heating compartment 102. There may be provided a plurality of

through holes smaller than the light introducing opening 102b in a right side part of the heating compartment 102, and the lamp 104 may be made to face the plurality of through holes. The right side wall of the heating compartment 102 is an example of the side part of the heating compartment 102.

[0044] The door 103 pivots on a lower end part thereof so as to open and close the opening 102a of the heating compartment 102. A handle 110 is mounted on an upper part of the door 103. Heat-resistant glass 111 is provided generally at a center part of the door 103, so that a user can observe a state of inside of the heating compartment 102 through the heat-resistant glass 111. Onto a rear face of the door 103, packing 112 made of heat-resistant resin is fixed so as to surround the heat-resistant glass 111. The packing 112 is brought into intense and intimate contact with a peripheral part of the opening 102a of the heating compartment 102 by closure of the door 103. More specifically, strong springs (not shown) having great spring constants strongly bias the door 103 against the casing 101 so as to strongly press the door 103 against the front face of the casing 101. Thus superheated steam with a high pressure in the heating compartment 102 is prevented from leaking out from between the door 103 and the peripheral part of the opening 102a of the heating

compartment 102. Herein, the "superheated steam" refers to steam heated to a superheated state with temperatures of higher than 100°C.

[0045] Fig. 3 is a schematic sectional view of the cooking device, reference numeral 114 denotes a drip tray, numeral 115 denotes a water level sensor, numeral 116 denotes a water supply pump, numeral 117 denotes a water supply pipe, numeral 118 denotes an upper heater, numeral 119 denotes an upper heater cover, numeral 120 denotes a tray, numeral 121 denotes a lower heater, numeral 122 denotes a thermal insulation plate, numeral 123 denotes an exhaust port, numeral 124 denotes an exhaust port cover, numeral 125 denotes an exhaust thermo-sensor, numeral 126 denotes an exhaust duct, numeral 126a denotes a cool-air introducing opening, numeral 127 denotes a cool-air path, numeral 128 denotes a diluted-exhaust port, and numeral 129 denotes a steam producing unit. Though not shown, a magnetron for producing microwave is also provided in the casing. The steam producing unit 129 is an example of the steam producing device.

[0046] The water supply pump 116 sucks water from the water supply tank 113 and delivers the water through the water supply pipe 117 to the steam producing unit 129. The steam producing unit 129 is capable of producing steam by heating the water from the water supply pump 116 and

supplying the steam into the heating compartment 102, and capable of producing superheated steam by heating the steam and supplying the superheated steam into the heating compartment 102.

5     [0047]     The object to be cooked 109 can be heated by the steam or superheated steam from the steam producing unit 129 and/or can be heated by radiant heat from the upper heater 118 and the lower heater 121. A top wall of the heating compartment 102 is under the upper heater 118 and a  
10    bottom wall of the heating compartment 102 is above the lower heater 121, so that the upper heater 118 and the lower heater 121 are not exposed in the heating compartment 102. The top wall is an example of a top part of the heating compartment 102.

15   [0048]     Fig. 4 is a schematic illustration of the right side wall of the heating compartment 102 as seen looking from outside. Fig. 5 is a schematic illustration of a steel plate 134 on which the lamp 104 is fixed by a screw, as seen looking diagonally from below.

20   [0049]     As shown in Figs. 4 and 5, the lamp 104 has a filament 130, a glass bulb 131 that houses the filament 130 and that is made of glass, a base 132 that is connected to the glass bulb 131, that is made of metal, and that is generally shaped like an elliptic cylinder, and terminals  
25   133 that protrude from the base 132. The lamp 104 is fixed

by the screw 136A onto one of two opposite end parts of the steel plate 134 having elasticity. The other end part of the steel plate 134 is fixed by a screw 136B onto a lamp mount frame 135. Most of the lamp 104 is covered with the lamp mount frame 135. A predetermined clearance is provided between the lamp 104 and the lamp mount frame 135. Herein, the one end part (i.e., end part including a screw hole 134a (see Fig. 6)) of the steel plate 134 forms a free end part of the steel plate 134. The steel plate 134 is an example of the elastic member, and the lamp mount frame 135 is an example of the mount frame. The glass bulb 131 and the base 132 are an example of the main body.

[0050] A thickness of the steel plate 134 is between 0.4 mm and 0.5 mm, for instance, so as to be smaller than a thickness of the lamp mount frame 135 and so as to be smaller than thicknesses of a fitting 141 and a linkage 142 that will be described later. Thus the steel plate 134 is capable of vertically swinging, or oscillating, on the one end part of the steel plate 134 as a fulcrum. With the vertical swinging of the steel plate 134, the lamp 104 swings or rocks in the to-and-fro directions. That is, the steel plate 134 supports the lamp 104 such that the lamp 104 is swingable (rockable) in the to-and-fro directions.

[0051] The lamp mount frame 135 is composed of a steel plate and is fixed onto the right side wall of the heating

compartment 102 so as to cover the light introducing opening 102b (see Figs. 1 and 2). An inside surface of the lamp mount frame 135 functions as a reflection surface for reflecting light, emitted from the lamp 104, into the heating compartment 102. A thickness of the lamp mount frame 135 is set between 0.6 mm and 0.8 mm, for instance.

[0052] Fig. 6 is a schematic plan view of the steel plate 134.

[0053] The one end part of the steel plate 134 is provided with the screw hole 134a in which the screw 136A is inserted and the other end part of the steel plate 134 is provided with the screw hole 134b in which the screw 136B is inserted. A center part of the steel plate 134 is provided with a lamp mounting opening 134c. The lamp mounting opening 134c has one edge shaped like a circular arc in plan view and three edges shaped like straight lines in plan view. Of the three edges shaped like the straight lines in plan view, the edge adjacent to the screw hole 134a offers a functional effect of preventing the lamp 104 from turning relative to the steel plate 134. More specifically, a portion of the peripheral surface of the base 132 of the lamp 104a forms a flat surface, and the lamp 104 is fixed by the screw onto the steel plate 134 with the flat surface pressed against the edge of the lamp mounting opening 134c adjacent to the screw hole 134a.

Thus the lamp 104 can be blocked from turning relative to the steel plate 134.

[0054] The lamp 104 is fixed by the screw onto the steel plate 134 as described above, so that a center axis of the base 132 of the lamp 104 can reliably be aligned with a center of the lamp mounting opening 134c or vicinity thereof. Herein, the center of the lamp mounting opening 134c refers to a center of gravity of a figure formed of the one edge shaped like the circular arc in plan view and the three edges shaped like the straight lines in plan view.

[0055] Fig. 7 is a schematic illustration of the lamp 104 and neighboring elements as seen looking from underside. Fig. 8 is a schematic illustration of the lamp 104 and the neighboring elements as seen looking from right side.

[0056] As shown in Figs. 7 and 8, the lamp 104 has a support 140 that is provided integrally with the base 132. The support 140 is obtained by blanking of a steel plate, for instance. The lamp 104 is fixed by the screw onto the free end part (end part including the screw hole 134a) of the steel plate 134. This makes the steel plate 134 surround the lamp 104.

[0057] Fig. 9 is a schematic illustration of only the lamp 104 as seen looking from the underside.

[0058] The support 140 is composed of the fitting 141 that is square-shaped in plan view and the linkage 142 that connects the fitting 141 to the base 132 and that is rectangle-shaped in plan view.

5 [0059] The fitting 141 is provided with a screw hole 141a and the screw 136A is inserted into the screw hole 141a. A thickness of the fitting 141 is generally as large as a thickness of the linkage 142.

10 [0060] The linkage 142 is required to be hard or rigid so as to resist undergoing deformation in terms of maintenance of a posture of the lamp 104. Therefore, a length A of the linkage 142 is not larger than 5 mm, a width B of the linkage 142 is not smaller than 5 mm, and a thickness of the linkage 142 is not smaller than 1 mm.

15 [0061] When the door 103 is closed with a great momentum in the cooking device having the above configuration, vibrations and impact are caused in the heating compartment 102 by the door 103 but are attenuated by the lamp mount frame 135 and are further absorbed by the steel plate 134.  
20 Accordingly, the vibrations and impact the lamp 104 is to receive can greatly be reduced, so that burnout of the filament 130, cracks in the glass bulb 131 and/or the like can be prevented.

[0062] The lamp 104 is mounted through the lamp mount  
25 frame 135 on the heating compartment 102, and thus a great

clearance is ensured between the heating compartment 102 and the lamp 104. Accordingly, the lamp 104 is unlikely to be brought into contact with the heating compartment 102, and a risk that the lamp 104 might be broken by the contact can be reduced.

[0063] The vibrations and impact caused by the door 103 are transmitted in the to-and-fro direction, and the lamp 104 is capable of rocking (swinging) in the to-and-fro direction, so that energy of the vibrations and impact is consumed for the rocking movement of the lamp 104 in the to-and-fro direction and is prevented from being consumed for deformation of the lamp 104.

[0064] A structure for reliably preventing the lamp 104 from being broken can easily be obtained by the steel plate 134 because the steel plate 134 is less prone to being damaged by the vibrations and impact caused by the door 103 and has high degree of freedom for machining.

[0065] The upper front part of the right side wall of the heating compartment 102 undergoes the vibrations and impact greater than a rear wall of the heating compartment 102 does, upon closure of the door 103, whereas the vibrations and impact the lamp 104 undergoes can be reduced by the lamp mount frame 135 and the steel plate 134.

[0066] The door 103 is strongly biased toward the casing 101 by the strong springs having a great spring constant

and is strongly pressed against the front face of the casing 101 in order to bring the packing 112 into intense and intimate contact with the peripheral part of the opening 102a on the front face side of the steam heating compartment 102 as described above. This increases the vibrations and impact the heating compartment 102 undergoes upon closure of the door 103, whereas the vibrations and impact the lamp 104 undergoes are reduced by the lamp mount frame 135 and the steel plate 134 that has springy property or resilience.

[0067] The steel plate 134 is flexible while having resilience because the steel plate 134 is a plate that has the thickness smaller than the thickness of the lamp mount frame 135 and also smaller than the thicknesses of the fitting 141 and the linkage 142. Accordingly, the steel plate 134 reliably returns to a specified position even if having been deformed by the vibrations and impact caused by the door 103, so that light from the lamp 104 can be made to sufficiently enter into the heating compartment 102.

[0068] The steel plate 134 is provided so as to surround the peripheral surface of the lamp 104 and thus an adequate strength is given to the steel plate 134. Accordingly, the steel plate 134 can be prevented from suffering damages such as tear and from deviating from the specified position by being warped.

[0069] Fig. 10 is a schematic illustration of the lamp 104 and neighboring elements of a cooking device of a comparative example, as seen looking from underside. Fig. 11 is a schematic illustration of the lamp 104 and the neighboring elements of the cooking device of the comparative example, as seen looking from the right side. In Figs. 10 and 11, the same components as those in Figs. 7 and 8 are provided with the same reference numerals as those in Figs. 7 and 8, and description thereof is omitted.

In description below, the same components as those of the cooking device of the embodiment are provided with the same reference numerals as those of the components of the cooking device of the embodiment.

[0070] The cooking device of the comparative example is different from the cooking device of the embodiment only in that the lamp 104 is directly fixed by the screw 136B onto the lamp mount frame 135. When the door 103 is closed with a great momentum in the cooking device of the comparative example, vibrations and impact that are caused by the door 103 are conducted directly from the lamp mount frame 135 to the lamp 104. Then the vibrations and impact that are caused by the door 103 are conducted to the filament 130 and the glass bulb 131 while being hardly attenuated in the support 140 because the linkage 142 of the support 140 is

hard. As a result, the filament 130 is prone to burn out, and the glass bulb 131 is prone to crack.

[0071] The lamp 104 is mounted on the heating compartment 102 through the lamp mount frame 135 and the steel plate 134 in the embodiment, whereas the lamp 104 may be mounted on the heating compartment 102 through only the steel plate 134.

[0072] In the cooking device of the invention, namely, the steel plate 134 may indirectly be mounted to the heating compartment 102, as in the embodiment, or the steel plate 134 may directly be mounted to the heating compartment 102.

[0073] In the embodiment, for instance, spring members such as coiled springs may be substituted for the steel plate 134. Alternatively, a copper plate, a stainless plate, an alloy plate, a resin plate and/or the like may be used. In terms of the swinging (rocking) of the lamp 104, however, thicknesses of the copper plate, the stainless plate, the alloy plate, the resin plate and/or the like are preferably made smaller than the thickness of the lamp mount frame 135.

[0074] In place of the lamp 104, other light emitting devices such as LED (Light Emitting Diode) may be used.

[0075] The lamp 104 is mounted on the upper front part of the right side wall of the heating compartment 102 in

the embodiment. Alternatively, the lamp 104 may be mounted on an upper front part of a left side wall of the heating compartment 102 or may be mounted on a front part of the top wall of the heating compartment 102, for instance.

5 Though the lamp 104 can be mounted on the side wall, the top wall or a rear wall of the heating compartment 102 in this manner, the lamp 104 is preferably mounted on the side wall or the top wall of the heating compartment 102 in terms of bright irradiation of overall inside of the  
10 heating compartment 102.

[0076] The opening 102a of the heating compartment 102 is opened and closed by the door 103 of pivoting type in the embodiment, whereas the opening 102a of the heating compartment 102 may be opened and closed by a door that  
15 slides in the to-and-fro direction relative to the casing 101, for instance. That is, the door that the cooking device of the invention includes may be of pivoting type or of slide type.

[0077] The lamp 104 is fixed by the screw onto the free  
20 end part of the steel plate 134 so that the glass bulb 131 faces upward in the embodiment. Alternatively, the lamp 104 may be fixed by screw onto the free end part of the steel plate 134 so that the glass bulb 131 faces downward.

[0078] In the embodiment, a steel plate 234 shown in  
25 Fig. 12 may be substituted for the steel plate 134. The

steel plate 234 has a screw hole 234a in which the screw 136A is inserted, a screw hole 234b in which the screw 136B is inserted, and a lamp mounting opening 234c in which the lamp 104 is inserted. On condition that the lamp 104 is inserted in the lamp mounting opening 234c and is fixed by the screw onto the steel plate 234, portions of the steel plate 234 that face the front surface, the rear surface and both the side surfaces of the lamp 104 have generally same surface areas. Thus the steel plate 234 can be prevented from suffering tear and warping.

[0079] As the cooking device of the invention, there may be used not only a microwave oven using superheated steam but also an oven using superheated steam, a microwave oven not using superheated steam, an oven not using superheated steam, or the like, for instance.

[0080] According to the cooking device of the invention, healthy cooking can be performed by use of superheated steam or saturated steam in cooking heaters (such as IH heaters, electric cooking stoves such as electric heaters, or gas cooking stoves), microwave ovens or the like. In the cooking device of the invention, for instance, superheated steam or saturated steam having a temperature not lower than 100°C is supplied onto surfaces of food, the superheated steam or saturated steam deposited onto the surfaces of the food condenses and gives the food a great

quantity of latent heat of condensation, therefore heat can efficiently be transmitted to the food. The condensate water is deposited on the surfaces of the food, and salt content, oil content and the like drop with the condensate water, so that salt content, oil content and the like in the food can be reduced. Furthermore, the heating compartment is filled with the superheated steam or saturated steam so as to be absent from oxygen, and thus cooking by which oxidation of the food is suppressed can be performed.

#### REFERENCE SIGNS LIST

[0081]

101 casing  
15 102 heating compartment  
103 door  
104 lamp  
129 steam producing unit  
134, 234 steel plate  
20 135 lamp mount frame  
140 support  
141 fitting  
142 linkage

CLAIMS

1. A cooking device comprising:

a casing;

5 a heating compartment provided in the casing and  
having an opening on a front face side thereof;

a door configured and arranged to open and close  
the opening of the heating compartment;

10 a light emitting device configured and arranged  
to illuminate inside of the heating compartment; and

an elastic member directly or indirectly mounted  
on the heating compartment,

the light emitting device being mounted on a free  
end part of the elastic member.

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2. The cooking device as claimed in Claim 1, wherein

the elastic member elastically supports the light  
emitting device such that the light emitting device is  
swingable in to-and-fro directions.

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3. The cooking device as claimed in Claim 1 or 2,  
wherein

the elastic member is mounted on the heating  
compartment through a mount frame.

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4. The cooking device as claimed in Claim 3, wherein the elastic member is a plate that has a smaller thickness than the mount frame has.

5 5. The cooking device as claimed in Claim 4, wherein the light emitting device includes:

a main body; and

a support mounted on the free end part of the elastic member to support the main body, and wherein

10 the elastic member is the plate, the thickness of which is smaller than a thickness of the support.

6. The cooking device as claimed in any one of Claims 1 through 5, wherein

15 the elastic member is provided so as to surround the light emitting device.

7. The cooking device as claimed in Claim 6, wherein portions of the elastic member that face a front face, a rear face and both side surfaces of the light emitting device, respectively, have generally same surface areas.

8. The cooking device as claimed in any one of Claims 1 through 7, wherein

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the elastic member is directly or indirectly mounted on a top part or a side part of the heating compartment.

- 5     9.            The cooking device as claimed in any one of Claims 1 through 8, further comprising a steam producing device provided in the casing to produce steam to be supplied into the heating compartment.